WATERFOWL COLLECTION AT SLIMBRIDGE 1955-56

THE BREEDING SEASON 1955

By S. T. Johnstone

THE feature of the breeding season was the striking effect of cold weather on the well-being of the young birds. Frost in February and March may well have reduced considerably the hatchability of the Ne-Ne eggs, all 31 of which were laid during a period when the cold was so extreme that some African Black Duck eggs were split open before they could be collected.

The very wet April and May caused flooding of nests and indeed several sitting boxes suffered in this way. This latter occurrence may have had a bearing on the unfortunate rise in the incidence of Aspergillosis. Pathogenic mould was found in a number of fertile eggs that failed to hatch and a relatively large number of goslings succumbed to mycosis. In 1956 the use of sawdust for nest making in the sitting boxes has been discontinued in favour of peat moss impregnated with a fungicide.

The two pumping systems installed in the spring of 1954 have enabled us to provide relatively fast-flowing water through the rearing pens. By this means we have got rid of the concentration of water fleas (*Daphnia pulex*). This had been the host of *Acuaria uncinata*, a worm inhabiting the proventriculus and causing wasting and subsequent death. We are pleased to report that not a single case of *Acuaria* was recorded in 1955.

It was a great relief to those concerned with the rearing when cold and wet ceased and the long warm sunny days of June and July appeared as a panacea to all ills save the losses from predators. Few of the early ducklings remained, but the late-hatched birds survived to make 1955 the second best breeding season. Even though the subsequent hot weather made it very difficult to keep fresh lush grazing, a figure of 142 goslings reared is higher than any previous year.

Seventy-five forms of waterfowl nested and there were three new species among the 57 reared. Comparative figures for the years 1952-56 appear in the table.

Year	No. of kinds reared	No. of Cygnets and Goslings	No. of Ducklings	Total
1952	59	111	350	461
1953	51	137	248	385
1954	46	125	144	269
1955	57	144	270	414
1956	67	176	326	502

The new species to be reared were Greenland White-fronted Goose, Greater Magellan Goose and Ringed Teal. The last named we are particularly keen to re-establish. A fine male imported from South America with a female that had been in the collection for three years produced eleven ducklings and all seven that survived proved to be females.

In contrast to the majority of species we have tried, the North American Ruddy Duck (*Oxyura jamaicensis*) has been singularly successful in rearing its own young. Two birds hatched out broods in the Rushy Pen and in spite of the enormous competition from adult birds of a great number of species, all baby Ruddy Ducks survived, which is the antithesis of our efforts to rear them under foster mothers.

A sad incident was the loss of a brood of South American Comb Duck (*Sarkidiornis melanotos carunculatus*). We had failed to locate the nest of the laying Comb Duck and she eventually arrived on the Rushy Pen pond with seven ducklings, in early August 1955. These seemed to thrive for two or three days but then tragedy overtook them and they disappeared or were found dead. It is thought that the White-winged Wood Ducks may have been responsible as one had already been seen to attempt the swallowing of a Mallard duckling. South American Comb Ducks are not known to have hatched young in captivity previously, although a female laid in M. J. Delacour's collection at Clères in 1939.

TABLE I

Breeding Analysis 1955

Species	Breeding Pairs	Date of First Egg	No. of Eggs Laid	Infertile	Hatched	Reared
Fulvous Whistling Duck	1	13.4	31	7	24	15
Black-billed Whistling Duck	1	9.5	7	7	0	—
White-faced Whistling Duck	1	24.5	8	5	3	3*
Southern Red-billed Whistling Duck	3	19.4	54	1	11	12†
Coscoroba Swan	1	3.3	1	1	0	—
Black Swan	1	8.2	10	2	6	2
Black-necked Swan	1	19.4	6	6	0	—
Canada Goose	1	29.4	9	3	6	6
Dusky Canada Goose	2	18.4	18	11	4	3
Taverners Goose	3	24.4	15	13	2	3‡
Cackling Goose	2	29.4	4	4	—	—
Hawaiian Goose	6	8.2	31	22	6	4
Barnacle Goose	5	18.4	31	8	20	15
Red-breasted Goose	2	9.6	10	5	5	3
Swan Goose	2	14.4	13	7	8	1§
Bean Goose	1	15.6	5	1	4	4
Greenland White-fronted Goose	2	18.4	18	13	4	1
Lesser White-fronted Goose	3	1.5	15	9	5	3
Greylag	3	6.4	32	7	25	25
Eastern Greylag	1	28.3	4	—	4	4
Bar-headed Goose	4	17.4	27	14	8	5
Emperor Goose	2	3.5	17	—	5	1
Lesser Snow (White Phase)	1	22.4	5	1	4	4
Lesser Snow (Blue Phase)	3	16.4	22	10	12	11
Greater Snow	6	22.4	43	34	9	2
Ross's Goose	5	5.5	37	12	25	11
Cape Shelduck	1	26.3	12	1	7	7
Common Shelduck	2	20.4	14	8	6	6
Egyptian Goose	1	30.3	8	8	0	—
Orinoco Goose	3	15.4	23	13	10	9
Abyssinian Blue-winged Goose	1	20.7	4	3	1	1
Ashy-headed Goose	2	19.4	12	2	7	2

TABLE I—*continued*

Species	Breeding Pairs	Date of First Egg	No. of Eggs Laid	Infertile	Hatched	Reared
Ruddy-headed Goose	1	24.4	4	4	—	—
Greater Magellan Goose	1	3.4	13	4	4	3
Upland Goose	2	—	11	6	5	4
Cereopsis Goose	1	20.12	8	7	1	—
Andean-crested Duck	2	10.4	18	8	6	4‖
Marbled Teal	3	10.5	31	12	19	14
Versicolor Teal	2	1.4	15	2	7	2
Puna Teal	1	25.5	6	6	—	—
Bahama Pintail	2	30.5	18	1	14	4
Pintail	3	21.4	29	14	15	2
Falcated Duck	1	10.6	6	5	1	—
Chestnut-breasted Teal	1	26.5	8	5	3	3
Indian Spotbill	1	15.5	8	4	4	1
Australian Grey Duck	1	20.4	3	3	—	4¶
Philippine Duck	5	26.4	58	12	30	18
African Yellowbill	2	21.4	11	5	6	5
African Black Duck	1	26.2	4	4	—	—
Gadwall	1	2.5	9	3	6	6
Wigeon	4	30.4	40	11	26	18
Chiloe Wigeon	2	20.5	15	3	12	10
Blue-winged Teal	1	1.6	5	5	2	2
Cinnamon Teal	3	3.5	35	8	26	12
Garganey	1	1.5	16	—	9	4
Argentine Red Shoveler	1	23.4	7	5	1	—
Cape Shoveler	1	24.4	12	1	11	3
European Shoveler	3	2.5	27	9	16	6
Ringed Teal	1	30.4	15	4	11	7
Red-crested Pochard	3	4.4	26	8	18	9
Rosy Bill	2	20.5	8	4	3	3
Southern Pochard	1	?	7	3	4	4
Canvasback	2	12.5	15	—	15	9
European Pochard	1	20.5	8	1	7	7
Redhead	3	25.4	29	11	13	9
Tufted Duck	2	1.6	8	3	3	1
Scaup	2	16.5	16	4	12	6
Mandarin	3	29.4	27	4	15	13
Carolina	?	23.3	137	54	54	28
South American Comb Duck	1	?	—	—	7	—
European Eider	3	3.5	14	5	8	3
Barrows Goldeneye	1	20.5	4	4	—	—
North American Ruddy Duck	3	9.5	25	6	13	12
Red-breasted Merganser	2	19.5	17	17	—	—

*Hybrids.
†8 reared by parents.
‡1 reared by parents.
§Hybrid.
‖Reared by parents.
¶4 reared by parents.

THE BREEDING SEASON 1956

By S. T. Johnstone

It is interesting to note that the first bird to breed at Slimbridge is the Cereopsis, which usually starts to lay at Christmas time. Whilst this species is still incubating, the Ne-Nes start laying, and from then on the crop of eggs rises to a maximum in June. At the time of writing it is the first week in December and we still have young birds in brooders and one clutch of eggs is still being incubated. The Cereopsis have built their nest so that the cycle has now become a twelve-monthly one.

For 1956 it is true to say that the weather was responsible for the majority of losses. Deaths from pathogenic causes were comparatively few, but the long spells of cold and rain in June and July wrought havoc amongst the ducklings. One recalls the dismay with which we recorded over a hundred deaths in one fortnight of June.

Great efforts were made during the winter of 1955–56 to re-design the method of incubating the eggs with a view to reducing the amount of work involved in feeding and exercising the broody hens and to reduce the incidence of Aspergillosis which had increased alarmingly in 1955. The sitting boxes were raised 4 feet from the ground by means of a bank of earth contained in a concrete wall and covered with 3 inches of peat moss treated with a fungicide. The hens were exercised and fed in separate wire cages. The whole area was provided with a concrete floor and roofed in asbestos sheeting. The results have justified the effort expended in this way.

In spite of the weather we achieved the best figures so far for the number of birds, and indeed species, reared.

No. of Forms to lay	*No. of Forms Reared*	*No. of Cygnets Reared*	*No. of Goslings Reared*	*No. of Ducklings Reared*	*Total*
86	67	5	171	326	502

Seven species were reared for the first time at the New Grounds (see Table I). The Magpie Goose had not previously bred in Europe and the Bewick's Swan is the first fully authenticated record in any collection.

A new type of nesting box was put into use this year in the shape of grape barrels. In one of these, placed a considerable height above the ground, six clutches were laid, three of Chestnut-breasted Teal, a Goosander, a Carolina, and a South American Comb Duck.

First breeding of the Magpie Goose

During the summer of 1955 the Magpie Geese built a rudimentary nest in the privet hedge of their pen so that when they started similar activities in July 1956 we were not very sanguine about the possibility of their laying. However, when our old original female, which has been in England at least 20 years, commenced helping in the building of a second nest we were duly impressed. In all, seven nests were built in the tall, thick nettles around the pen, each very similar to that of a swan's—a pile of nettles, straw and twigs, hollowed on the top. Each took about two days to complete. During the last week of nest building we were delighted to see that the female was getting heavier and

heavier. Normally and during the nest building these birds remained very timid and on being approached would stride off into the undergrowth, but on 15 August the male alone was visible. When we approached the latest nest he rushed forward in defence of his mate, who raised herself to disclose the first egg. Both birds stood on guard and, with spread wings, raised tails and outstretched heads, made a great effort to defend the nest.

In all, eight eggs were laid. These were replaced each time by wooden dummies. Six dummies and two real eggs were left in the nest for four days after incubation commenced. It was found that both birds incubated and that the eggs were never left. In consequence, when they were being set under bantams the eggs were not allowed to cool and when requiring exercise, the broody was immediately replaced by another. Three eggs were infertile. The other five hatched in 28 days, seven days less than had been expected. The downy young is quite unlike any other. The head and neck is a cinnamon red, somewhat similar to that of the male Red-crested Pochard, the body a uniform dark grey with complete absence of barring and the underparts a lighter shade. The bill is enormous, yellow in colour and with a heavy nail. The lores are bare. A notable feature is the very large toes and sturdy yellow tarsus.

The babies were very aggressive one to the other and they had an insatiable desire to peck. Their diet consisted of duckweed and various pond weeds, soaked biscuit meal and fresh-water shrimps (of which they were particularly fond). A peculiar feeding habit was the high-pitched sibilant call they all made as soon as food was brought to them—reminiscent of the chirruping that passerine nestlings make when the parents approach the nest.

Three birds survived and when fully feathered at six weeks they were completely black over the head and neck and all the upper parts except the rump. The breast and belly were white. The bill had gradually turned black as feathering had proceeded; likewise the lores. The forehead was still feathered and in fact in one case there was a ridge of cinnamon down across the forehead adding to the grotesque appearance.

First breeding of Bewick's Swan

Our Bewick's Swans consist of a young male that flew into the Rushy Pen in November 1948 and a female acquired from Holland some two years later. Owing to lack of space they had been kept in what was regarded as a somewhat inadequate pen with a very small area of water. On 1 June both birds were seen to be nest-building and in the course of the next five days constructed a large heap of rushes. The first egg was laid on 6 June. Three eggs were laid and incubation was by the female only. The average size of the three eggs was 118 by 82 mm. and weight 265 gms. Two cygnets were hatched on the 30th day, the third egg was infertile. The cygnets were enchanting little things: white with an overall steely-blue sheen, the bill and legs fleshy pink. Their diet consisted of biscuit meal, small amounts of brown bread, copious amounts of duckweed, and every kind of pond and waterweed that could be obtained. The cygnets fed readily but one died when six weeks old. The remaining cygnet continued to thrive and with its parents was given access to a larger pen and an ample stretch of water. The young bird was fully feathered and capable of flight at 15 weeks. The plumage was a whitish grey, lighter than that of Trumpeter and Whooper juveniles. The bill has remained fleshy pink except at the tip, and the legs have become blotched with grey.

First breeding of Comb Duck

A South American Comb Duck had bred in 1955 but had lost its brood in a couple of days. In 1956 three South American and one of the Old World race nested. In each case the eggs were in little grape barrels that we had placed in willows some 2 to 3 feet above the ground. The eggs varied in number from six to ten and were a shiny creamish white in colour. The average size of 25 eggs was 56 by 37 mm. and average weight 44 gms.

The ducklings, by nature of their down pattern, shape and the dual colour of the tarsus, are evidently near relations of the Muscovy. The cap, back of neck and upper parts of the body are brown. The cheeks, throat, breast and underparts are yellow. There is a yellow bar on each wing and along the sides of the back. There is a brown eyestripe and the bill is brown.

The first hatching did not thrive at all and showed little inclination to feed. They soon succumbed to the cold, wet weather. Subsequent broods were given the benefit of infra-red lamps and this had a very favourable effect. They showed much more interest in life, fed readily, and nearly all grew to maturity.

Breeding of the Hawaiian Goose

The Hawaiian Geese did particularly well in 1956. Every female old enough laid and there were in all 62 eggs of which 22 were fertile. From these, 16 were hatched and 15 young reared. Three more were reared from a pair lent to Mr Terry Jones. 37 Ne-Nes are now alive in Europe.

Other interesting results were a brood of seven male Ringed Teal reared by their parents in our aviary, a complete reversal from 1955 when only females were reared. Eleven Cuban Whistling Duck and nine Wandering Whistling Duck and a Lesser Scaup are also worthy of mention.

We can record some success with casualties and sickness. A Whitefront brought in with a shattered wing had an amputation at the shoulder. Compound fractures of the tarsus in a Cape Shelduck and a Bar-headed Goose were successfully dealt with. One Ne-Ne was cured of a bad infection of Gapes as were several other young birds by treating with barium antomnyl tartrate.

TABLE II

Breeding Analysis 1956

Name	No. of Eggs	Infertile	Hatched	Reared
Magpie Goose	9	4	5	2*
Wandering Whistling Duck ..	29	8	17	9*
Fulvous Whistling Duck	57	13	36	12
Black-billed Whistling Duck ..	14	—	10	10*
Red-billed Whistling Duck ..	10	9	1	1
Black Swan	5	1	4	4
Bewick Swan	3	1	2	1*
Canada Goose	10	—	10	10
Western Canada Goose	17	10	3	3
Taverners Goose	25	16	7	5
Cackling Goose	4	4	—	—
Ne-Ne	62	40	16	15
Barnacle Goose	21	9	10	4
Red-breasted Goose	10	5	5	—

TABLE II—*continued*

Name	No. of Eggs	Infertile	Hatched	Reared
Swan Goose	24	14	7	7
Bean Goose	6	3	2	1
Greenland White-fronted Goose	9	7	2	—
Lesser White-fronted Goose	13	3	9	5
Grey Lag Goose	46	11	34	34
Eastern Grey Lag Goose	4	—	3	3
Bar-headed Goose	25	13	11	7
Emperor Goose	11	8	3	1
Lesser Snow Goose	34	14	14	7
Greater Snow Goose	43	30	13	1
Ross's Snow Goose	33	10	17	14
Cape Shelduck	12	5	3	2
New Zealand Shelduck	4	—	4	3
Radjah Shelduck	7	5	1	—
Common Shelduck	12	3	7	4
Egyptian Goose	6	6	—	—
Orinoco Goose	21	17	4	2
Abyssinian Blue-winged Goose	10	9	1	—
Ashy-headed Goose	10	2	7	7
Ruddy-headed Goose	5	5	—	—
Greater Magellan Goose	13	4	9	6
Lesser Magellan Goose	10	—	10	7*
Cereopsis Goose	7	5	2	1
Crested Duck	11	6	3	1
Marbled Teal	50	29	21	5
Cape Teal	5	2	2	—
Versicolor Teal	30	4	25	10
Puna Teal	4	4	—	—
Bahama Pintail	39	17	19	8
Chilean Pintail	6	6	—	—
Common Pintail	18	4	14	6
Chilean Teal	5	3	1	1
Chestnut-breasted Teal	42	8	34	20
Hawaiian Duck	4	—	1	—
Mottled Duck	6	—	6	6
North American Black Duck	15	6	9	1
Grey Duck	16	3	13	7
Philippine	15	7	8	5
African Yellow Bill	7	—	7	4
African Black Duck	7	5	2	1
Gadwall	23	7	16	10
Wigeon	34	11	19	5
American Wigeon	7	5	2	—
Chiloe Wigeon	36	11	18	16
Blue-winged Teal	8	6	1	1
Cinnamon Teal	46	20	25	11
South American Cinnamon Teal	7	1	6	5
Argentine Red Shoveler	3	1	2	2
Cape Shoveler	9	2	7	—
Common Shoveler	22	11	6	—
Ringed Teal	17	1	16	11
Red-crested Pochard	38	14	24	24
Rosybill	8	2	2	1
Canvasback	8	2	6	—
Common Pochard	7	2	5	5
Redhead	29	8	18	14
Tufted Duck	7	—	7	7

TABLE II—*continued*

Name	No. of Eggs	Infertile	Hatched	Reared
Lesser Scaup	6	—	3	1*
Scaup	26	3	21	18
Mandarin	56	21	13	8
Carolina	68	18	42	24
Comb Duck	6	—	6	2*
South American Comb Duck	25	5	20	6*
Eider	16	10	3	—
Goldeneye	8	2	6	2
Red-breasted Merganser	18	4	11	3
Goosander	9	1	8	2
North American Ruddy Duck	15	9	5	22†

* These birds bred successfully for the first time in the Collection.
† 17 reared by parents

ADDITIONS TO THE COLLECTION 1954–56

Fulvous Whistling Duck	1 pair
White-faced Whistling Duck	3 pairs
Coscoroba Swan	1 pair
Black-necked Swan	1 pair
Bewick's Swan	1 male
Emperor Goose	2 females
Cape Teal	2 pairs
Hottentot Teal	1 male and 2 females
South African Red-billed Pintail	16 males and 4 females
Falcated Duck	2 males and 3 females
Hawaiian Duck	5 males and 4 females
North American Black Duck	2 pairs
Florida Duck	2 males and 1 female
New Mexican Ducks	2 pairs
*Chinese Spotbill	3 males and 2 females
African Black Duck	1 female
American Wigeon	1 pair
Common White Eye	1 pair
*Baer's Pochard	1 female
Lesser Scaup	1 male and 2 females
*White-winged Wood Duck	6 males and 4 females
*King Eider	1 pair
*Velvet Scoter	1 male
*Maccoa Duck	4 females

* Not previously represented in the Collection.