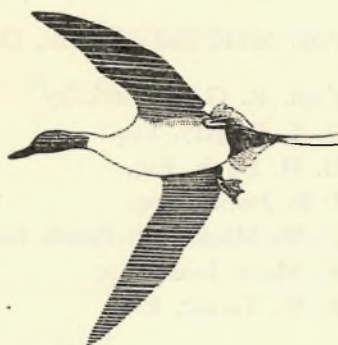


THE
SECOND ANNUAL REPORT
OF
THE SEVERN WILDFOWL TRUST
1948 - 1949



Published for
THE SEVERN WILDFOWL TRUST
by
COUNTRY LIFE LIMITED
2-10 TAVISTOCK STREET, COVENT GARDEN
LONDON W.C.2



THE SEVERN WILDFOWL TRUST

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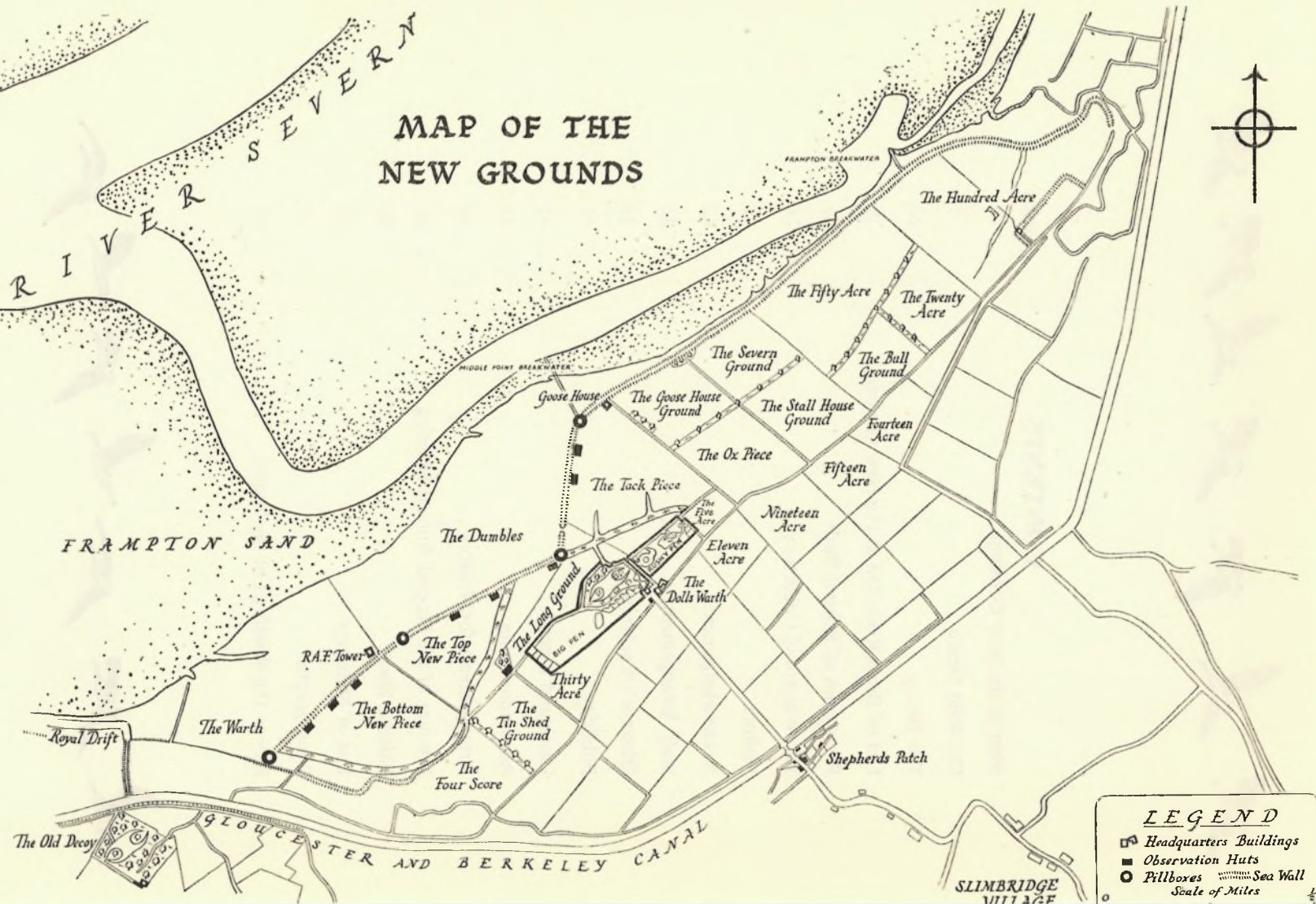


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MAP OF THE NEW GROUNDS





REPORT

At the Second Annual General Meeting of the Severn Wildfowl Trust on 28th February, 1949, the Minutes of which, together with the Balance Sheet and Accounts will be found on pages 48 to 51, the Council presented to the Members a Report of the past year's work at the New Grounds. Owing to the limited time available at the Meeting, this could only give an outline of what has been done. The Report which follows is therefore a more comprehensive and complete one, and includes occurrences between 28th February and 30th April when the present Report was placed in the printer's hands.

The activities of the Severn Wildfowl Trust fall sharply into two seasons : the winter, in which the wild geese visit the estuary and the ducks are caught in the duck decoy ; and the summer, in which the tame birds in the waterfowl collection are breeding and the young are being reared. For this reason the most suitable end to the Trust's year is at the end of the winter season when the geese have left the Dumbles and the ducks have left the decoy pool. The last ducks do not usually leave until April, and so it is appropriate that this report should cover not only 1948 but the first three months of 1949 ; the Trust's ornithological year will, therefore, coincide approximately with the fiscal year.

THE WILD GEESE

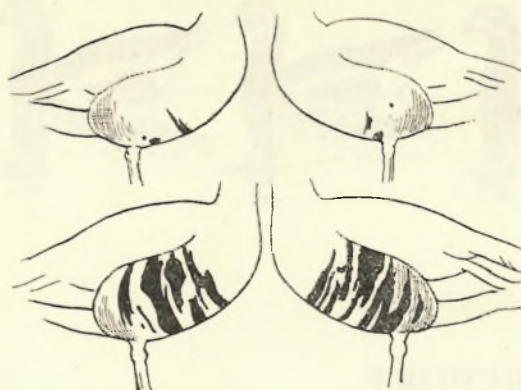
Although the Trust is mainly concerned with wildfowl, a complete list of the birds seen during the year on the New Grounds will be found on pages 19 to 24.

Slightly more geese were present on the estuary at the peak periods this winter than were counted there last season, and the first of them arrived on precisely the same day. Eight Pink-footed Geese (*Anser arvensis brachyrhynchus*) were seen on 21st September. The first White-fronted Geese (*Anser a. albifrons*) appeared on 15th October. By the end of the month there were 58 Pink-feet and 38 White-fronts. As usual the Pink-feet began to leave by mid-November at which time there were just over 200 White-fronts on the marsh. The main influx of geese was in the second half of December, and the peak was reached by 15th January when 3,800 were present.

Lesser White-fronted, Greylag and Bean Geese

Meanwhile on 20th December an adult gander Lesser White-fronted Goose (*Anser erythropus*) appeared in the flock. This was an exceptionally large bird for a Lesser White-front, which gave rise to the suspicion that it might be a hybrid between a Lesser and a Common White-front. This theory,

however, was abandoned after very detailed examination of the bird at close range. In all other respects but size it was a typical Lesser White-front. The bird was a gander and was well paired with a female Common White-front.



Male Lesser White-front

*Female Common White-front
paired to Lesser White-front*

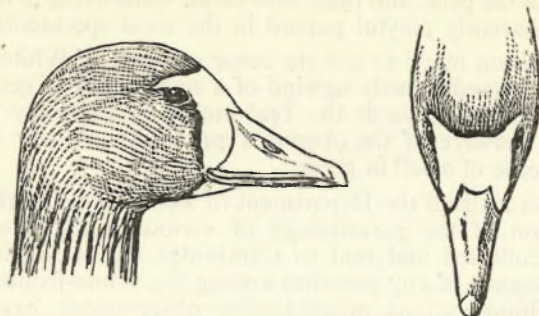
It was seen on 25 days (December 20th, 21st, 24th, 26th, 30th ; January 2nd, 3rd, 4th, 7th, 9th, 11th, 13th, 16th, 18th, 21st, 23rd, 24th, 27th, 30th ; February 4th, 6th, 8th, 9th, 12th, 13th). This was the eighth Lesser White-front recorded in Britain. The ninth was shot near Great Yarmouth on 24th January, 1949. From the markings on its belly it does not seem to have been one of the three recorded at the New Grounds in the winter of 1946-47. It is of interest to record that whereas most records of unusual geese are of immature specimens which have strayed to some flock of a different kind, all nine of the Lesser White-fronts except the first, shot in 1882 in Northumberland, have been adults, mostly ganders and often paired to Common White-front females.

This season's Lesser White-front (still as rare a bird as most people are ever likely to see) was watched by about 500 ornithologists, many of whom had come especially for the purpose. On 23rd January the bird was shown to 120 visitors. Apart from this bird there was a disappointing number of unusual geese among the White-front flock. A few Pink-feet appeared as stragglers from time to time after the main party of their species had left. These were mainly single immatures, but on two occasions adult pairs remained for a few days. An immature Greylag (*Anser a. anser*) was recorded on 15th, 16th and 23rd January, and it is possible that two Greylags were present on the last date although this could not be confirmed. On 13th February an immature Bean Goose (*Anser a. arvensis*) appeared on the Dumbles remaining for one day only.

Two Unusual White-fronted Geese

Among the White-fronted Geese two notable birds were observed. The first was a gander with a curiously shaped white blaze which extends symmetrically in a peak over each eye. This bird, known as "White-eye-brows," was first seen on 3rd December, 1947, and remained for a considerable part of last season. This season it did not reappear until 18th January but remained until 12th March. Careful note was taken of the breast markings of its mate. The second unusual bird was an immature seen on 5th January with the front half of the face white. This extended as far back as the eyes and, unlike the white blaze of the adult, was irregularly edged with dotted white feathers. The whole head gave something of the impression of an immature Blue Snow. There was also slight white peppering on the neck. The bird was one of a family of two adults and two young. The old birds and the other young one were perfectly normal. Three or four other immature White-fronts

were seen which showed white peppering, mostly on the neck or sides of the breast. It seems that this albinistic tendency is not uncommon.



* *White-eyebrows,* an unusually marked *White-fronted Goose*

Recoveries

For various reasons it has not been possible to net any geese for ringing on the New Grounds this season, but two of the 16 caught and ringed last year have been reported. One was seen on the Dumbles on 3rd January, 1949, so close to one of the observation huts that the numbers on the ring could be read. This showed that it was one of the series ringed on 18th February, 1948, but a smudge of mud obscured the last and most important of the six figures. The second record was of an adult male, ringed on the same date and shot on 7th January, 1949, on Zeeland in Holland. The method of netting is being improved and it is hoped that it may be possible to ring a number of geese next season.

Proportion of Immature Birds

The breeding season for the White-fronts in the Arctic seems to have been more successful than the year before. The first geese brought only 19 per cent. young birds (with an average family size of 3), but later the figures rose to 32.6 per cent. young (average family size 3.3), which compares favourably with the figures for the season 1947-48—26 per cent. young (average family size 3.6). It must be emphasised that these figures are of little significance by themselves, but when available for comparison over a period of years, should indicate the status and numerical trend of the species.

Special Studies

Detailed studies have been begun of the language and behaviour of White-fronted geese. A number of calls with particular meanings can now be distinguished and interpreted. The characteristic head flicking which nearly always precedes take-off (except in cases of extreme alarm when there is no time for it) has been studied, and it is believed to be a development of the movement which frees the bill from loose pieces of grass or earth, but which is now useful in indicating to other birds the intention to fly. (Ducks have a parallel to this in the sharp back and forth jerking of head and neck which is the first movement of taking off, but is repeated again and again beforehand, apparently in order to convey the intention to other members of the party.) Among the geese a strange half drooping of both wings has been observed but is at present without explanation. On certain days many of the flock do it, and even on days when few are doing so, it is normal to see all of one family adopting this curious carriage of the wings.

On 6th February, 1949, a very interesting nuptial pursuit flight lasting for nearly three-quarters of an hour was observed, in which three geese were following a fourth. This was exceptionally early for such behaviour and was an

unusually marked example of this kind of aerobatic flight. On that day large numbers of geese were moving from one field to another, passing frequently over the decoy and the pens, and these four birds, while flying in the main stream, continued the apparently playful pursuit in the most spectacular manner.

Studies have been made to test the sense of smell of White-fronted Geese. As two observers passed directly upwind of a small party of geese feeding with some Common Teal at 20 yards the Teal moved immediately while the geese were apparently unaware of the observers' proximity. Many other examples point to a poor sense of smell in geese.

The Trust has assisted the Department of Zoology, Cambridge University, in an investigation of the parasitology of various birds. For this purpose droppings were collected and sent to Cambridge for examination. This did not reveal the presence of any parasites among the White-fronted Geese on the estuary. In addition various miscellaneous observations have been made; for example, it has been noticed that the geese with families are always the nearest to the sea wall. This may be because the best and least grazed grass is usually near the sea wall and the parents are prepared to take a risk in order to let the young birds get the best feed.

Disturbance by Aircraft

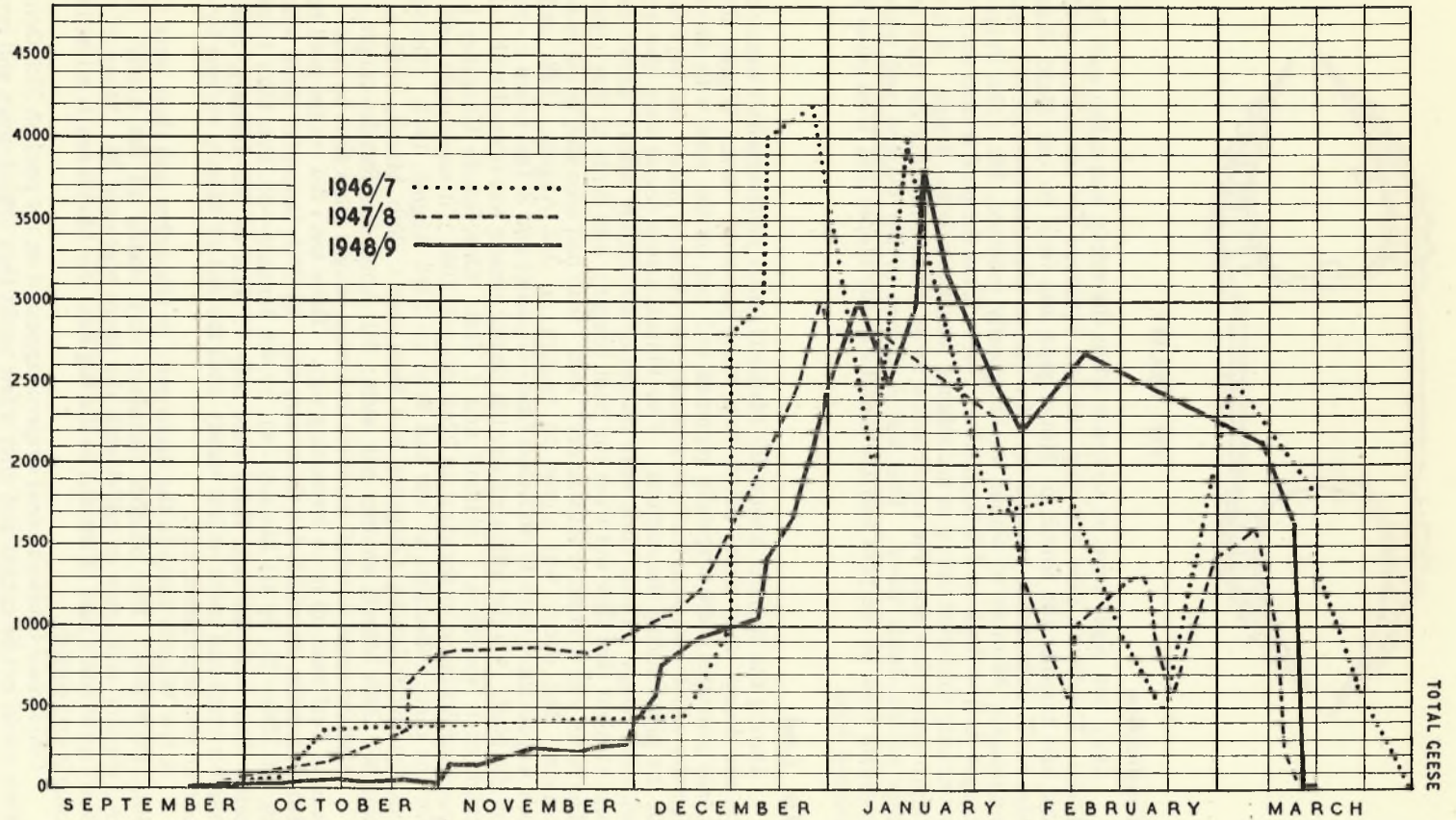
The effect of aircraft on the geese is interesting. Light aircraft, biplanes and twin-boomed jet planes are the most disturbing. *Mosquitos* put them up more easily than *Meteors*, but this may only be because they see more of the latter. It is the sight rather than the sound which is disturbing, as *Meteors* passing overhead in low cloud or mist do not disturb the birds at all. Towards the end of the season they take less notice of aircraft than before, but any plane at less than 2,000 feet coming straight at them will always put them up. The effect of aircraft disturbance is particularly unfortunate for watching, since, if the geese have been close in to the observation huts they always settle further out after being flushed, and may take an hour or more to walk in, by which time they are likely enough to be flushed again by another aircraft. During the past winter, air activity has so greatly increased that this disturbance has been serious and has given rise to fears that the geese may seek some winter quarters further removed from an important airfield for jet fighters.

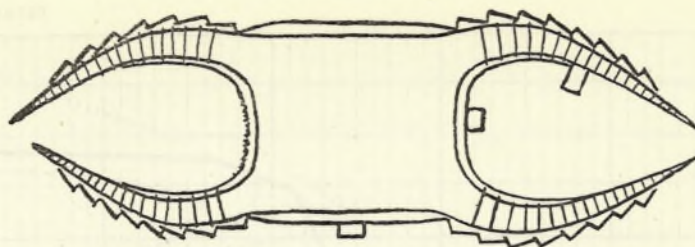
Negotiations, however, are in progress with the Ministries of Supply and Civil Aviation and the Air Ministry to make the New Grounds a Prohibited Area for flying (below 3,000 feet). A more serious problem, however, is the threat to open a bombing range covering the high sand on which the geese roost and a part of the saltmarsh on which they feed. There is no doubt at all that this would be a disaster of the first magnitude to the Trust and its aims, but it is still hoped that some other arrangements will be possible.

Watching Facilities

Facilities for watching the geese this winter have been improved by the construction of three new huts during the summer, one by Boy Scouts of the 27th Newport Troop and the others under the able hand of Mr. S. T. Johnstone, our Head Warden. There are now no gaps in the chain of observation points along the sea wall. In all, 19 huts have been built—16 of them for watching the geese. It cannot be too strongly emphasised, however, that the Trust cannot guarantee a view of the wild geese to its Members, since the principle that the geese must on no account be disturbed has been, and must continue to be, a prime consideration. Those visiting the New Grounds should read the conditions printed on page 46 so as to know the exact position and to avoid disappointment.

TOTAL NUMBER OF WILD GEESE ON THE NEW GROUNDS 1946-49





THE DECOY

Construction

Only two pipes were in existence when the decoy was taken over by the Trust. The South pipe was dug out and equipped for the season 1947-48, and last summer the fourth or House pipe was built by our Head Warden, Mr. S. T. Johnstone, assisted by Mr. Heinz Meineke (ex-P.O.W.), and an enthusiastic Member to whom we are greatly indebted, Mr. John Paige. It caught its first duck on 5th September, 1948. Thus the pool is now once more a working four-pipe decoy in accordance with the original design. A further improvement has been the construction of an observation hut on stilts at the edge of the decoy wood. This hut is known as the Gazebo and gives an excellent view of the pool and the mouths of the House and West pipes from treetop level.

The Lead

During the summer about 120 Mallards (*Anas platyrhynchos*) were reared on the decoy—only about 30 of them being pinioned. Seven Wigeon drakes (*Anas penelope*) were originally pinioned and put on the pool with about 10 females which had been feather-cut during the previous season and kept in one of the pipes during the summer. Five Pintails (*Anas acuta*) were also reared with full wings. These birds were trained to sit steadily when "shown over" and at night they flew out from the pool bringing wild birds as they returned. The result was a far more satisfactory "lead" than had been seen in the previous season. The decoy was closed to visitors on 3rd August, 1948, and by 6th August there were 17 Shovelers (*Anas clypeata*) and 8 Teal (*Anas c. crecca*) on the pool. On the following day the ringing season was opened with a day's catch of 6 Shovelers, 1 Mallard and 1 Teal. One female Garganey (*Anas querquedula*) came to the pool on 22nd August, 1948; it was caught and kept for the tame collection, as one had been on 23rd August, 1947. (On spring passage the following Garganey had been seen: 26th March, 1948, a pair caught; 28th March, another pair seen; 5th April, two females caught.)

Mallard came in small numbers and were caught from time to time. The lead of Teal built up in an interesting way. There were few on the pool before 5th December, on which day there were six. By 27th December there were 11, by the 30th—21, by 1st January—41, by 4th January—53, but, after trying to catch them with the dog, there were only 15 Teal on 5th January, and that number remained more or less steady until the end of March, varying by only one or two birds either way.

A few Wigeon came to the decoy pool in December and there were 17 on 30th December. This number remained very steady all the winter. Early in February and again in mid-March the figure was over 20. Many of these birds spent some part of the day in the Big Pen. By March nearly all had been caught and ringed.

Two female Gadwall (*Anas strepera*) appeared on the pool on 27th October. They could not be caught and after a few weeks they settled down and became remarkably tame on the pond in the Big Pen, where in due course one of them

was trapped and ringed. Both have remained until the time of writing—15th April—and one (the unringed one, which, although perfectly tame, refused to enter the trap) has paired with a pinioned drake.

Diving Ducks

One of the most interesting features of the winter was the appearance of diving ducks on the decoy. The pool is no more than 18 inches deep, but on 14th December a female Tufted Duck (*Aythya fuligula*) arrived. Within a few days she had moved to the pond in the Rushy Pen where she has remained until the time of writing. On 25th January she was caught in the trap and ringed (but was nothing daunted by her experience, as she came up to feed with the other birds as usual next day).

On 18th December a female Pochard (*Aythya ferina*) appeared, and remained on the pool until on 27th December she was joined by six more (four males, two females). Up to seven were present until the end of January. On 31st January there were nine (five males, four females). These Pochards were perpetually diving and evidently went deep into the mud, as they often surfaced with the whole head completely covered in grey ooze. Before diving they almost invariably sat up and paddled—apparently to stir a patch of mud beneath them. Although they would usually follow the dog as far as the mouth of the pipe they could not be persuaded to come far enough in to be caught. On 5th March, 1948, a female Goldeneye (*Bucephala clangula*) visited the pool, but she could not be caught either.

The Catch

The total catch has been 269 ducks, which is just over double the previous season's total. Table I shows in the four columns under each of the six species the number ringed; those already ringed which have been recaptured in the decoy (perhaps more than once); the total catch; and the number recovered. The last figure is, of course, still low for this season as not many of the ringed birds have yet been shot.

In addition to ducks the following were caught in the decoy:—2 Herons, 1 Tawny Owl, 2 Sparrow-Hawks, 2 Turtle-Doves, 1 Swift, 1 Coot, numerous Moorhens.

One of the most interesting captures was a Common Teal ringed in the decoy on 14th October, 1947, and caught again on 29th November, 1948. It has, of course, been released once more. The details of the recoveries of these and other birds ringed by the Trust are shown on page 25.

Methods

(The operating principles of a decoy are described in the First Annual Report of the Trust—page 53.)

An analysis of the catch figures shows the effect of the use of the dog on the various species (Table II) and a comparison of the success of each of the pipes, although this depends to a large extent upon the direction of the wind (Table III). In nearly all cases the Assistant Curator's large yellow dog, Blondel, was the enticing animal. On 16th September, 1948, he was instrumental in catching four Mallards by moonlight. Hitherto dogging by moonlight had not proved to be successful. A white Pekinese (Bushy) was responsible for catching one Mallard. One Teal and one Wigeon were caught at different times with a ferret on a line. Four Mallards and two Wigeon were caught after a wild stoat had been seen to run through one of the screens into the view of the ducks on the pool. A dead stoat dangled on a string from a thin stick was comparatively successful, but was only tried late in the season when most of the wild birds on the pool were too familiar with the dangers of the pipes. (It is of note that a dog and also a dead stoat attract the tame

TABLE I
SPECIES CAUGHT, RINGED AND RECOVERED

Seasons ..		1946-47	1947-48	1948-49	Total
Mallard ..	Ringed	3	64	102	169
	Recaptures ..	—	6	19	25
	Total catch ..	3	70	121	194
	Recoveries ..	1	5	3	9
Teal	Ringed	2	24	24	50
	Recaptures ..	—	—	7	7
	Total catch ..	2	25	31	58
	Recoveries ..	—	4	—	4
Wigeon ..	Ringed	—	19	52	71
	Recaptures ..	—	—	20	20
	Total catch ..	—	21	72	93
	Recoveries ..	—	4	1	5
Pintail ..	Ringed	—	2	13	15
	Recaptures ..	—	1	4	5
	Total catch ..	—	3	17	20
	Recoveries ..	—	—	1	1
Shoveler ..	Ringed	—	9	26	35
	Recaptures ..	—	—	—	—
	Total catch ..	—	9	26	35
	Recoveries ..	—	5	1	6
Garganey ..	Ringed	1	2	1	4
	Recaptures ..	—	—	—	—
	Total catch ..	1	5	2	8
	Recoveries ..	—	—	—	—
Total	Ringed	6	120	218	344
	Recaptures ..	—	7	51	57
	Total catch ..	6	133	269	408
	Recoveries ..	1	18	6	25

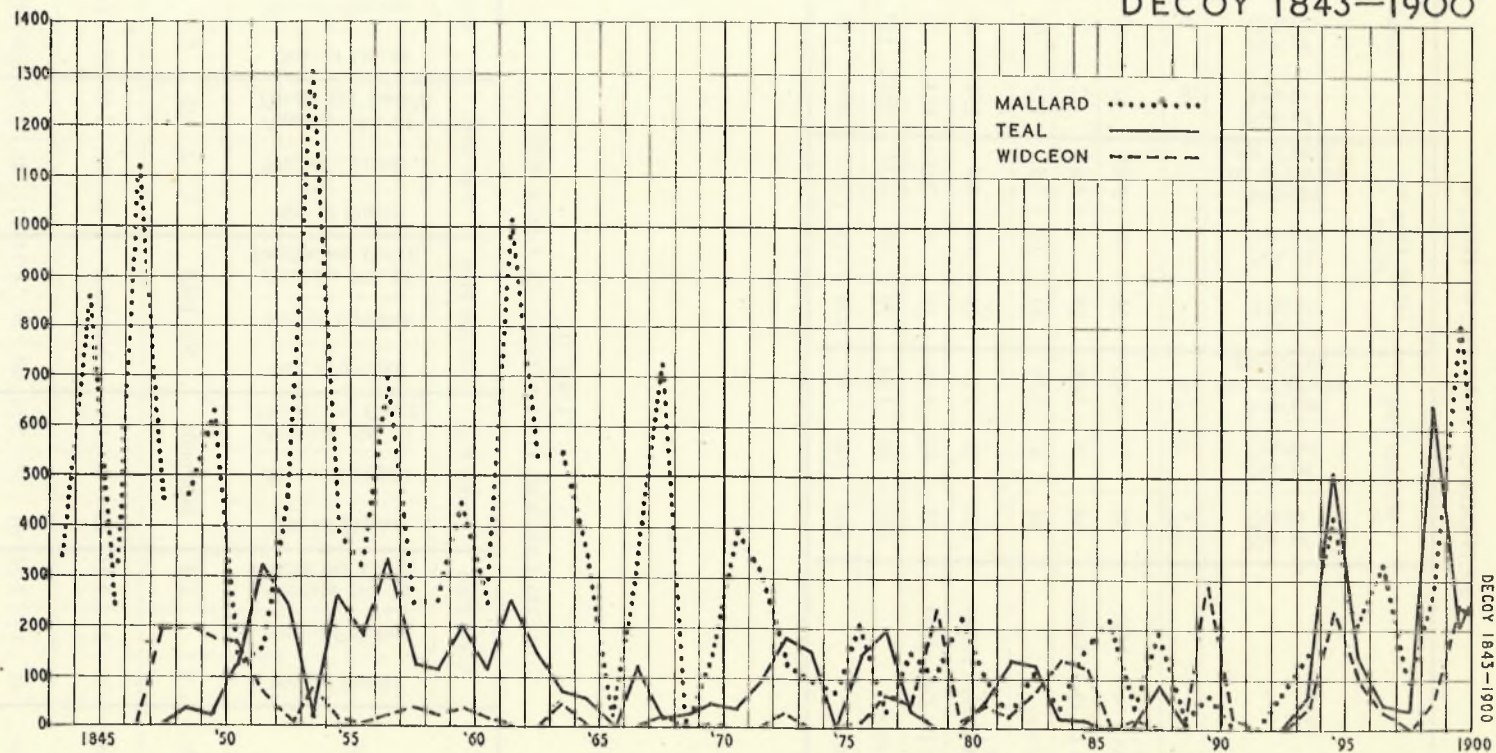
TABLE II
METHODS OF CAPTURE IN DECOY

Season	Without Dog			With Dog or Ferret			Total		
	No. of Ducks	No. of Catches	Average No. of Ducks per Catch	No. of Ducks	No. of Catches	Average No. of Ducks per Catch	No. of Ducks	No. of Catches	Average No. of Ducks per Catch
1946-47	6	3	2.0	—	—	—	6	3	2.0
1947-48 : Till 30th Nov., 1947 ..	30	21	1.43	31	9	3.44	61	30	2.03
From 1st Dec., 1947..	54	26	2.08	18	5	3.6	72	31	2.32
Season total	84	47	1.79	49	14	3.5	133	61	2.18
1948-49 : Till 30th Nov., 1948 ..	112	56	2.0	44	10	4.4	156	66	2.36
From 1st Dec., 1948 ..	78	42	1.86	35	9	5.0	113	51	2.21
Season total	190	98	1.94	79	19	4.37	269	117	2.29
Grand total	280	148	1.87	128	33	3.87	408	181	2.25

TABLE III
COMPARISON OF CATCHES IN EACH PIPE

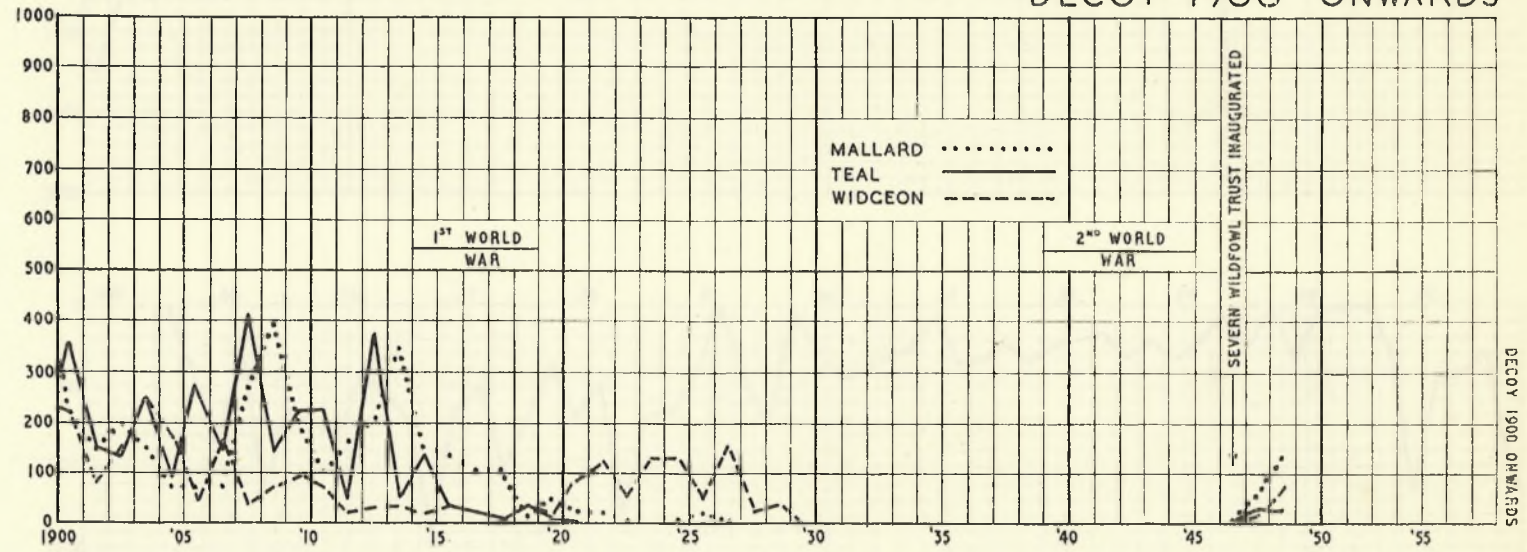
Season	North Pipe			South Pipe			House Pipe			West Pipe			Total		
	No. of Ducks	No. of Catches	Average No. of Ducks per Catch	No. of Ducks	No. of Catches	Average No. of Ducks per Catch	No. of Ducks	No. of Catches	Average No. of Ducks per Catch	No. of Ducks	No. of Catches	Average No. of Ducks per Catch	No. of Ducks	No. of Catches	Average No. of Ducks per Catch
1946-47..	3	1	3.0	Not built			Not built			3	2	1.5	6	3	2.0
1947-48..	77	34	2.23	10	9	1.1	Not built			46	18	2.53	133	61	2.17
1948-49..	41	16	2.56	61	27	2.26	40	26	1.54	127	48	2.64	269	117	2.29

DECOY 1843-1900



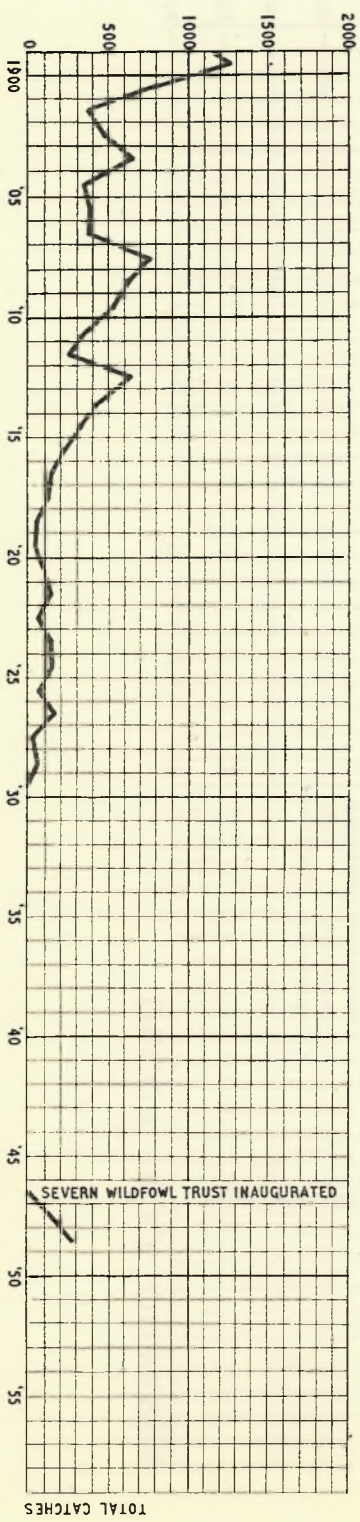
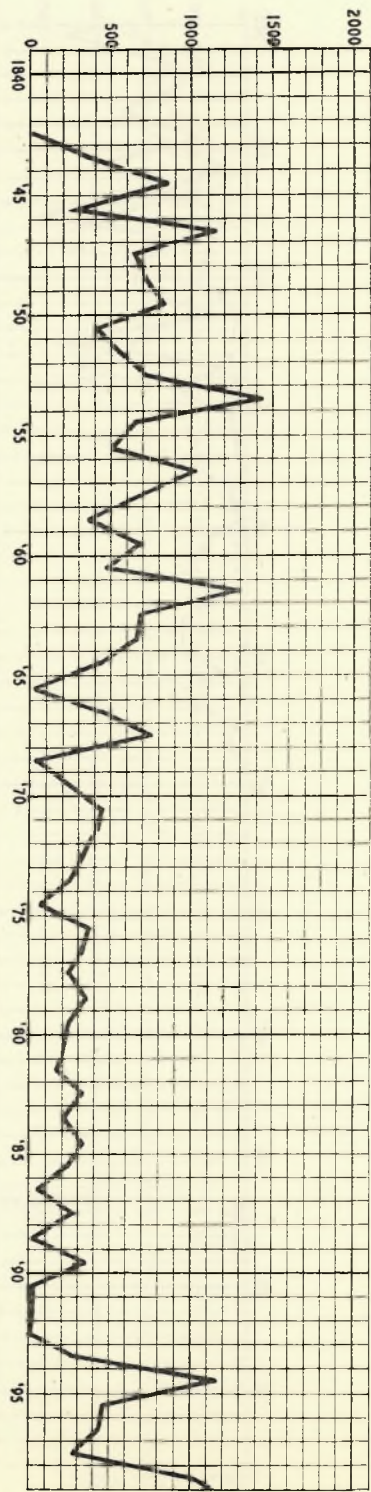
DECOY 1843-1900

DECOY 1900 ONWARDS

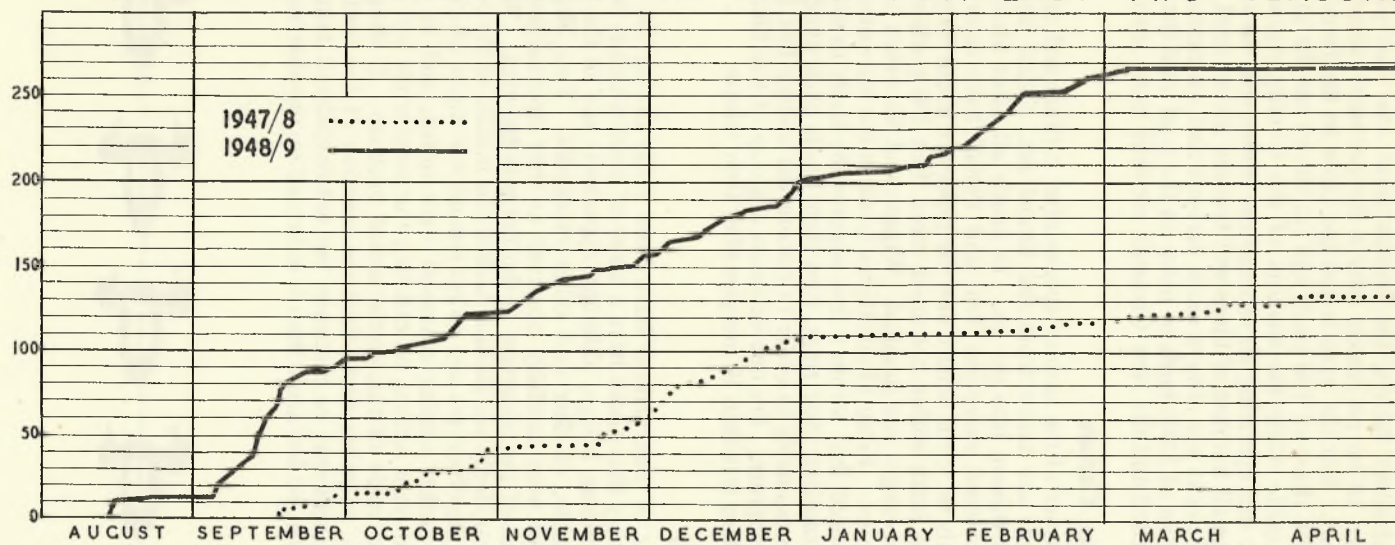


DECOY 1900 ONWARDS

TOTAL CATCHES



PROGRESS OF TOTAL CATCH IN DECOY FOR LAST TWO SEASONS



DECOY CATCH 1947-49

ducks in the collection. It is proposed to carry out some researches into this interesting and little understood instinct which appears to be stronger at certain times than at others.)

Although these catch figures do not compare very favourably with those of some well-established decoys, the improvement over last year is satisfactory and there seems to be no reason why a further improvement should not be shown next year. But the pool is just too close to the farm-yard and catches comparable with those of 100 years ago (as shown on the graph on page 14) are hardly possible while the tractors of the County Agricultural Executive Committee are still operating all through the winter and back-firing at frequent intervals. A small number of birds will become accustomed to the noise, but large flocks of ducks are always more nervous and we cannot hope to have a winter population of 1,000 birds or more on the pool until the surrounding land has been re-seeded and the New Grounds are once more mainly under grass.

Behaviour After Capture

The behaviour of the various species after capture and release is characteristic. The birds are taken from the tunnel net, ringed immediately on the spot, and then thrown into the air. In nearly all cases Mallards head for the estuary, but without exception Teal and Pintail have returned to the pool. The pool is only 60 yards square and the pipes are about 60 yards long. They must, therefore, settle within not much more than 100 yards of the place where they have been caught and handled. Wigeon and Shovelers also almost always return to the pool. From observations made in the huts overlooking the pool it has been noticed that within a few minutes the lately captured birds, having preened and examined their rings, turn their heads back under their wings and go to sleep—presumably in order to restore the energy lost in the flutter and excitement of capture. On one occasion a group of five Shovelers were all to be seen fast asleep less than 10 minutes after their release.

Sense of Smell

A number of observations have been made during the year which show quite conclusively that ducks have a sense of smell which is considerably better than that of human beings, although apparently not in the same category as that, for example, of deer and other mammals. Two Shovelers swimming across the pool were carefully observed as they approached the corner over which the scent of the observers in the hut was blowing. When they reached it they turned suddenly and flushed back to the middle of the pond. They could not have seen the observers and no movement was made which could have been heard. Many other similar examples were noted, and in some cases birds were prevented from settling by catching the scent while still in flight. Further studies will be made of this controversial problem. It should be noted that this sense may be more acute than the reaction of the birds would indicate, since a dilute scent may be perceived but not considered dangerous ; the sense cannot, however, be *less* acute than is indicated by the observed reaction.



LIST OF BIRDS RECORDED AT THE NEW GROUNDS

between 1st January, 1948, and April, 1949

- Raven** (*Corvus corax*).—One on Dumbles, 8th January, 1948, mobbed by young tiercel Peregrine (P. Scott).
- Hooded Crow** (*Corvus cornix*).—One on Dumbles during November, 1948 (S. T. Johnstone *et al.*).
- Carrion-Crow** (*Corvus corone*).—Numerous in winter, a few pairs stay to breed.
- Rook** (*Corvus frugilegus*).—Rookery of 21 nests in elms beside Headquarters. Three other rookeries on New Grounds.
- Jackdaw** (*Corvus monedula*).—Numerous in summer and early autumn. Disappear in winter. One ringed.
- Magpie** (*Pica pica*).—Common in the district but fortunately not numerous on New Grounds.
- Jay** (*Garrulus glandarius*).—A few noted high over Dumbles (date not recorded). Wanderers from nearby woodlands or birds on passage.
- Starling** (*Sturnus vulgaris*).—A few pairs bred. Up to 100 frequented the pens during some parts of winter. Three ringed.
- Hawfinch** (*Coccothraustes coccothraustes*).—One in Decoy Wood, 19th and 20th January, 1948 (P. Scott).
- Greenfinch** (*Chloris chloris*).—Nests commonly in and around decoy. Large flocks assemble in winter round Duck House, feeding on duck food (grain). Seventy-six ringed.
- Goldfinch** (*Carduelis carduelis*).—Numerous in decoy in autumn. At least one pair bred.
- Siskin** (*Carduelis spinus*).—Party of nine or ten round decoy, 31st October, 1948 (H. H. Davis).
- Linnet** (*Carduelis cannabina*).—Numerous small parties about the decoy on passage in autumn.
- Bullfinch** (*Pyrrhula pyrrhula*).—Several resident pairs. At least one nest in Decoy Wood.
- Chaffinch** (*Fringilla caelebs*).—Very common. Eight ringed.
- Brambling** (*Fringilla montifringilla*).—Four with Chaffinches in the Tack Piece on 9th February, 1948 (P. Scott).
- Yellow Bunting** (*Emberiza citrinella*).—At least three pairs bred in hedgerow along lane between Headquarters and Canal.
- Reed-Bunting** (*Emberiza schœnichus*).—Resident and fairly common along the rhines. One pair nested in the Rushy Pen. Two ringed.
- House-Sparrow** (*Passer domesticus*).—Much too common.
- Tree-Sparrow** (*Passer montanus*).—About three pairs round Duck House all winter; may have bred, but no nests found.
- Sky-Lark** (*Alauda arvensis*).—Large flocks feeding on Dumbles throughout the winter. Many pairs breed in Tack Piece and other fields.
- Meadow-Pipit** (*Anthus pratensis*).—Common in spring and autumn and seen most times of the year.
- Yellow Wagtail** (*Motacilla flava flavissima*).—Common breeding bird. It is estimated that more than 30 pairs bred on the New Grounds. Two (possibly three) pairs bred in the Rushy Pen.
- Grey Wagtail** (*Motacilla cinerea*).—One in decoy, 5th March, 1949 (E. Overend). One in decoy and later in Rushy Pen, 7th March, 1949 (J. Yealland).
- Pied Wagtail** (*Motacilla alba yarrellii*).—Seen occasionally in pens. A pair bred near Canal Bridge.
- White Wagtail** (*Motacilla a. alba*).—A few on spring passage.
- Tree-Creeper** (*Certhia familiaris*).—Several pairs resident in Orchard and Decoy Wood.
- Great Tit** (*Parus major*).—Common round Duck House and in decoy. Seven ringed.

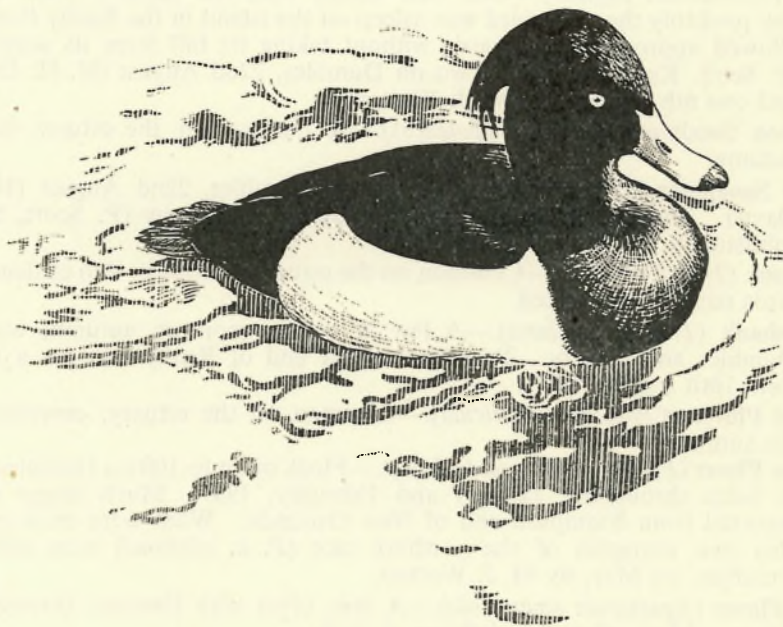
- Blue Tit** (*Parus caeruleus*).—Very common round Duck House. Twenty-seven ringed.
- Marsh-Tit** (*Parus palustris*).—Frequent in decoy in autumn. May have bred.
- Long-tailed Tit** (*Aegithalos caudatus*).—This species fared comparatively well in the cold winter of 1946–47. Fair numbers have been seen in the Decoy Wood ever since. One pair had a completed nest by last week of March, 1949.
- Spotted Flycatcher** (*Muscicapa striata*).—At least six pairs bred in Decoy Wood. A favourite nesting site is on the ivy-covered screens of the pipes. Eight ringed.
- Goldcrest** (*Regulus regulus*).—Seen occasionally in spring. One seen in decoy, 13th and 22nd March, 1949.
- Chiffchaff** (*Phylloscopus collybita*).—Heard in spring; almost certainly nested although no nests found. Three ringed.
- Willow-Warbler** (*Phylloscopus trochilus*).—Breeds freely in decoy. Five ringed.
- Grasshopper-Warbler** (*Locustella naevia*).—One heard and seen singing in thicket in decoy c. 30th April, 1948 (P. Scott, E. Overend).
- Reed-Warbler** (*Acrocephalus scirpaceus*).—Nested in *Phragmites* bed in Bottom New Piece in June.
- Sedge-Warbler** (*Acrocephalus schænobænus*).—A few pairs nested about the rhines.
- Blackcap** (*Sylvia atricapilla*).—Heard and seen in decoy during spring, but no nest found.
- Whitethroat** (*Sylvia communis*).—At least two pairs bred beside lane leading from Headquarters to Canal.
- Lesser Whitethroat** (*Sylvia curruca*).—One pair in lane. One trapped in Decoy Wood and ringed.
- Fieldfare** (*Turdus pilaris*).—Large flocks in latter part of winter in decoy and along hedge behind sea wall.
- Mistle-Thrush** (*Turdus viscivorus*).—A pair or two resident.
- Song-Thrush** (*Turdus ericetorum*).—Resident and fairly numerous. Four ringed.
- Redwing** (*Turdus musicus*).—With Fieldfares in the decoy in winter, and along hedge behind sea wall.
- Blackbird** (*Turdus merula*).—Resident and numerous. Three ringed.
- Wheatear** (*Oenanthe æ. oenanthe*).—A few, evidently of British race, on the Dumbles in April. Greenland birds (*O. æ. leucorrhoa*) though not actually reported, doubtless occurred later.
- Whinchat** (*Saxicola rubetra*).—One pair bred in Rushy Pen.
- Redstart** (*Phœnicurus phœnicurus*).—One pair bred in pollard willows in Rushy Pen.
- Robin** (*Erithacus rubecula*).—Common in Decoy Wood and round buildings. Four ringed.
- Hedge-Sparrow** (*Prunella modularis*).—Common in Decoy Wood and round buildings.
- Wren** (*Troglodytes troglodytes*).—As in the case of Long-tailed Tits, the Wrens did not seem to be so hard hit by the cold winter as elsewhere and have remained in fair numbers.
- Swallow** (*Hirundo rustica*).—One pair nests in farm buildings. One over Dumbles as late as 30th October (W. B. Alexander). Four ringed.
- House-Martin** (*Delichon urbica*).—Breeds near Canal Bridge. Seen hawking flies over the Decoy pool in spring and autumn.
- Sand-Martin** (*Riparia riparia*).—A few hawking flies over Decoy pool on several occasions in late summer.
- Swift** (*Apus apus*).—Frequent in summer. One caught in decoy pipe. Two ringed.
- Kingfisher** (*Alcedo atthis*).—One (or possibly a pair) frequently seen on rhine and once in decoy. May possibly have bred on rhine.

- Green Woodpecker** (*Picus viridis*).—One feeding regularly in field at the back of the decoy during winter.
- Greater Spotted Woodpecker** (*Dryobates major*).—Seen frequently in Decoy Wood during winter, but did not breed there.
- Lesser Spotted Woodpecker** (*Dryobates minor*).—One in Decoy Wood, end October, 1948 (S. T. Johnstone).
- Cuckoo** (*Cuculus canorus*).—One pair throughout summer, occasionally two males.
- Little Owl** (*Athene noctua*).—One pair on lane between Headquarters and Canal, at least two other pairs on the New Grounds.
- Tawny Owl** (*Strix aluco*).—One pair bred in Decoy Wood. One caught in south pipe of decoy, 13th September, 1948.
- Barn-Owl** (*Tyto alba*).—One pair resident. Nest not found.
- Peregrine Falcon** (*Falco peregrinus*).—A pair present on the Dumbles during most of the winter. They usually sat on top of the cliff-edge of the marsh.
- Hobby** (*Falco subbuteo*).—Did not nest on the New Grounds. The following were seen—one, 4th July (P. Scott), two, 14th August (R. H. Poulding) and one with kill on the 22nd (H. H. Davis).
- Merlin** (*Falco columbarius*).—One over Rushy Pen, 18th December, 1948 (P. Scott). One over Big Pen, 19th February, 1949 (S. T. Johnstone).
- Kestrel** (*Falco tinnunculus*).—Seen hunting regularly over the Tack Piece and the Rushy Pen.
- Common Buzzard** (*Buteo buteo*).—Seen twice soaring over Headquarters. One, 28th March, 1948 (P. Scott). Other date not recorded.
- Sparrow-Hawk** (*Accipiter nisus*).—Frequently seen in Decoy Wood. Two were caught and ringed in the decoy in November, 1948.
- Common Heron** (*Ardea cinerea*).—Common on mudflats all the year round. Occasionally come to decoy pool for a few days. One caught in the west pipe and ringed on 21st September, 1948. Nearest heronry (of about 15 nests) is about two miles from Headquarters.
- [**Whooper Swan** (*Cygnus cygnus*).—See page 31. Seven birds which came to Rushy Pen on 3rd November, 1948, may have been of this species.]
- Bewick's Swan** (*Cygnus columbianus bewickii*).—One came in to Rushy Pen c. 5th November, 1948, and remained for some weeks until it was caught : it is now part of the collection (see page 30).
- Mute Swan** (*Cygnus olor*).—A pair bred on the Canal. Various birds have visited the pens. Seven arrived in the Rushy Pen on 31st January, 1949.
- Greylag Goose** (*Anser a. anser*).—One (possibly two) present among White-fronted from 16th January, 1949, for more than a week.
- White-fronted Goose** (*Anser a. albifrons*).—Forms vast majority of wild goose flocks between mid-October and March.
- Lesser White-fronted Goose** (*Anser erythropus*).—One on Dumbles from 20th December to 13th February (see page 5).
- Bean-Goose** (*Anser a. arvensis*).—One on Dumbles, 13th February, 1949 (E. Overend, P. Scott, *et al.*).
- Pink-footed Goose** (*Anser a. brachyrhynchus*).—Fewer than in previous season. Only 58 at peak time during first half of November. All had left by 26th November. Thereafter odd ones and pairs were present at various times for varying periods.
- Shelduck** (*Tadorna tadorna*).—About 200 birds spent the summer on the estuary but did not, apparently, breed very successfully, as few young ones were seen. One female laid in the foot of a pollard willow in the decoy, and was ringed. Another was ringed from a nest in the Old Decoy across the Canal. Some Shelducks seem to remain all winter, but peak numbers are to be seen in February and March—312 on Dumbles, 7th February, 1948 ; 155 on 17th March, 1949.

- Mallard** (*Anas platyrhynchos*).—Probably about 100 pairs are the basis of the resident stock. These were augmented during the winter, and there were more than 1,000 Mallards from December onwards.
- Gadwall** (*Anas strepera*).—Two females first seen on decoy pool, 27th October, 1948 (C. P. A. Garnett). These moved to the Big Pen and remained for whole winter and are still present (15th April, 1949). One was caught and ringed on 28th December (see page 10).
- Teal** (*Anas crecca*).—Peak numbers on the estuary about 1,500 on 21st December, 1948. Over 500 still present on 17th March, 1949. The maximum number in the decoy was 53 on 4th January, 1949.
- Garganey** (*Anas querquedula*).—One pair caught in decoy, 26th March, 1948. Second pair seen 28th March. Two females caught, 5th April, 1948. One immature male caught, 22nd August, 1948. One male of pair caught, 16th April, 1949.
- Wigeon** (*Anas penelope*).—Seven hundred on the Dumbles, 27th December, 1948. This seems to have been peak number for season. C. 200 still present, 17th March, 1949. For numbers in decoy see page 10.
- Pintail** (*Anas acuta*).—About 100 on the estuary 1st February, 1948, and again 15th February, 1949. At least 50 in mid-December, 1948. C. 12 on decoy during September, 1948. Up to seven or eight wild ones in pens during winter (see page 32).
- Shoveler** (*Anas clypeata*).—About 50 were present in August, 1948 (17 of them on the decoy on 6th August). About 50 were again present on 17th March, 1949, but there is no evidence that these were on the estuary all winter, although there were always some.
- Common Pochard** (*Aythya ferina*).—A dozen on Dumbles after a high tide on 27th February, 1948. Up to nine in decoy during January, 1949 (see page 11).
- Tufted Duck** (*Aythya fuligula*).—Eight on estuary on 21st November (K. Shackleton). Wild female came to Rushy Pen on 7th December, 1948, and was still present at end of March, 1949.
- Goldeneye** (*Bucephala clangula*).—One, brown headed, on the estuary on 21st November, 1948 (K. Shackleton).
- Long-tailed Duck** (*Clangula hyemalis*).—Two females or immature males on the estuary on 21st November, 1948 (K. Shackleton).
- Common Scoter** (*Melanitta nigra*).—Two females or immature males (probably females) on Canal, 1st April, 1949 (M. Everitt).
- Cormorant** (*Phalacrocorax carbo*).—Up to 20 usually to be seen sitting on edge of marsh at high tide.
- [**Southern Cormorant** (*Phalacrocorax carbo sinensis*).—An adult Cormorant on Dumbles, 15th March, 1948, and four adults and an immature in same place on 27th may have been of this race. The adults had strikingly, almost pure, white heads, and on the latter date they formed a separate group resting on the river-bank about 50 yards from a party of 11 dark headed Cormorants. It is understood that the head of *P. c. carbo* may occasionally become as white as that of the southern race, and that distinguishing features described in *The Handbook* are under review. The record is therefore given in square brackets].
- Shag** (*Phalacrocorax aristotelis*).—Six adults and three immatures on Dumbles, 21st September, 1948 (L. W. Hayward).
- Little Grebe** (*Podiceps ruficollis*).—Occasional birds frequently to be seen on decoy pool, but the species did not breed there.
- Wood-Pigeon** (*Columba palambus*).—Several pairs breed in the decoy. Some large flocks roosted in the Spinney during February. One ringed.
- Stock-Dove** (*Columba anas*).—One pair in Decoy Wood which probably bred, but no nest found.

- Turtle-Dove** (*Streptopelia turtur*).—One pair in Decoy Wood raised two broods. One pair bred in lane. Two caught in decoy pipe and ringed.
- Bar-tailed Godwit** (*Limosa lapponica*).—Party of five on mud-banks, 25th September (M. Bratby).
- Black-tailed Godwit** (*Limosa limosa*).—One on estuary, 26th March, 1948 (J. Savidge). Three 14th August, 1948 (R. H. Poulding).
- Common Curlew** (*Numenius arquata*).—Very numerous on the estuary, even during the summer (300 on 14th August, 1948).
- Whimbrel** (*Numenius phaeopus*).—Small numbers on estuary during end of April and early May, 1948. Heard and seen in flight in August.
- Common Snipe** (*Capella gallinago*).—A few in the rhines during the winter. One on rhine in Big Pen for several days during April, 1948. One in Decoy-side Pens, February, 1949.
- Jack Snipe** (*Lymnocyrtus minimus*).—One in the Tack Piece, 28th February, 1948 (P. Scott, E. Overend).
- Turnstone** (*Arenaria interpres*).—Four on Dumbles, 6th August, 1948 (P. Scott). One 22nd August (H. H. Davis).
- Knot** (*Calidris canutus*).—Small numbers during autumn. Eleven on 14th August, 1948 (R. H. Poulding). Three on 22nd August (H. H. Davis).
- Northern Dunlin** (*Calidris a. alpina*).—Up to 1,000 or more (assumed to be of this race) winter on the estuary.
- Little Stint** (*Calidris minuta*).—One with Dunlins on Dumbles, 22nd August, 1948 (H. H. Davis).
- Sanderling** (*Crocethia alba*).—Eleven, 22nd August, 1948 (R. H. Poulding) and six on 24th (M. J. Wotton).
- Ruff** (*Philomachus pugnax*).—One over Rushy Pen, 7th March, 1948. Next day probably the same bird was asleep on the island in the Rushy Pen and allowed approach to 10 yards without taking its bill from its scapulars (P. Scott, Kennet *et al.*). Two on Dumbles, 22nd August (H. H. Davis) and one 6th September (M. J. Wotton).
- Common Sandpiper** (*Actitis hypoleucos*).—A number on the estuary during autumn.
- Green Sandpiper** (*Tringa ochropus*).—One on Dumbles, 22nd August (H. H. Davis). One in Decoy-side Pens and flying over decoy (P. Scott, S. T. Johnstone).
- Redshank** (*Tringa totanus*).—Common on the estuary in winter. No evidence of birds remaining to breed.
- Greenshank** (*Tringa nebularia*).—A few in spring, more in autumn, on the Dumbles and estuary. Two lived at far end of Rushy Pen for a week from 16th August, 1948.
- Ringed Plover** (*Charadrius hiaticula*).—Common on the estuary, especially in the autumn.
- Golden Plover** (*Pluvialis apricaria* (*subsp.*)).—Flock of up to 100 on Dumbles and in fields throughout January and February, 1949. Much larger flock reported from Frampton end of New Grounds. What were most probably two examples of the northern race (*P. a. altifrons*) were seen on Dumbles, 1st May, by M. J. Wotton.
- Grey Plover** (*Squatarola squatarola*).—A few, often with Dunlins, throughout winter. Most often heard flying at dusk.
- Lapwing** (*Vanellus vanellus*).—Common on the New Grounds, although there were no very large numbers.
- Oyster-catcher** (*Hamatopus ostralegus*).—One reported on 18th November, 1948, on Dumbles in company with Redshanks.
- Black-headed Gull** (*Larus ridibundus*).—Common on the estuary during winter.

- Common Gull** (*Larus canus*).—Very large numbers of gulls, chiefly of this species, roost on the estuary throughout the winter, flying out to the Wolds by day and returning early in the afternoon. Estimate of this flock at peak time—11,000 on 7th January, 1949 (P. Scott *et al.*). Three ringed.
- Herring-Gull** (*Larus argentatus*).—Common on estuary in winter but less numerous than Common or Black-headed.
- Great Black-backed Gull** (*Larus marinus*).—About 30 regularly to be seen on Dumbles all winter, especially at high tide.
- Kittiwake** (*Rissa tridactyla*).—One immature picked up dead near Canal. March, 1949.
- Water-Rail** (*Rallus aquaticus*).—One frequently seen during winter in rhine in Bottom New Piece. One captured near Dursley was ringed and released, and remained rest of winter in decoy and in lane leading to Dumbles. There may have been an unringed one there too.
- Moorhen** (*Gallinula chloropus*).—Very common in decoy, in pens, and in surrounding rhines. Fifty-two ringed and sent away for homing experiments (see page 27).
- Coot** (*Fulica atra*).—A few in the decoy and one for a time in the Rushy Pen in March, 1949. One caught in decoy and ringed, 20th November, 1948.
- Pheasant** (*Phasianus colchicus*).—A very few. One cock lives in back of Decoy Wood.
- Common Partridge** (*Perdix perdix*).—One covey occasionally in Bottom New Piece during the autumn.



RECOVERIES OF RINGED BIRDS 1948-49

GEESE

Ring No.	Species	Ringed	Recovered	
128041	White-front, adult male	18.2.48	7.1.49	Shot Zeeland, near Saffetingen.

(The following three birds spent a winter "feather cut" (i.e., temporarily unable to fly) at the New Grounds, but eventually flew off after growing their new primaries in August. The Barnacle remained with the pinioned birds all through the winter and spring and left in June—a most unexpected time. It was only two years old and therefore too young to breed.)

125230	Pink-foot	Left c. 22.11.47	13.12.48	Shot Brackley, Loch Leven.
125232	Pink-foot	Left c. 22.11.47	21.12.48	Shot Wainfleet, Lincs.
125235	Barnacle	Left June, 1948	20.1.49	Shot Blundeston, Suffolk.

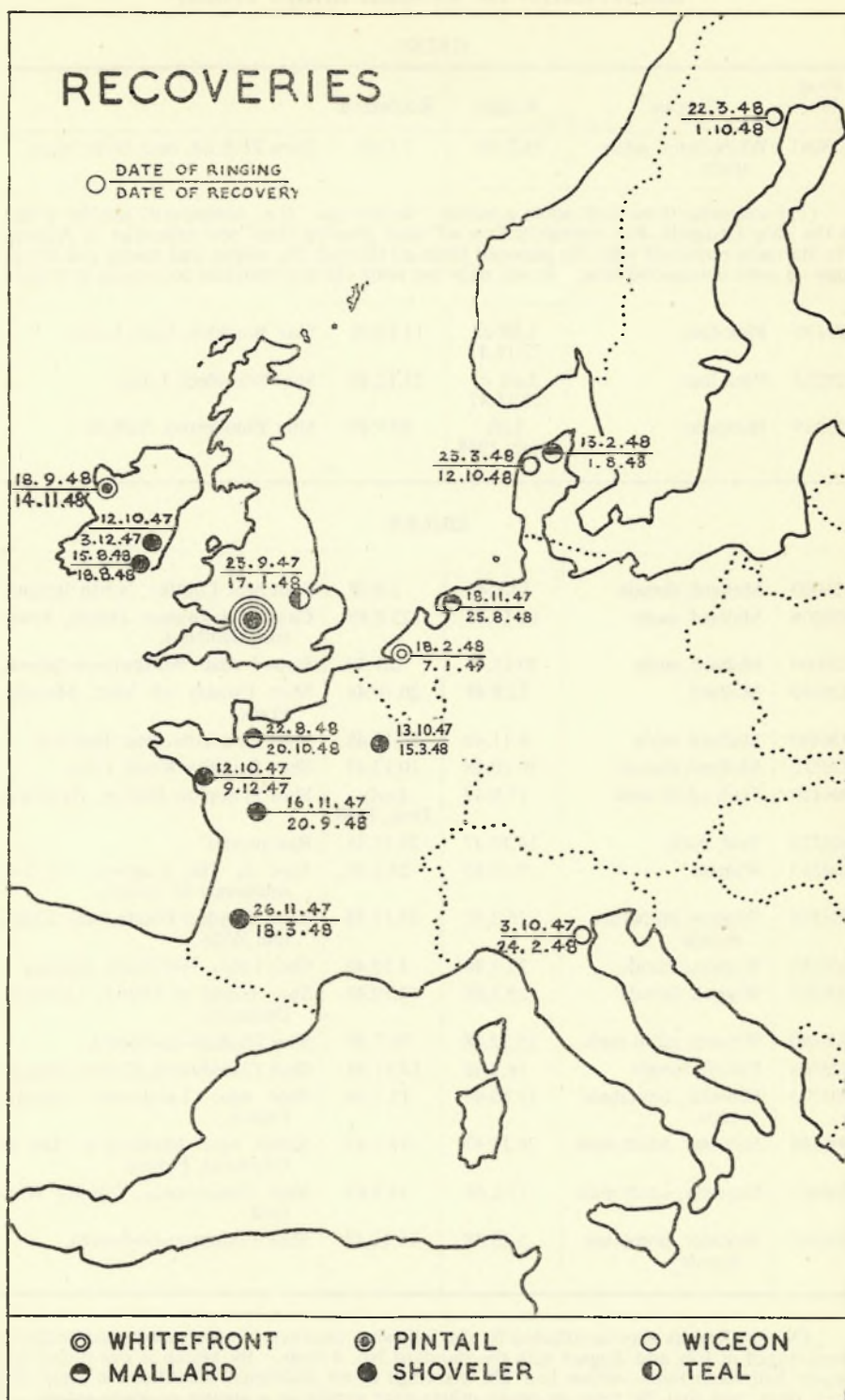
DUCKS

926000	Mallard, female	13.2.48	1.8.48	Shot near Lögstör, North Jutland.
926006	Mallard, male	18.11.47	25.8.48	Caught Bakhuizen Decoy, Friesland, Holland.
926008	Mallard, male	30.11.47	2.1.49	Found dead Westbury-on-Severn.
926438	Mallard	22.8.48	20.10.48	Shot Estuary of Vire, Manche, France.
926490	Mallard, male	8.11.48	27.12.48	Shot Stewartby, near Bedford.
926512	Mallard, female	10.10.48	10.12.48	Shot Berkeley Road, Glos.
904160	Teal, adult male	17.9.47	Early Dec., 1948	Shot Hampton Bishop, Hereford.
904224	Teal, male	14.10.47	29.11.48	Recaptured.
904215	Wigeon	3.10.47	24.2.48	Shot in The Lagoons, 15 km. south-east of Venice.
906376	Wigeon, immature female	25.2.48	13.11.48	Shot Braydon Ponds, near Charlton, Wilts.
906380	Wigeon, female	22.3.48	1.10.48	Shot Lulea, Norrbotte, Sweden.
906402	Wigeon, female	23.3.48	12.10.48	Shot Island of Oland, Limfjord, Denmark.
906490	Wigeon, adult male	25.12.48	18.1.49	Shot Hasfield-on-Severn.
926508	Pintail, female	18.9.48	14.11.48	Shot Claremorris, County Mayo.
904223	Shoveler, immature male	13.10.47	15.3.48	Shot near Landrecies (Nord.), France.
906346	Shoveler, adult male	26.11.47	18.3.48	Killed near Marmande (Lot et Garonne), France.
906415	Shoveler, adult male	15.8.48	18.8.48	Shot Duncormick, County Wexford.
906447	Shoveler, immature female	5.12.48	16.12.48	Shot Frampton-on-Severn.

(Note.—Results may be affected by the following discovery : 130 hand-reared Mallards were ringed in July and August with the standard No. 4 rings. By March it was found that nearly half these birds—which had bill markings as an additional identification—had lost their rings, and that the rings on many others were gaping to a greater or lesser extent. It is suggested that the standard No. 4 ring without clip should be made of a thicker gauge.)

RECOVERIES

○ DATE OF RINGING
○ DATE OF RECOVERY





BIRDS RINGED OTHER THAN WATERFOWL SINCE THE INCEPTION OF THE TRUST

In addition to the waterfowl the following 173 birds have been ringed :—

One Jackdaw, 3 Starlings, 76 Greenfinches, 8 Chaffinches, 2 Reed-Buntings, 1 House-Sparrow, 7 Great Tits, 27 Blue Tits, 8 Spotted Flycatchers, 3 Chiffchaffs, 5 Willow-Warblers, 1 Lesser Whitethroat, 4 Song-Thrushes, 3 Blackbirds, 4 Robins, 1 Hedge-Sparrow, 4 Swallows, 2 Swifts, 1 Tawny Owl, 2 Sparrow-Hawks, 2 Herons, 1 Wood-Pigeon, 2 Turtle-Doves, 3 Common Gulls, 1 Water-Rail, 1 Coot.

MOORHEN EXPERIMENTS

Homing experiments have been carried out with Moorhens (*Gallinula c. chloropus*) with only moderate results. Moorhens breed freely in the decoy, the pens and the surrounding rhines. Since they eat the duck food and occasionally take eggs and even young ducks, we are anxious to reduce their numbers. They are therefore trapped, ringed and taken away by visitors for release at various distances. They are not a very satisfactory bird for such work as they are not easily re-trapped and a ringed bird may return without being detected until long afterwards. On the other hand, the fairly large numbers which do not return rid the Trust's enclosures of an excess of these birds. It is proposed to continue the experiments by dyeing or lacquering certain feathers which will make returned birds identifiable without recapture. Fifty-two Moorhens have been caught and sent to the following places :—

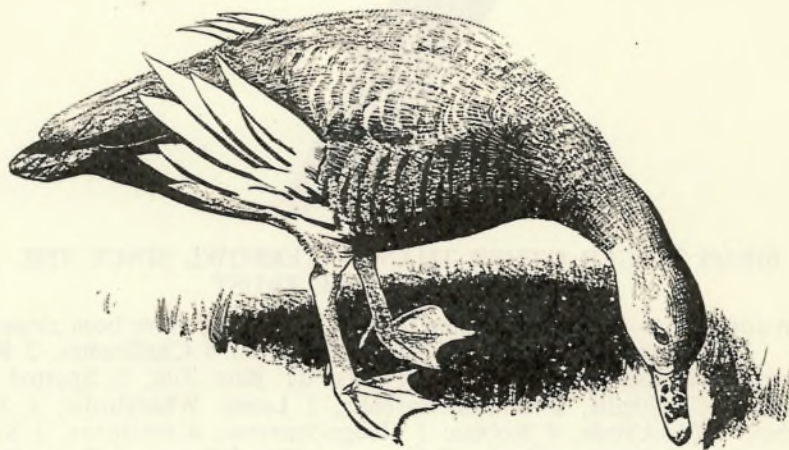
Bidston (Cheshire), Burnham-on-Sea (Somerset), Blandford (Dorset), Cheltenham, Chipping Sodbury, Epney (Glos), Frome, Framilode (Glos), Gloucester, Harborne (near Birmingham), Haslemere, Hagley (near Birmingham), Kidlington (Oxon), Kingskerswell (near Torquay), Malvern, Mere (Wilts), Nailsea (Somerset), Pangbourne, Reading, Stonehouse (Glos), Seend (Wilts), Stow-on-the-Wold, Upleadon (Glos), Westbury-on-Trym (near Bristol), Worcester, Walton-on-Thames.

Only three birds returned and were recaptured on the New Grounds :—

333183 released Reading 24.7.48, recaptured 7.11.48. 906393 released Walton-on-Thames 29.11.47, recaptured 25.2.48, released next day at Malvern and shot at Longney (about six miles from the New Grounds) in August, 1948 (exact date not recorded by recoverer). 906370 released Chipping Sodbury 21.12.47, recaptured 8.1.48, released next day at Stonehouse (Glos), but has not been recaptured since.

THE WATERFOWL COLLECTION

During the past year the collection has been greatly improved and is now without doubt the most representative in the world. Some 600 birds of 101 species and subspecies are to be seen in the various enclosures at the New Grounds. Representatives of 20 of these forms are, or were when they arrived at the New Grounds, the only living specimens of their kind in this country. This collection, therefore, offers a unique opportunity to the student of evolution



Plumed or Eyton's Whistling Duck

and systematics. It is also of great value to the study of behaviour and to many specific researches in bird pathology, parasitology, serology, etc. And to those who have no specialised interest in this direction, it offers a lively and beautiful sight as the birds cluster round at feeding time.

Additions to the Collection

In the early autumn a number of the quiet-looking, but attractive, Marbled Teal (*Anas angustirostris*) were sent to the New Grounds by air from the marshes at the confluence of the Tigris and Euphrates by Mr. Angorly of Basra. It was the first time for more than 30 years that this interesting little duck had reached Britain alive. The birds are now well established and should breed. The Marbled Teal has one interesting feature: there is no trace of a coloured speculum in the wing. In all other respects it seems to be a typical Teal of the *Anas* group, although it has some slight superficial resemblance to the Crested Duck (*Lophonetta specularioides*) in the soft pattern of body markings, the slight crest, the dark patch round the eye and the narrow black bill. A group of 6 Eastern Greylags came from the same source as the Marbled Teal.

A Shipment from America

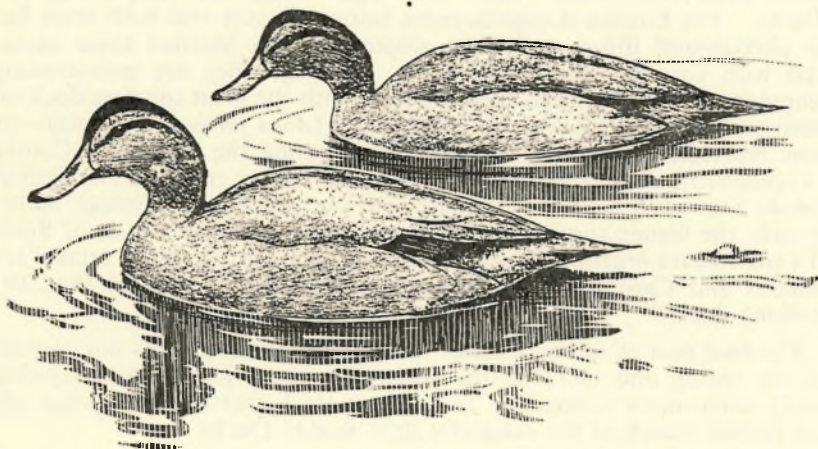
During the summer of 1948 Colonel Niall Rankin returned from Canada with a fine collection of new waterfowl for the Trust. We are most grateful to him for the trouble he took to get them back in such excellent condition. The pride of this collection was a splendid pair of Philippine Ducks (*Anas luzonica*), the first of the species ever to be seen alive in Europe. They are a true pair and, having come safely through a conveniently mild winter, seem likely to breed. They are a handsome couple with light chestnut head, sharp

black eyestripe, grey body and brilliant green speculum. Contrary to the descriptions in text-books, the bill is blue and the legs dull orange. The female's plumage is slightly less brilliant than that of the male. Her body is plain grey without spots—the only surface feeding or “dabbling” duck in which the female is not spotted. The voice, hitherto undescribed, is very characteristic in the male—a low clucking, quite unlike the Mallard—but the female's note is Mallard-like, though more clipped. The bird carries itself with a curious and very typical hump on the forward part of its back. Display and nesting behaviour, hitherto undescribed, will be carefully recorded. Colonel Rankin also brought some Western Canada Geese (*Branta canadensis occidentalis*)—a present from Mr. Oliver Wells of British Columbia—and two fine pairs of Pacific Black Brant (*Branta bernicla nigricans*). With the more recent addition of three Light-bellied Brent Geese (*Branta bernicla hrota*) taken on the Wexford Slob in Ireland and sent through the courtesy of Mr. J. Colloton of Curraclloe, and Dr. C. L. Flood of the Dublin Zoo, all three forms of the Brent Goose can now conveniently be compared one with another in the Big Pen.

Among the ducks brought by Colonel Rankin were some Canvasbacks (*Aythya valisneria*) and American Redheads (*Aythya americana*), especially reared for the Trust by Mr. A. Hochbaum at the Delta Waterfowl Research Station, Manitoba, Canada. Four magnificent Whistling Swans (*Cygnus c. columbianus*) also came from the Delta Station as a presentation.

An Export Shipment

In October the Director sailed for the United States and Canada in the liner *America* with a shipment of 70 birds, which included Pink-footed, Greylag and Red-breasted Geese (*Branta ruficollis*), Common Shelducks (*Tadorna tadorna*), Wigeon (*Anas penelope*), Teal (*Anas crecca*), Garganey (*Anas querquedula*), Marbled Teal (*Anas angustirostris*), Red-crested Pochard (*Netta rufina*), Rosy-bill (*Netta peposaca*) and Tufted Duck (*Aythya fuligula*). This shipment arrived without a single loss. The birds were mainly for sale to Zoos and collections in the United States as part of the export drive, but in some cases exchanges were made.



Philippine Ducks

The Director travelled some 15,000 miles in six weeks, studying the North American Wildfowl problem and visiting many of the most notable Refuges. He found that great interest was shown in the work of the Trust and that those responsible for wildlife conservation in North America were anxious to co-operate with the Trust. An exchange of ideas and publications was arranged with many of them.

The Second Shipment from America

Another result of this visit was the assembly of a number of live birds either as presents to the Trust, or in exchange, from those who were in sympathy with our aims and determined to help in some way or another. In this connection the following must be particularly mentioned: Mr. Joseph Sloan, Superintendent of Parks, Salt Lake City; Mr. Jack Livermore of Redding, Connecticut; Mr. W. J. Mackensen of Yardley, Pennsylvania; Mr. A. Griswold of the Philadelphia Zoo; Mr. Arthur Harlow of New York; Mr. Lee Crandall of the Bronx Zoo and Mr. Jean Delacour of the American Museum of Natural History, New York, who was particularly helpful and whose experience of keeping waterfowl in captivity is, of course, second to none. The most interesting of the birds of this shipment were several pairs of the North American Ruddy Duck (*Oxyura jamaicensis*), which is a fairly common bird in most parts of America. It belongs to the Stiff-tail family, which, although divers by habit, are in no way related to the Diving Ducks or to the Sea Ducks but stand in a group by themselves. The Ruddy Ducks, which do not usually travel well, reached the New Grounds with only small losses, and are now well established. They were hand-reared by an extremely able and successful aviculturist, Mr. Calvin Wilson of the Tracey Aviary, Salt Lake City. Another important part of this shipment which came by air was a pair of Orinoco Geese (*Neochen jubata*), the male of which has been paired with the old female who has laid infertile eggs at the New Grounds for the past two seasons. Unfortunately she has not had time to become attached to this new male and it seems likely that this year's eggs will again prove infertile.

One of the most attractive additions to the collection is a group of four species of Tree Ducks or Whistling Ducks. These include Grey-breasted (*Dendrocygna autumnalis discolor*), Fulvous (*D. bicolor*), Cuban Black-billed (*D. arborea*) and White-faced (*D. viduata*). Two races of Mallards were included in the shipment. These are the non-migratory forms from the coast of the Gulf of Mexico—the Florida Duck (*Anas f. fulvigula*) and the Mottled Duck (*A. f. maculosa*) from Louisiana. There is little, if any, real difference between these two forms. Both male and female look not unlike female Mallards. The Florida is slightly more rufous all over and both sexes have a clear pinkish-buff throat and chin, whereas in the Mottled these areas are dotted with very fine black markings. Although they are uninteresting in appearance, it is significant to compare them with the great sporting duck of the Eastern parts of the U.S.A.—the Black Duck (*Anas fulvigula rubripes*)—which is now represented at the New Grounds. Among the Teal were Cinnamon (*A. cyanoptera*), American Green-winged (*A. crecca carolinensis*), Baikal or Formosa Teal (*A. formosa*), Versicolor Teal (*A. versicolor*)—although unfortunately only the female survived the journey—and a well-mated pair of Brazilian Teal (*Amazonetta brasiliensis*)—which is said to be more nearly related to the Mandarin and Carolina duck (*Aix galericulata* and *A. sponsa*) than to the “dabbling ducks.”

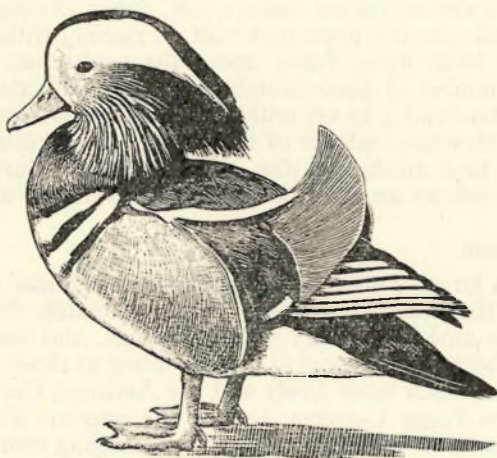
The final part of this shipment—from Salt Lake City—was not despatched until the spring and included the Australian Grey Duck (*Anas superciliosa rogersi*), some more Cinnamon Teal, two male Lesser Scaup (*Aythya affinis*) and a further bunch of the delightful little Ruddy Ducks.

Bewick's Swan

The collection now contains all the kinds of swans in the world except the very rare Trumpeter Swan (*Cygnus c. buccinator*) of North America and the doubtfully distinct Jankowski's or Eastern Bewick's (*Cygnus columbianus jankowskii*), which is said to be slightly larger than the typical Bewick (*Cygnus columbianus bewickii*). One of the latter subspecies came to the collection in

a most interesting way. In the early morning of 3rd November, 1948, seven wild swans were seen leaving the Rushy Pen. On the same evening six swans were back—three adults and three immatures—and in the fading light they were identified as Whoopers (*Cygnus c. cygnus*). On the following day two immatures were shot at Frampton, but the specimens were not examined, and subsequently four *adult* wild swans were seen flying over the Dumbles. From 5th November onwards one swan was constantly on the Dumbles and came regularly to the pond in the Rushy Pen. At first it was taken to be a Whooper—especially as the bill pattern was still in process of development as the bird was only 18 months old. Later, however, it became evident that the bird was a Bewick's. It will never be known whether all seven swans were Bewick's and, if so, why the single one separated from the rest. The issue is further confused by a report of a single swan seen on the Dumbles on some date before 1st November, but the date cannot be confirmed with certainty.

By 23rd November the swan had become so tame that it was possible to drive it into a V of netting, catch it and cut the feathers of one wing. Thus the Bewick's Swan is available in the collection for comparison with the Whooper, Whistling and Mute Swans and, of course, the three species from the southern hemisphere.



Mandarin Drake

Wild Birds in the Pens

One of the most delightful developments in the collection has been the visits of wild ducks to the pens and the way in which, in a surprisingly short time, they have become completely tame and will even fly up to one's feet to be fed. Apart from the Bewick's Swan, perhaps the most striking examples have been the two female Gadwall described on page 10. One of these is now paired to a pinioned drake and the other was caught in a makeshift trap and ringed. She remained as tame as ever after this performance, but the unringed one, although equally tame, is extremely knowing about the trap and refuses to go under its door.

Even more striking are the wild Common Teal which have lived all winter on the Orchard pond. Common Teal are almost the most difficult of all ducks to tame, but in spite of that up to four full-winged ones will remain on this very small pond often with a crowd of 30 people standing within 10 yards of them. One drake is a wild-caught bird which spent a winter on that pond when feather-cut, and grew full wings again in July, but the other three are totally wild birds. The tamest of all is a little female which will come to feed much closer than the pinioned Teal in the collection.

Pintails, and especially drake Pintails, become tame extraordinarily quickly. During the winter there have been about seven or eight wild drakes which lived, to begin with, mainly in the Orchard pond. Later they mostly moved to the Rushy Pen as their principal headquarters and were joined by one or two females. It seems that some, though not all, drake Pintails are subject to a curious and extreme tameness which does not occur so frequently in other species of ducks. Some of these drakes would come to feed within five yards on the day of their arrival. That this is based on a complete ignorance of mankind and his wicked ways seems a more probable explanation than that they should have been previously familiar with friendly humans.

A number of Wigeon have become tame in the Rushy Pen and throughout March, 1949, three pairs were always to be seen there, occasionally taking short flights. One of the females was an exceptionally dark bird. One particular drake, an adult with white shoulders, became the tamest and would fly up to within six or seven feet to feed.

A wild female Tufted Duck (as described earlier) also settled down and remained throughout the season, but oddly enough none of the Pochards which frequented the decoy pool in January ever came regularly to the pens, although odd ones were to be seen there occasionally in the early morning.

Shovelers were also occasional visitors only, although a male remained on the Rushy Pen pond all one afternoon with visitors passing within about 25 yards.

To see these birds flying freely about the enclosures, as well as many Mallards and a number of geese (notably Greylags, Greater Snows, Chinese Swan Geese and Bar-heads), to say nothing of occasional Mute Swans, has been one of the most attractive features of the New Grounds during the past year. There is hardly a time during the day, and particularly during the afternoon, when it is not possible to see wildfowl of some kind on the wing.

The Breeding Season

With a much larger collection the spring and summer of 1948 produced many more nests than the previous year. Unfortunately there was a series of unexplained losses among the very young goslings, and the results from the shipment of eggs from Iceland were as disappointing as those of the year before. But the ducks bred much more freely and the Assistant Curator, Miss Eunice Overend, and Miss Peggy Cameron tackled the onerous work of rearing the young in a most excellent manner, and with encouraging results.

Nests were found of the following 27 species and subspecies :—

Tundra Canada Goose (*Branta canadensis leucopareia*)

Barnacle Goose (*Branta leucopsis*)

Swan × Chinese Goose (*Anser cygnoides*)

Bar-headed Goose (*Anser indicus*)

Blue Snow Goose (*Anser c. caerulescens*)

Greater Snow Goose (*Anser caerulescens atlantica*)

Ross's Goose (*Anser rossii*)

Upland Goose (*Chloëphaga p. picta*)

Egyptian Goose (*Alopochen aegyptiacus*)

Orinoco Goose (*Neochen jubata*)

Cereopsis Goose (*Cereopsis novæ-hollandiæ*)

Australian Shelduck (*Tadorna tadornoides*)

Cape Teal (*Anas capensis*)

Puna Teal (*Anas versicolor puna*)

Bahama Pintail (*Anas bahamensis rubrirostris*)

Common Pintail (*Anas acuta*)

Chilean Teal (*Anas f. flavirostris*)

African Yellow-bill (*Anas u. undulata*)

Mallard (*Anas platyrhynchos*)

Gadwall (*Anas strepera*)

American Wigeon (*Anas americana*)
Chiloë Wigeon (*Anas sibilatrix*)
Carolina Duck (*Aix sponsa*)
Red-crested Pochard (*Netta rufina*)
Rosy-bill (*Netta peposaca*)
Tufted Duck (*Aythya fuligula*)
Scaup (*Aythya marila*)

Eggs were received from Iceland and elsewhere of the following species :—

Common Shelduck (*Tadorna tadorna*)
Common Pochard (*Aythya ferina*)
Barrow's Golden-eye (*Bucephala islandica*)
Eider Duck (*Somateria mollissima*)
Tufted Duck and Scaup

297 young birds were reared (chiefly under foster parents) of the following 18 kinds :—

Swan Goose × **Chinese Goose**¹, **Bar-headed Goose**, **Blue Snow Goose**, **Egyptian Goose**, **Cereopsis Goose**, **Pintail**, **Chilean Teal**, **Yellow-bill** × **Rosy-bill hybrids**, **Mallard**, **Gadwall**, **Carolina**, **Red-crested Pochard**, **Rosy-bill**, **Common Pochard**, **Tufted Duck**, **Scaup**, **Barrow's Golden-eye**.

A small number of eggs was sent to Dr. H. B. Cott at Cambridge University for his research into the palatability of eggs and its relation to the colour of the egg (external and internal), the colour of the parent birds, and the normal nesting site.

Further eggs will be sent during the coming summer.

Fertility Treatment

Ten female Pink-footed Geese and five female Dark-bellied Brent Geese were injected with 200 I.U.s of Pregnant Mares' Serum daily for six days. On the following day, half the number treated were injected with 100 I.U.s of chorionic gonadotrophin, and the other half injected with 200 I.U.s of the gonadotrophin.

In America, 200 F.U.s of Horse Pituitary Gonadotrophin per bird (domestic fowl), were used, but, as this preparation is not available in this country, chorionic gonadotrophin had to be injected in its place.

No ovulation was induced and no other effects of any kind were observed. It seems likely that the infertility is related to the length of daylight rather than to internal or endocrinal derangements.

More information is required in this field, particularly on American work, as there is apparently no record of any research in this country.

When electricity is available at the New Grounds it is proposed to simulate the extended daylight of the northern breeding range with artificial light.

Pathology

Gizzard Worm

During the year five birds have become infested with an internal parasite with fatal results. This parasite is the Gizzard Worm (*Amidostomum anseris*), which is a member of the Order *Strongyloidea*. It occurs in the mucosa of the gizzard, and, less commonly, in the lining of the oesophagus and proventriculus of geese and ducks. The life cycle is direct, and adult birds can be carriers and show no clinical signs of disease. It is said to be very pathogenic to young geese. The clinical signs are weakness, emaciation, anæmia, prostration, and sometimes ataxia and muscular inco-ordination. Treatment with Phenothiazine ($\frac{1}{2}$ to 1 gramme per bird, repeated in one week) has proved very successful provided that the bird can be caught up and dosed as soon as the ailment is detected. In several cases a complete cure has resulted.

1 The domestic Chinese Goose is conspecific with the Swan Goose, from which it was domesticated. These young therefore are not hybrids.

Streptococcal meningitis

During the autumn a Pink-footed Goose developed a curious twisted neck with acute lack of balance. The bird died shortly afterwards and the cause of death was diagnosed as streptococcal meningitis. A second Pink-foot showed the same symptoms, and was immediately treated with penicillin, injected subcutaneously in massive doses for about three days. The progress of the disease was immediately arrested and the bird began to recover very slowly. The brain had, however, apparently sustained permanent damage, and the bird has not become quite normal, and does not appear now to be improving. It walks with a slightly staggering gait and a characteristic wobble of the head. However, it can lead a perfectly normal existence. For some time the disease delayed its moult, but it has now grown new flight feathers. In spite of that it evidently dare not take flight. It is, however, very tame, feeds well, and keeps its feathers in perfect condition.

Staphylococcal arthritis

This has occurred both in an acute and a chronic form, is more frequent in summer, and takes the form of lameness and swollen "knee" joints. It occurs in any bird, but some species seem to be more susceptible than others, and the degree of susceptibility may depend on the inherent resistance in new arrivals, since these seem most frequently to be affected. In all cases but one very satisfactory results have been shown by high doses of penicillin by injection. 100,000 units have been given daily.

Aspergillosis

Birds are said to be infected by inhaling spores of a fungus (*Aspergillus* Sp. *A.fumigatus*, *A.glaucus*, or *A.nigrescens*) in mouldy litter or food. The fungus attacks the lungs, air spaces and sometimes other organs in the body cavity. The only species affected during the last year have been Common Eider and Carolina Ducks and in the previous year, Dark-bellied Brent Geese and European Wigeon. It will be noted that three of the four species commonly frequent salt water. No cure for this mycosis has been discovered.

Feather Plucking

A male Red-breasted Goose has developed broken feathers all over the breast, back, wings and tail. The feathers have been microscopically examined and no signs of Feather-eating Mite were discovered. It is noticeable that only those feathers which can be reached by the bird's bill are affected. It seems possible that the condition is akin to feather plucking in parrots or nail-biting in human beings.

Wet Feather

Two of the three Australian Grey Teal have developed "Wet feather," a condition which is fairly common in some waterfowl collections but is so far unexplained. Parts of the bird, usually the after parts (and again those which can be preened by the bird's bill), become no longer waterproof. The condition is not usually fatal unless the bird finally catches pneumonia. Some deficiency in diet may be the cause, or a failure of the preen gland to supply sufficient feather oil. Birds often recover and are perfect again after the moult.

Psychology

Studies are being made of two interesting cases ; a male Lesser White-front and a male Blue Goose. The Lesser White-front was reared by hand in Lapland in 1938 in company with its sister. The two birds were brought back by Major Gavin Maxwell and lived in Scotland until the end of the war. They never bred and by 1944 the male had become belligerent with certain humans. In 1945 the female died and the male took up with a party of Tundra Canada

Geese and was fairly well paired with a female of that race. He was separated and put in the Orchard Pen with a female of his own species, but within a few days it was noticeable that he always sat near a brooder in which some young bantams were being reared. In due course the bantams were removed and the bird remained faithful to the brooder—a large box, about 4 ft. × 3 ft. × 3 ft. high. The bantams had been under the charge of our keeper Mr. Cameron, and when in due course the brooder was removed the fixation was transferred to Mr. Cameron. The Lesser White-front will follow him round the pen whenever he comes into it. This has nothing to do with food as he will not take food, but keeps within a foot or two of Mr. Cameron's feet wherever he goes. When he leaves the pen the bird will stand by the gate he went out by, waiting for his return. This fixation was well established by January, 1948, and throughout the summer the bird paid no attention to the female in the pen, but he took under his protection six young Chinese Geese which were put into the pen to keep the grass down, and a few weeks later he took charge of a young Blue Goose and two young Bar-headed Geese which were substituted for the now grown Chinese. But, when these also were moved on, the little gander gave all his attention once more to Mr. Cameron. He dislikes women and often attacks those he knows well (Miss Overend and Miss Peggy Cameron, both of whom usually wear trousers). There have been occasional indications of a minor transference of his fixation for the Director or for the Curator, Mr. Yealland. On occasions he will follow them, but never so devotedly as he follows Mr. Cameron. One very interesting circumstance, however, is that a certain Mr. White, who lives not far away, has visited the Trust four or five times during the last year. On each occasion the Lesser White-front has made straight for him and has stayed with him devotedly until he leaves the pen. Mr. White bears no resemblance to Mr. Cameron whatever, being dressed quite differently and not being so tall. It is proposed to carry out further experiments.

The Blue Snow gander was sent to us as a present on 6th April, 1949, by Col. W. V. Lumsden of Sluie, Banchory, Scotland. It was released in the Big Pen and wandered to the far end, where, by next morning, it had attached itself firmly to one (the largest) of a number of kennel-type nesting boxes (3 ft. × 2 ft. 6 in. × 2 ft. 6 in. high). This he protected in the same way as a gander normally protects a sitting goose. He never left it and wore the grass down walking round it. He also nibbled at the edges of the roof of the box, peeling off the roofing felt and gnawing at the wood. It was decided to move the box nearer to the headquarters in order to study this fixation. The first time it was picked up he rushed away in alarm. It was moved about 30 yards away and he took up with it again. The next day it was moved another 30 yards and placed on top of a low bank. This time he rejoined it almost at once but walked round it in a suspicious way about 10 yards away before going up to it with the greeting calls and movements. Ten minutes later it was moved about 70 yards. It was now placed near the pond and beside a small ditch where a number of other geese were sitting (including four female Blue Snow Geese without any gander). He walked up towards the box, then was side-tracked by a quarrel with some Greater Snow ganders. He then walked round the box at 10 yards and did not rejoin it, but walked back to where it had been, passing a flat-roofed box on the way, and went straight to a much smaller kennel-shaped box on the side of the low bank. Suddenly he was attacked over the bank by a gander Ashy-headed Goose. The surprise caused him to flee for about 10 yards, then he turned and counter-attacked and a very fierce fight ensued, lasting about two minutes, at the end of which the Blue gander was defeated. The box was then moved back about 30 yards to the open grass again as it was intended to carry out further experiments, and we did not wish the fixation to be transferred to another box further down the field again. He was then gently driven towards

the box and reattached himself at once. Since then the box has been moved several times short distances, so as to bring the bird into a convenient position for observation. It was noticed that the bird joined it much more quickly if it was orientated in the same way as it had been. When the box was inverted the bird left it immediately, evidently considering it to be dead. He took up with a pair of Coscoroba Swans (*C. coscoroba*). After 36 hours the box was resuscitated. The bird was then torn between the swans and the box and ran backwards and forwards between the two for a day. He then took to the box again. This was later tipped at an angle of 45 degrees and the bird continued to defend it in exactly the same way as a normal gander defending a sitting goose. Further experiments are being carried out. Col. Lumsden has been kind enough to send us the following note: "The Blue gander was reared by a hen and he was rather a nuisance here with the hens, even entering the hen-house and pulling them off the nest."

A number of other interesting fixations have been noted and it is proposed to make further studies. A pair of Blue Snows were joined in the autumn by a young full-winged female which was their offspring, but they did not know it as it had been reared under a hen. In the spring the Blue gander became attached to the young female, although, of course, she was only 10 months old and Blue Geese do not come into breeding condition until their third year. The three birds still kept together, but the gander gave all his attention to the young female and drove off his own mate whenever she came too close. On the day before the old goose laid, the gander appeared to lose interest in the young bird and next morning it had flown out of the pen. The nest was not made until that morning, but by evening the first egg had been laid in it. Three of the five eggs proved fertile.

LIST OF BIRDS IN COLLECTION

- Magpie Goose** (*Anseranas semipalmata*).—One; female, originally imported from Australia, which survived the war in Major G. Maxwell's collection in Scotland.
- Plumed or Eyton's Whistling Duck** (*Dendrocygna eytoni*).—A pair from Taronga Park Zoo, Sydney.
- Fulvous Whistling Duck** (*Dendrocygna bicolor*).—Six; from Colombia via New York. They will be "full-winged" after the moult in August.
- Black-billed Whistling Duck** (*Dendrocygna arborea*).—Two; a pair, the female from Mr. W. J. Mackensen of Pennsylvania and the male, in exchange, from the London Zoo—a pre-war bird which may be too old to breed, but is very tame and feeds from the hand.
- White-faced Whistling Duck** (*Dendrocygna viduata*).—One; probably a male, from Bronx Zoo, New York, in exchange.
- Grey-breasted Whistling Duck** (*Dendrocygna autumnalis discolor*). Six; four from South America via Holland, through the courtesy of Mr. A. F. C. A. van Heyst of Amersfoort. Two from Colombia via New York in exchange. One of these last is a young bird.
- Coscoroba Swan** (*Coscoroba coscoroba*).—Four; one pair from South America in August, 1947, via Holland by the courtesy of Mr. A. F. C. A. van Heyst of Amersfoort, which built a large nest in March, 1949, but deserted it: one pair from South America via New York in December, 1948.
- Whistling Swan** (*Cygnus c. columbianus*).—Four; an adult pair and an 18-month-old pair as a present to the Trust from the Delta Waterfowl Research Station, Manitoba, Canada.
- Bewick's Swan** (*Cygnus columbianus bewickii*).—One, which flew in on or about 3rd November, 1948, and is now part of the collection (see page 30).
- Whooper Swan** (*Cygnus c. cygnus*).—One; a female (?) ("Daisy"), from Leckford. Very tame and feeds from hand.

- Black-necked Swan** (*Cygnus melanocoryphus*).—Four ; cob reared at Leckford, pen reared by Mr. D. G. Schuyt, Rotterdam ; pair from South America via New York. None old enough to breed yet.
- Mute Swan** (*Cygnus olor*).—Seven ; five oiled in Sharpness Docks, two damaged by telegraph wires. Several others usually present which have flown in.
- Black Swan** (*Cygnus atratus*).—One ; a pen reared at the New Grounds from an egg from Kew Gardens.
- Canada Goose** (*Branta c. canadensis*).—Two ; both ganders, from Whipsnade in exchange.
- Central or Todd's Canada Goose** (*Branta canadensis interior*).—Three ; a pair from the Delta Waterfowl Research Station, Manitoba, and a female, doubtfully of this race, from Mr. W. H. Lemburg, Nebraska.
- Great Basin Canada Goose** (*Branta canadensis moffitti*).—One ; gander from Mr. O. Wells of Sardis, British Columbia.
- Lesser Canada Goose** (*Branta canadensis parvipes*).—One ; from the Delta Waterfowl Research Station, Manitoba, where it was wing-tipped.
- Western Canada Goose** (*Branta canadensis occidentalis*).—Eight ; one old gander imported before the war. A pair and a young female from Mr. O. Wells, British Columbia ; two pairs from Mr. J. Livermore, Connecticut. These last are smaller, and Mr. Wells' three are not so dark. It seems that three different populations of this race are represented.
- Tundra Canada Goose** (*Branta canadensis leucopareia*).—Seven ; possibly one gander and six geese. Five of them bred by Mr. A. Ezra in England in 1941. Two from Mr. L. J. Graves in the State of Washington, U.S.A. One pair nested 1948 and will nest 1949.
- Richardson's Goose** (*Branta canadensis hutchinsii*).—One ; as a gift from the Delta Waterfowl Research Station, Manitoba, Canada.
- Cackling Goose** (*Branta canadensis minima*).—Four ; two pairs ; an old female originally from Mr. J. C. Laidlay, Scotland, a gander from Dr. Dillon Ripley as a gift, and a pair hand-reared by Mr. D. G. Schuyt in Holland in 1947, in exchange.
- Barnacle Goose** (*Branta leucopsis*).—Seven ; two breeding pairs, originally wild-caught on the Solway Firth in 1937. Three young birds.
- Light-bellied Brent Goose** (*Branta bernicla hrota*).—Three ; from Wexford Harbour (wing-tipped birds), sent by Mr. J. Colloton of Curracloe through the courtesy of Dr. C. L. Flood of Dublin Zoo.
- Dark-bellied Brent Goose** (*Branta b. bernicla*).—Nine ; all originally wild-caught on the Wash.
- Pacific Black Brant** (*Branta bernicla nigricans*).—Four ; two pairs from Mr. L. J. Graves of Kent, Washington, U.S.A.
- Red-breasted Goose** (*Branta ruficollis*).—Thirteen ; two wild-caught from Moscow in 1938 (at the Lighthouse at Sutton Bridge before the war) ; the rest hand-reared either at Woburn or Leckford. Three odd ganders.
- Swan Goose** (*Anser cygnoides*).—Two ; both ganders. [Three Swan Goose × Domestic Chinese cross, reared last summer, which are being bred back with one of the wild males.]
- Bean-Goose** (*Anser a. arvensis*).—One ; female, reared by Mr. F. Mosford in 1942 in Cheshire.
- Tundra Bean-Goose** (*Anser arvensis rossicus*).—One ; a female, possibly of this race (or possibly *A. a. arvensis*), wing-tipped in Hungary in 1936 and formerly at the Lighthouse at Sutton Bridge.
- Pink-footed Goose** (*Anser arvensis brachyrhynchus*).—Eight ; three pairs and two of sex unknown, one (wing-tipped) from Mr. A. Bentham of Bradford. The rest wild-caught on the Wash. One which suffered from meningitis was saved by penicillin.

- White-fronted Goose** (*Anser a. albifrons*).—Seven ; four ganders, three females. A pair reared by Mr. W. G. Tinsley in Lincolnshire, one wing-tipped in Hungary, 1936, remainder picked up locally with minor injuries, now cured.
- Greenland White-fronted Goose** (*Anser albifrons flavirostris*).—Eight ; one pair reared in Greenland and sent through the Copenhagen and London Zoos. Six captured by Mr. J. Colloton of Curracloe, Co. Wexford, and sent through the Dublin Zoo.
- Lesser White-fronted Goose** (*Anser erythropus*).—Six ; two ganders, four geese. One (Jacobi or "Kishy") reared in Lapland and sent to Major G. Maxwell in Scotland. (This bird has an attachment for Mr. Cameron, the keeper.) Two females from the Lighthouse at Sutton Bridge, 1937, and a pair and a female reared by Mr. D. G. Schuyt in Holland in 1947.
- Greylag Goose** (*Anser a. anser*).—Seven ; three ganders, four geese. One wing-tipped on Solway Firth by Mr. James Robertson Justice. Two females reared by Mr. A. W. S. Dean of Grantham. Two ganders reared from North Uist eggs and given by Miss H. Beamish, and two, probably females, reared last season from wild-hatched Scottish goslings. All these were presented to the Trust. All are full-winged and most of them feed from the hand.
- Eastern Greylag Goose** (*Anser a. rubrirostris*).—Six ; three from the Calcutta Zoo through the courtesy of Dr. Dillon Ripley of Litchfield, Connecticut, U.S.A., and three, one of which is full-winged, from Mr. R. Angorly of Basra, reared at Margil. All very tame ; one pair expected to breed.
- Bar-headed Goose** (*Anser indicus*).—Five ; three ganders, two geese, all bred from stock originally imported from India by Mr. A. Ezra, and kept in Scotland during the war by Major G. Maxwell. One breeding pair. Two full-winged, the gander of one pair and the goose of the other.
- Emperor Goose** (*Anser canagicus*).—Seven ; five ganders and two geese. Three from Leckford, one from the Duke of Bedford at Woburn, one from Clères (called Clara) and two from Major G. Maxwell at Monreith. Only one female is old enough to breed in 1949 (she began to lay 1st May). All are very tame and feed from the hand.
- Lesser Snow Goose** (*Anser carulescens hyperboreus*).—Five ; a pair by courtesy of Dr. Dillon Ripley and three brought from Canada by Col. Niall Rankin.
- Blue Snow Goose** (*Anser c. carulescens*).—Eight ; two ganders, six geese. One reared New Grounds, 1948. One breeding female presented by Dr. John Berry ; two presented by Mr. H. Whitley of Paignton Zoo, and one gander by Col. W. V. Lumsden. A pair from Major G. Maxwell and a female in exchange from Leckford.
- Greater Snow Goose** (*Anser carulescens atlanticus*).—Twelve ; all from Leckford stock except one female imported from America in 1938 by Mr. A. Ezra at Foxwarren. Two breeding pairs, two odd females and six young not yet of breeding age.
- Ross's Goose** (*Anser rossii*).—Six ; five from Major G. Maxwell at Monreith, originally in Mr. A. Ezra's collection at Foxwarren Park. Two breeding pairs, one odd female now mated to a gander reared at New Grounds in 1947, and therefore probably too young to breed till 1950.
- Ruddy Shelduck** (*Tadorna ferruginea*).—Four ; two pairs, one male in exchange from Bristol Zoo, one female in exchange from Whipsnade ; this pair has nested for the first time in 1949. One male, by courtesy of Dr. Dillon Ripley from the Calcutta Zoo, and one female bred by Mr. Hamilton Scott at Ipswich.
- South African or Cape Shelduck** (*Tadorna cana*).—One ; a male reared at Leckford in 1948.
- Australian Shelduck** (*Tadorna tadornoides*).—Three ; a male on loan from Leckford, a female from the London Zoo and another female from Leckford in exchange, reared in 1948 and too young to nest. The old female laid in 1948 but only two eggs, both infertile.

- Paradise or New Zealand Shelduck** (*Tadorna variegata*).—Three ; a breeding pair nesting for the first time in 1949 (drake from Mr. H. Scott, duck from Whipsnade reared in 1945) and a very old drake from Leckford.
- Common Shelduck** (*Tadorna tadorna*).—Two ; a pair, both reared in 1947, the drake at the New Grounds from a local egg and the duck by Mr. B. May in Essex. Twenty-eight ducklings were reared at the New Grounds during the summer of 1948.
- Egyptian Goose** (*Alopochen aegyptiacus*).—Five ; a breeding pair, female from Leckford, male presented by Captain R. G. W. Berkeley ; one female of their sixteen 1948 offspring reared on the New Grounds ; a pair of the grey form, from Mr. W. J. Mackensen, Pennsylvania, in exchange.
- Orinoco Goose** (*Neochen jubatus*).—Two ; female (a pre-war bird), which lays two clutches each year, from Major G. Maxwell at Monreith. Now recovered from compound dislocation of leg. Male from Philadelphia Zoo in exchange. Unfortunately she does not like him, and the 1949 first clutch is again infertile.
- Abyssinian Blue-winged Goose** (*Cyanochen cyanopterus*).—Four ; two pairs, all from Leckford stock. Both males too young to breed in 1949.
- [**Andean Goose** (*Chloephaga melanoptera*).—Two hybrids between this species and the Upland Goose (*C. p. picta*), a pair, the male reared on the New Grounds, the female at Leckford.]
- Ashy-headed Goose** (*Chloephaga poliocephala*).—Three ; a pair, the male from Major G. Maxwell, the female reared at Leckford in 1947 ; another Leckford female of 1948.
- Ruddy-headed Goose** (*Chloephaga rubidiceps*).—Four ; two pairs, one pair as a gift from Mr. A. Ezra, the other from Leckford. One pair should breed 1949.
- Upland or Magellan Goose** (*Chloephaga p. picta*).—Three ; a pair, the male from Chester Zoo, the female and another odd female from Major G. Maxwell.
- Barred Upland or Chilean Goose** (*Chloephaga picta dispar*).—Four ; two pairs, all from the Duke of Bedford at Woburn.
- Cereopsis or Cape Barren Goose** (*Cereopsis novæ-hollandiæ*).—Seven ; three pairs and an odd female. One pair presented by Mr. H. Whitley of the Paignton Zoo. One male by Mrs. Edgar Smith. The rest are offspring of the Paignton pair, which lay two clutches each year starting just after Christmas.
- Marbled Teal** (*Anas angustirostris*).—Nine ; four pairs and an odd drake, all from Basra during the summer of 1948 as a gift from Mr. R. Angorly. It is 30 years since this species was kept in Britain.
- Cape Teal** (*Anas capensis*).—Six ; three pairs from Leckford, except for one drake in exchange from Sir Derek Ryan, Bt. Nested in 1948 and 1949.
- Versicolor or Grey Teal** (*Anas v. versicolor*).—One ; a female from South America via New York. (This may belong to *A. v. fretensis*.)
- Puna Teal** (*Anas versicolor puna*). Three ; a drake and two ducks, reared at Leckford in 1947. Nested in 1948 and 1949.
- Southern Bahama Pintail** (*Anas bahamensis rubrirostris*).—Eight ; four pairs. One drake reared by Mr. R. Pilcher, at Boston, and presented by him ; one drake from Sir Derek Ryan, Bt., in Suffolk and the rest from Leckford.
- Chilean or Brown Pintail** (*Anas georgica spinicauda*).—Seven ; three pairs and an odd female. One male presented by Mr. F. L. Felton, four females from Sir Derek Ryan, Bt., and two males from Leckford.
- Common Pintail** (*Anas acuta*).—About 43 ; five full-winged. Hand-reared stock based on a brood presented by Mr. A. W. S. Dean of Grantham in 1947, and a number from Sir Derek Ryan, Bt. Many wild caught from Borough Fen and Orwell Park Decoys.
- Chilean Teal** (*Anas f. flavirostris*).—Seven ; three pairs and an odd drake from South America via New York. One female was presented by Mr. F. L. Felton and one male by Sir Derek Ryan, Bt., the rest being from Leckford.

- Common Teal** (*Anas c. crecca*).—Six ; two females reared by Mr. W. H. Payn of Bury St. Edmunds, the rest wild caught in Borough Fen Decoy including one full-winged drake which lives in the Orchard.
- American Green-winged Teal** (*Anas crecca carolinensis*).—Twelve ; five pairs and two odd drakes. From Mr. W. J. Mackensen of Pennsylvania, and from the Tracey Aviary, Salt Lake City, through the courtesy of Mr. J. Sloan.
- Baikal or Formosa Teal** (*Anas formosa*).—Two ; a pair as a gift from Mr. Jack Livermore of Connecticut.
- Falcated Teal** (*Anas falcata*).—One ; a drake presented by Mr. R. Parker-Jervis, originally from Col. W. V. Lumsden at Sluie, Banchory, Scotland.
- Australian Grey Teal** (*Anas gibberifrons mathewsi*).—Three ; a pair from Mr. A. Ezra and a female from Mr. F. Grant of Leicester, as gifts in each case.
- Chestnut-breasted Teal** (*Anas castanea*).—One ; a drake as a present from Col. W. V. Lumsden of Sluie, Banchory, Scotland.
- Mallard** (*Anas p. platyrhynchos*).—About 100 ; almost all reared at the New Grounds during 1948 and full-winged. Some presented through the courtesy of Mr. K. N. Beach. Have bred freely in spring, 1949.
- Florida Duck** (*Anas f. fulvigula*).—Four ; two pairs from Messrs. Davis and Gist of Florida, through the courtesy of Mr. Arthur Harlow of New York.
- Mottled Duck** (*Anas fulvigula maculosa*).—Four ; two pairs from Messrs. Davis and Gist of Florida through the courtesy of Mr. Arthur Harlow of New York.
- Black Duck** (*Anas fulvigula rubripes*).—Three ; one drake and two ducks brought by Col. Niall Rankin from Canada. Both females have nested in 1949.
- Burma Spotbill** (*Anas pæcilorhyncha haringtoni*).—Two ; a pair which appear to be of this race, as a gift from Dr. Dillon Ripley of Litchfield, Connecticut.
- Australian Grey Duck** (*Anas superciliosa rogersi*).—Two ; a pair, probably of this race, from the Tracey Aviary, Salt Lake City, through the courtesy of Mr. J. Sloan.
- Philippine Duck** (*Anas luzonica*).—Two ; a pair brought back by Col. Niall Rankin from U.S.A. These are the first of this species ever to be seen alive in Europe.
- African Yellowbill** (*Anas u. undulata*).—Eight ; three pairs and two odd drakes, mostly from Sir Derek Ryan, Bt., at Chattisham Hall, but one from Leckford, and one in exchange from Mr. F. Mosford in Cheshire.
- Abyssinian Yellowbill** (*Anas undulata rupelli*).—Two ; both drakes, as a present from Mr. F. L. Felton. These appear to be the only two of this race left in Europe.
- Gadwall** (*Anas s. strepera*).—Eight ; two reared from eggs sent from Iceland and three reared at the New Grounds, 1948, also a pair and a female (of a possible American form) from Mr. W. J. Mackensen of Pennsylvania. These have been joined by two wild females during the winter of 1948-9.
- European Wigeon** (*Anas penelope*).—About 40 hand-reared ones presented by Col. W. V. Lumsden, wild-caught from the Wash, Borough Fen Decoy and Orwell Park Decoy.
- American Wigeon** (*Anas americana*).—Six ; three pairs, one from Mr. R. Parker-Jervis, one from Mr. W. J. Mackensen of Yardley, Pennsylvania, and the rest from Leckford.
- Chiloë Wigeon** (*Anas sibilatrix*).—Five ; a drake (Tim-Willie) presented by Mrs. Kirkbride from Nyewoods, Southampton, another by Mr. Alex Wilson from Presteigne, a female by Mr. A. Savory and two from Leckford.
- Blue-winged Teal** (*Anas discors*).—Seven ; three pairs and an odd drake, from the Delta Waterfowl Research Station, Manitoba, and from Liberty Park, Salt Lake City, Utah.

- Cinnamon Teal** (*Anas c. cyanoptera*).—Ten ; four pairs and two odd drakes. One as a gift from Lady Ralli at Beaurepaire Park ; one from the London Zoo ; two from the Delta Waterfowl Research Station, Manitoba, others from Mr. W. J. Mackensen of Pennsylvania and the Tracey Aviary, Salt Lake City.
- Garganey** (*Anas querquedula*).—Seven ; three pairs and an odd drake. Three caught in Decoy at New Grounds, rest from Holland through the courtesy of Mr. T. Lebrecht as a gift from Lekkerkerk Decoy.
- Argentine Red Shoveler** (*Anas platalea*).—One ; a drake, the only specimen in Europe, reared at Chattisham Hall and presented by Sir Derek Ryan, Bt.
- Common Shoveler** (*Anas clypeata*).—Nine ; three pairs and three odd females. All caught in Borough Fen Decoy, near Peterborough.
- Red-crested Pochard** (*Netta rufina*).—Thirteen ; only five drakes. From Leckford, Sir Derek Ryan, Bt., and Mr. A. Savory. All were reared in this country and all came to the New Grounds in exchange.
- Rosy-bill** (*Netta peposaca*).—Six ; all from Leckford stock. Two males kept of the six ducklings reared at the New Grounds in 1948.
- [**Rosy-bill** × **Yellow-bill** (*Anas u. undulata*).—Two hybrid males bred at New Grounds in 1948.]
- Canvas-back** (*Aythya valisneria*).—Four ; two pairs. One drake from Sir Derek Ryan, Bt., the rest reared for the Trust by Mr. Al Hochbaum at the Delta Waterfowl Research Station, Manitoba, and brought to England by Col. Niall Rankin.
- European Pochard** (*Aythya ferina*).—Eight ; five of them drakes. One drake from Mr. A. Savory, a young pair from Sir Derek Ryan, Bt., the rest from eggs from St. James's Park, by courtesy of the Office of Works and Mr. T. Hinton.
- Redhead** (*Aythya americana*).—Six ; two pairs and two odd drakes. All reared for the Trust by Mr. A. Hochbaum at the Delta Waterfowl Research Station, Manitoba.
- Tufted Duck** (*Aythya fuligula*).—Seven ; four of them drakes (one mated to a Scaup female). A pair from Mr. A. Savory ; one from Leckford ; the rest from St. James's Park as eggs, by courtesy of the Office of Works, or by accident as eggs from Iceland.
- Lesser Scaup** (*Aythya affinis*).—Two ; both males, by air from Salt Lake City, by courtesy of Mr. J. Sloan.
- Common Scaup** (*Aythya m. marila*).—Nine ; four pairs and an odd drake, all reared on the New Grounds mostly from eggs sent from Iceland by Mr. W. F. Palsson. Some from eggs laid at the New Grounds.
- Brazilian Teal** (*Amazonetta b. brasiliensis*).—Two ; a pair from South America via New York. Should breed in 1949.
- Maned Goose or Australian Wood Duck** (*Chenonetta jubata*).—Two ; a pair presented by Lady Ralli from Beaurepaire Park. Hatched before 1936, they have never bred.
- Mandarin Duck** (*Aix galericulata*).—Sixteen ; mostly well paired. One drake has dull plumage almost like that of the duck, probably owing to some glandular defect. This species did not breed at all in 1948. The stock is from Sir Derek Ryan, Bt., at Chattisham, the Duke of Bedford at Woburn, Mr. A. Ezra at Foxwarren and Mr. P. W. Ratcliffe at Burton-on-Trent.
- Carolina or Wood Duck** (*Aix sponsa*).—Twenty-four ; mostly well paired. Has bred well in 1948 (33 young birds reared) and 1949. The stock is from Leckford, from Sir Derek Ryan, Bt., and from Col. W. V. Lumsden.
- Comb Duck** (*Sarkidiornis m. melanotos*).—Two ; a pair in exchange from Mr. J. Livermore of Redding, Connecticut, U.S.A.
- Muscovy Duck** (*Cairina moschata*).—Six ; two trios from Mr. J. Livermore of Redding, Connecticut, U.S.A., in exchange. They have laid freely in the spring of 1949.

Spur-winged Goose (*Plectropterus g. gambensis*).—One ; a female from Whipnade in exchange, where it was reared in 1933.

European Eider (*Somateria m. mollissima*).—Four ; one drake, two ducks reared in 1948 and one duck reared in 1947, all by Col. W. V. Lumsden. Eiders are subject to the fungus disease aspergillosis at the New Grounds and drakes seem more difficult to keep than ducks.

Barrow's Golden-eye (*Bucephala islandica*).—Five ; two pairs reared at the New Grounds in 1947 ; one drake in 1948 ; all from eggs sent from Iceland by Mr. W. F. Palsson of Laxardal.

Red-breasted Merganser (*Mergus serrator*).—Two ; females, one reared at the New Grounds in 1947 from an egg sent from Iceland, the other, blind in one eye, was caught in Bude harbour by Mr. R. B. Treleaven.

Goosander (*Mergus m. merganser*).—One ; a drake caught in the outflow of Walton Reservoir, near Hampton Court, in March, 1947. Now paired to a female Red-breasted Merganser.

North American Ruddy Duck (*Oxyura jamaicensis*).—Seven ; three pairs and one drake from Mr. W. J. Mackensen, Pennsylvania, and also from Liberty Park, Salt Lake City, where they were reared by Mr. Calvin Wilson and sent by courtesy of Mr. J. Sloan, Superintendent of Parks.

From this list of 106 different forms and some 654 birds it will be seen that the Trust is greatly indebted to a large number of people who have sent birds to the New Grounds. The Council wishes to thank those (not all of whom are mentioned by name) who have so generously helped to create this fine collection of living waterfowl.

VISITORS

More than 5,000 people have visited the New Grounds during the past year. Eighty-nine parties, arriving in coaches—between 30 and 40 in each party—have been shown round, and 49 of these have been from schools and educational establishments. The Council feels that these figures are of considerable significance and indicate the importance of the Trust's contribution in the educational field.

On 10th February, 1949, H.R.H. The Duke of Edinburgh spent a day at the New Grounds. In perfect weather he saw the wild geese at 30 yards range, watched three Wigeon caught and ringed in the decoy, and spent several hours among the tame birds. Owing to an unfortunate attack of measles, H.R.H. Princess Elizabeth could not accompany Prince Philip as had been planned.

A few weeks later, on 27th March, the Trust was honoured by the visit of H.R.H. Princess Margaret, who spent about two hours at the New Grounds. Although the wild geese had already left, Her Royal Highness crept into one of the huts overlooking the decoy and saw a number of wild Wigeon and Teal at a range of about 10 yards.

Among the distinguished visitors we were glad to welcome a number of leading ornithologists from overseas. These included Dr. Chessex of Switzerland, Mr. Jean Delacour of the American Museum of Natural History, and Dr. Ira Gabrielson, late Director of U.S. Fish and Wildlife Service and now Director of the Wildlife Management Institute of North America.

In addition, many of the leading British ornithologists were able to come to the New Grounds at least once during the winter season (and in most cases saw the Lesser White-fronted Goose).

ACKNOWLEDGEMENTS

In its second year, as much as in its first, the Trust's progress has depended on the support which it has received—both financial and otherwise—from a large number of Members and well-wishers.

Very special mention must be made of the Trustees of the Pilgrim Trust for the magnificent grant of £3,000 which was made towards the initial expenditure of establishing the New Grounds as a bird observatory and research station.

Another splendid grant of £2,500 was made by the Trustees of the Carnegie Trust, which is to be devoted to the accommodation (where possible of a permanent nature) for visiting students, and for members of the staff.

A part of this grant, together with two most handsome donations of £200 each from Lord Egerton of Tatton, has been devoted to the purchase, conversion, and equipping of the Narrow Boat *Beatrice*.

The Council is indeed grateful to the Pilgrim and Carnegie Trusts, to Lord Egerton and to the many others who have made such generous contributions to the funds.

The Council wishes to make special reference to the donation from Mrs. A. F. L. Wilkinson in memory of her late husband, who was a Member of the Trust. A number of other donations were made by friends in memory of Mr. Wilkinson and the Council proposes to use this money for some specific purpose of Mrs. Wilkinson's choice, such as the building of a new observation hut, or the planting of some trees or bulbs. For this reason it will be placed in a special Memorial Fund.

A most heartening response was received to the appeal for a number of special objects, such as shrubs, bulbs, garden furniture, buckets, rubber boots and a pony. The Council wishes to thank the Members who have given so much help in these and many other directions.

We are also much indebted to the village of Slimbridge for the many ways in which its inhabitants have given, both jointly and severally, their help and co-operation. Especially we should like to mention the tenant farmers, Mr. O. W. Fisher, Mr. H. J. Haine, and Mr. T. Phillips, from whose farms much of the watching is carried on, and without whose co-operation the Trust could not have developed as it has done, and Mr. W. Winnall of the County Agricultural Executive Committee.

Once more the Trust is indebted to *Country Life* for the help which they have given during the past year in the preparation of the Trust's literature, and also to Messrs. Hazell, Watson and Viney of Aylesbury who have printed it on such helpful terms. We are grateful, too, for the attention which Messrs. Cowells of Ipswich have given to the reproduction of the lithographs in the key to the world's waterfowl.

Treasurer

At the Annual General Meeting Col. J. Bevan was appointed Co-Treasurer with Sir Archibald Jamieson. Sir Archibald has now intimated his desire to resign from the Treasurership, as he wishes to be freed from all business ties. His resignation has been accepted with great regret by the Council, which recognises very clearly the contribution he has made during the Trust's formation and establishment. We are most grateful for the time which so busy a man has been ready and willing to devote to our project. He has agreed to continue to serve on the Council, where his advice will still be available to the Trust from time to time.

STAFF ARRANGEMENTS

The Council is happy to report that the Trust will have the services of the Curator, Mr. John Yealland, at the New Grounds this summer, now that he has returned from his expedition to Africa. His wide experience of the care of waterfowl will be invaluable during the breeding season.

It is particularly fortunate that he should have returned at this time, since Miss Eunice Overend, who has done such wonderful work in the care of the

collection, has been granted indefinite leave of absence, owing to the very serious illness of her mother.

Special reference must be made to the excellent work of the Organizing and Assistant Secretaries. The efficiency and the aptitude for sheer hard work which has been shown by Miss Gregorson and Miss Talbot-Ponsonby has been beyond praise, and the Council feels it must put on record how fortunate the Trust is to have the services of these two young ladies.

It has been found necessary to remove the Trust's offices from London to the New Grounds, in the interests of convenience and economy. Members are requested to note that letters should no longer be addressed to 8, Edwardes Square, although some booklets which carry this address are inevitably still in circulation. Wherever possible, however, the London address has been struck through.

The Council considers that from now onward a permanent paid Secretary to the Trust, within easy reach of the New Grounds, is essential. Mr. E. A. Scholes, who lives at Frampton-on-Severn, has therefore been appointed to act as Secretary and Accountant.

Appointment of Biologist

The Council believes that the appointment of a Resident Biologist is now essential in order to extend the scope of the scientific work at the New Grounds. It is hoped that a grant may be forthcoming in order to cover such an appointment, and also that it will prove possible to obtain the services of a promising scientist.

Honorary Wardens

The following Members have kindly consented to act as Honorary Wardens :—

C. P. A. Garnett, Esq.
B. King, Esq.
J. P. Paige, Esq.
Miss A. Pritchard.
A. Richardson, Esq.
J. Russell, Esq.
J. Savidge, Esq.
Miss C. L. Sansom.
K. H. Shackleton, Esq.
D. Weir, Esq.
G. T. Wilkins, Esq.

The Honorary Wardens will be acquainted with the movements of the wild geese and will be able to take parties to the observation huts and also round the enclosures. In this way they will augment the permanent staff and ease the situation on days when an unusually large number of visitors has arrived.

DIRECTOR'S LECTURES

In the past year the Director, Mr. Peter Scott, has addressed approximately 20,550 people at 48 lectures on the subject of the Trust and its work, and of the wildfowl problem in general. The total sum raised from these lectures, including fees and sale of literature, is £1,017.

Special mention of this was made by the President at the Annual General Meeting, when Lord Alanbrooke said that the Trust owed him a debt of gratitude for the valuable publicity he has given to it and for the tireless energy he has shown in furthering the interests of the Trust.

An important feature of these lectures has been the beautiful colour film made by the Secretary, Mr. Michael Bratby.

PUBLICITY

Through the courtesy of the Royal Society for the Protection of Birds, a free stand was made available to the Trust at the R.S.P.B. Exhibition at the Central Hall, Westminster, in April, 1949. Among the exhibits was a fine model, in a glass case, of the South Pipe of the decoy, made by the Northampton Society of Model Engineers. This was made at the cost of the materials only, and the Council is most grateful to Mr. W. A. Wells and his assistants for the work they have put into this beautiful scale reproduction.

The Trust had a stand in the Forestry Section of the Bath and West Agricultural Show at Cardiff in June, 1948, and will have an independent exhibit in the 1949 Show at Bristol, when some birds will be shown on one of the natural ponds on the show ground.

Four minutes of Pathé Pictorial No. 183 was devoted to the work of the Trust, and we are grateful to the Directors of Pathé Pictures Ltd. for a 16 mm. copy of the film for use at lectures. More recently a film has been taken by the Merlin Film Co. Ltd., for the Central Office of Information. This film is for overseas distribution, but once again a 16 mm. copy of the material has been made available to the Trust.

The Trust has been mentioned in a large number of broadcasts and magazine articles and on many occasions in the local and national press.

LEASE AND LICENCE

As the Council is convinced of the long-term interest which has been aroused in the Trust's work, negotiations are in progress with the Berkeley Estates Company for a 25 years' lease of the Headquarters and of the 21 acres of enclosures, which include the decoy and all the pens. It is also proposed that there should be a licence for our Members to watch the geese, under certain conditions designed to protect the birds themselves and also the agricultural interests. Thus for that period the continuity of the Trust's work is assured, if indeed anything can be assured for so long in a changing world.

ACCOMMODATION

The work of the Trust has hitherto been limited by lack of space for staff, laboratories, and visiting students. Plans have been examined for a new building which will provide the necessary accommodation. The development of these plans has been delayed by the continued tenancy of parts of the two farms on the New Grounds by the County Agricultural Committee. This has caused a modification of the plan, but it is hoped that it can go forward shortly.

Meanwhile the difficult accommodation problem is being met by a modern caravan, a fine Gypsy Waggon of the Burton type which has been most generously lent to the Trust indefinitely by Col. J. Clarke, and the converted Narrow Boat *Beatrice* which, after an adventurous passage through the canals from Birmingham, is now safely moored at the Patch Bridge, less than half a mile from the Headquarters. This boat was converted by Messrs. Spencer, Abbott & Co., and beautifully painted in the traditional style, complete with castles and roses, by Mr. Allen, Foreman of the yard, who was also responsible for the conversion. The glass for the windows was most generously donated by Mr. G. L. Pilkington. It has sleeping accommodation for 11 Members and guests who do not mind the comparatively primitive amenities of life afloat. We are indebted to Mr. C. H. Taplin, whose advice was invaluable during the conversion and who formed part of the crew during the hazardous passage of the Stratford Canal. We are also greatly indebted to the Inland Waterways Association, for their helpful co-operation in the development of this project.

The Assistant Secretary will be pleased to send particulars of *Beatrice* to Members who are interested.

Bookings can be made now and Members are urged to book as much in advance as possible.

Details of other local accommodation, including a map and list of hotels in the neighbourhood, are also available on application to the Assistant Secretary at the New Grounds.

ARRANGEMENTS FOR VISITORS

With the large increase in visitors a revision of the local rules governing the facilities at the New Grounds has been necessary. Behind these rules is the principle that on no account must the wild geese be disturbed, as any such disturbance might cause the birds to seek other winter quarters. In order to implement this principle it has been necessary on occasions to prevent our Members from using some of the observation huts. This has caused disappointment and annoyance, for which we are indeed sorry, but we feel sure that all our Members will, upon reflection, agree with our principle. Under these circumstances luck plays an important part, for should the geese be at one end of the marsh a good view may be had, whereas if they are at the other and are wanting to use the fields *behind* the sea wall (as they sometimes do in late January and February), it may be impossible to allow a close approach. It is a matter of regret to the Council that any "control" of our visitors should be necessary, but we are trying to bring the thrill of wildfowl to a large number of people; wildfowl and crowds do not easily mix, and this is one of the conditions which, we have found, must be imposed, if this new idea is to succeed.

All Members proposing to visit the New Grounds are asked to pay particular attention to the advice of the wardens, and to read carefully the details on the following pages.

Seasons

The wild geese arrive on about 24th September and leave on about 10th March. The peak numbers are usually present between 20th December and 7th January. Before the peak there are usually fewer geese than after the peak, but on the other hand they are certain to be in a place where they can be seen (the Dumbles), whereas in January and February they may be in the fields and therefore unapproachable. For watching the geese binoculars or telescope are desirable and rubber boots are more or less essential in a normal season.

The decoy is open to Members (who must be accompanied by a warden) from the end of April until the last week in July. At other times a view of the pool can be had from the new hut on stilts (the Gazebo).

The waterfowl in the collection are in their best plumage from November until the beginning of June, best of all in April. The birds begin nesting then and the young begin to hatch in quantity early in May. These make a most attractive show and there are small downy young to be seen in the collection until the end of June. There are usually *some* young ones out at any time between the beginning of April and the middle of July. Between the end of June and the middle of October, however, the adult ducks are in eclipse plumage. This means that the drakes have lost their brilliant colouring and look, in most cases, drab and brown like the females.

It is hoped that the foregoing paragraphs will help Members to decide the best time to visit the New Grounds in order to see the things which interest them most.

Rules for Visitors

The Council has approved the following arrangements for next season :—

- (i) Members, accompanied by one guest each, shall have access to all observation huts, provided that such access does not disturb the geese, but must be accompanied by a Warden or Honorary Warden.
- (ii) Associate Members, accompanied by a Warden or Honorary Warden, shall have access to the Central Observation Hut and Pillbox only.
- (iii) Corporate Members (this Membership is only open to educational institutions) shall have access to all observation huts, under the conditions of (i) above, but have these facilities only when in parties of not less than 10.
- (iv) Visitors who are not Members or Members' guests will be admitted to the pens on payment of 1s. at the gate (under 16—6d.).
- (v) Members can be enrolled at the New Grounds (subscription 1 guinea) but Associates can only join by correspondence. (It should be explained that Associate Membership is a very special kind of Membership designed for those who are very keen but genuinely unable to afford more than the 5s. subscription. It is not intended for those who visit the New Grounds casually and find that for 5s. they can see the geese, but have no intention of renewing their subscription and no real desire to be associated with the Trust and its work.)
- (vi) In the past certain Societies and other bodies not eligible as Corporate Members have been enrolled as Ordinary Members. In future these will be classed as Contributors, but it is regretted that their members cannot be accorded the privileges of Members of the Trust.

Parties

Parties of not less than 10 are admitted to the pens at 9d. per head (children under 16—6d.). Thirty is the maximum number. *Bookings must be made well in advance.*

Parties of Corporate Members are allowed access to the Observation Huts for watching the wild geese as well as to the enclosures, but must *always* be accompanied by a Warden or Honorary Warden.

Parties of Members and their guests have the same facilities, of course, as they would have if they had come individually. Members may bring one guest each. The facilities for watching the wild geese do not extend to non-members, unless they are the guests of Members.

Times

The New Grounds are open from 9.0 a.m. till sundown each day, except that Sunday mornings are reserved for Members and their guests.

All visitors are asked, if possible, to avoid calling on the services of the Wardens during the lunch hour, and for this reason parties are specially requested to arrive before 11.30 a.m., so that they can be shown the way round before lunch, or after 2.0 p.m.

Access

The New Grounds are two miles from the main Gloucester to Bristol road, along which buses pass regularly. They are three miles from Coaley Junction Railway Station on the main line between Bristol and the Midlands. Stroud Station is only 10 miles from Slimbridge and this is the most convenient for visitors from London. The Cheltenham Flyer takes only two hours and ten minutes from Paddington to Stroud.

WANTS

The Trust would once again like to appeal for the following special requirements at the New Grounds : Typewriter, Motor-mower, Wire-netting, Shrubs, Bulbs (Daffodil, Narcissus, Crocus).



MINUTES OF THE SECOND ANNUAL GENERAL MEETING

The second Annual General Meeting of the Severn Wildfowl Trust was held at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, on Monday, 28th February, 1949, at 6 p.m. The President, Field-Marshal Lord Alanbrooke, was in the chair.

The Minutes of the first Annual General Meeting having been circulated were taken as read, and signed by the President.

The Director then read the Report of the Council, which began with a statement of the Membership, which stood at that date at 17 Life Members, 1,888 Members, 561 Associates, 34 Corporate Members and 9 Parish Members. This compared very favourably with the 854 Members and 248 Associates of a year before.¹

It was of great significance that less than 3 per cent. of the Members had failed to renew their subscriptions. This was partly the result of a personal letter service which had been operated by the Organizing Secretary.

The Report, owing to the limited time available, was an abridged version of the Report which has been presented in the foregoing pages. After a short discussion the adoption of the Report, the Balance Sheet and the Accounts was proposed from the Chair, seconded by Major M. Knight, and carried unanimously.

The re-election of the following Council Members who retired under Rule 13 (1) was proposed by Col. J. H. Bevan, C.B., M.C., seconded by Major M. H. Simmonds, and carried unanimously :—

C. T. Dalgety, Esq.

H. H. Davis, Esq.

J. R. Justice, Esq.

The re-election of the following Officers for the ensuing year was proposed by Miss Frances Vale, seconded by Mr. H. E. M. Benn, and carried unanimously :—

President : Field-Marshal the Rt. Hon. the Viscount Alanbrooke, K.G., G.C.B., O.M., D.S.O.

Vice Presidents : The Rt. Hon. the Lord Dulverton of Batsford, O.B.E., M.A., J.P.
Sir Percy Lister.

Trustees : The Rt. Hon. the Lord Kennet of the Dene, C.B.E., D.S.O., D.S.C.
His Grace The Duke of Beaufort, K.G., P.C., G.C.V.O.

Director : Peter Scott, Esq., M.B.E., D.S.C.

Treasurers : Sir Archibald Jamieson, K.B.E.
Col. J. H. Bevan, C.B., M.C.

Secretary : Michael Bratby, Esq.

1. The figures on 9th April, 1949, were 20 Life Members, 2020 Members, 576 Associates, 42 Corporate Members and 13 Parish Members.

The reappointment of Messrs. W. B. Keen & Co. as Auditors for the ensuing year was proposed by Mr. K. Miller Jones, seconded by Col. J. H. Bevan, and carried unanimously.

The Director proposed the following alterations to the Rules of the Trust :—

(1) That Rule 16 (1) be altered by deleting “a Treasurer” and substituting “one or more Treasurers.”

(2) That Rule 17 (1) be altered by deleting “shall be vested” and substituting “may be vested.”

(3) That Rule 18 (2) be altered by deleting “one calendar month” and substituting “three calendar months.”

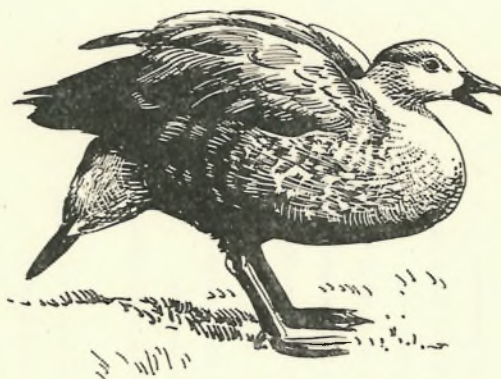
(4) That Rule 5 (5) (iii) be altered by deleting “Schools” and substituting “Educational Establishments.”

These proposals were considered *en bloc*, seconded by Mr. J. R. Justice, and carried.

Major Rufus Clarke suggested that in view of the still difficult financial situation the subscription for Membership should be increased. The Treasurer, Sir Archibald Jamieson, said he would prefer not to do this, at least for another year.

In the course of reading the Report of Council the Director had mentioned the difficulties which had been experienced by the staff at the New Grounds in trying to avoid disappointment to visiting Members on days when the wild geese were inaccessible. A number of Members said that in spite of these difficulties they had enjoyed their visits and had been well looked after by the Wardens. Miss V. Dobson, however, described a series of unfortunate experiences during her visit and the Director expressed his regret that the arrangements had not been more satisfactory, and outlined a scheme for a proposed improvement by which Members could be assured that parties would be taken round at specified times.

At the conclusion of the meeting two beautiful colour-films taken by the President of the tame birds at the New Grounds were shown, followed by a third taken by the Secretary, Mr. Michael Bratby.



Abyssinian Blue-winged Goose

THE SEVERN WILDFOWL TRUST

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1948

EXPENDITURE

INCOME

	£	s.	d.		£	s.	d.
To Rent, Rates and Insurance	159	2	11	By Subscriptions (including Amounts paid under Deeds of			
„ Wages and National Insurance	2,085	9	5	Covenant)	2,562	18	1
„ Food for Waterfowl	381	4	7	„ Donations	674	1	3
„ Purchase and Transport of Waterfowl	759	4	0	„ Sale of Annual Reports (seven months)	289	9	1
„ Materials (wood for observation huts, wire-netting, etc.)..	856	10	5	„ Sale of Booklets	233	7	6
„ Repairs to Headquarters Buildings	604	19	0	„ Gate Takings	169	16	8
50 „ Hull of Narrow Boat.. .. .	110	0	0	„ Sale of Surplus Waterfowl	439	0	0
„ Minor Repairs and Replacements	94	2	6	„ Sundry Receipts	47	1	8
„ Miscellaneous Payments	35	10	10	„ Fees and Collections at Director's Lectures	158	8	9
„ Staff Travelling Expenses, Board, etc.	204	4	5	„ Sale of Pictures donated by Director	£878	0	9
„ Telephone	63	17	4	Less Initial Expenditure defrayed by him	658	16	4
„ Printing and Stationery—General	216	16	1		219	4	5
„ Printing of Annual Report	504	3	9		4,793	7	5
„ Printing of Booklet	290	10	0	„ Balance—Excess of Expenditure over Income for year			
„ Bank Charges	88	2	6	carried to Balance Sheet	1,797	17	6
„ Office Expenses, Postages, Petty Cash, etc. . .	137	7	2				
	£6,591	4	11		£6,591	4	11

THE SEVERN WILDFOWL TRUST

BALANCE SHEET—31st DECEMBER, 1948

LIABILITIES				ASSETS			
	£	s.	d.	£	s.	d.	£ s. d.
SUNDRY CREDITORS AND SUBSCRIPTIONS received in Advance				97	14	6	
BANK OVERDRAFT (Net)				779	6	11	
CARNEGIE TRUST FUND— Grant received during year				800	0	0	
EXCESS OF ASSETS OVER LIABILITIES— Balance at 1st January, 1948	266	16	1				4,623 0 0
Add : Pilgrim Trust Fund—Grant received	3,000	0	0				
Increase in Value of Water-fowl : 1948	4,623						
1947	3,146						
	1,477	0	0				
	4,743	16	1				
Deduct : Excess of Expenditure over Income for year per Account	1,797	17	6				
				2,945	18	7	
				£4,623	0	0	£4,623 0 0

We have examined the above Balance Sheet and the accompanying Income and Expenditure Account with the Books, Vouchers and Accounts of the Trust and certify them to be in accordance therewith.

We have verified the Bank Balances.

Finsbury Circus House,
Blomfield Street, London, E.C.2.

21st February, 1949.

W. B. KEEN & CO.,
Chartered Accountants.

MEMBERS OF THE SEVERN WILDFOWL TRUST

31st March, 1949

LIFE MEMBERS

Field-Marshal Viscount Alan-
brooke, K.G., G.C.B., O.M.,
D.S.O.
Duke of Bedford
Col. J. H. Bevan, C.B., M.C.
Michael Bratby
Miss V. M. Bury
Lord Dulverton of Batsford,
O.B.E., J.P.
H. Calkin-
Lord Egerton of Tatton
G. Harben
Sir Archibald Jamieson,
K.B.E.
J. Robertson Justice
Sir Percy Lister
S. L. Lloyd
I. D. Malcolmson
Miss T. A. Miller
C. D. Norton
Peter Scott, M.B.E., D.S.C.
Sir William Seeds, K.C.M.G.
Mrs. W. J. Short
W. Proctor Smith
Group Captain R. Smyth-
Pigott
Sir George Usher

MEMBERS

K. C. Abercrombie
Miss C. M. Acland
E. P. Acton
Mrs. E. C. Adam
A. H. Adams
A. W. Adams
F. K. C. Adams
W. C. Adams
R. B. Adamson
Dr. Enid I. M. Addenbrooke
S. Adlard
Mrs. S. Adlard
R. F. Aickman
Mrs. R. F. Aickman
C. J. Ainscough
Miss D. Albright
Lord Aldenham
Miss D. D. Alderson
Mrs. A. W. S. Aldridge
W. B. Alexander
D. W. Allen
Miss Jane Allen
Miss Joyce Allen
Miss L. M. Allen
Lieut.-Col. R. C. Allhusen
Miss L. G. Allies
Miss J. Allison
P. Allison
Mrs. A. T. Allott
C. R. Allott
D. Anderson
G. F. Anderson
P. Andrews
R. W. Angus
R. J. W. Appleton
R. Appleyard

Lady Apsley
Miss M. Archer
Miss P. R. K. Armitage
Miss W. Armour
Dr. G. Armour
T. S. Arnold
J. F. Arnold-Wallinger
C. B. Ashby
Miss J. Ashmore
P. Ashworth
T. C. Askew
S. N. Aston
A. Atkinson
G. L. Atkinson-Willis
Miss L. Auerbach
Miss Winifred Austen
Captain E. A. Aylmer, R.N.
Mrs. E. A. Aylmer
D. A. Bache
R. M. Bache
S. H. Badrock
R. Bagnall-Oakeley
J. S. Bain
Rev. Canon H. W. Baines
J. F. Baines
Mrs. N. E. Baines
F. A. Bak
Miss B. M. Baker
Miss H. Baker
Miss K. Baker
Miss M. Baker
Sir Michael Balcon
Mrs. G. Balfour
H. G. Balfour
L. Balfour
Miss E. Balfour-Browne
Miss J. C. Ball
P. A. J. Ball
C. Barbarin
D. G. W. Barham
E. B. Baring
Hon. Robin Baring
F. R. Barlow
Mrs. R. G. Barnes
W. Barnes
Col. G. Barnett
Capt. G. A. Barratt, R.N.
J. Barratt
J. M. Barrett
J. Barrington
Major W. E. Barrington-
Browne
R. L. Barrow
Miss M. F. Barton
A. Barwell
Miss J. Barwick
B. R. Bassett
R. L. Bassett
A. A. M. Batchelor
E. Bate
Mrs. M. Bates
W. Rayner Batty
Mrs. F. W. Baty
Major W. L. Baxendale
G. V. Baxter
Miss S. K. Bayley*
Dr. D. R. Baylis
J. H. Beacall
G. C. Beadle
Mrs. G. Beadle
D. O. Beale
G. H. P. Beames
Miss H. Beamish
Miss K. M. Beard
Sub-Lieut. J. H. Beattie, R.N.
Duchess of Beaufort
Duke of Beaufort, K.G., P.C.,
G.C.V.O.
Hon. Mrs. Beaumont-Nesbitt
Miss E. L. Beckett
Dr. F. G. A. Beckett
I. A. Beddows
A. Behrendt
Mrs. Bell
G. W. F. Bellward
R. Belsey
Mrs. C. A. Benn
C. P. Bennett
H. W. Bennett
Lieut. J. H. C. Bennett
P. W. Bennett
G. Benson
G. B. Benson
J. H. Benson
Lieut. N. R. Benson, R.N.
Lieut.-Col. R. L. Benson,
D.S.O., M.C., M.V.O.
Lady Violet Benson
A. Bentham
D. W. Berdoe-Wilkinson
Capt. R. G. W. Berkeley
M. F. Berry
Mrs. K. Berry
W. G. Berry
A. A. Best
D. M. E. Bevan
Rear-Admiral Sir Richard
Bevan, C.B., D.S.O., M.V.O.
Brigadier F. W. Bewsher,
C.B.E., D.S.O., M.C.
Dr. J. A. R. Bickford
Mrs. C. Biddell
W. J. Biddle
Miss C. M. Biggs
T. H. A. Biggs
T. C. A. Binley
Miss E. Binyon
R. C. Bird
J. Birkett
Miss H. N. Biscoe
Mrs. E. W. Bishop
Miss E. Bisset
Mrs. Bivand
Miss E. M. Black
Mrs. G. T. Black
M. D. G. Black
W. Black
C. P. Blacker
A. F. S. Blackett
A. R. M. Blake
G. G. Blake
G. B. Blaker
Rev. F. L. Blathwayt
Miss S. Blathwayt
Lieut.-Col. N. R. Blockley
Miss E. E. Bloodworth
J. K. Blundell
L. Blundell

Capt. H. S. Blunt	P. L. Brown	A. S. Carter
D. F. Blyth	S. Brown	Mrs. F. Carter
M. R. Boardman	W. A. Brown	Major S. L. A. Carter,
Dr. F. Bodman	A. C. L. Browne	M.B.E., M.C.
Mrs. H. E. Bolden	Lieut.-Col. C. C. L. Browne,	Mrs. E. Carter-Lewis
Miss E. Bolton	R.A.	Col. W. H. Carver
Miss A. Bonus	Mrs. C. C. L. Browne	H. D. Cassini
S. S. Boorman	Dr. E. M. Browne	H. V. Casson
C. G. Booth	J. B. Browne	R. H. Casson
Major A. R. Bosanquet, M.C.	J. M. Browne	Mrs. E. Castle
Mrs. B. Boston	Miss N. Browne	J. V. Catlin
W. H. Boston	Mrs. H. M. Browning	Sir Charles Cave, Bart.
Capt. S. Boucher, C.B.E.,	Lieut.-Col. H. G. Brownlow,	J. Chadwick
R.N.	R.E.	Miss E. M. Chalmers
Dr. L. G. Bourdillon, D.S.O.,	Mrs. K. M. Brownlow	Miss F. M. Chamberlain
M.C.	J. W. Bryan-Brown	Miss M. J. Champion
C. H. Boutflower	Mrs. G. Bryant	E. J. Chapman
Miss A. P. Bowater	Dr. N. Bryce	G. Chapman
Miss C. E. Bowen	Dr. R. G. Bryce	H. B. Chappell
D. Bowles	Mrs. R. G. Bryce	Mrs. V. R. Charlewood
A. W. Boyd	W. J. Brymer	Mrs. E. S. Charrington
H. G. Boyd	D. H. Buchanan	Lieut.-Col. The Hon. Martin
R. O. Boyd	M. Budgen	Charteris
W. Boydell	W. R. Bufton	R. F. Chatfield
D. Boyle	Miss L. Bull	Miss E. F. Chawner
C. Braby	A. Bullen	Dr. C. Chessex
A. G. Brackenbury	M. A. Bullen	Viscount Chetwynd
Miss H. W. Bradley	W. J. Bullock	Mrs. R. Childs
Miss W. E. Bradley	J. F. H. Bulman	Mrs. M. H. Childs
R. J. Bradney	B. Bulmer	D. A. Chipp
W. R. Brandt	H. H. Bulmer	H. F. Chittenden
Mrs. O. Branson	V. W. Bulstrode	J. C. Christopherson
W. R. B. Brash	Miss J. Burdon	Miss G. M. Clark
H. J. Bratby	Miss K. Burge	G. N. Clark
S. H. Bratby, M.B.E.	Mrs. E. H. Burn	H. Clark
Mrs. B. Bray	Miss E. Burnaby	Lady Clarke
Dr. M. K. Braybrooke	Miss P. Burnett	C. A. Clarke
Air Vice - Marshal J. D.	Comdr. H. M. Burrows, R.N.	G. C. Clarke
Breakey, C.B., D.F.C.	Miss F. I. Bushell	Col. S. R. Clarke
A. V. Bridgland	Lieut.-Col. E. P. Butler	Major R. C. R. M. Clarke
C. E. Brierley	Miss F. S. Butler	F. Clay
Miss E. M. Briggs	E. J. M. Buxton	J. W. Clayton
Miss A. Brindley	R. J. Buxton	A. P. Cleaver
Dr. D. Brinton	R. V. Buxton	Col. D. W. Cleaver
Miss E. M. Briscoe	Viscountess Byng of Vimy	Miss G. G. Clement
Major F. E. Briscoe, D.S.O.	Miss D. A. Cadbury	A. W. Clifford
Miss E. L. Britton	E. Cadbury	Mrs. H. Clifford
W. F. Britton	Mrs. H. M. Cadbury	W. H. J. Clift
Major J. M. Brockbank	J. C. Cadbury	G. Clinton-Baker
Mrs. C. B. Brocklebank	W. A. Cadman	W. L. Clinton-Baker
F. K. Bromley	Brigadier The Earl of Caith-	J. R. Clive
R. Bromley	ness, D.S.O.	Miss V. Close
P. E. Bromley-Martin	R. Caldicott	H. Clutton-Brock
Capt. The Rt. Hon. Sir Basil	M. A. Callender	C. H. Coad
Brooke, Bart., P.C., C.B.E.,	J. W. A. Calver	Mrs. C. Coker
M.C.	Miss Phyllis Calvert	F. W. Coats
Lieut.-Comdr. H. J. A. Brooke,	R. McL. Cameron	P. W. R. Coate
D.S.C., R.N.	H. A. Campbell	E. M. Cobb
O. Brooke	J. Campbell	Col. J. C. Cockburn
F. C. Brooks	N. D. O. Capper	Major W. G. la Trobe
Major The Hon. H. R.	I. F. Carlile	Cockraft
Broughton	Miss B. M. Carlisle	E. Cohen
Miss A. Brown	D. G. Carmichael	G. B. Cole
A. W. W. Brown	D. G. O. Carmichael	Miss M. Y. Cole
Miss B. E. Brown	G. Carmichael	E. Coles
Mrs. C. Brown	Mrs. G. Carmichael	Mrs. J. D. D. Coles
C. E. Brown	Miss J. B. Carmichael	Lieut.-Comdr. O. Collett
C. H. A. Brown	Lieut.-Col. J. P. Carne	K. G. Collins
D. H. W. Brown	Mrs. B. Carr	S. H. Combe
E. Brown	D. W. Carr	R. I. Comins
G. Brown	L. Carr	Mrs. E. M. Commeline
J. J. G. Brown	R. A. Carr	Miss B. A. Coney

K. M. Coni
 Mrs. M. Connelly
 Miss M. K. Cook
 R. G. Cooke
 Mrs. N. Cooke-Hurle
 R. H. Coombes
 D. M. Cooper
 Miss L. Cooper
 Mrs. M. T. D. Cooper
 Major R. J. Cooper
 Mrs. M. Cope
 R. G. G. Copeland
 Mrs. I. Copeland
 Mrs. F. E. Corley
 Sir Kinahan Cornwallis,
 G.C.M.G., C.B.E., D.S.O.
 Miss L. Cottam
 Mrs. B. Cotts
 Miss A. E. Courts
 A. C. Cowan
 W. S. Cowin
 Miss G. R. Cowing
 Miss A. M. L. Cox
 F. T. Cox
 Lieut.-Col. G. G. Cox-Cox
 Miss E. B. Crabbe
 Miss J. Crabbe
 J. M. Craster
 B. J. Crichton
 M. H. Crichton
 Hon. Mrs. A. Crichton
 Lady Cripps
 Capt. J. H. Cripps
 Hon. Lady Cripps, C.B.E.
 Mrs. O. Crittall
 A. Crook
 J. W. Cropper
 K. Crosland
 Major M. Cruickshank
 B. H. Cudmore
 Miss D. M. Cuer
 Rev. C. H. D. Cullingford
 W. D. Cummings
 D. Cunliffe-Lister
 G. R. Cunningham-van
 Someren
 J. Cunningham
 Capt. C. N. E. Currey, R.N.
 Mrs. M. M. Currey
 Miss Currie
 R. M. Currie
 C. M. Curtis-Hayward
 C. Dalgety
 Miss M. M. Dalglish
 Vice-Admiral Sir Frederick
 Dalrymple-Hamilton,
 K.C.B.
 V. E. Danks
 Mrs. M. M. Dann
 Col. Sir Lionel E. Darell,
 Bart., D.S.O.
 Major J. L. Darell
 Dr. A. Darlington
 H. Darnborough
 D. B. Dash
 A. C. Drummond Davidson
 Major-Gen. A. E. Davidson,
 C.B., D.S.O.
 Mrs. S. S. Davidson
 Brigadier E. F. Davies, D.S.O.,
 M.C.
 E. G. Davies
 Mrs. H. C. Davies
 H. O. Davies
 P. W. Davies
 Miss E. Davis
 H. H. Davis
 J. K. N. Davis
 Mrs. J. K. N. Davis
 Mrs. N. C. Davison
 Mrs. K. B. Dawe
 E. B. Day
 P. L. Day
 Miss D. H. de Beer
 M. de Lisle Bush
 Mrs. K. H. de Quetteville
 R. G. de Quetteville, D.S.O.,
 M.C.
 Mrs. M. de Rougemont
 Miss D. E. de Vesian
 C. M. de Vinchelez Le Sueur
 C. de Worms
 A. W. S. Dean
 Mrs. M. H. Dearmer
 Mrs. M. A. Delmé-Radcliffe
 N. L. Denning
 C. F. Dennistown-Webster
 Sir Francis Dent
 J. Y. Dent
 Miss P. M. Denty
 J. P. Derscheid
 Sir Thomas Devitt, Bart.
 Col. F. W. Dewhurst
 Miss A. C. Dicker
 Dr. J. W. Dickson
 Lady Dilke
 F. J. Discombe
 Miss S. M. Dixon
 Miss V. Dobson
 R. Dodd
 Dr. G. R. Dodds
 Miss M. Dodson
 Rev. C. S. Donald
 Miss K. M. Donne
 T. L. S. Dooly
 R. J. Douglas
 D. Dore
 C. Dowdeswell
 E. H. Down
 G. A. Drew
 Mrs. J. R. Drinkwater
 P. M. Driver
 Major C. Druce
 T. R. Drury
 Rev. G. F. Drysdale
 Miss P. Dudfield
 Miss P. Dugdale
 Major W. D. H. Duke
 D. H. Dumbell
 A. B. Duncan
 S. Duncan
 Brigadier W. E. Duncan,
 C.V.O., D.S.O., M.C.
 Viscount Duncannon
 R. Duncanson
 C. C. Duncune
 Lord Dunleath, C.B.E.,
 D.S.O.
 E. E. Dunn
 Brigadier K. F. W. Dunn
 Mrs. K. Dunn
 H. Dunicliff
 A. C. Dunsdon
 G. R. Duval
 Mrs. K. Dyson
 Miss G. M. Eacott
 R. Eagleson
 F. J. Eardley
 C. Eardley-Wilmot
 Miss A. Eccles
 Hon. Terence Eden
 M. Edmonds
 H. Edwards
 Miss H. M. Edwards
 V. S. Edwards
 Capt. A. T. Eeles
 H. G. Eley
 G. Elgar
 Miss M. C. Elliot
 Miss D. M. Ellis
 N. F. Ellison
 K. V. Elphinstone
 Miss B. England
 E. A. R. Ennion
 J. M. Erskine, C.B.E.
 Dr. A. M. Evans
 A. R. Evans
 Mrs. B. W. Evans
 D. Evans
 D. T. Evans
 Miss G. M. Evans
 Mrs. R. E. Evans
 P. Evans
 Mrs. Sparke Evans
 G. F. Exton
 Miss J. C. Eyre
 A. Ezra, O.B.E.
 Dr. W. A. Fairbairn
 Lieut.-Col. Sir Terence
 Falkiner, Bart.
 Major The Hon. Mountjoy
 Fane
 J. H. J. Farquhar
 Miss W. M. Farrant
 G. B. Farrar
 L. R. Farrell
 Miss A. C. Favell
 Miss E. W. Favell
 J. Fawke
 Miss D. J. Fayers
 Dr. B. W. D. Fayle
 Mrs. I. B. S. Fayle
 Mrs. C. Festing
 J. Field
 S. Field
 F. Fincher
 E. Fisher
 G. Fisher
 James Fisher
 Rev. J. H. W. Fisher
 Miss T. Fisher-Smith
 R. S. R. Fitter
 Miss E. Flannery
 P. Fleming
 Major W. H. G. Fleming, R.A.
 R. E. Fleming
 Miss M. Flemming
 Lieut.-Col. Sir Lionel Fletcher,
 C.B.E.
 C. M. Floyd, O.B.E.
 Mrs. E. W. S. Foljambe
 Miss R. Follett
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We apologise for any errors which may appear in this list, and shall be grateful if members will inform us so that our records can be corrected.

*Copies of the Lithograph drawings which make up the
KEY TO THE WILDFOWL OF THE WORLD
which follows the Photogravure section of this Report
can be obtained in Booklet form, price two shillings and
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KEY TO THE WILDFOWL OF THE WORLD

By PETER SCOTT

THESE illustrations mainly show the birds in full breeding plumage. From June until October the drakes of many of the species of ducks from the Northern Hemisphere go into an 'eclipse plumage' over the period when the flight feathers are moulted and the birds are flightless. In this eclipse plumage the male in most cases looks very much like the female.

Where only one bird is shown as representative of each form, as in the swans, geese, Whistling Ducks, etc., the sexes are the same in plumage, or, as in certain species of ducks, similar but with the female slightly duller. In a few cases the female is so similar to that of a closely allied race that she is omitted in order to save space.

There are four different scales in use—one for the swans (Plate 2), one for the geese and Shelgeese (Plates 3, 4, 5 and 7), one for Whistling Ducks, Shelducks, and Perching Geese (Plates 1, 6, 8 and 17), one for the ducks (Plates 9-16 and 18-23). This disparity is necessary because Teal would be too small to show the markings if drawn on the same scale as swans, all of which must be shown on one page.

The artist has seen a large number of the forms alive. In cases where he is not familiar with the bird the name in the text is marked †. Species and subspecies on the British List are marked *. There are 240 forms of swans, geese and ducks—145 full species. Of the forms, 46 (40 full species) are on the British List.

The classification is based on that of Delacour and Mayr (*Wilson Bulletin*, Vol. 57, No. 1, March, 1945) with certain modifications, some of them suggested by Mr Jean Delacour himself. The geographical distribution is largely based on Peters (*Check-List of Birds of the World*) and Hellmayr and Conover (*Catalogue of Birds of the Americas*). Acknowledgements are made to the authors of these works.

ERRATA

An unexpected lapse of time between the completion of the drawings and the printing of the Key has allowed certain new information to be included with these corrections

- Plate IX Under Common Pintail, '*Anas acuta*' should read '*Anas acuta acuta*'.
The last line of this page should not be in italics.
- Plate X Under Campbell Island Flightless Teal, after 'Islands).' add: 'Very few in existence but probably never numerous'.
- Plate XI Under Laysan Teal, after 'Honolulu).' add: 'Probably now extinct'.
The drawing should show the Pelew Island Grey Duck somewhat smaller than it does.
Under Celebes Grey Duck the subspecific name '*percu*' should read '*percu*'.
Under Gabon Black Duck add † after scientific name.
- Plate XII Under Coues's Gadwall, after 'Hawaii).' add: 'Almost certainly now extinct'.
Delete 'd' in 'Widgeon' in third, fourth and fifth English names.
- Plate XIII 'Aberrant species of Anatini' should read 'Aberrant species of tribe Anatini'.
- Plate XIV Delete hyphens in Rosy-bill and Canvas-back.
Under Canvasback, the specific name '*valisneria*' should read '*vallisneria*'. The bird is named after one of its food plants which in turn is named after an Italian botanist Vallisneri.
- Plate XVI The drawing of the Australian Pygmy Goose should show that it is substantially larger than the Indian Pygmy Goose.
- Plate XVII 'Hartlaub's Teal' should read 'Hartlaub's Duck'.
- Plate XVIII Under Pacific Eider the subspecific name '*v. nigra*' should read '*v-nigra*'.
Under Faeroe Eider the subspecific name '*faeroeensis*' should read '*faeroeensis*'.
- Plate XX Delete hyphens in 'Golden-eye' and 'Buffle-head'.
- Plate XXII 'Aberrant species of tribe' should read 'Aberrant species of tribe Oxyurini'.
- Plate XXIII Under James's or Southern Torrent Duck the subspecific name '*fraenata*' should read '*fraenata*'.

PLATE I

Sub-order ANSERES
Family ANATIDÆ
Sub-Family ANSERANATINÆ
Tribe ANSERANATININI

Magpie Goose. *Anseranas semipalmata.*

Southern New Guinea and Australia. (Breeds in large numbers in Arnhem land.)

Sub-Family ANSERINÆ

Tribe DENDROCYGNINI (Whistling Ducks or Tree Ducks)

Spotted Whistling Duck. *Dendrocygna guttata.*

East Indies (Mindanao, Celebes, Moluccas, Tenimber, Aru, New Guinea, Bismark Archipelago).

Plumed or Eyton's Whistling Duck. *Dendrocygna eytoni.*

Australia and Tasmania.

East Indian Wandering Whistling Duck. *Dendrocygna arcuata arcuata.*

East Indies (Borneo, Sumatra, Java, Bali, Sumba, Timor, Celebes, Amboina—and perhaps other Moluccas—and Philippines).

Australian Wandering Whistling Duck. *Dendrocygna arcuata australis.*†

Australia and southern New Guinea. Birds in northern New Guinea and New Caledonia probably intergrade with *D. a. arcuata*.

Lesser Wandering Whistling Duck. *Dendrocygna arcuata pygmaea.*†

New Britain (and formerly Fiji Islands, where it has probably been exterminated by the introduction of the mongoose).

Fulvous Whistling Duck. *Dendrocygna bicolor.*

Southern California to south-eastern Texas and south to central Mexico; northern tropical South America from Colombia to the Guianas; Brazil, Peru, south to Paraguay and northern Argentina; East Africa from Lake Chad to Natal; Madagascar; India, Ceylon and Burma, south to Pegu. (This is probably the most extraordinary distribution of any species of bird. There is no geographical variation throughout this huge and broken range.)

Black-billed Whistling Duck. *Dendrocygna arborea.*

West Indies (Bahama Islands, Greater Antilles—Cuba, Haiti, Jamaica, Puerto Rico—Virgin Islands, Leeward Islands, Martinique).

Javan or Indian Whistling Duck. *Dendrocygna javanica.*

India from Sind eastwards to coast of southern China, south to Ceylon, Nicobar Islands, Malay Peninsula, Siam, Cochin China; Riu Kiu Islands, south-western Borneo, Sumatra and Java.

White-faced Whistling Duck. *Dendrocygna viduata.*

Tropical South America, south to the Argentine Chaco, Paraguay and Uruguay. Africa, south of the Sahara to southern Angola and the Transvaal; Madagascar; Comoro Islands.

Red-billed Whistling Duck. *Dendrocygna autumnalis autumnalis.*

Extreme southern Texas and Mexico, south through Central America to Panama, where it intergrades with *D. a. discolor*.

Grey-breasted Whistling Duck. *Dendrocygna autumnalis discolor.*

South America from eastern Panama to northern Argentina, but not south of Ecuador on the west side of the Andes.

MAGPIE GOOSE AND WHISTLING OR TREE DUCKS.

Red-billed or
Black-bellied
Whistling
Duck or
Tree Duck.

Pink red bill,
orange at base
& blue at tip.

Pale grey
cheeks

↑ The two races
intergrade.

Brown
breast

Pink
legs

✓

Grey-breasted
Whistling
Duck or
Tree Duck.

Bill as
above.

Black-billed or
Cuban
Tree Duck

Grey
breast

Pink
legs

♂ + ♀
have the same
plumage in
all the forms
on this page

Fulvous Tree
Duck or
Whistling Teal

Blue-grey
bill.

Reddish-
brown
bird

Blue-grey
legs

White-faced
Tree Duck.

Black with
chestnut.

Blackish
legs.

Plumed or
Eyton's
Tree Duck.

Pink
spotted
bill

Spotted
Tree Duck

Pink legs

Dull reddish
legs

East Indian,
Lesser and
Australian
Wandering
Tree Ducks.

Blue-grey
shin

Blue-grey
legs

Black
legs

Javan Tree Duck or
Lesser Whistling
"Teal"

Medium

Small

Large

Puff cheeks,
chestnut flanks

'Whistling Duck' is an alternative & more correct name for all the 'Tree Ducks'.
PS.

PLATE II

Tribe **ANSERINI** (Swans and Geese)

Coscoroba Swan. *Coscoroba coscoroba*.

Extreme southern Brazil, Uruguay, Paraguay, Argentina, Chile (including Tierra del Fuego), and Falkland Islands.

This species may more properly belong to the *Dendrocygnini*.

Black Swan. *Cygnus atratus*.

Australia (except north central) and Tasmania. Introduced into New Zealand.

***Mute Swan.** *Cygnus olor*.

Now breeds wild in southern Scandinavia, Denmark, Russia, Asia Minor and Persia, east through Turkestan to Mongolia. Also in semi-wild state in British Isles. In winter to north Africa, Black Sea, north-western India and Korea.

Black-necked Swan. *Cygnus melanocoryphus*.

Southern Brazil, Paraguay, Uruguay, Falkland Islands, Argentina and Chile, south to Tierra del Fuego.

Whistling Swan. *Cygnus columbianus columbianus*.

North America, breeding chiefly north of Arctic Circle from Alaska to Hudson Bay, and wintering on the Atlantic coast from Chesapeake Bay to Currituck Sound and the Pacific coast from southern Alaska to California.

***Bewick's Swan.** *Cygnus columbianus bewickii*.

Breeds in northern Russia from the Kanin peninsula and northern Siberia, east to the Lena Delta; south in winter to the British Isles, northern Europe, Caspian Sea and central Asia.

Eastern Bewick's or Jankowski's Swan. *Cygnus columbianus jankowskii*.

Breeds from the delta of the Lena to the delta of the Kolyma; south to China and Japan in winter. There is some doubt whether this race, which is said to be slightly larger and with more yellow on bill, can be shown to be really distinct from *C. c. bewickii*.

***Whooper Swan.** *Cygnus cygnus cygnus*.

Breeds Greenland, Iceland, northern Scandinavia, eastwards to Kamchatka and winters British Isles, western Europe, central Asia, China and Japan. Iceland and Greenland birds have been separated as *C. c. islandicus*, but this is doubtfully distinct.

Trumpeter Swan. *Cygnus cygnus buccinator*.

Formerly bred throughout North America. Now known to breed only in Alberta, British Columbia, Montana and Wyoming, and possibly in interior of Alaska. The species is virtually non-migratory and there are probably not many more than 1,000 individuals in existence.

Trumpeter

Whistling

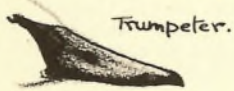
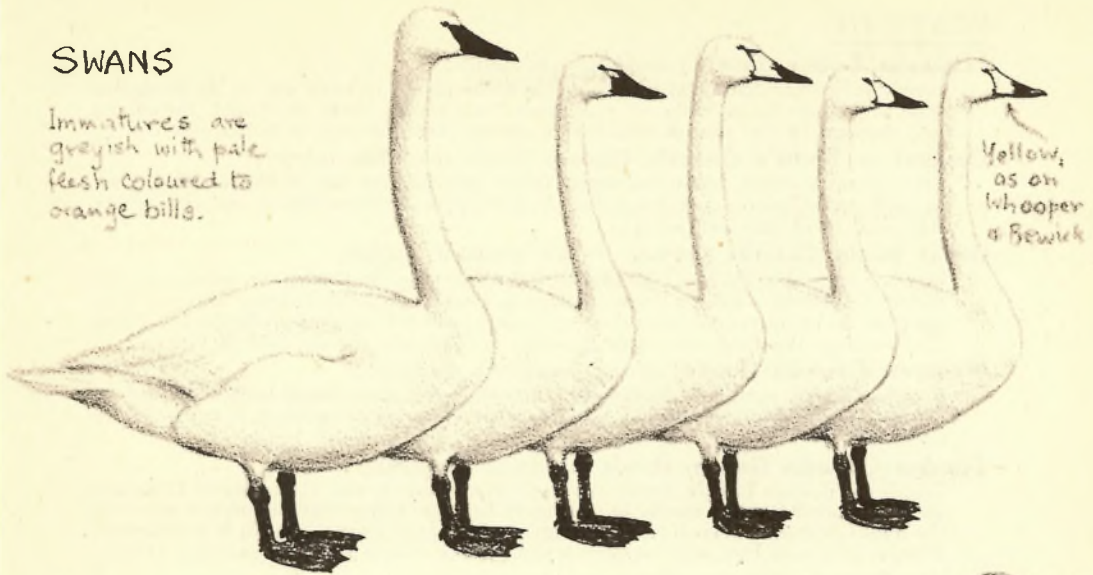
Whooper

Bewicks

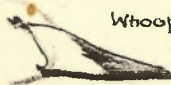
Jankowski's

SWANS

Immatures are greyish with pale flesh coloured to orange bills.



Trumpeter.



Whooper.

Yellow + black



Whistling.

Yellow spot (not always present)



Bewicks.

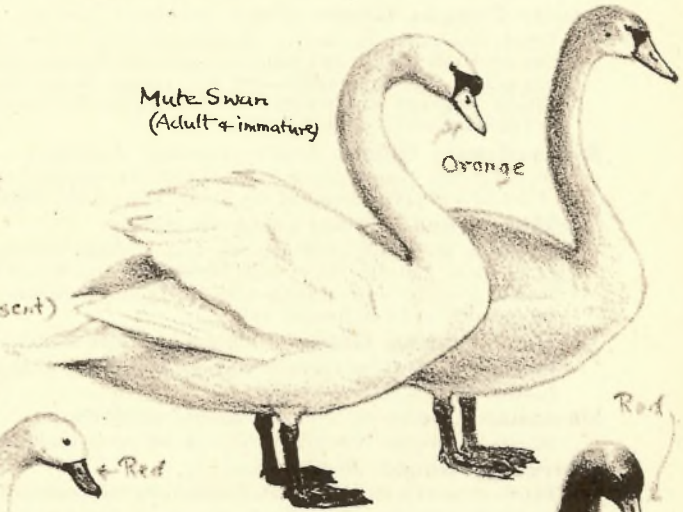
Yellow + black



Mute.

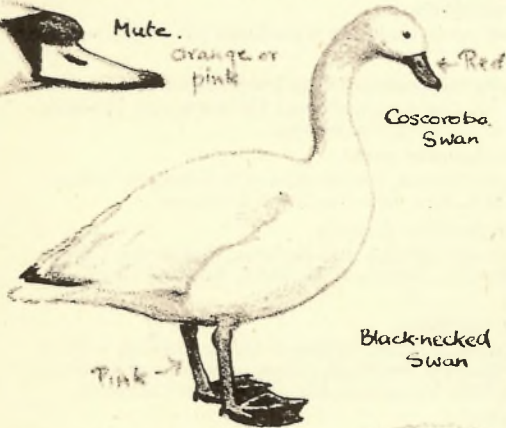
orange or pink

Mute Swan (Adult + immature)



Orange

Red

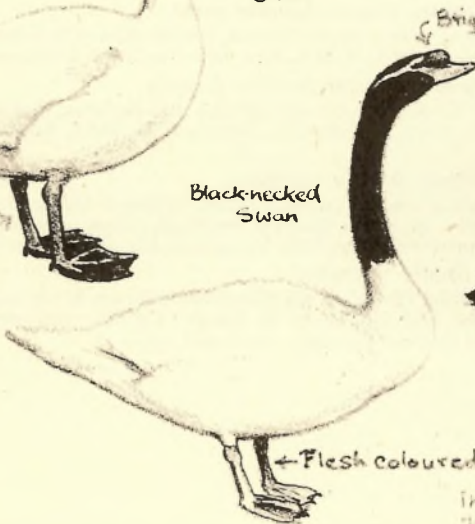


Coscoroba Swan

+ Red

Pink →

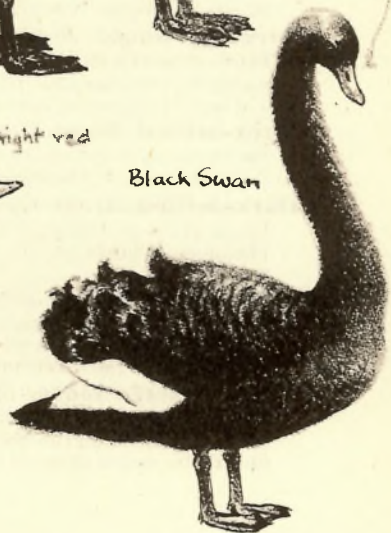
Black-necked Swan



← Flesh coloured

Bright red

Black Swan



In the Swans the plumage of the male + female is the same.

T.S.

PLATE III

***Canada Goose.** *Branta canadensis canadensis.*

Breeds in Newfoundland and Labrador, east of the Height of Land and on the Magdalen Islands. Winters on the Atlantic coast from Nova Scotia, south to Florida. Introduced into England for first time in seventeenth century. Now regarded as British bird.

Central or Todd's Canada Goose. *Branta canadensis interior.*

Breeds from northern Manitoba, Baffin Island and the east side of Hudson Bay, south to northern Minnesota and James Bay. Winters from southern Illinois and Chesapeake Bay, south to Florida and Louisiana.

Great Basin Canada Goose. *Branta canadensis moffitti.*

Breeds from central British Columbia, central Alberta and Saskatchewan, south to north-eastern California, northern Utah, northern Colorado and south Dakota. This race does not move far on migration but has been recorded in winter from southern British Columbia, north-western Wyoming and Arkansas, south to California and the Gulf of Mexico.

Western Canada Goose. *Branta canadensis occidentalis.*

Breeds on Pacific coast and islands from Prince William Sound, Alaska to Queen Charlotte Islands, British Columbia. Mainly resident, but a few move as far south as north-western California.

Tundra Canada Goose. *Branta canadensis leucopareia.*

Breeds on Aleutian Islands, Arctic coast from Point Barrow, east to Mackenzie Delta and probably round lakes in interior of the tundra between Yukon and Kuskokwim rivers on the Alaska Peninsula where it has been suggested that it may intergrade with *B. c. occidentalis*. Winters in western U.S. from northern Washington to eastern Texas and northern Mexico.

Lesser Canada Goose. *Branta canadensis parvipes.*

Breeds throughout the interior of northern North America probably from central Alaska, east to Hudson Bay and south to northern British Columbia and Manitoba where it intergrades with *B. c. moffitti* and *B. c. interior*. Breeds also on Baffin and Southampton Islands. Migrates mainly west of the Mississippi. Winters in southern U.S. from California to Louisiana and south to Mexico.

Richardson's Goose. *Branta canadensis hutchinsii.*

Breeds on the eastern Arctic coasts of Canada. Migrates through the interior mainly west of the Mississippi and east of the Rocky Mountains. Winters in Texas and Mexico.

Cackling Goose. *Branta canadensis minima.*

Known to breed only on Bering Sea coast of Alaska between mouths of Yukon and Kuskokwim rivers, but may do so from Bering Strait to Bristol Bay and perhaps on Kotzebue Sound. Migrates down Pacific coast of North America to winter in California, mainly in Sacramento and San Joaquin valleys.

Asiatic Cackling Goose. *Branta canadensis asiatica.*†

Believed to breed on coasts of extreme north-east of Asia and to winter on the Pacific coast of Siberia, rarely to Japan.

Hawaiian Goose or Ne-ne. *Branta sandvicensis.*

Hawaiian Islands. Now reported to be not more than fifty individuals left in the world.

***Barnacle Goose.** *Branta leucopsis.*

Breeds in north-east Greenland, Spitzbergen and possibly Franz Joseph Land, and winters mainly in Scotland and Ireland, also on the coasts of Germany, Denmark and Holland. The species appears to have greatly decreased during this century.

***Light-bellied Brent Goose.** *Branta bernicla hrota.*

Breeds on coasts and islands of eastern Arctic Canada, Greenland and Spitzbergen. Winters in Ireland and on Atlantic coast of U.S. from New Jersey to North Carolina.

***Dark-bellied Brent Goose.** *Branta bernicla bernicla.*

Breeds in Arctic Europe and Asia from Novaya Zemlya and Kolguev, east to the Taimyr Peninsula. Winters on the coasts of Germany, Denmark, Holland, England, Scotland, and France.

Pacific Black Brant. *Branta bernicla nigricans.*

Breeds on coasts and islands of western Arctic Canada, northern Alaska, Siberia, west to Taimyr Peninsula. Winters on the Asiatic shores of the Pacific, south to Japan and northern China and on the North American shores from Vancouver Island to Lower California.

***Red-breasted Goose.** *Branta ruficollis.*

Breeds on Siberian tundra from the Ob to the Khatanga. Winters in the southern part of the Caspian Sea and in the Aral Sea; rarely in Europe, ten fully authenticated records for Britain (two of them on the New Grounds—1909 and 1942).

BLACK GEESE

Asiatic

Apparent tendency
to white ring
Cackling

Richardson's

Tundra
or Western Lesser
Canada

Lesser Canada

The geographical
indication in these
drawings is
intended only as
an aid to memory

Great Basin
Canada

Todd's or
Central
Canada

Eastern
Canada

Western Canada

Black Brant

Light bellied
Brent
Ring complete
in front

Dark bellied
Brent.

Nene or
Hawaiian Goose
(In grave danger
of extinction)

Pale buff
neck

Barnacle

Redbreast

Chestnut
brown

In all these forms the plumage of both
sexes are the same.

PLATE IV

Swan Goose. *Anser cygnoides*.

Breeds in Siberia from the Tobol and the Ob to Kamchatka, the Commander and Kurile Islands, south to the Altai, Lake Baikal and Ussuri. Winters in China.

***Bean Goose (Yellow-billed Bean Goose).** *Anser arvensis arvensis*.

Breeds in the taiga (wooded country) in the Arctic from Lapland, eastwards to the Yenesei. In winter, south to Britain (now very local and rather rare), Holland, Mediterranean, Black and Caspian Seas, Turkestan. The limits of the ranges of this and the next four races are not yet very well understood.

Middendorf's Bean Goose. *Anser arvensis sibiricus*.†

Breeds in taiga in Arctic Siberia from the Taimyr Peninsula to the Chuckchi Peninsula. Winters in China and Japan.

Tundra or Western Bean Goose. *Anser arvensis rossicus*.

Limits of breeding range not worked out. Probably breeds in Kolguev, Novaya Zemlya, and on tundra shores of Arctic Russia and Siberia, west of the mouth of the Yenesei.

Thick-billed or Eastern Bean Goose. *Anser arvensis serrirostris*.†

Breeds on the tundra shores of Siberia, east of the Yenesei. Winters in China and Japan.

Sushkin's Goose. *Anser arvensis neglectus*.†

Believed to breed on Novaya Zemlya and Kolguev. Apparently used to migrate through the Ufa Government to winter in Hungary, where it has not been recorded since 1930. It is possible that the race has been absorbed by a change of range of *A. a. rossicus*. It is also possible that it is no more than a colour phase of *rossicus*.

***Pink-footed Goose.** *Anser arvensis brachyrhynchus*.

Breeds in north-east Greenland, Iceland, Spitzbergen, and possibly Franz Joseph Land. Winters almost entirely in England and Scotland; a few in Holland. (Up to ten years ago more than 1,000 came to the New Grounds every September. Lately the number has been less than 100. They leave again in November.)

***White-fronted Goose.** *Anser albifrons albifrons*.

Breeds on the Arctic coasts of Europe, Asia and North America from the Kanin Peninsula, east to the Bering Strait, Alaska and western Arctic Canada. Winters in England, western Europe, Mediterranean, Black and Caspian Seas, northern India, China and Japan; western North America, south to California and the Gulf of Mexico.

***Greenland White-fronted Goose.** *Anser albifrons flavirostris*.

Breeds in north-west Greenland. Winters in Ireland, west Scotland, occasionally Wales, western England and eastern North America.

Tule Goose. *Anser albifrons gambelli*.

Reported breeding on the Perry River in the centre of the Arctic coast of Canada. Winters very locally in the Sacramento Valley, California. This race is probably very limited in numbers. There may be no more than 1,000 in the world.

***Lesser White-fronted Goose.** *Anser erythropus*.

Breeds, largely on mountain lakes and tarns, from Norwegian Lapland, eastwards to the Kolyma in Siberia and perhaps to the Chuckchi Peninsula. Winters in southern Europe, Black and Caspian Seas, Turkestan, north-west India, China, Japan. Nine records for Britain (six of them on the New Grounds).

***Greylag Goose.** *Anser anser anser*.

Breeds in Iceland, Scandinavia and northern Scotland (the only indigenous species of goose to breed in Britain). Winters in Holland, Britain, France and Spain.

Eastern Greylag Goose. *Anser anser rubrirostris*.

Breeds from eastern Europe (Poland, Hungary and Balkans) and North Africa, through Mesopotamia and central Asia to Kamchatka. In winter to the Mediterranean, Black and Caspian Seas, Seistan, north-west India and China.

GREY GEESE.

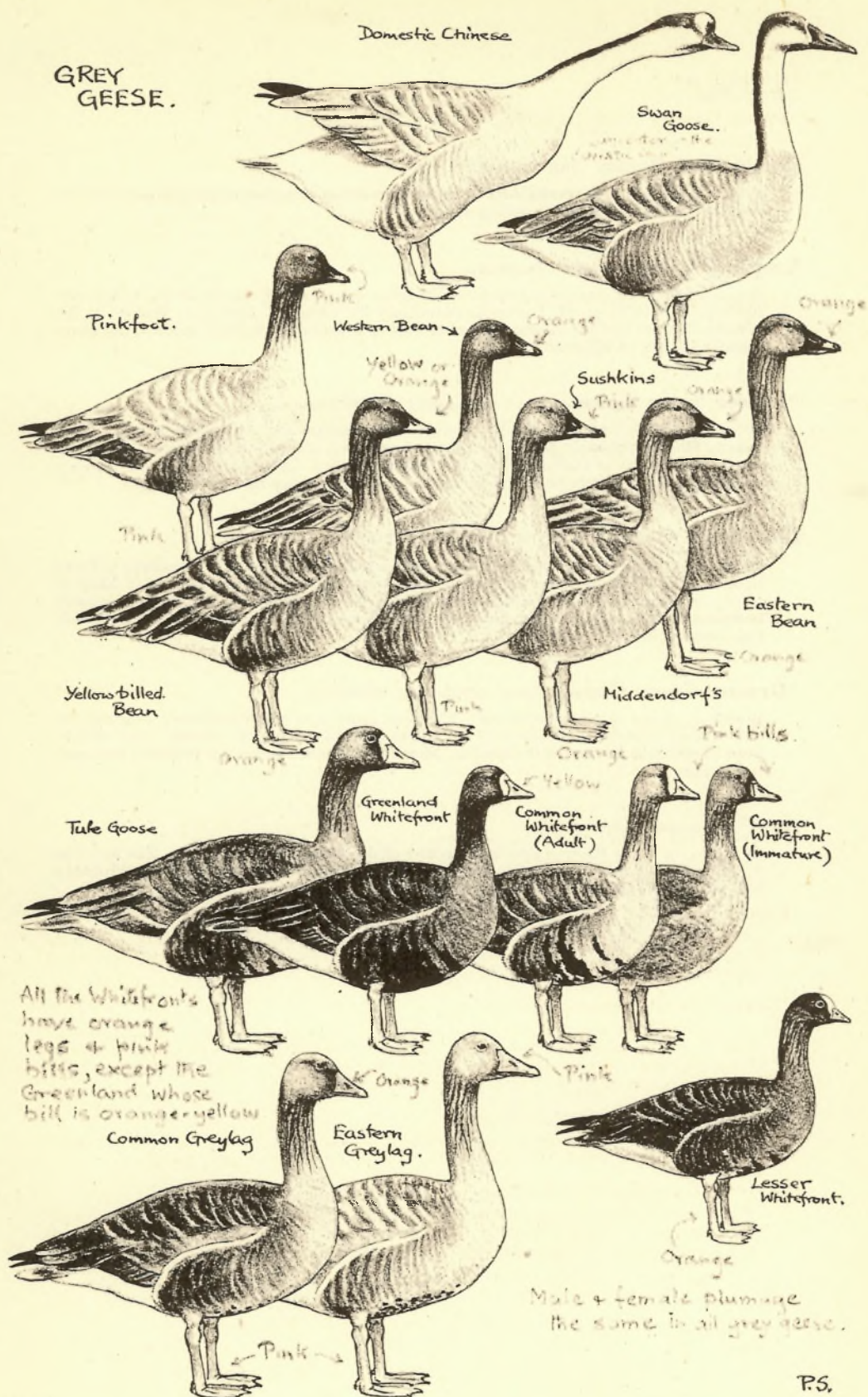


PLATE V

Bar-headed Goose. *Anser indicus*.

Breeds on lakes of high central Asia from the Tian-Shans to Ladakh and Kokonor. Winters northern India, Assam and northern Burma.

Emperor Goose. *Anser canagicus*.

Breeds on the west coast of Alaska from Kotzebue Sound to the mouths of the Yukon and Kuskokwim Rivers, on St. Lawrence Island and the Chuckchi Peninsula. Winters in the Aleutian Islands and the Alaska Peninsula, east to Bristol Bay; in Asia, south to the Commander Islands and Kamchatka.

***Lesser Snow Goose.** *Anser caerulescens hyperboreus*.

Breeds on Arctic coast of North America from Hudson Bay westward, and in north-eastern Siberia, probably as far west as the Lena. In winter, south in Asia to Japan and in North America to California and the Gulf of Mexico. Occasional in Europe. Twenty British records definitely belonged to this race, but some may have been escapes.

Blue Snow Goose. *Anser caerulescens caerulescens*.

Breeds on south-western corner of Baffin Island, Southampton Island, and sparsely in Perry River region. Breeding range apparently spreading. Winters on coast of Gulf of Mexico, chiefly in Louisiana. Recent records in Ireland may be wild birds. This bird may ultimately be shown to be no more than a colour phase of the Lesser Snow Goose: and it is even possible that Greater Blue Geese occur.

***Greater Snow Goose.** *Anser caerulescens atlanticus*.

Breeds on coasts of north Greenland, Ellesmere Land and adjacent islands. Migrates by way of Cap Tourmente at mouth of St. Lawrence, and winters off Atlantic coast of U.S. from Chesapeake Bay to North Carolina. Most of the 120 British records probably belonged to this race.

Ross's Goose. *Anser rossii*.

Breeds in the Perry River region in the centre of the Arctic coast of Canada. The nest was first found in 1942. Winters in Sacramento and San Joaquin valleys in California. Probably between 2,000 and 3,000 individuals in the world.

SNOW GEESE etc. (ABERRANT GREY GEESE)

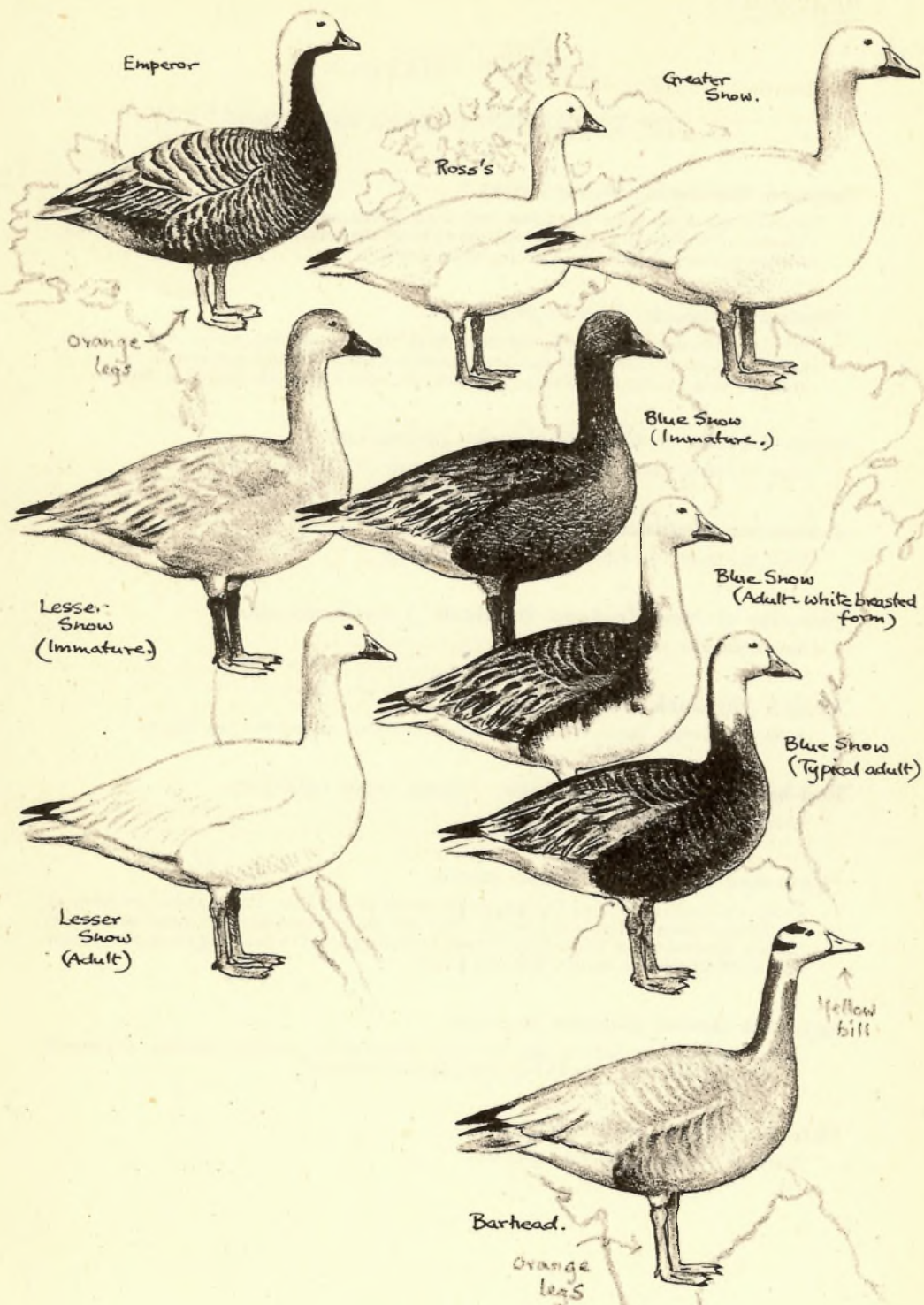


PLATE VI

Sub-Family ANATINÆ

Tribe **TADORNINI** (Shelducks and Shelgeese)

Crested Shelduck. *Tadorna cristata*.†

Known only from three specimens, two from Korea and one from near Vladivostok. Thought at first to be a hybrid, but figured fairly frequently in ancient Japanese prints, indicating that it is probably a disappearing species.

***Ruddy Shelduck.** *Tadorna ferruginea*.

Breeds from south-east Europe, the Near East, the Caspian Sea, across Asia to Transbaikalia, south to Himalayas and south-western China. Winters in southern half of its breeding range to the Nile Valley; India and southern China. Occasional in Britain.

South African or Cape Shelduck. *Tadorna cana*.

Cape Province, Orange Free State and Transvaal.

Australian Shelduck. *Tadorna tadornoides*.

West and South Australia, Victoria and Tasmania.

Paradise or New Zealand Shelduck. *Tadorna variegata*.

New Zealand.

Radjah Shelduck. *Tadorna radjah radjah*.†

Moluccas, Ceram, Buru, Waigiu, Salawatti, New Guinea and the Aru Islands.

Red-backed Radjah Shelduck. *Tadorna radjah rufitergum*.

Northern and eastern tropical Australia.

***Common Shelduck.** *Tadorna tadorna*.

Breeds on coasts of western Europe, including the British Isles; locally about the shores of the Mediterranean, Black and Caspian Seas, east on the saline lakes of central Asia to east Siberia, Mongolia and Tibet. Winters from southern part of its breeding range to northern Africa, Arabia, India, south China and Japan.

Egyptian Goose. *Alopochen aegyptiacus*.

Africa, south of the Sahara, also the entire Nile Valley; southern Palestine. Occasional records in Europe. Introduced into some parts of England.

Orinoco Goose. *Neochen jubatus*.

Basins of the Orinoco and the Amazon.

SHELDUCKS.

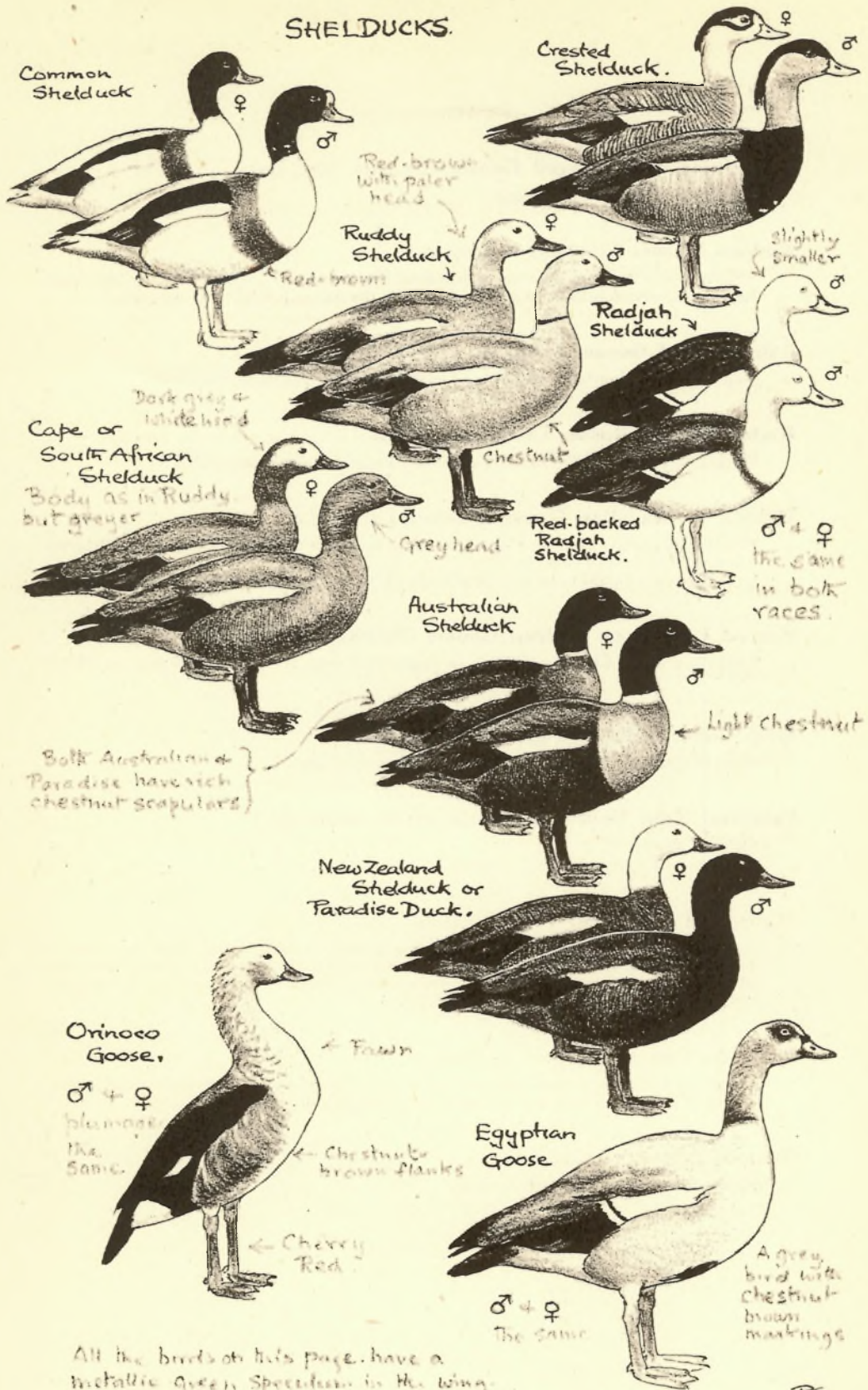


PLATE VII

Abyssinian Blue-winged Goose. *Cyanochen cyanopterus*.

Highlands of Abyssinia and Shoa.

Andean Goose. *Chloëphaga melanoptera*.

Western South America from the highlands of Peru and Bolivia to the Straits of Magellan.
In winter it descends to the plains at the foot of the Andes in Chile and Argentina.

Ashy-headed Goose. *Chloëphaga poliocephala*.

Southern Chile, southern Argentina, Tierra del Fuego; Falkland Islands.

Ruddy-headed Goose. *Chloëphaga rubidiceps*.

Falkland Islands and Tierra del Fuego; occasional in central Argentina.

Upland or Magellan Goose. *Chloëphaga picta picta*.

Southern Argentina from the Rio Negro, south to Tierra del Fuego; the Falkland Islands.
Introduced into south Georgia.
In Patagonia it is said to be an inland bird, whereas *C. p. dispar* prevails near the coast.

Barred Upland or Chilean Goose. *Chloëphaga picta dispar*.

Pacific side of the Chilean cordillera to Tierra del Fuego. A coastal rather than an inland bird.

Kelp Goose. *Chloëphaga hybrida hybrida*.

Coast of Chile from Chiloë, southward to Tierra del Fuego.

Falkland Kelp Goose. *Chloëphaga hybrida malvinarum*.†

Falkland Islands.

SHELGEESE.

Andean Goose

Male & female
plumage the same



Red legs

Abyssinian Bluewinged
Goose

Male & female
plumage the same
Shoulder
blue gray
rest of
bird
brownish gray.
Speculum green.

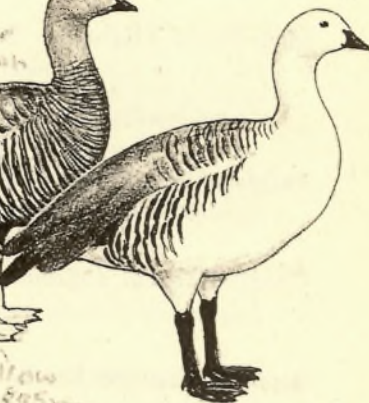
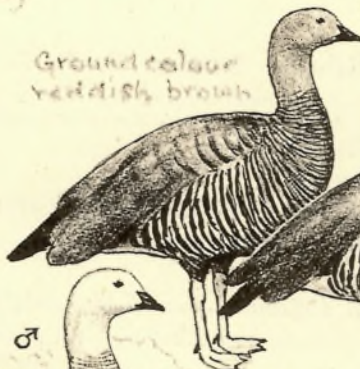


Upland or Magellan
Goose

♀

♂

Ground colour
reddish brown

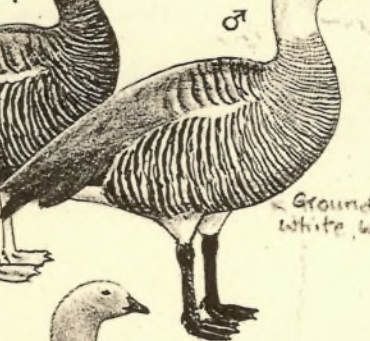


Barred Upland
or Chilean
Goose

Ground colour
reddish brown,
darker than
Upland

♀

♂



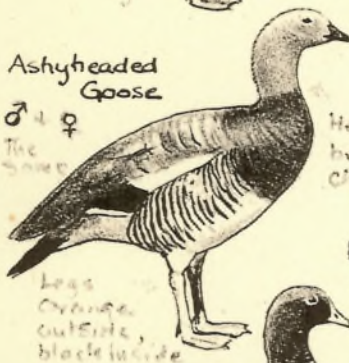
Yellow
legs

All on this page except the
Abyssinian are South
American.

Ground colour
white, with gray back

Ashyheaded
Goose

♂ & ♀
The same



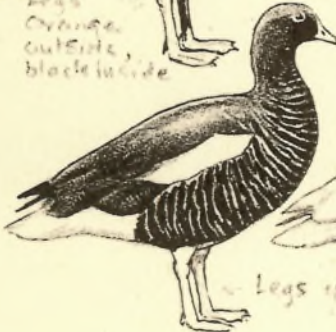
Legs
orange
outside,
black inside

Head gray,
breast rich
chestnut red

Kelp Goose

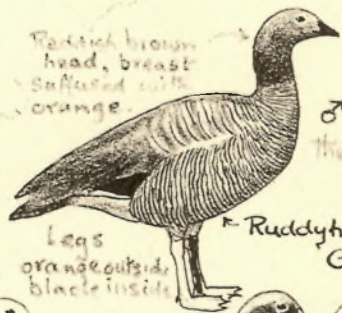
♀

♂



Legs yellow

Reddish brown
head, breast
suffused with
orange.



♂ & ♀

The same

Ruddyheaded
Goose

Legs
orange outside,
black inside

Falkland
Island
Kelp Goose

♀

♂



Local race
with longer
bill & legs.

Ps.

PLATE VIII

Aberrant species of tribe **TADORNINI**

Cereopsis or Cape Barren Goose. *Cereopsis novæ-hollandiæ.*

Islands off south and south-west Australia and in Bass Strait.

Flying Steamer Duck. *Tachyeres patachonicus.*†

Coasts, rivers, and interior lakes of southern South America from Valdivia, Chile on the west and Puerto Deseado, Argentina, on the east, south to Tierra del Fuego; Falkland Islands.

Magellanic Flightless Steamer Duck. *Tachyeres pteneres.*†

The coast of southern South America from Concepción, Chile, south to Tierra del Fuego, including the Straits of Magellan to the eastern entrance, but not the Atlantic coast north of Cape San Diego.

Falkland Flightless Steamer Duck. *Tachyeres brachypterus.*†

Falkland Islands.

Crested Duck. *Lophonetta specularioides specularioides.*†

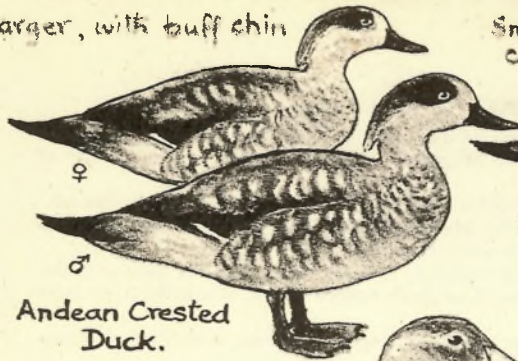
From central Chile and west central Argentina, south to Tierra del Fuego; Falkland Islands.

Andean Crested Duck. *Lophonetta specularioides alticola.*

Highland lakes in the Andes from central Peru, south through Bolivia to the latitude of Santiago, Chile. Occasionally in winter to the central valley of Chile.

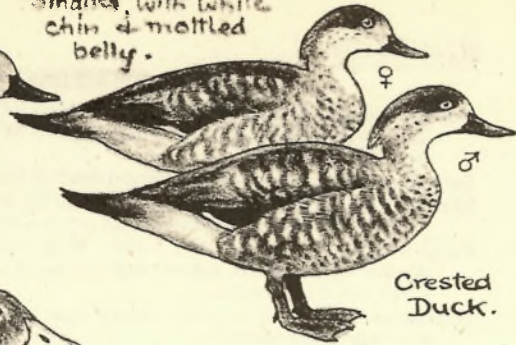
ABERRANT SPECIES OF THE SHELDUCK-SHELGOOSE TRIBE.

Larger, with buff chin



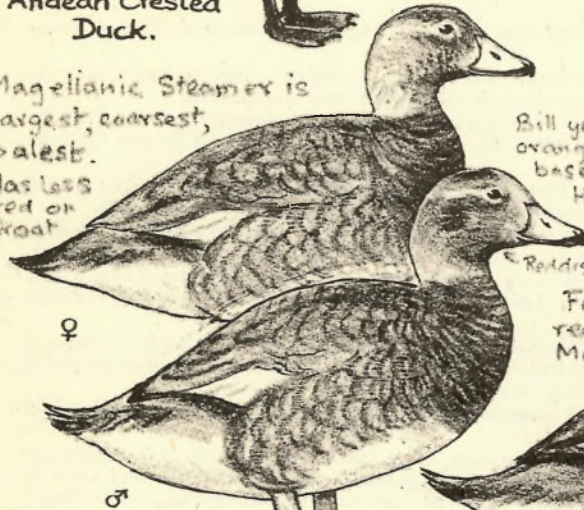
Andean Crested Duck.

Smaller, with white chin & mottled belly.



Crested Duck.

Magellanic Steamer is largest, coarsest, palest. Has less red on throat

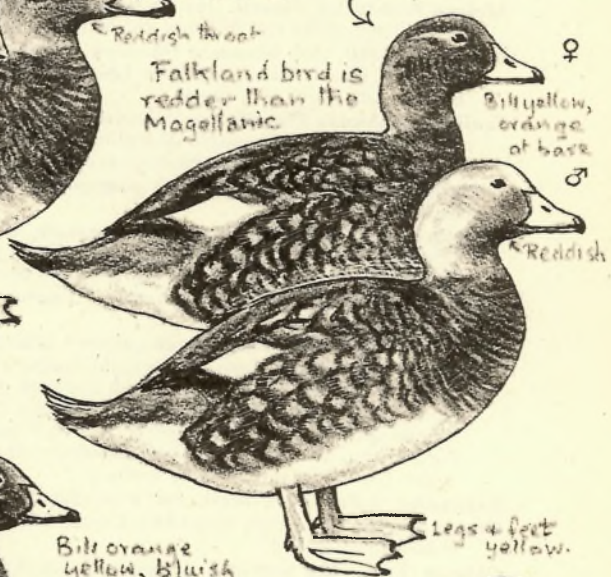


Magellanic Flightless Steamer Duck.

Legs & feet yellow

Bill yellow, orange at base. Heaviest bill of 3.

Falkland Is. Flightless Steamer Duck.



Falkland bird is redder than the Magellanic

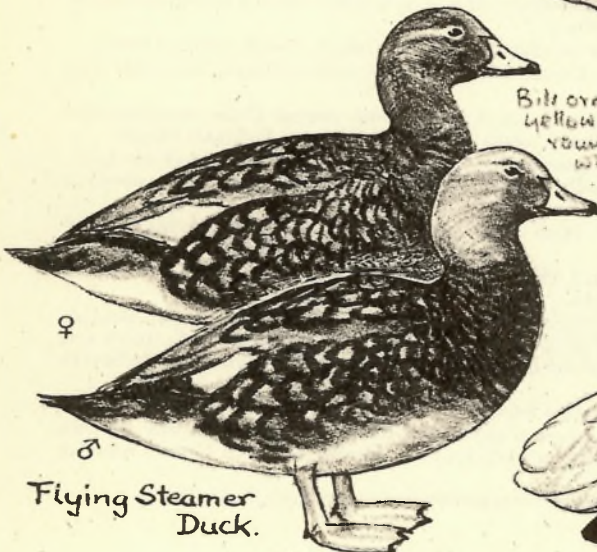
Bill yellow, orange at base

Reddish

Legs & feet yellow.

Bill orange yellow, bluish round nostrils, whitish at tip. Lightest bill of 3.

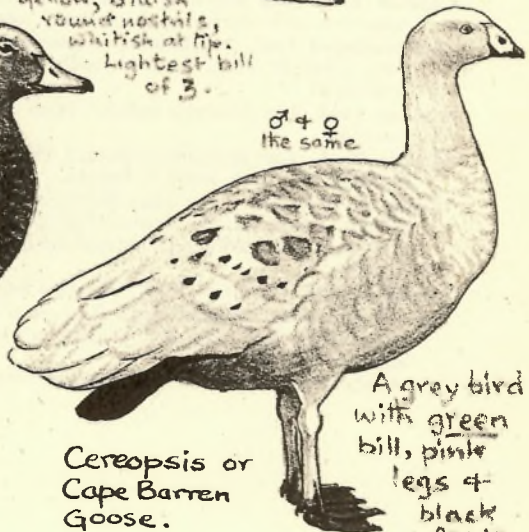
♂ & ♀ the same



Flying Steamer Duck.

legs & feet yellow

Flying Steamer is darker than the other two.



Cereopsis or Cape Barren Goose.

A grey bird with green bill, pink legs & black feet. PS.

PLATE IX

Tribe ANATINI (Dabbling Ducks)

Bronze-winged Duck. *Anas specularis*.† Slopes of the Andes in Chile and Argentina from the latitude of Concepción to the Straits of Magellan. North in winter to the vicinity of Valparaiso, Chile.

Salvadori's Duck. *Anas waigiensis*.† Island of Waigiu and mountain streams of New Guinea.

Marbled Teal. *Anas angustirostris*. Resident in Mediterranean Basin from southern Spain to Near East, Persia, Baluchistan and north-western India.

Cape Teal. *Anas capensis*. Africa from Bechuanaland, African lakes, Uganda and southern Abyssinia southward. Apparently not found in south-eastern Africa. Recorded from Lake Chad and Senegambia.

Hottentot Teal. *Anas punctata*. Africa from southern Angola, Uganda and Shoa to Cape Province; Madagascar.

Versicolor or Grey Teal. *Anas versicolor versicolor*. South America from central Chile, the Bolivian Chaco, Paraguay and southern Brazil, south to central Argentina.

Southern Versicolor or Grey Teal. *Anas versicolor fretensis*. South America from the latitude of Valdivia, Chile, through southern Chile and Argentina to Tierra del Fuego; Falkland Islands.

Puna Teal. *Anas versicolor puna*. The Puna zone (highland plateau) of the Andes from central Peru, south through Bolivia (Lake Titicaca and Cochabamba) to northern Chile.

African Red-billed Pintail. *Anas erythrorhynchos*. South and East Africa from southern Angola, Lakes Tanganyika and Victoria and southern Abyssinia, south to the Cape; Madagascar.

Bahama Pintail. *Anas bahamensis bahamensis*.† Bahama Islands, Greater Antilles (Cuba, Haiti, Jamaica, Puerto Rico), northern Lesser Antilles, Colombia, the Guianas and northern Brazil, as far south as Amazon.

Southern Bahama Pintail. *Anas bahamensis rubrirostris*. Southern Brazil, Paraguay, Uruguay, south to northern and eastern Argentina, and west to eastern Bolivia; the central provinces of Chile; recorded on the west coast of Peru.

Galapagos Pintail. *Anas bahamensis galapagensis*.† Galapagos Islands (Pacific ocean west of Ecuador).

Chilean or Brown Pintail. *Anas georgica spinicauda*. South America from southern Colombia and Ecuador, through Bolivia, southern Brazil, Paraguay, Uruguay, Argentina and Chile to Tierra del Fuego; Falkland Islands. Probably does not winter in extreme south of its range.

Niceforo's Pintail. *Anas georgica niceforoi*.† Eastern Andes of Colombia; also Cali, Valle de Cauca, Colombia.

South Georgian Teal. *Anas georgica georgica*.† Island of south Georgia. (South Atlantic.)

***Common Pintail.** *Anas acuta*. Breeds in the northern parts of Europe, Asia and North America, including British Isles, Winters south to North Africa, the Nile Valley, Abyssinia, Persian Gulf, India, Ceylon, Burma, Siam, southern China; from southern British Columbia, Mississippi Valley and Chesapeake Bay to Panama and West Indies; Hawaiian Islands. Pintails from North America have been separated as *A. a. tzitzehoa* which is said to be slightly larger, but it is very doubtfully distinct.

Kerguelen or Eaton's Pintail. *Anas acuta eatoni*.† Kerguelen Island. (South Indian Ocean.)

Crozet Pintail. *Anas acuta drygalskii*.† Crozet Islands. (South Indian Ocean, 800 miles west of Kerguelen Island.)

Chilean Teal. *Anas flavirostris flavirostris*. South America from central Chile, north-western Argentina and extreme southern Brazil, south to Tierra del Fuego; Falkland Islands.

Sharp-winged Teal. *Anas flavirostris oxypterus*. The Puna zone (highland plateau) of the Andes from northern Peru, south through western Bolivia to northern Chile and northern Argentina.

Andean Teal. *Anas flavirostris andium*.† High Andes of central and southern Colombia and of Ecuador.

Merida Teal. *Anas flavirostris altipetens*.† High Andes of western Venezuela and the eastern Andes of Colombia, south to Bogota.

***Common Teal.** *Anas crecca crecca*. Breeds in Europe and Asia from Iceland to China; Aleutian Islands. Winters as far south as North Africa, Nile Valley, Somaliland, Persia, India and Ceylon, Assam, southern China and the Philippines. Very numerous in winter on the Severn Estuary.

Aleutian Teal. *Anas crecca nimea*.† Aleutian Islands.

***American Green-winged Teal.** *Anas crecca carolinensis*. Breeds in northern North America from Alaska to Hudson Bay. Winters in southern U.S., Mexico, northern Central America and the West Indies.

About seven records in Britain, but probably comes unrecognized comparatively frequently.

DABBLING DUCKS

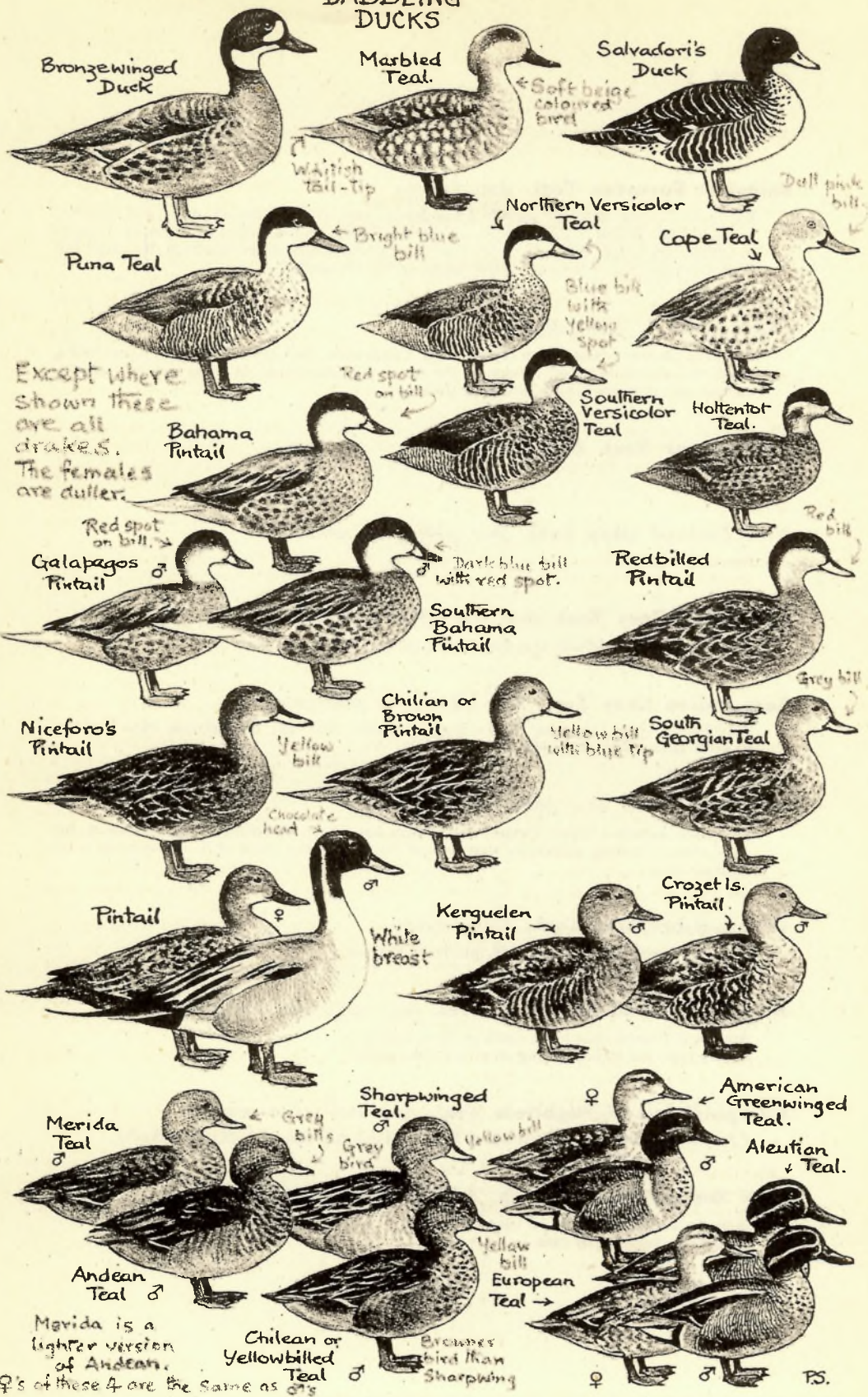


PLATE X

Baikal or Formosa Teal. *Anas formosa*.

Breeds in Siberia from the middle Lena River, east to the Kolyma delta and Anadyr, south to Lake Baikal (?), Amurland, northern Sakhalin and northern Kamchatka. Winters in China and Japan. Recorded from Formosa but derives its name not from the island but from the fact that 'Formosa' is the Japanese for 'beautiful'.

Falcated Teal. *Anas falcata*.

Breeds in northern Asia, south of the Arctic Circle from the Upper Yenesei to Kamchatka, south probably to northern Mongolia, the Amur and Ussuriland. Winters in Japan, Korea, eastern and southern China to Upper Burma.

Madagascar Teal. *Anas bernieri*.†

Madagascar.

New Zealand Grey Teal. *Anas gibberifrons remissa*.†

New Zealand.

Australian Grey Teal. *Anas gibberifrons mathewsi*.

Australia (except Melville and Cape York peninsulas); Tasmania.

East Indian Grey Teal. *Anas gibberifrons gibberifrons*.†

East Indies (Java, Celebes, Lesser Sunda Islands, Aru and Kei Islands, New Guinea, Rennell Island, New Caledonia).

Andaman Teal. *Anas gibberifrons albogularis*.†

Andaman Islands (Indian Ocean). Two races have been described from the islands, but since there is striking individual variation in this species the claim of *A. a. leucoparens* is not substantiated.

Chestnut-breasted Teal. *Anas castanea*.

Australia (except north coast and interior); Tasmania.

Auckland Island Flightless Teal. *Anas aucklandica aucklandica*.†

Auckland Islands (400 miles south of New Zealand).
Lately reported to be holding its own satisfactorily.

Campbell Island Flightless Teal. *Anas aucklandica nesiotis*.†

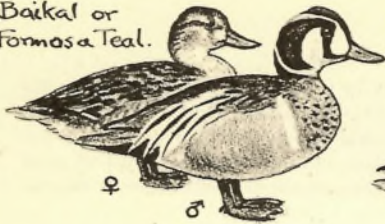
Campbell Island (500 miles south of New Zealand and east of Auckland Islands).

New Zealand Brown Duck. *Anas aucklandica chlorotis*.

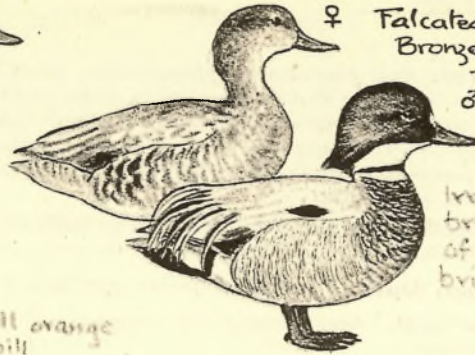
New Zealand and Chatham Islands.
Becoming dangerously rare.

DABBLING DUCKS

Baikal or
Formosa Teal.



♀ Falcated or
Bronzecapped
Teal.
♂



Iridescent
bronze head
of great
brilliance.

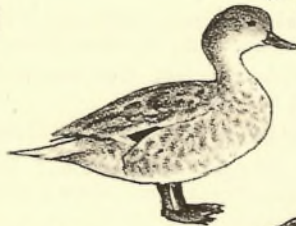
Madagascar
or Bernier's
Teal



Dull orange
bill

Dull
orange
legs

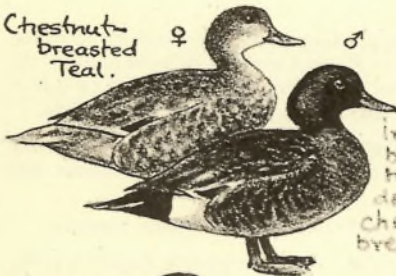
East Indian
Grey Teal Smallest of the 3.



Australian
Grey Teal

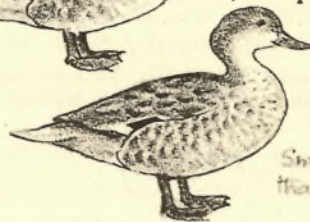


Chestnut-
breasted
Teal. ♀



Iridescent
black-green
head,
deep
chestnut
breast.

New Zealand
Grey Teal.



Smaller
than Australian

Andaman ♀
Teal. ♂

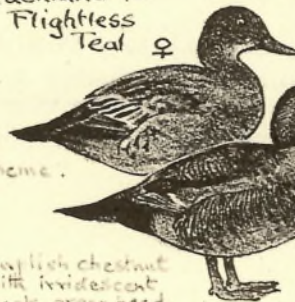


New Zealand
Brown Duck ♀



Greenish
sheen

Auckland Is.
Flightless
Teal ♀



Chestnut-breasted
+ Auckland Is. males
have similar colour scheme.

Purplish chestnut
with iridescent
black-green head.

Campbell Is.
Flightless
Teal. ♂



Purplish
brown
breast

Cinnamon
buff
patch

narrow
bill.

Purplish
brown all over,
including the
head.

P.S.

PLATE XI

***Mallard.** *Anas platyrhynchos platyrhynchos*. Breeds in Europe and Asia from the Arctic Circle, south to the Mediterranean, Persia, Tibet, central China, Korea and northern Japan; Iceland; the Azores; northern and central North America, west of Hudson Bay and the Mississippi. The commonest breeding duck in Britain. Winters from southern half of its breeding range to North Africa, Nile Valley, India, Burma, southern China, Japan; southern Mexico and Florida.

Greenland Mallard. *Anas platyrhynchos conboschas*.† Breeds on coasts of Greenland, on the west, north to Upernavik and on the east, north to Angmagsalik.

Hawaiian Duck. *Anas platyrhynchos wyvilliana*.† Hawaiian Islands.

Laysan Teal. *Anas platyrhynchos laysanensis*.† Laysan Island (900 miles west of Honolulu).

Marianas Mallard or Oustalets Duck. *Anas platyrhynchos oustaleti*.† Islands of Guam, Saipan and Tinian (1,200 miles north of New Guinea).

Florida Duck. *Anas fulvigula fulvigula*. Gulf coast of Florida (possibly Alabama) and north on the east coast of Florida to the St. John's River.

Mottled Duck. *Anas fulvigula maculosa*. Gulf coast of Texas and Louisiana. There is some doubt of the validity of this race.

Mexican Duck. *Anas fulvigula diazi*.† Highlands of central Mexico.

New Mexico Duck. *Anas fulvigula novimexicana*.† Upper Rio Grande Valley from El Paso, Texas to Albuquerque, New Mexico. There is some doubt of the validity of this race.

Black Duck. *Anas fulvigula rubripes*. Breeds in north-eastern North America from the west side of Hudson Bay to Labrador, and south to North Carolina. Winters south to the Gulf coast. Two races have been separated based on characters which may only be due to age and season. *A. f. rubripes* is said to be the western and *A. f. tristis* the eastern form.

Chinese Spotbill. *Anas poecilorhyncha zonorhyncha*. Eastern Asia from Dauria, the Amur River, southern Sakhalin and the Kurile Islands, south to southern China and Formosa.

Burma Spotbill. *Anas poecilorhyncha haringtoni*.† Burma, Shan States, Yunnan.

Indian Spotbill. *Anas poecilorhyncha poecilorhyncha*. India to western Assam; Ceylon.

Pelew Island Grey Duck. *Anas superciliosa pelewensis*.† Pelew Islands (east of the Philippine Islands), northern New Guinea, Solomon, Fiji, Samoa, Tonga, Tahiti.

Celebes Grey Duck. *Anas superciliosa percua*.† Celebes. (Probably the form found in western Sumatra, Java, Lesser Sunda Islands and Buru.)

Australian Grey Duck. *Anas superciliosa rogersi*. Australia and Tasmania.

New Zealand Grey Duck. *Anas superciliosa superciliosa*.† New Zealand.

Philippine Duck. *Anas luzonica*. Philippine Islands.

Meller's Duck. *Anas melleri*. Madagascar; introduced into Mauritius.

African Yellow-bill. *Anas undulata undulata*. Africa from Angola, Uganda and Kenya southward.

Abyssinian Yellow-bill. *Anas undulata rupelli*. Upper Blue Nile and Abyssinian Lake region.

African Black Duck. *Anas sparsa sparsa*.† South Africa; northern limits not defined.

Abyssinian Black Duck. *Anas sparsa leucostigma*.† East and north-east Africa across to the Upper Congo and Cameroon. Rare in the western part of its range.

Gabon Black Duck. *Anas sparsa maclatchyi*. Gabon (western French Equatorial Africa).

Except for the female Mallard all or this part are drakes

DABBLING DUCKS

(MALLARDS.)

New Mexican Duck.

Redder above

White in speculum

Mexican Duck.

White in speculum

Indian Spotbill.

Females mostly just duller edition of male

Celebes Grey Duck

Smaller

Australian & New Zealand Grey Ducks

Philippine Duck.

Female similar to male

Blue-bill red-brown head

Soft grey

Oustalet's Grey Duck or Mariana's Mallard.

Black Duck.

Mottled Duck.

Yellow tip, orange spot

Burma Spotbill.

Smallest

Pelew Island Grey Duck

Medium and lighter

Abyssinian & South African Yellowbills.

Largest

Gabon, Abyssinian & African Black Ducks

Laysan Teal.

Hawaiian Duck.

Spotted breast, coarser flank pattern.

Greenland Mallard

Mallard or Wild Duck.

Mottled cheeks

Florida Duck.

Slightly more rufous

Plain buff cheeks

Black spot

Chinese Spotbill.

Orange

Yellow tip

Bill deeper yellow

Darker

Yellow & black bill

Yellow spot

Meller's Duck.

ps.

PLATE XII

***Gadwall.** *Anas strepera strepera*.

Europe, Asia and North America, breeding from Iceland to Kamchatka, British Columbia and Prairie Provinces of Canada, south to England, Holland, Germany, central Russia, Caspian, Seistan, Transbaikalia, California and Colorado. Winters south to northern Africa, Abyssinia, India, Assam, southern China, Lower California, southern Mexico and Florida.

Coues's Gadwall. *Anas strepera couesi*.†

Washington and New York Islands (Fanning Group, 1,000 miles south of Hawaii).

***European Widgeon.** *Anas penelope*.

Europe and Asia, breeding in temperate regions north to the Arctic Circle and beyond, from Iceland to Kamchatka, including Scotland. Winters in Britain and south to Nile Valley, Abyssinia, India, southern China and Japan. Regularly in small numbers on Atlantic coasts of North America, also in British Columbia. Common in winter on the Severn Estuary.

***American Widgeon.** *Anas americana*.

North America, breeding in the north-west from Alaska to the Prairie Provinces, mainly east of the Rockies and wintering from British Columbia to California and the Gulf coast, and from Long Island, south to Costa Rica and West Indies. About twelve records in Britain, one on the New Grounds; some, however, may have been escapes.

Chiloë Widgeon. *Anas sibilatrix*.

Southern South America from Chile and southern Brazil, south to Tierra del Fuego; Falkland Islands. Breeds in the southern half of its range.

***Blue-winged Teal.** *Anas discors*.

Breeds in North America mainly east of the Cascades and the Sierra Nevada from the Rocky Mountains through the Prairies to the Great Lakes. Winters on the Gulf coast from Florida to Mexico, the West Indies, Central America and northern South America to Peru on the west and Cayenne on the north-east. About eight records in Britain, also record of probable breeding in Lincolnshire, but may originate from escaped birds.

Cinnamon Teal. *Anas cyanoptera cyanoptera*.

Breeds in North America from southern British Columbia, south to Lower California and central Mexico and east to the edge of the Prairies. Winters in Mexico and Central America. Breeds also in South America from Argentina and Chile south, and in Falkland Islands.

Andean Cinnamon Teal. *Anas cyanoptera orinoma*.†

Puna region (highland plateau) of the Andes in Peru and Bolivia.

***Garganey.** *Anas querquedula*.

Europe and Asia, breeding in south-eastern England, south Sweden, Finland, Russia, east across Asia, south of lat. 60° N. to Kamchatka; southern limits, France, Italy, Black and Caspian Seas, Turkestan, Tibet (?), Manchuria and northern Japan. Winters Mediterranean south to West Africa (Nigeria), Kenya, Arabia, India, Indo-Chinese countries, Philippines, Celebes, Moluccas and New Guinea.

Argentine Red Shoveler. *Anas platalea*.

Southern South America from Peru and Bolivia to southern Brazil and south to Straits of Magellan; migratory in northern and southern parts of its range.

Cape or South African Shoveler. *Anas smithi*.†

South Africa, north to Angola and the Transvaal.

Australian Shoveler. *Anas rhynchotis rhynchotis*.†

Southern and eastern Australia and Tasmania.

New Zealand Shoveler. *Anas rhynchotis variegata*.†

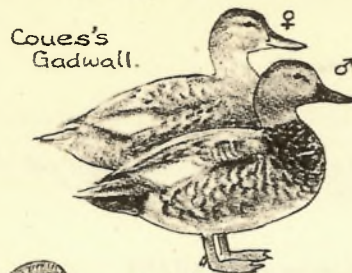
New Zealand.

***Common Shoveler.** *Anas clypeata*.

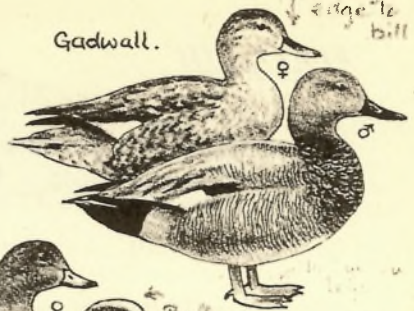
Breeds in Europe, Asia and North America, usually not north of Arctic Circle and not in eastern half of Canada. Now breeds commonly in British Isles. Winters as far south as North and East Africa, Persian Gulf, Ceylon, Burma, southern China, Japan, Hawaii, Lower California, Mexico, Honduras, Florida. Passage and winter visitor on Severn Estuary.

DABBLING DUCKS.

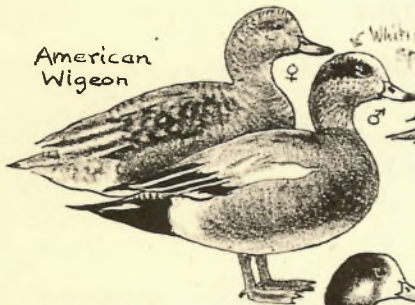
Coues's Gadwall.



Gadwall.

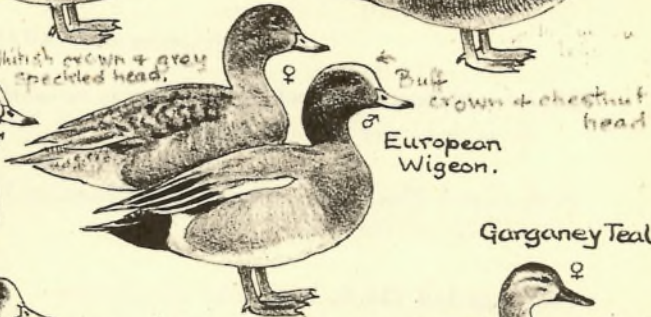


American Wigeon



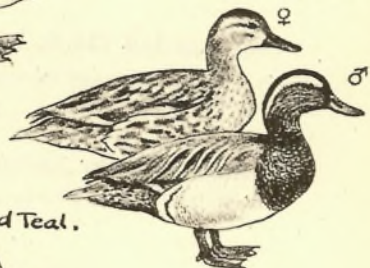
Whitish crown & grey speckled head.

European Wigeon.

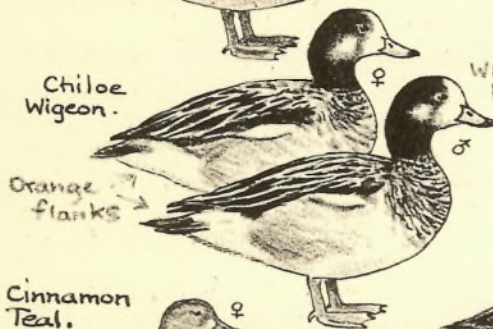


Buff crown & chestnut head

Garganey Teal.

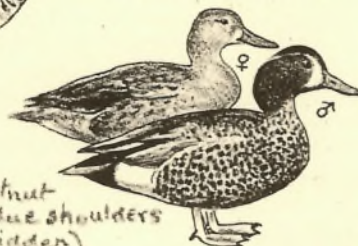


Chiloe Wigeon.

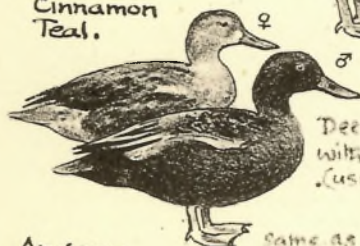


White face. Head metallic green

Blue-winged Teal.

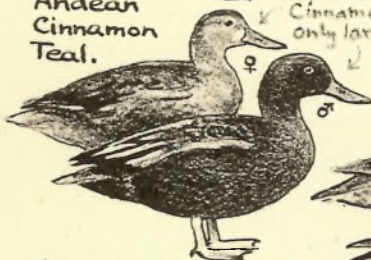


Cinnamon Teal.



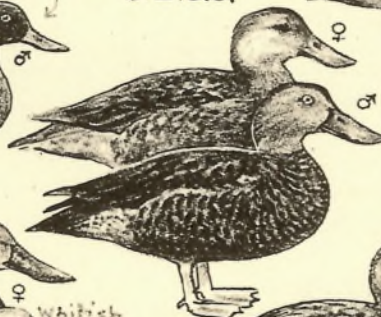
Deep chestnut with sky blue shoulders (usually hidden)

Andean Cinnamon Teal.

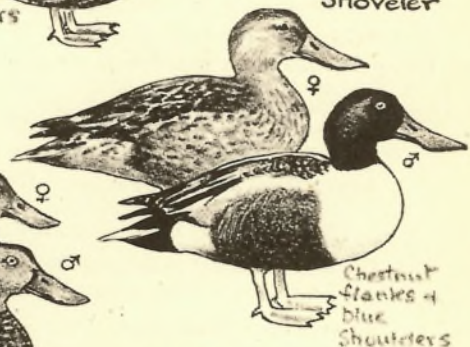


Same as Cinnamon only larger.

Cape Shoveler



Shoveler



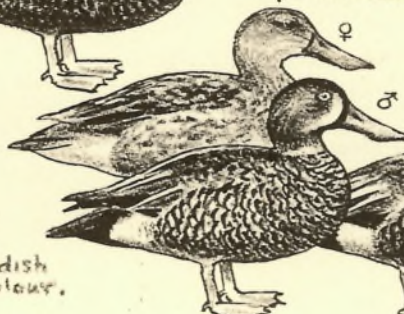
Chestnut flanks & blue shoulders

Argentine Red Shoveler

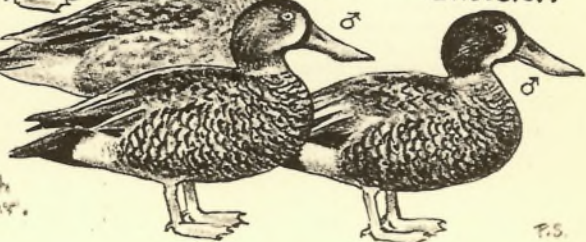


Whitish iris.

Australian Shoveler



New Zealand Shoveler.



Sandy reddish ground colour.

PLATE XIII

Ringed Teal. *Anas leucophrys*.

South America from southern Bolivia, Paraguay, south-western and southern Brazil, to north-eastern Argentina and Uruguay.

Aberrant species of **ANATINI**

Blue or Mountain Duck. *Hymenolaimus malacorhynchos*.†

Mountain streams of New Zealand.

Pink-eared Duck. *Malacorhynchus membranaceus*.†

Australia and Tasmania.

Pink-headed Duck. *Rhodonessa caryophyllacea*.

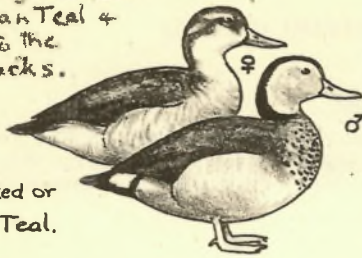
North-eastern and eastern India, south to Madras. Was always local and rare, now possibly extinct.

Freckled Duck. *Stictonetta nevosa*.†

West Australia, New South Wales, Victoria and Tasmania.

DABBLERS.

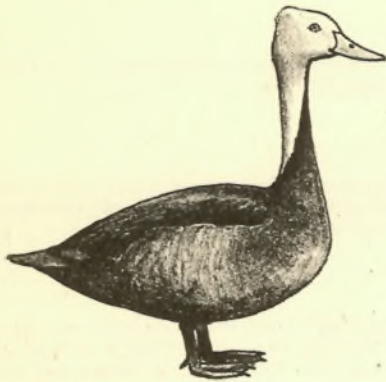
This species may be more closely related to the Brazilian Teal & therefore to the Perching Ducks.



Ring-necked or
Ringed Teal.

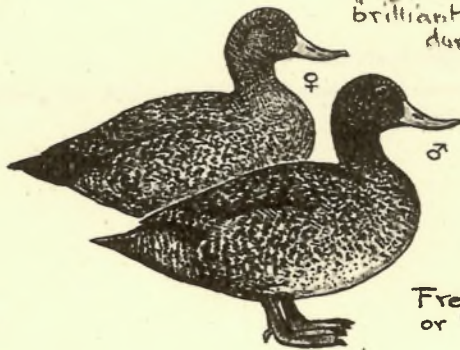
Face soft creamy grey;
breast pink; bill pale blue;
scapulars rich chestnut.
Shoulders black.

ABERRANT SPECIES OF DABBLING DUCKS.



Pink-headed
Duck.
(Probably now extinct)

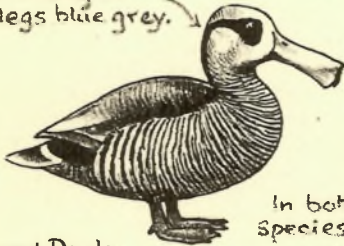
Head & neck bright pink,
bill red pink, eye red;
rest of bird dark chocolate brown.
Male & female almost the same.



Blackish with whitish
freckles. Bill greenish-
grey, but the base is
brilliant red in male
during breeding
season.

Freckled Duck,
or "Monkey Duck".

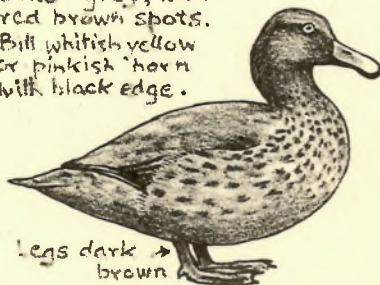
Bright pink patch
behind the eye.
Bill & legs blue grey.



Pink-eared Duck.

In both these
species ♂ & ♀
are similar.

Blue-grey, with
red brown spots.
Bill whitish yellow
or pinkish horn
with black edge.



Blue or Mountain Duck.

PLATE XIV

Tribe **AYTHYINI** (Pochards)

***Red-crested Pochard.** *Netta rufina.*

Eastern Europe and Asia, breeding from southern France, Holland (rare), through lower Danube, southern Russia, east across Kirghiz Steppes to west Siberia. Winters Mediterranean, India, Burma, Shan States to China. Rare vagrant in Britain, but becoming commoner in Holland.

Rosy-bill. *Netta peposaca.*

Central Chile, south to Chiloë Island, east across Argentina to Paraguay, Uruguay and south to northern Patagonia.

Southern Pochard. *Netta erythrophthalma.*

Western South America from north-western Venezuela to southern Peru; Africa from Angola in the west to Abyssinia and south to Cape Province.

Canvas-back. *Aythya valisneria.*

North America, breeding in western Prairie Provinces of Canada and west central United States. Wintering from British Columbia, Colorado, southern Illinois and Chesapeake Bay, south to California, central Mexico, the Gulf and Florida.

***European Pochard.** *Aythya ferina.*

Breeds in British Isles, southern Scandinavia and from eastern Russia through west Siberia to Lake Baikal, south to Holland, Germany, Balkans, Black Sea, Kirghiz Steppes and Yarkand. Winters in breeding range and south to Nile Valley, India, Burma and south China.

Redhead. *Aythya americana.*

Breeds in western North America. Winters in U.S. and south to Lower California and the Valley of Mexico.

POCHARDS

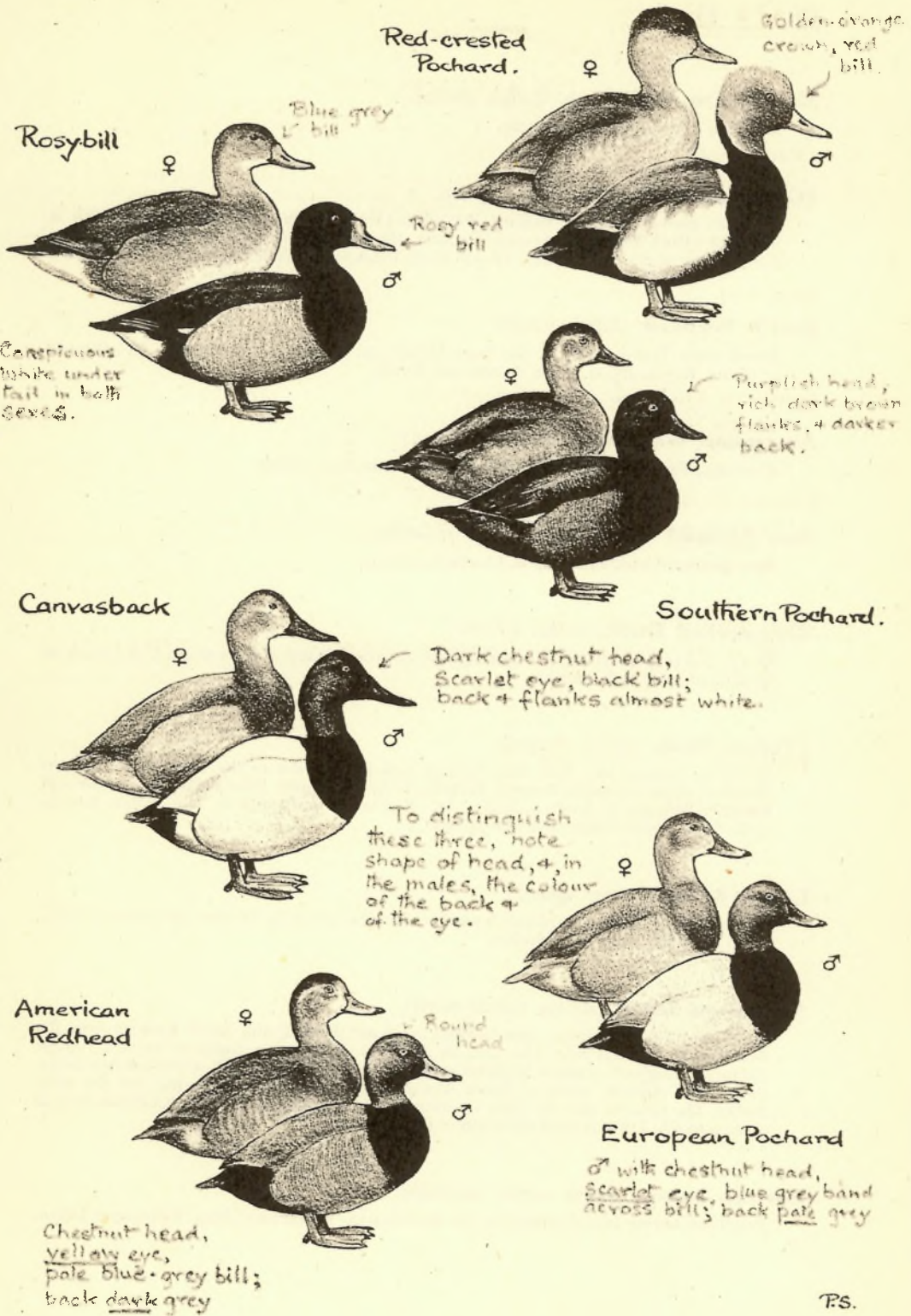


PLATE XV

Madagascar White-eye. *Aythya innotata*.

Northern and eastern Madagascar.

***Common White-eye.** *Aythya nyroca*.

Breeds in southern Europe, Balkans, Poland and west Siberia to the Ob Valley, south to northern Africa, Persia, Turkestan, Kashmir, the Pamirs and southern Tibet. Winters in the Mediterranean, Nile Valley, Persian Gulf, India and Burma. Rare vagrant in Britain.

Baer's Pochard. *Aythya baeri*.†

Breeds from Transbaikalia to the lower Ussuri and the Amur; Kamchatka (?). Winters in China, Korea, Japan, upper Assam and Burma.

Australian White-eye. *Aythya australis*.†

Australia, Tasmania, New Zealand; casual in some East Indies.

New Zealand Scaup. *Aythya novæ-seelandiæ*.†

New Zealand, Auckland Islands, Chatham Islands.

Ring-necked Duck. *Aythya collaris*.

Breeds in central and north-western North America. Winters in southern U.S., south to Guatemala and West Indies.

***Tufted Duck.** *Aythya fuligula*.

Breeds in Europe and Asia from Iceland and British Isles to the Commander Islands (Pacific), south to central Europe, Balkans, Kirghiz Steppes, Lake Baikal, the Amur and Sakhalin. Winters in southern half of breeding range and south to Nile Valley, Persian Gulf, India, south China and Philippines.

Lesser Scaup. *Aythya affinis*.

Breeds in north-central and north-western Canada and U.S. Winters in southern U.S., south to Panama and West Indies.

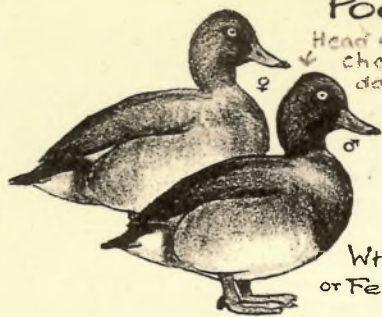
***Common Scaup.** *Aythya marila marila*.

Breeds in northern Europe, Asia (eastern limits not defined) and North America from the Aleutians to Hudson Bay. Has bred in Scotland. Winters on coasts of western Europe (including England), eastern Mediterranean, Black Sea, Persian Gulf, north-western India, Pacific and Atlantic coasts of North America, south to Lower California and the West Indies. The Chinese race has been separated as *A. m. mariloides*, and the American race as *A. m. nearctica*, but it is doubtful if either is valid.

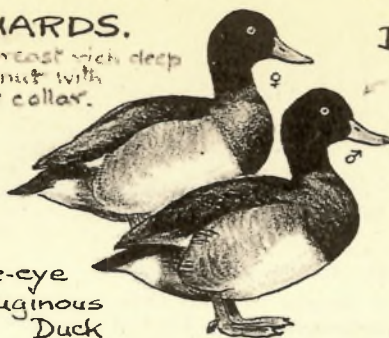
Eastern Scaup. *Aythya marila mariloides*.†

Breeds on Bering Island, probably also Kamchatka. Winters in China, Korea and Japan.

POCHARDS.



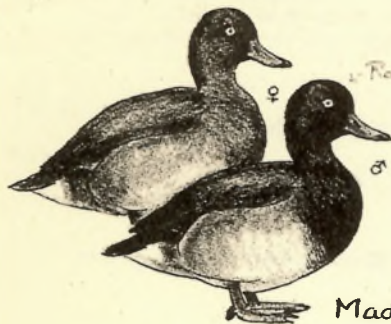
Head & breast with deep chestnut with dark collar.



Baer's Pochard.

Black with green sheen, eye white, breast & flanks ruddy chestnut.

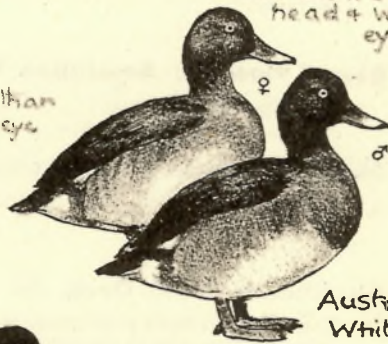
White-eye or Ferruginous Duck



Round head

Much darker than Common White-eye & without dark collar

Madagascar White-eye



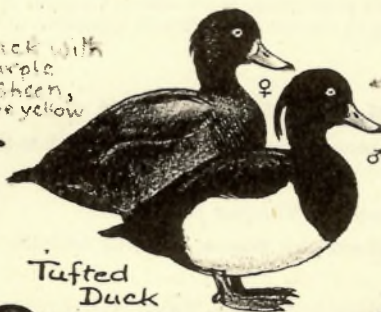
A larger species with dark chestnut head & white eye.

Australian White-eye



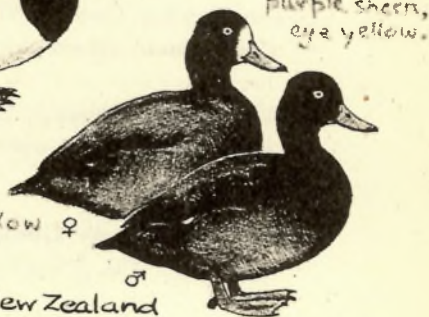
Black with purple sheen, eye yellow

Ring-neck or "Ringbill"



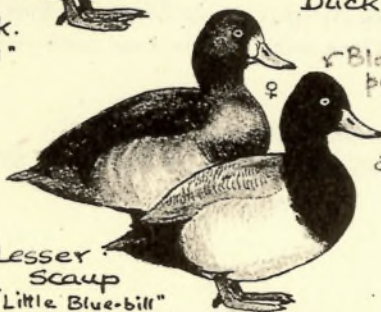
Black with purple sheen, eye yellow

Tufted Duck



Black with purple sheen, eye yellow.

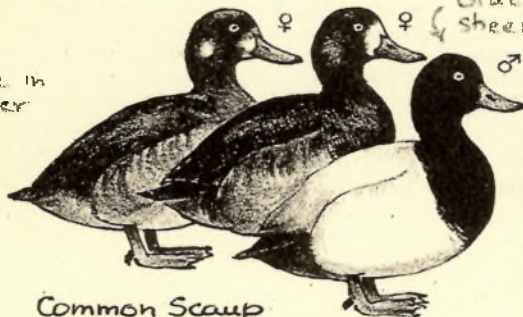
New Zealand Scaup or "Black Teal"



Black with purple sheen, eye yellow

Lesser Scaup or "Little Blue-bill"

Female in summer



Common Scaup "Bluebill" or "Broad-bill"



Black with green sheen, eye yellow

Eastern Scaup

P.S.

Slightly smaller & darker on back

PLATE XVI

Tribe CAIRININI (Perching Ducks)

Brazilian Teal. *Amazonetta brasiliensis*.

Eastern South America from the Orinoco, western Brazil, eastern Bolivia, Paraguay, Uruguay to northern Argentina. The bird varies greatly in size and colour throughout the range and it may be shown in due course that more than one sub-species exists, but the larger and darker form described as Schuyt's Teal (*A. b. vittata*) from 'Argentina, south of Buenos Aires' cannot be upheld in view of the individual variation found elsewhere in the range.

Maned Goose or Australian Wood Duck. *Chenonetta jubata*.

Australia and Tasmania.

Mandarin Duck. *Aix galericulata*.

Eastern Asia from the Amur and Ussuri, south through Korea, eastern China, Japan, to Formosa.

Carolina or Wood Duck. *Aix sponsa*.

Eastern half of the United States and southern Canada. Wintering in southern and south-eastern States. Also in the west from British Columbia to California (an entirely separate population).

African Pygmy Goose. *Nettapus auritus*.†

Africa from a line between Gambia and Kenya, south to the Cape and Madagascar.

Green Pygmy Goose. *Nettapus pulchellus*.†

Ceram, Buru, southern New Guinea, northern Australia.

Indian Pygmy Goose or Cotton Teal. *Nettapus coromandelianus coromandelianus*.

India, Ceylon, Burma, east to southern China, south to Malaya and north-western East Indies.

Australian Pygmy Goose. *Nettapus coromandelianus albipennis*.†

Eastern Australia. (There is some doubt whether the validity of this race can be upheld.)

PERCHING DUCKS

Brazilian Teal.

(Dark form described as Schuyt's Teal)



Brownish grey birds with dazzling red legs. Bill dark red in ♂, grey in ♀

There is great individual variation, some ♂ Brazilians being darker some larger. Some females with whiter faces, but none of these characters can so far be linked to any particular geographical range.

Soft grey head

How to distinguish the females + eclipse plumage males of Mandarin from Carolina

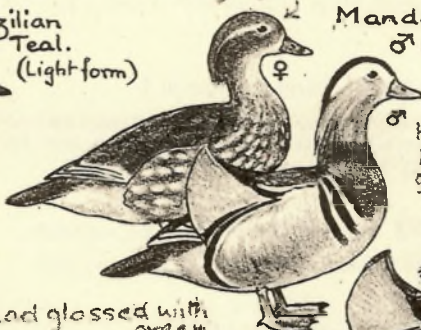


Brazilian Teal. (Light form)



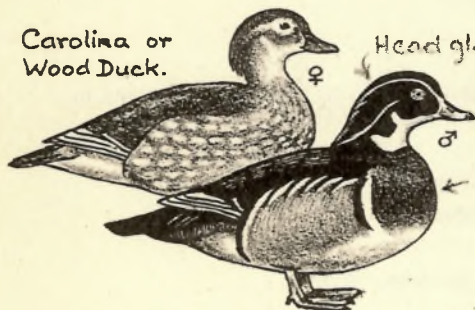
Mandarin Duck

♂ with crest depressed



Bill red-pink; breast rich purple; hackles + sails orange. Black of crown + crest glossed with purple and green.

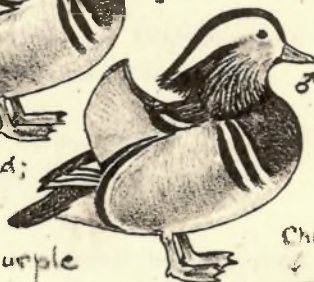
Carolina or Wood Duck.



Head glossed with green.

Bill orange red; eye + eyelid scarlet.

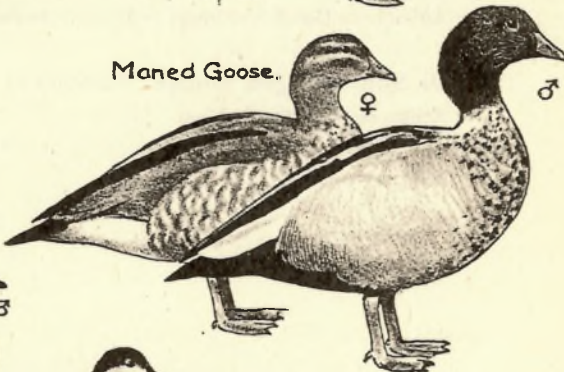
← Breast rich purple



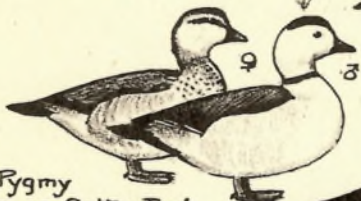
♂ with crest spread.

Chocolate head.

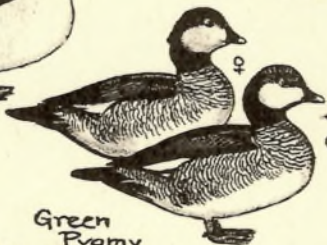
Maned Goose.



Glossy green + white



Indian Pygmy Goose or Cotton Teal.



Neck + back dark glossy green.

Back dark glossy green in both sexes



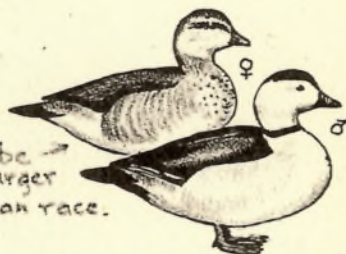
Pale green patch

Green Pygmy Goose.

Bill bright orange-yellow

Breast and flanks rufous chestnut.

Said to be slightly larger than Indian race.



African Pygmy Goose.

Australian Pygmy Goose.

PLATE XVII

Comb Duck. *Sarkidiornis melanotos melanotos.*

Africa from Gambia and the Sudan, south to the Cape and Madagascar; India, Ceylon, Burma and south-eastern China.

South American Comb Duck. *Sarkidiornis melanotos carunculatus.*

Eastern tropical South America from Venezuela, south to southern Brazil, Paraguay and northern Argentina.

Hartlaub's Teal. *Cairina hartlaubi*.†

West and central Africa (Liberia to the Congo and African Lake Region). Birds from the Ituri and Aruwimi Rivers, which have more white on the head, have been separated as *C. h. albifrons*; this may prove to be a valid race.

White-winged Wood Duck. *Cairina scutulata.*

Assam, south through Malaya to Sumatra and Java.

Muscovy Duck. *Cairina moschata.*

Mexico, south through central America and South America to Peru on the west and to Uruguay in the east. The ancestor of the farmyard Muscovy Duck.

Spur-winged Goose. *Plectropterus gambensis gambensis.*

Africa from Gambia to upper Nile, south to the Zambesi.

Black Spur-winged Goose. *Plectropterus gambensis niger.*

Africa, south of the Zambesi.

PERCHING DUCKS + GEESE.

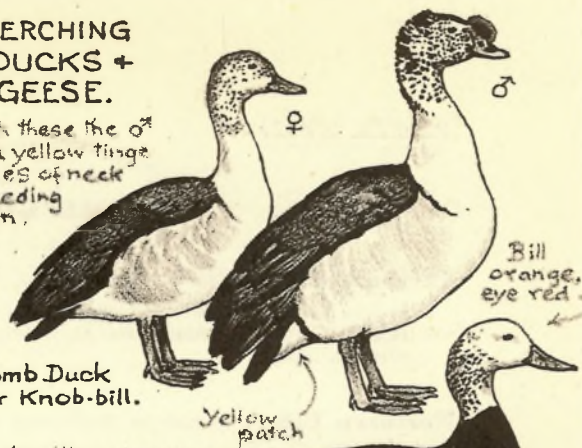
In both these the ♂ has a yellow tinge on sides of neck in breeding season.



South American Comb Duck.

Yellow patch

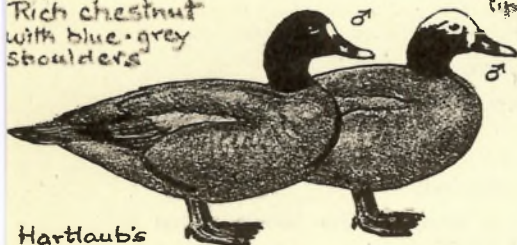
Comb Duck or Knob-bill.



Bill orange, eye red.

Yellow patch

Rich chestnut with blue-grey shoulders

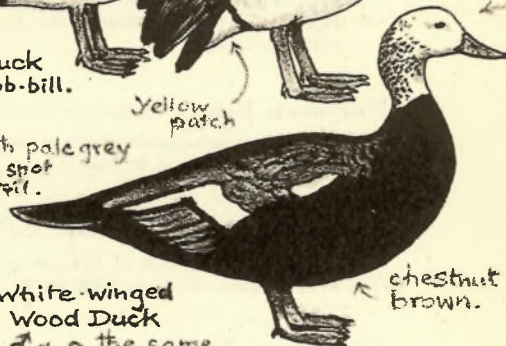


Hartlaub's Duck.

Sexes almost the same but white on head is apparently variable, & birds in eastern part of range are said to have more white.

Bill black with pale grey tip & yellow spot below nostril.

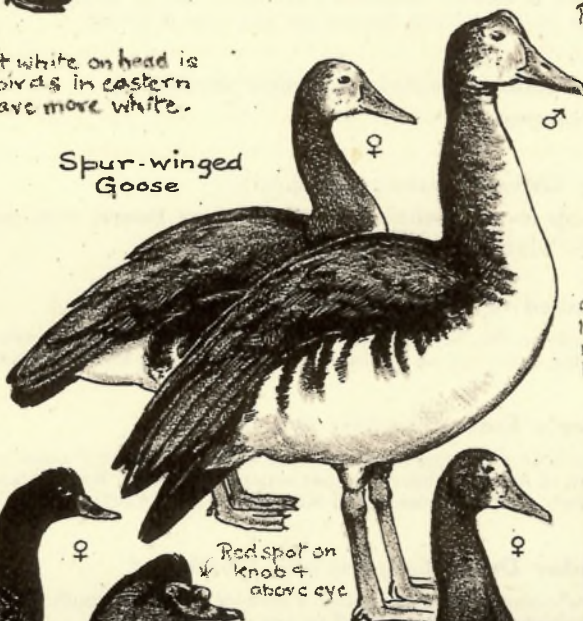
White-winged Wood Duck
♂ & ♀ the same



chestnut brown.

Bill dark red; bare skin on sides of face pale blue grey

Spur-winged Goose



In both races there is a carpal spur, larger in the male. It is normally hidden.

Bill dark red.

Red spot on knob & above eye



Wild Muscovy Duck.

The species from which the armyard Muscovy was originally domesticated.

Black Spur-winged Goose



PLATE XVIII

Tribe **MERGINI** (Sea Ducks)

Pacific Eider. *Somateria mollissima v. nigra.*†

Breeds on Arctic coasts and islands of north-eastern Asia, Commander and Aleutian Islands and coasts of Alaska and North-West Territories of Canada. Winters chiefly in the Aleutian Islands.

Northern Eider. *Somateria mollissima borealis.*†

Breeds on north-eastern coasts of Canada and west Greenland. Winters from the open waters of Greenland, south to Maine.

American Eider. *Somateria mollissima dresseri.*

Breeds on both coasts of Hudson and James Bays and on east coast of Labrador. Winters from Newfoundland to Nantucket.

***European Eider.** *Somateria mollissima mollissima.*

Breeds in Iceland, Scotland, Scandinavia, east to Novaya Zemlya. Mainly resident, but some winter in North Sea and on west coast of France.

Faeroe Eider. *Somateria mollissima faeroensis.*†

Faeroes; resident.

***King Eider.** *Somateria spectabilis.*†

Breeds on the Arctic coasts and islands of Europe, Asia, and North America. Rare visitant to the British Isles in winter.

Spectacled or Fischer's Eider. *Somateria fischeri.*†

Breeds on the New Siberian Islands and Arctic coast of Siberia from the Yana River to Bering Strait and on the coast of Alaska. Winters in the Aleutian Islands.

***Steller's Eider.** *Somateria stelleri.*†

Breeds on the Arctic coast of Siberia from the Taimyr Peninsula to Bering Strait and the coast of Alaska. Winters on open waters of Lapland; Kamchatka, Commander and Kurile Islands, Aleutian Islands and Kenai Peninsula (Alaska). Recorded three times in Britain.

Labrador Duck. *Camptorhynchus labradorius.*†

Now extinct. Formerly bred in Labrador. Wintered south, probably to Chesapeake Bay, but chiefly off Long Island. Last one shot in 1875.

SEA DUCKS (EIDERS)

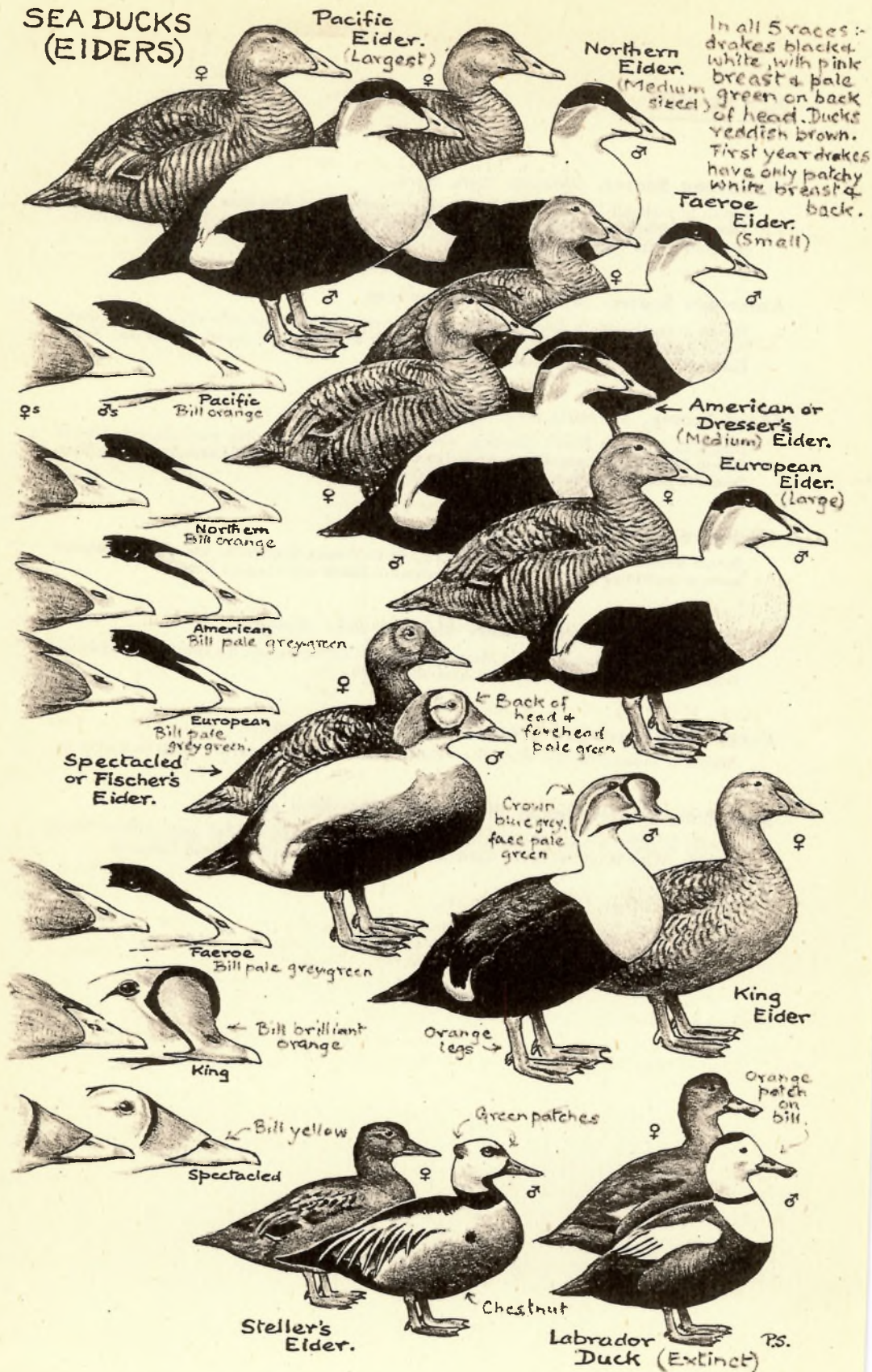


PLATE XIX

***Common Scoter.** *Melanitta nigra nigra.*

Breeds in Iceland, Ireland, Scotland, northern Europe and Asia from Norway, east to the Taimyr Peninsula. Winters chiefly on coasts of western Europe (including Britain), Mediterranean, Black and Caspian Seas.

American Scoter. *Melanitta nigra americana.*

Breeds in north-eastern Asia, Aleutian Islands, western Alaska, sporadically across northern North America to Newfoundland. Winters south to China and Japan, California, North Carolina, and on Great Lakes.

***Surf Scoter.** *Melanitta perspicillata.*

Breeds in northern North America, west of Hudson Bay, possibly north-eastern Siberia and in Labrador. Winters from Alaska to California; on the Great Lakes; and from Nova Scotia to South Carolina. Occasional in Britain.

***Velvet Scoter.** *Melanitta fusca fusca.*

Breeds from Scandinavia and the Baltic, east to Yenisei. Winters on the coasts of western Europe (including Britain), the Mediterranean, Black and Caspian Seas.

Asiatic White-winged Scoter. *Melanitta fusca stejnegeri.*†

Breeds in eastern Asia from the Altai to Anadyr, Kamchatka and the Commander Islands. Winters on Pacific coast south to China and Japan.

Pacific White-winged Scoter. *Melanitta fusca dixonii.*†

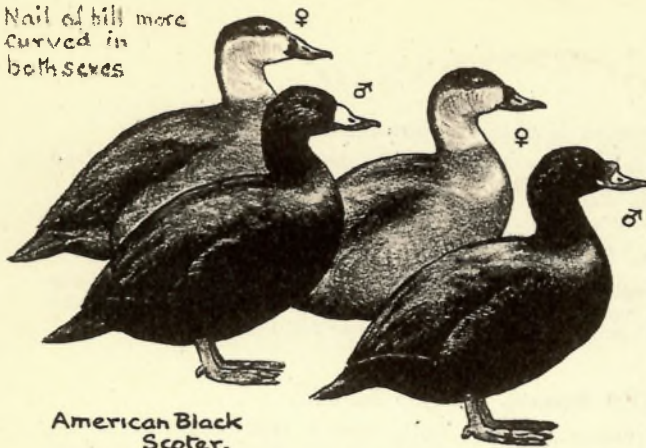
Breeds in western Alaska. Winters on Pacific coast of North America, south to California.

American White-winged Scoter. *Melanitta fusca deglandi.*

Breeds in north-western Canada from the Mackenzie to James Bay and south to North Dakota. Winters on the Great Lakes and Atlantic coast, south to North Carolina.

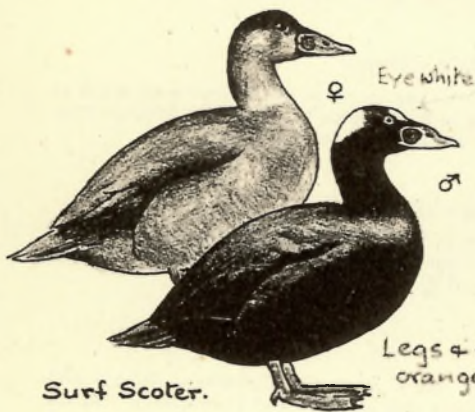
SEA DUCKS. (SCOTERS)

Nail of bill more curved in both sexes



American Black Scoter.

Common or Black Scoter.

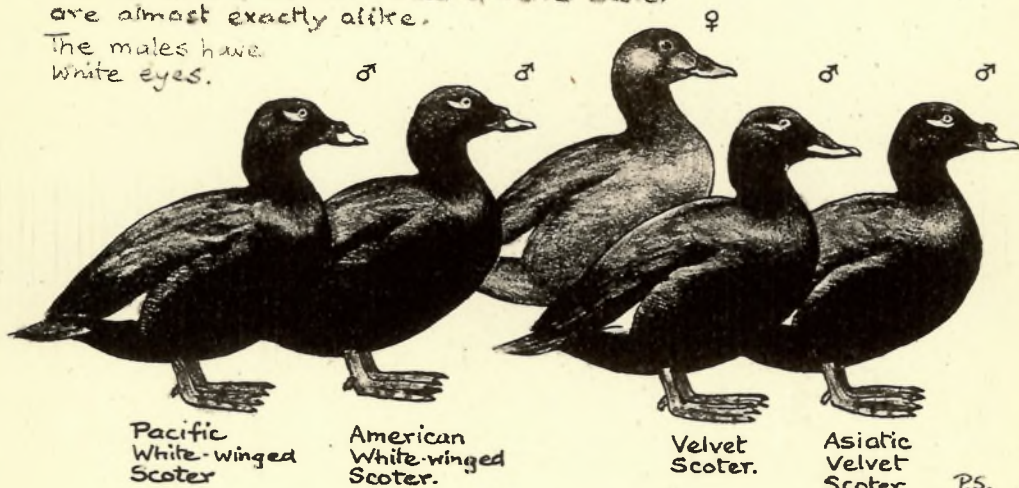


Surf Scoter.

Males of all species are glossy black, females sooty brown.

Legs & feet orange red.

The females of all four races of Velvet scoter are almost exactly alike. The males have white eyes.



Pacific White-winged Scoter

American White-winged Scoter.

Velvet Scoter.

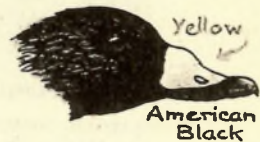
Asiatic Velvet Scoter.

P.S.

Bills of drake Scoters



Black



American Black



Surf



Asiatic Velvet.



Velvet



American White-winged



Pacific White-winged

PLATE XX

***Harlequin Duck.** *Histrionicus histrionicus histrionicus.*

Iceland, Greenland, northern Labrador. Mainly resident, but some south to Long Island in winter. About twelve records in Britain.

Pacific Harlequin Duck. *Histrionicus histrionicus pacificus.*†

Breeds in eastern Siberia from the Lena and Lake Baikal to Anadyr, Kamchatka, Sakhalin and the Kurile Islands. In North America from southern Alaska, south in the mountains to central California and Colorado. Winters south to Japan and California.

***Long-tailed Duck or Old Squaw.** *Clangula hyemalis.*

Breeds on Arctic coasts of Europe, Asia and North America. Winters south to Britain, central Europe, Caspian Sea, Japan, California, the Great Lakes, North Carolina; southern Greenland.

Barrow's Golden-eye. *Bucephala islandica.*

Breeds in Iceland, south-western Greenland, Labrador; and in the mountains of north-western North America from south-central Alaska to south-western Colorado. Winters south to Long Island and San Francisco. Resident in Greenland and Iceland.

***European Golden-eye.** *Bucephala clangula clangula.*

Breeds from Scandinavia, east across Europe and Asia, north to the limit of trees, south to Germany, Balkans, central Russia and Siberia to Kamchatka and Sakhalin. Winters from British Isles, Mediterranean, northern India, southern China and Japan.

American Golden-eye. *Bucephala clangula americana.*

Breeds in North America in heavy timber from Alaska and British Columbia to Newfoundland. Winters on Pacific coast south to California and on Atlantic to South Carolina. Also on open lakes and rivers in central United States.

***Buffle-head.** *Bucephala albeola.*

Breeds from central Alaska to Hudson Bay, south to British Columbia, Alberta and Manitoba. Winters mainly in the United States; also Aleutian and Commander Islands. Four authentic records in Britain.

SEA DUCKS

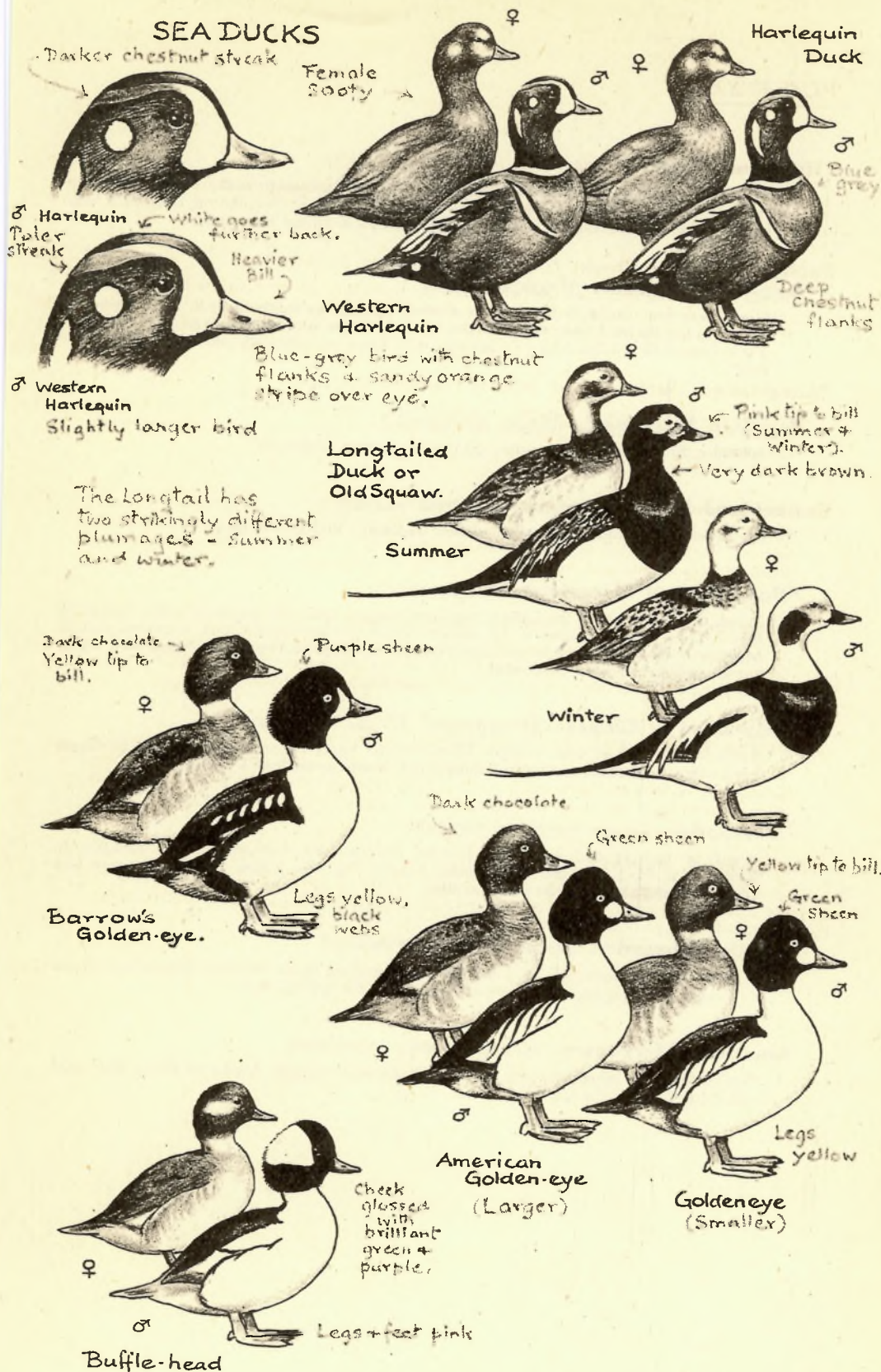


PLATE XXI

***Smew.** *Mergus albellus*.

Breeds in Europe and Asia from Scandinavia to Siberia and south to the Volga, Turkestan and the Amur. Winters on coasts and lakes from Britain (regular on reservoirs near London), the Mediterranean, Persia, northern India to China and Japan.

Hooded Merganser. *Mergus cucullatus*.

North America, breeding from south central Canada to southern U.S. and wintering chiefly in the Pacific States, Great Lakes, the Gulf States and Atlantic States south of New York. Four fully authenticated in Britain; nine more unconfirmed (one from Gloucestershire).

Brazilian Merganser. *Mergus octosetaceus*.†

Southern Brazil, eastern Paraguay and north-eastern Argentina.

Auckland Island Merganser. *Mergus australis*.†

Auckland Islands (400 miles south of New Zealand). Probably extinct.

***Red-breasted Merganser.** *Mergus serrator*.

Breeds in suitable places throughout northern Europe, Asia, and North America (including British Isles), south in winter to the Mediterranean, Persian Gulf, China, Formosa, Gulf of Mexico and Florida. An apparently resident race in Greenland has been named *M. s. major*, but its validity is not yet confirmed.

Scaly-sided or Chinese Merganser. *Mergus squamatus*.†

Recorded in summer from Copper Island on the lower Amur River. Winters in China from western Szechuan to central Fukien and south to western Yunnan.

***Goosander.** *Mergus merganser merganser*.

Breeds in Europe and Asia from Iceland, British Isles, Switzerland, the Balkans, to Kamchatka, the Kurile and Commander Islands. South in winter to Mediterranean and China; regular on reservoirs near London.

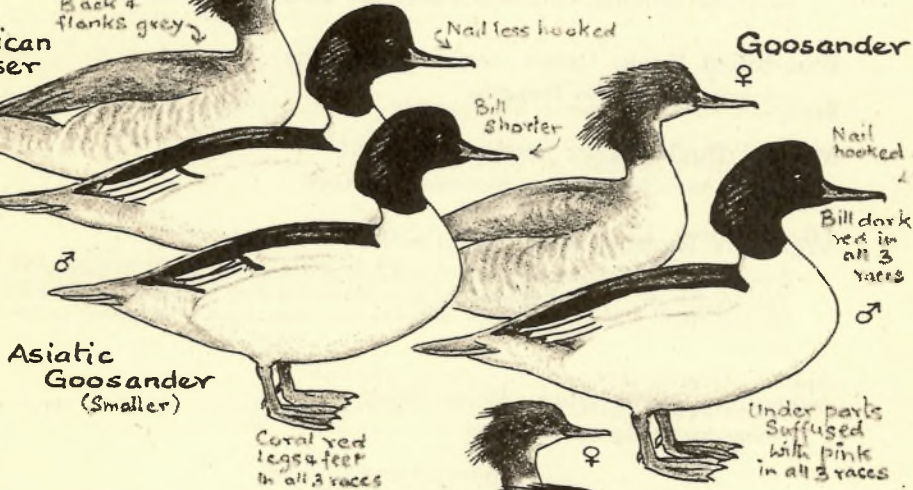
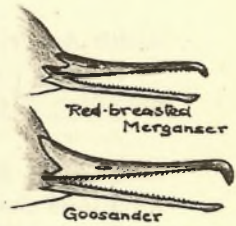
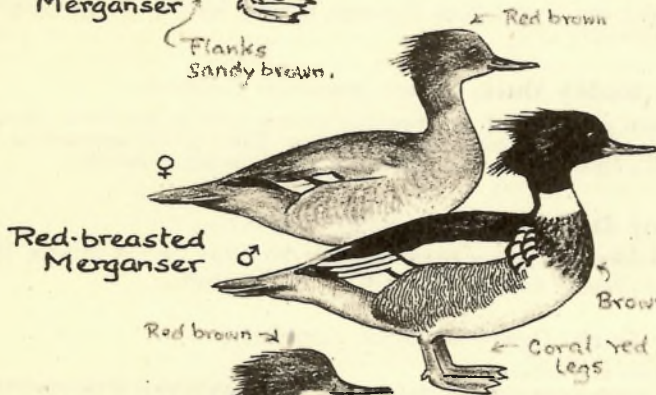
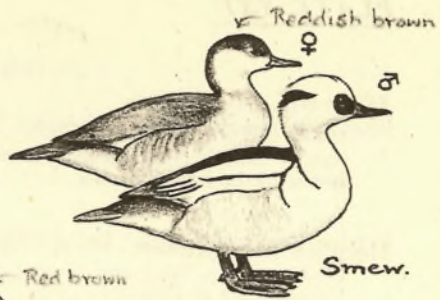
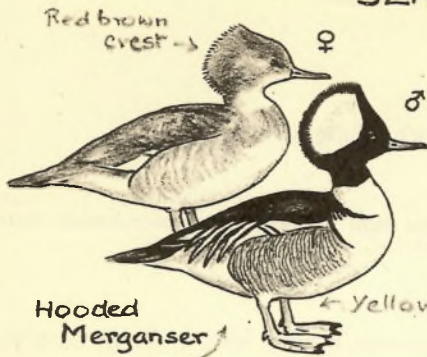
Asiatic Goosander. *Mergus merganser orientalis*.†

Afghanistan, Turkestan, Altai, Tibet. Winters northern India, northern Burma and China (Szechuan) and farther east where it occurs with the typical race.

American Merganser. *Mergus merganser americanus*.

North America, breeding south of a line from south-eastern Alaska to James Bay; and wintering south to the Gulf of Mexico.

SEA DUCKS (MERGANSERS OR SAWBILLS)



Asiatic Goosander (Smaller)

Under parts suffused with pink in all 3 races

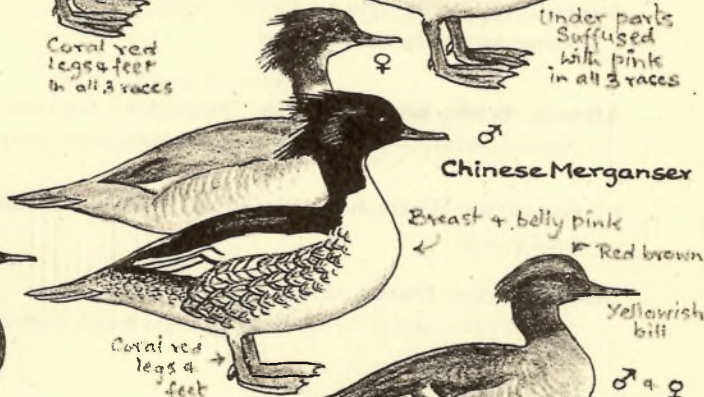
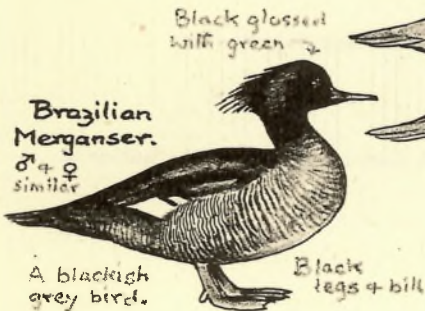


PLATE XXII

Tribe **OXYURINI** (Stiff-tails)

Masked Duck. *Oxyura dominica*.†

Greater Antilles (Cuba, Haiti, Jamaica, Puerto Rico) and South America to central Chile and north-eastern Argentina.

White-headed Duck. *Oxyura leucocephala*.

Mediterranean, Black and Caspian Seas, Turkestan, south in winter to Egypt, Palestine, Mesopotamia and northern India.

North American Ruddy Duck. *Oxyura jamaicensis jamaicensis*.

Breeds in north-west central North America and winters south to California, Mexico, Florida and the Carolinas; also resident in West Indies. This has been separated as *O. j. jamaicensis* and the northern bird as *O. j. rubida*, but the distinction is doubtful.

Colombian Ruddy Duck. *Oxyura jamaicensis andina*.†

Andean lakes of central and eastern Colombia. This race forms the link between *O. j. jamaicensis* and *O. j. ferruginea* and may intergrade in both directions.

Peruvian Ruddy Duck. *Oxyura jamaicensis ferruginea*.†

Andean lakes of Peru and Bolivia.
Birds from Ecuador have been separated as *O. a. æquatorialis*, but in view of the apparently exceptional individual variation it is doubtful if this race can be accepted.

Blue-billed Duck. *Oxyura jamaicensis australis*.†

Southern Australia and Tasmania.

Maccoa Duck. *Oxyura jamaicensis maccoa*.†

Eastern Africa from southern Abyssinia to the Cape.

Argentine Ruddy Duck. *Oxyura vittata*.†

Southern South America from northern Chile and southern Brazil to Tierra del Fuego. This species and *O. j. ferruginea* have been found breeding on the Lago Peñuelas, about 18 miles from Valparaíso, which indicates that they must be regarded as specifically distinct.

Australian Musk Duck. *Biziura lobata*.†

Southern Australia and Tasmania.

Aberrant species of tribe

African White-backed Duck. *Thalassornis leuconotus leuconotus*.†

Africa from eastern Cameroon and southern Abyssinia, south to the Cape.

Madagascar White-backed Duck. *Thalassornis leuconotus insularis*.

Madagascar.

Black-headed Duck. *Heteronetta atricapilla*.†

Central Chile, east to Paraguay and southern Brazil, south in Argentina to the latitude of Buenos Aires.

Two normal swimming positions



♂ displaying

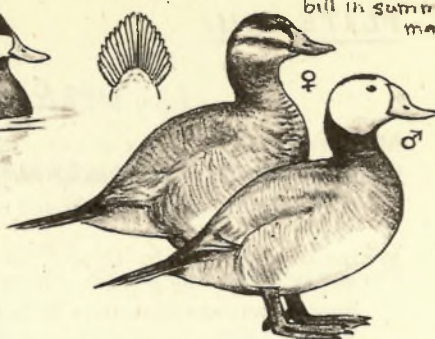


STIFF-TAILS.

Tail spread



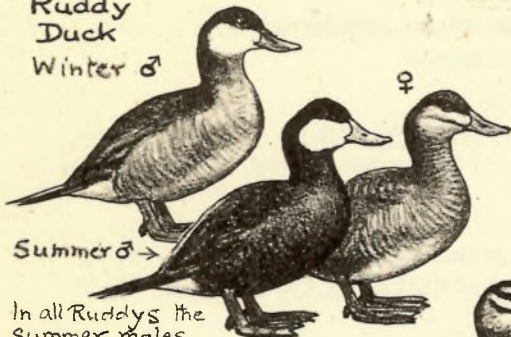
Greyish brown with brilliant blue bill in summer male



White-headed Duck

Ruddy Duck

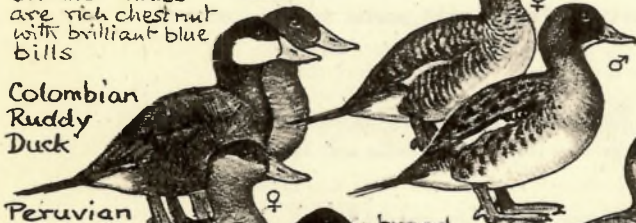
Winter ♂



Summer ♂

In all Ruddys the summer males are rich chestnut with brilliant blue bills

Colombian Ruddy Duck



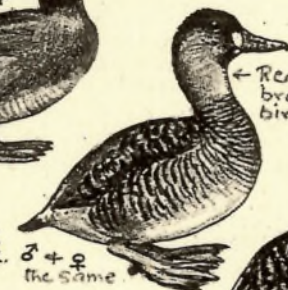
Peruvian Ruddy Duck.



Argentine Ruddy Duck.



African Whitebacked Duck.

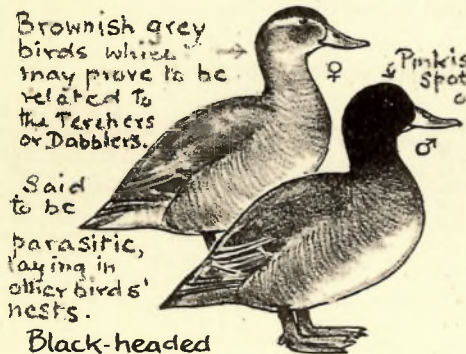


Brownish grey birds which may prove to be related to the Terehens or Dabblers.

Said to be

parasitic, laying in other birds' nests.

Black-headed Duck



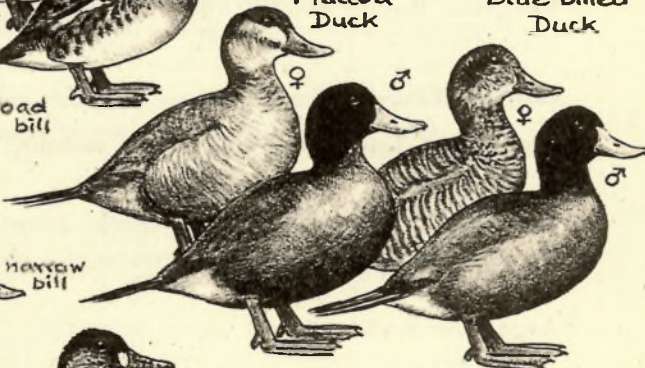
Masked Duck

Summer male rich chestnut with black face.

In both forms below the summer males are similar to Peruvian male.

Maccoa Duck

Blue-billed Duck



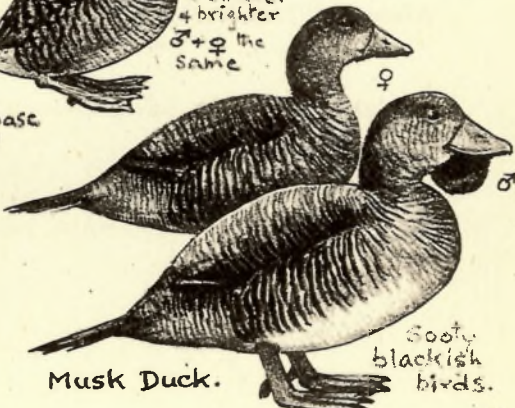
Madagascar White-backed Duck



Normal swimming position



Smaller & brighter ♂ & ♀ the same



Musk Duck.

Gooty blackish birds.

PLATE XXIII

Tribe **MERGANETTINI** (Torrent Ducks)

Colombian Torrent Duck. *Merganetta armata colombiana*.†

Andes of Venezuela, Colombia and northern Ecuador.

Peruvian Torrent Duck. *Merganetta armata leucogenis*.†

Andes of central and southern Ecuador and of Peru (except for Tinta, the Cuzcan Andes and Rio Victor—occupied by *M. a. turneri*).

Turner's Torrent Duck. *Merganetta armata turneri*.†

Known only from Tinta, the Cuzcan Andes and Rio Victor (Dept. of Arequipa) Peru.

Garlepp's or Bolivian Torrent Duck. *Merganetta armata garleppi*.†

Mountains of Bolivia.

Berlepsch's or Argentine Torrent Duck. *Merganetta armata berlepschi*.†

Mountains of north-western Argentina (Provinces of Salta and Tucumán).

Chilean Torrent Duck. *Merganetta armata armata*.†

Andes of central Chile and adjoining parts of western Argentina, north to Province of Mendoza. Southern limit not known.

James's or Southern Torrent Duck. *Merganetta armata fraenata*.†

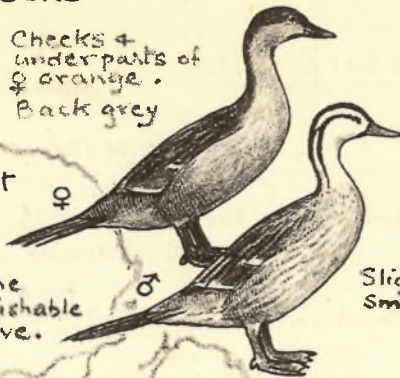
Andes of central Chile, south of the range of *M. a. armata*, from which it is only doubtfully distinct. Exact limits of range not known.

TORRENT DUCKS

Checks + underparts of ♀ orange.
Back grey

Colombian Torrent Duck ♀

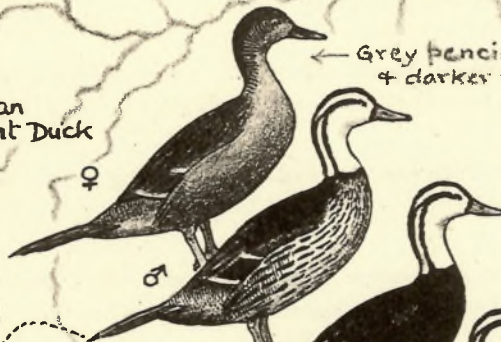
Females are grey above, red-brown below, in all seven races. Where none is shown it is indistinguishable from the ♀ of the race above.



Slightly smaller.

Peruvian Torrent Duck ♀

Grey pencilled cheeks + darker red underparts.



Turners Torrent Duck ♂

Garlepps or Bolivian Torrent Duck ♂

Berlepsch's or Argentine Torrent Duck ♂

Chilean Torrent Duck ♀

James's or Southern Torrent Duck ♂

The belly in this race is not always quite so black.

In all races the bill is red, brighter in the male, with dark culmen in ♀. Legs & feet are dull red.

These drawings have been made without experience of the living bird.

All have a carpal spur on the wing, which is larger in the ♂ than the ♀.

P.S

