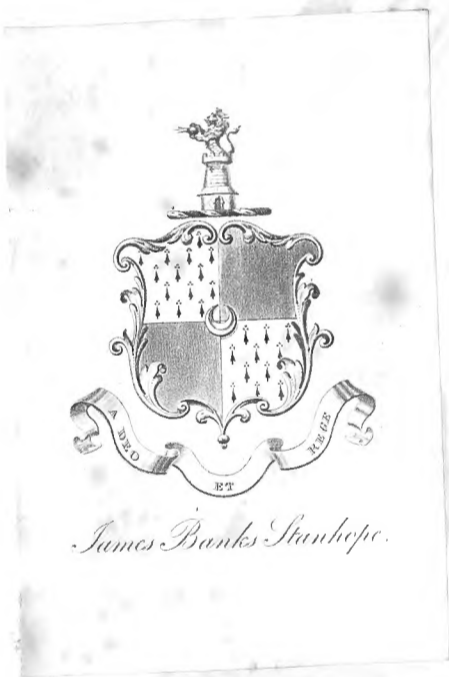
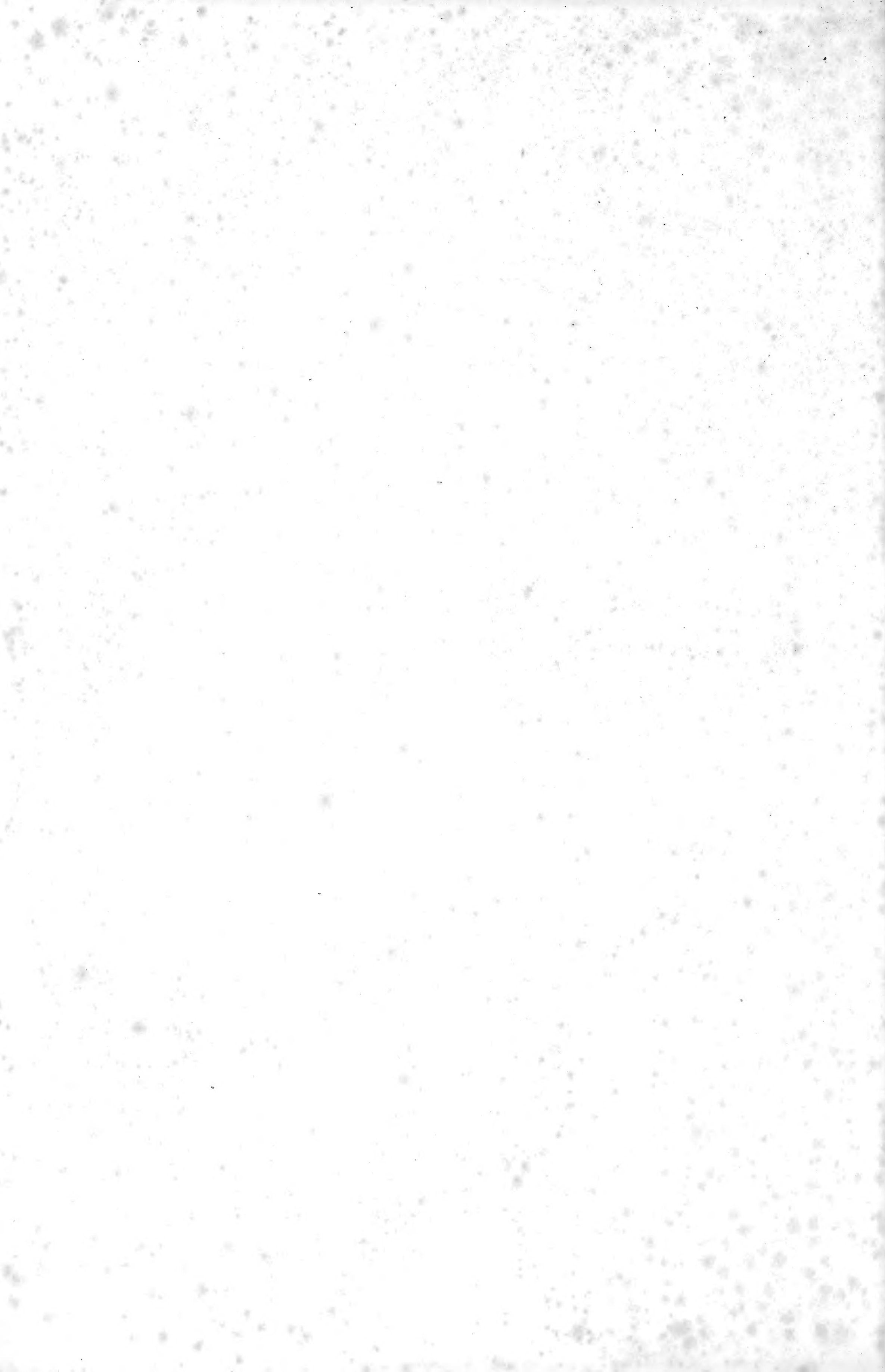
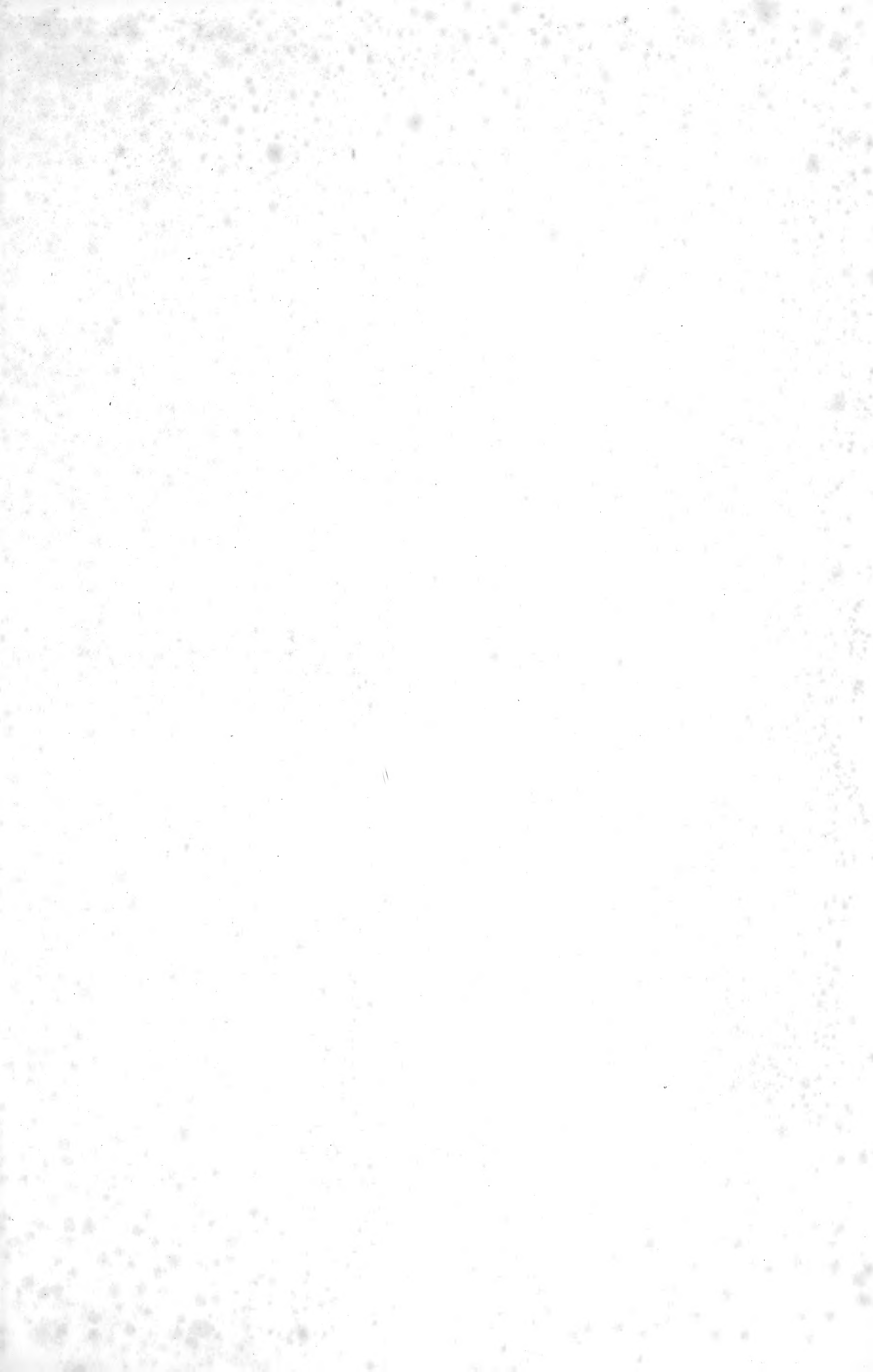


CLARE COLLEGE
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THE
BIRDS
OF
GREAT BRITAIN.

BY
JOHN GOULD, F.R.S., &c.

IN FIVE VOLUMES.

VOLUME V.

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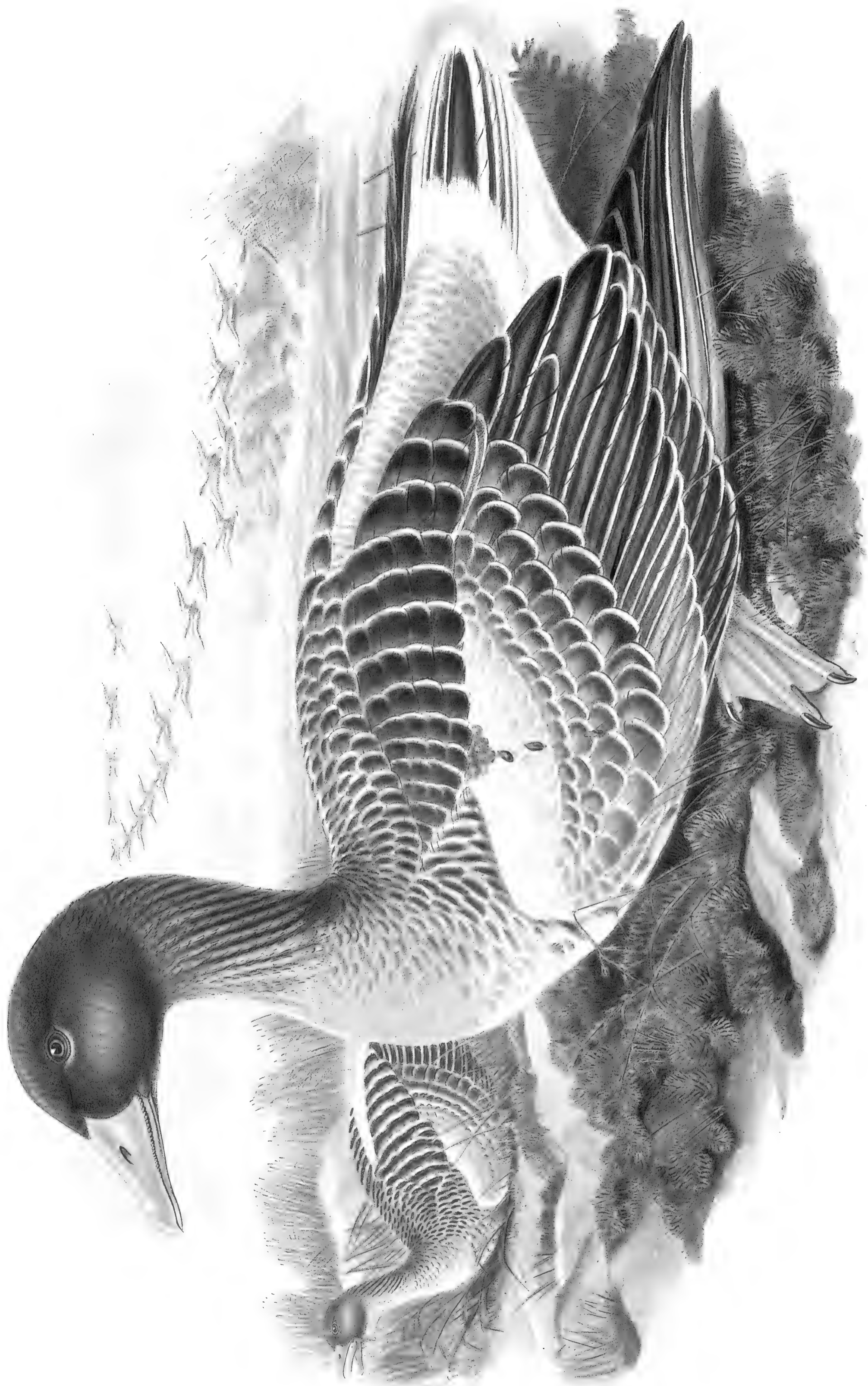
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ANSER FERUS, Steph.

J. W. Hart, del. et lith.

Waters, Imp.

ANSER FERUS.

Grey Lag Goose.

Anas anser, Linn. Faun. Suec., p. 40.

— *ferus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 510.

Anser ferus, Steph. Cont. Shaw's Gen. Zool., vol. xii. p. 28.

— *palustris*, Flem. Hist. Brit. Anim., p. 126.

— *cinereus*, Mey. Taschenb. Vög., tom. 3, p. 552.

— *sylvestris*, Brehm, Vög. Deutschl. p. 836.

— *vulgaris*, Pall. Zoogr. Rosso-Asiat., tom. ii. p. 222.

— *rubrirostris*, Hodgson?, Swinh. Rev. List of Birds of China in Proc. of Zool. Soc., 1871, p. 416.

THE true habitat of the Grey Lag Goose is the temperate and northern regions of the Old World; as yet it has not been found in any portion of the New. However general its distribution may have been in the British Islands in former times, it is at present confined to the northern part of Scotland, the Hebrides, and may be sparingly seen in Ireland. Indeed it is from this latter country that the specimens which form the subject of the accompanying illustration were received, for which I am indebted to the Earl of Enniskillen, a nobleman well known for his love of science and as a liberal supporter of several of its numerous branches, especially those embracing the study of the living objects by which we are surrounded, and as an investigator of the treasures of by-gone ages. The properties of the Earl of Belmore, at Castle Cool, and of Sir Victor Brooke, at Lisnaskea, co. Fermanagh, have, I understand, from almost time immemorial, been frequented by flocks of wild geese; and it is through the kindness of the former nobleman and his steward, Mr. Hosegood, that Lord Enniskillen obtained for me the very fine pair, male and female, on the 15th of December, 1868.

Mr. R. Gray, in his 'Birds of the West of Scotland,' after speaking of the Grey Lag Goose breeding in many parts of that country, and of their nurseries on the bleak hills of the outer Hebrides, states that "it is common in North Uist, Benbecula, and South Uist, and is found occupying the breeding-stations early in May. Mr. Harvie Brown took a nest of eggs which were hard set upon, on 2nd May, 1870; but Mr. Elwes, who visited the Long Island in 1868, saw flocks of as many as thirty together later in the season. The nest, which resembles that of a Great Black-backed Gull when found breeding on heath-clad islands, with the exception of being lined with down and feathers, is generally placed in a tuft of coarse grass, or among rank heather, and contains from four to six eggs. When the young are fully fledged, they keep together in family groups for some weeks, and are often seen shifting their quarters from one side of the island to the other."

During a visit to Lochs Shin and Merkland, as well as several parts of the Reay Forest, in the autumn of 1867, I saw Grey Lags and their broods of young in sufficient numbers to convince me that they might be considered a common bird in those parts of the British Islands; and that it was not less abundant on the numerous lakes of the west coast of Sutherland and Ross-shire will be seen from the following extract from a note transmitted to me, after my return to London, by my excellent and kind friend the Marquis of Westminster:—"Loch More, September 4. You will like to hear about the Grey Lag Geese. The forester on the shore of Loch Merkland fired into a lot of fourteen, wounding four; they pursued them in a coble, and procured one, which we ate; they will try to get the others."

I shall close this paper with some extracts from an amusing and, I am sure, very truthful account of one mode of shooting this bird on its native lochs, which appeared in 'Land and Water' on the 15th of October, 1870, under the title of "A Wild-Goose Chase in Sutherland":—

"The breeding-places of the Wild Goose are yearly becoming more circumscribed all over the north; and even in Sutherland, where, perhaps, they were more numerous than elsewhere, they are now confined to one or two districts, the most fertile being a chain of lakes, with islands and rushy margins, running for about eight miles across the interior of the county, from Badinloch to Gernsary. Here the Grey Lag, principally with a few of the Bean Goose and Pink-footed Goose (the latter, however, only rarely), still breed by hundreds. We are inclined to think that the different sorts of Geese do not mix or associate during the breeding-season, but, on the contrary, form separate communities until disturbed, when they take refuge on the water in one large body. They float and plume themselves here in comparative safety all day, and at night land on the grassy feeding-places, eating up and soiling the very finest pasture in such a manner that deer or sheep will scarcely approach it after them. For many a day, with the exception of a solitary boat following a flock and potting a few, none, either young or old, were killed; and some years ago it

struck us that by collecting a number of boats and placing a good gun in each, a very exciting *battue* might be organized. This we have now carried out for many seasons with varying success; but oftener than once we have bagged from fifty to sixty Geese in a day, and had in doing so an amount of hard shooting and pulling to satisfy the most ambitious.

“About the 20th of July is the proper time to meet for this sport, as then the young birds, although nearly the size of the old Geese, are not strong on the wing; indeed, after they are able to take long flights, there is little to be done in the way of shooting them.

“Imagine, then, half a dozen ‘good men and true’ convening at the comfortable inn of Achintoul, within six miles of the lochs, a few days beforehand, armed with all calibres, from S., with his mighty 8-bore breech-loader, down to the Major’s sharp-shooting 16. Rods, reels, boots, and baskets lumber the lobby in sweet confusion; for the standing orders are that we are to fish the numerous detached lochs until a dead calm day should permit of our properly carrying out the *chasse*.

“The keepers on the upper lochs have driven down the Geese, and concentrated them on the lowest and largest sheet of water; and ‘Donald’ reports that ‘there is an awful lot of them.’ So with a night-cap of hot toddy we turn in early to bed, and are cruelly roused out of glorious slumbers at 5 A.M. by heavy knuckles on the door. Up we jump, and take an anxious look at the horizon. All seems serene; and Ben Griam has thrown off his foggy mantle, showing the clear outline of his bald head against the blue sky—always an omen of settled weather. Bitters (that horrid Celtic habit, which Saxons laugh at but soon so kindly fall into), followed by breakfast, are soon despatched. Guns, ammunition, and lunch have been packed in a cart, and under careful hands are jolting their way to the lochs over a track which does the double duty of a road in summer and a water-course in winter!

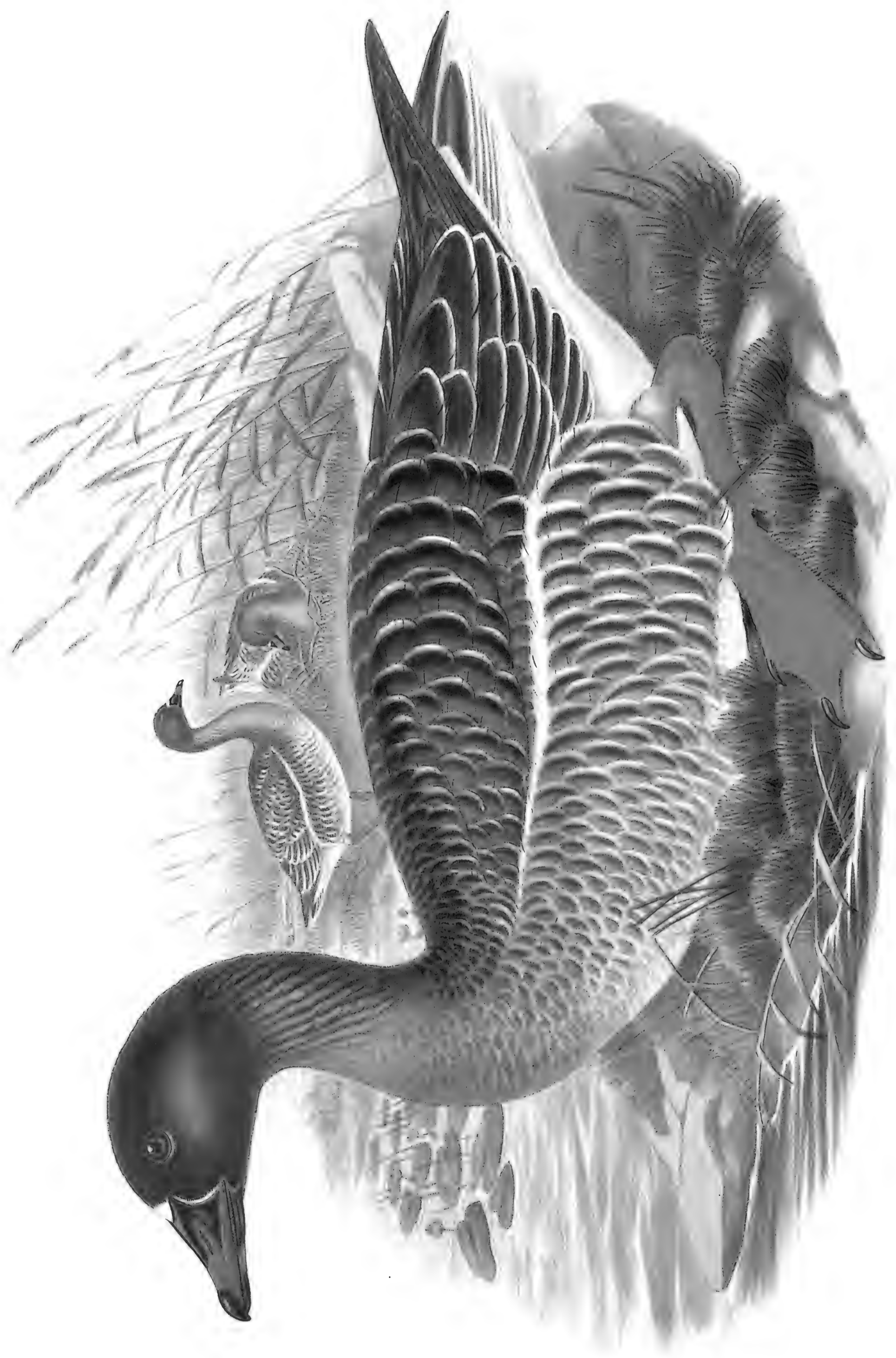
“Every glass is out to scan the water, and Geese are counted by the hundred; so, making sure that the shore and outlets are all properly guarded, we embark, a gun in each boat, and form line, with a proper distance intervening, and the lightest boats on the flanks and a little in advance, so as to head the Geese should they attempt to break. Thus we pull gently down the loch until we get so near the Geese that the boats can safely close upon them. The birds get very restless, and head up and down in long strings; but the flanking boats stop them, and we are within range. The *battue* is soon opened by some of the old birds, after a premonitory screech to show they have made up their minds, taking wing across the line of boats. Bang! bang! bang! and down comes an old gander, with a flop sufficient to sink the little dingy underneath; and ‘first blood to the oily gunner!’ comes cheerily across the water; every boat opens fire, fast and furious, and the plucky owner of No. 8 bore, careless of recoil, cuts down lanes of Geese, and deafens his assistant loader, who after each discharge feels if his head is on and puts in a fresh cartridge. All order is now at an end; the birds separate into small lots over the loch, and each boat cuts out an independent course.”

“Note of two Irish Grey Lag Geese received from Lord Enniskillen, December 15th, 1868.—One, a male, weighed ten pounds; the other, a female, seven pounds and a half. The male had the head and neck light chocolate-brown; back of the neck and back chocolate-brown, each feather margined at the tip with brownish grey; lower part of the back grey; scapularies very dark chocolate-brown, each feather narrowly edged with greyish white; shoulders, lesser wing-coverts and those of the greater coverts nearest the spurious wing, and the spurious wing itself light pure grey, each feather margined with still paler grey; three upper rows of the greater wing-coverts brown, tipped with greyish white, the lower and largest row conspicuously margined anteriorly and at the tip with greyish white; primaries and secondaries dark chocolate, with white shafts and the first four washed with grey; upper tail-coverts white, forming a zone; external tail-feathers white, the central ones dark chocolate in the middle, the rest white; abdomen pale brownish white, with here and there small patches of black at the extremities of the feathers; vent and under tail-coverts white; bill very deeply tinged with pink towards the tip, which is defended with a large greyish white nail; irides hazel, surrounded with a thick pink lash; feet light pinkish flesh-colour.

“The female resembles the male in colour, but is destitute of the black markings on the chest, and the grey of the rump is not so pure; she is also conspicuously less in size.”

Mr. Dresser found the Grey Lag Goose breeding all along the shores of the Gulf of Bothnia up to Tornea, and procured the eggs at the end of May. “In some of the northern towns the peasant women make a trade of catching the young birds and selling them in the market at prices varying from 20 kopecks upwards. They are easily reared and quite take the place of tame geese in some towns.” He asked “one old woman how she obtained them; and she replied, by watching the time the old geese leave the nest in the evening and proceed to the water (as they always have their nests far from the shores); and by keeping in the vicinity every evening during the hatching-season, she almost invariably met the old birds leading the young to the water, and had no difficulty in catching the latter.”

The principal figure in the accompanying Plate is a male, about two thirds the natural size.



ANSER SEGETUM.

Jérôme et H. Chastel, del. et lith.

Water-lop.

ANSER SEGETUM.

Bean-Goose.

Anas segetum, Gmel. edit. Syst. Nat., tom. i. p. 512.

Anser segetum, Meyer, Taschenb. Deutschl. Vög., tom. ii. p. 554.

— *arvensis*, Brehm, Vög. Deutschl., p. 839.

— *paludosus*, Strickland.

THE Bean-Goose may be readily distinguished from its close ally the pink-footed species by its more lengthened bill and yellow legs; and both these birds differ again considerably in these respects from the Grey Lag; and that all three are specifically distinct there can be no doubt. The Grey Lag, as it will have been seen, is a true resident, being found in one or other part of the British Islands at all seasons of the year, which the others are not. The Bean-Goose comes to us in autumn, and after passing the winter here retires to other countries to breed, among which may be enumerated Sweden, Norway, and Lapland. Further south and east it has been found in Russia; I have a specimen which was certainly killed in Western India; and Mr. Swinhoe states that the bird visits China in swarms during the cold weather, particularly the marshes and the mouths of rivers in the neighbourhood of Amoy. So far as is yet known, it does not visit America.

Mr. Stevenson, in his 'Birds of Norfolk,' regards the Bean-Goose as a much rarer bird than the Pink-footed, and considers that the latter has been generally confounded with the former, which I think is very possible. He remarks, "The following are the only examples of the Bean-Goose that have come under my notice during the last ten years, in marked contrast to the numbers of Pink-footed geese recorded in my notes during the same period:—one, January 10th, 1861, during a sharp frost; one, November 29th, 1862, after an early fall of snow; two, January 15th, 1864, during sharp weather; and one on January 31st, 1867, a rather mild season. All these birds were sent to our Norwich market; but I was unable to ascertain from what part of the county. From the latter date until the commencement of 1871, I had not met with this species either at our birdstuffers' or poulterers'; but on the 11th of January, during the intense frost which prevailed at that time, Mr. H. Upcher succeeded in killing one out of a flock of three that he found feeding within shot of a frozen ditch at Blakeney; and on the 11th of February Mr. Hamond sent me a fine adult male, which had been shot at Castleacre on the 9th by Mr. Beverley Leeds."

Those who may wish to make themselves acquainted with this Goose in a sporting point of view, will do well to consult the writings of the late Mr. Charles St. John for many interesting details which are there given, but which their length does not permit to be transcribed here, especially as, though excellent in themselves, the following more recent and perhaps fuller account has been published by Mr. R. Gray, in his 'Birds of the West of Scotland':—

"In the Outer Hebrides the Bean-Goose is a common winter visitant, remaining on the outlying rocks and islets, especially in the neighbourhood of Harris, as late as the beginning of June. Its nest has never to my knowledge been discovered in any part of the Long Island, although it is stated by Macgillivray that it frequents the Hebrides in summer. There can be no doubt that his observations on this bird apply to the preceding species. According to Mr. Selby, the Bean-Goose had been found breeding in several of the Sutherlandshire lakes; but recent observers have failed to corroborate his records. There may have been a mistake in the species here also, a circumstance hardly to be wondered at when it is borne in mind that the Grey Lag was then supposed to be a comparatively rare bird, whereas it now turns out to be the only native species inhabiting the north and north-western districts of Scotland.

"Mr. Elwes informs me that the Bean-Goose is not uncommon in some parts of Islay, but that it does not arrive there till January or February. The flocks are not large, and the birds are very wary. These are probably from some of the outer islands, where they have exhausted their feeding-grounds. The movements of Geese, indeed, are greatly influenced by this consideration. Throughout the winter months very large flocks of this species frequent Montrose Basin at ebb tide, and the adjoining fields when the vast stretch of mud and sand is covered. I have seen many hundreds there, and have recognized them readily from a passing train at Dubton Junction. On one occasion the birds, although feeding within thirty yards of the railway embankment, merely ran together with raised heads and stood on the alert until the train had gone past, after which they lowered their heads and resumed feeding.

"The Bean-Goose is also common in Haddingtonshire, where it frequents wheat-fields, doing considerable damage sometimes to the sprouting grain. Large and noisy companies resort at nightfall to the open

sands near the Tyne estuary, and retire at daybreak to the Lammermuirs. In Fifeshire its habits are similar. When travelling through that county in the winter-time, I never fail to observe small flocks coming from the higher grounds in the afternoon and steering for the mouth of the Eden, near St. Andrew's. Mr. Harvie Brown, writing from Stirlingshire, says:—"It is our commonest Goose on the east coast, punishing the farmers' newly sown beans in early spring throughout the day and, as one of the fraternity informed me, "paidling about i' the mud at nicht: de'il tak' them." The Carseland, west of Stirling, is also visited by them in great numbers. It is somewhat strange that this species, which is so very common on all parts of the east coast of Scotland, should only be an uncertain winter visitant in Orkney."

Mr. Dani's note on this species, communicated to the late Mr. Yarrell, is as follows:—

"This Goose is said to be very numerous on the north-west coast of Norway. I have seen it in vast numbers on the Torneå river in September; and the young ones are often caught on the islands at the head of the Bothnian Gulf, and tamed. They arrive in the south of Sweden at the latter end of March or the beginning of April, and remain about a month previously to their departure north. During their stay they keep amongst the dead reeds and rushes, feeding upon the roots and young shoots. I have never seen this Goose upon the coast in winter; but, as before stated, it is reported to breed in great numbers on the Norwegian coast." Professor Nilsson says that the Bean-Goose is the most common species in Sweden, and is also spread over Finland, breeding upon the islands and committing great ravage upon the green corn. Mr. Hewitson says the Bean-Goose was rather numerous upon one of the large islands on the west coast of Norway, near the Arctic circle, where it had been breeding during the previous month. M. Temminck says the Bean-Goose is abundant in Holland, Germany, and France, but is more rare in the central portions of Europe. It is found also in Spain, Provence, and Italy. M. Vieillot mentions that one of the names of this bird in France is 'Harvest-Goose' (*Oie des moissons*), from its frequenting corn-fields, and the destructive effects of large flocks when feeding upon green corn. Our name of Bean-Goose is said to have reference to the dark nail on the beak, which in appearance is considered to resemble a horse-bean; Mr. Selby thinks the name has been suggested by the decided partiality of the bird to pulse and grain.

The principal figure in the opposite Plate represents an adult male Bean-Goose, about two thirds of the natural size.



ANSER BRACHYRHYNCHUS, Bull.

Grull & Richter del et lith.

Walter Inp

ANSER BRACHYRHYNCHUS, *Baill.*

Pink-footed Goose.

Anser brachyrhynchus, Baill. Mém. de la Soc. d'Emul. d'Abbev., 1833, p. .

— *phænicopus*, Bartl. Proc. of Zool. Soc., 1839, p. 3.

FROM time immemorial wild geese of several species have migrated to the British Islands as regularly as the Cuckoo and the Swallow, but with this difference of object: the Cuckoo and Swallow have come here to breed and perpetuate their kind; but the geese have sought our shores and river-flats as an asylum for the winter, just as the Fieldfare and Redwing do in localities suited to them. From the time of Willughby and Ray to the early part of the present century, but little has been recorded about these important birds; and their distinctions were involved in obscurity; now, however, they are well known; and I believe I shall be perfectly correct in stating that the British Islands are either regularly or occasionally visited by seven species, viz. the Grey Lag (*Anser ferus*), the Bean-Goose (*A. segetum*), the Pink-footed (*A. brachyrhynchus*), the White-fronted (*A. albifrons*), the Bernicle (*Bernicla leucopsis*), the Brent (*B. brenta*), and the Red-breasted (*B. ruficollis*). The first of these is the only one that remains and breeds with us, and is doubtless the origin of our common domestic goose; the five succeeding are winter visitors only, and the last an accidental one.

The Pink-footed Goose was made known as a British bird by Mr. Bartlett at the first meeting of the Zoological Society in 1839, when he characterized it under the name of *Anser phænicopus* from the colouring of its legs and feet, without being aware that M. Baillon, of Abbeville, had previously (in 1833) pointed out its specific distinctions, and assigned it the name of *A. brachyrhynchus* from the shortness of its beak, a term which, from its priority, is now generally adopted.

In all probability the Pink-footed has always been the most common of our migratory geese, but, until the dates above mentioned, was confounded with its near ally the Bean-Goose, the two species being very similar in size and general appearance; they are readily distinguishable, however, by the difference in the colouring of their legs and feet—those of the Bean-Goose being yellow, and those of the other pink.

The *A. brachyrhynchus* arrives on our shores early in October or the beginning of November, and at once resorts to all suitable localities, and remains there, if unmolested, until the spring, when, like all the other migrating geese, it quits the country, many of them proceeding to regions within the Arctic circle so far north that man has not yet been able to follow them, nor to ascertain what is the nature of the great nurseries of this family of birds.

“Since the specific distinctions of this short-billed Goose,” says Mr. Stevenson in his ‘Birds of Norfolk,’ “were first pointed out by M. Baillon in 1833, and subsequently by Mr. Bartlett in 1839, it has proved to be both a constant and abundant winter-visitant on our Norfolk coast, although to a great extent confined to the western side of the county, and especially to certain localities in the neighbourhood of Holkham.

“The earliest record of its identification in this county is apparently the notice by Yarrell of a specimen killed at Holkham, in January 1841, by the present Earl of Leicester, out of a flock of about twenty, since which time this goose has proved to be by far the most common species that frequents the Holkham marshes. Of its habits in that neighbourhood the following notes have been kindly supplied me by Lord Leicester.

“As long as I can recollect, wild geese frequented the Holkham and Burnham Marshes. Their time of appearing in this district is generally the last week of October, and their departure the end of March, varying a little according to the season. Till November they rarely alight in the marshes or elsewhere in the neighbourhood, but are seen passing to and from the sea. Where they feed in October I know not, as I have reason to believe that they do not obtain much food off the muds, like the Brents, but live mainly on grass and new-sown wheat. From early in November till their time of departure for the north, the Holkham marshes have almost daily some hundreds of geese feeding on them. There are periods of a week or a fortnight when the greater portion of them go elsewhere; but rarely all go. When on the marshes they are mostly in one or two flocks, but in stormy weather, or even on certain still days, for some unaccountable reason they break up into small lots. My keepers informed me that one day, about the middle of November 1870, which was perfectly calm, they were flying about in small lots very low, and that a great many might have been killed.’

“Referring to the goose shot by himself in 1841, and identified by Yarrell as the pink-footed, his lordship adds, ‘Of the many geese killed here before then, I have reason to believe from their habits they were nearly all the same as those now here—the pink-footed; and of the many hundreds killed since, with the exception, I believe, of only one bean-geese and a few white-fronted, they were all pink-footed. The greatest number killed in one year was in the severe winter of 1860–61, when one hundred and thirty-eight were killed, all pink-footed.’

“Mr. Dowell, who is also well acquainted with the habits of this species and has shot several at different times, informs me that they feed in flocks of from one or two to six or seven hundred on the uplands by day, and he

has known as many as twenty-seven shot in one day by sportsmen lying up for them behind gate-posts in the Holkham marshes during a gale of wind, when the geese fly low. In 1858 he saw a flock of fifty at South Creak as early as the 13th of October; and some were said to have been seen that year on the 1st of the month. In the winter of 1869, a flock of about five hundred geese, which were no doubt all pink-footed, frequented some barley stubbles within sight of his house at Dunton, near Fakenham. They used to arrive from the coast soon after daylight, and remain till late in the afternoon. The chestnut-brown of the head and neck in this species he considers a distinguishable feature at almost any distance. The pink-footed, like the bean-goose, also frequents the large upland fields about Anmer and Westacre, and still further inland the open country about Wretham heath."

According to the elder Macgillivray the Pink-footed Goose is not very uncommon in the south of Scotland, being frequently seen in the Edinburgh market. The specimen from which he took his description was shot in November; but the bird is more frequently obtained in February and March. Two specimens in the Museum at Montrose were shot in the neighbourhood of that town; and he had seen examples in winter in the Aberdeen market. Mr. John Macgillivray has stated, in the 'Annals and Magazine of Natural History,' vol. viii. p. 13, that "the Pink-footed or Short-billed Goose breeds in great numbers in the small islands of the Sound of Harris, as well as those of the interior of North Uist; but this statement would seem to be founded in error, since Capt. Elwes says, in 'The Ibis' for 1869, p. 22, I think there can be little doubt that the only Goose that breeds in any part of Scotland is the Grey Lag (*Anser ferus*); and the best evidence in favour of this view is that of Mr. J. Macdonald, of Scolpig, who has resided all his life on the Outer Hebrides, where it is a common custom to rear Geese from eggs that have been laid by wild birds; and he assures me that none of these eggs have ever produced any but Grey Lags with the nail of the bill white."

Mr. Thomas Jamieson informed Macgillivray that he had observed the Pink-footed Goose in the Isle of Skye in 1850; and St. John states that it regularly visits Morayshire at the same time as the Bean-Goose.

"The Short-billed or Pink-footed Goose," says Thompson, though not uncommon in England or Scotland, cannot yet be announced as obtained in Ireland, though particularly looked for of late years.

I have alluded to the high northern localities visited by this bird in summer, in confirmation of which I may mention that we have the authority of Mr. Newton for stating that Mr. Proctor, of the Durham University Museum, has once or twice received specimens from Iceland; and Mr. Newton himself says that, "in Spitzbergen the Pink-footed Goose has been met with in Wide Bay, lat. $79^{\circ} 35' N.$, and probably occurs all along the west coast. It is most numerous in Ice Sound, where a hatched-out nest with two goslings was found about midnight between the 16th and 17th of July. Dr. Malmgren seems to have met with at least two nests in the upper part of the Sound, from both of which he shot the female bird. The second was obtained at Mittelhook, in the same Sound, on the 10th of July. According to Dr. Malmgren, the species also occurs in Hinlopen Strait and Stor Fjord." In a review of Herr Robert Collett's 'List of the Birds of Norway' in 'The Ibis' for 1869, it is stated that "the *Anser brachyrhynchus* has at last been recognized as breeding in the north of Norway."

Temminck states that this species has been several times killed in France, where it occasionally appears as a migrant, as it probably does in several other countries of Europe, but has there been confounded with *A. segetum*, from which it differs but little. It had only been observed during the severe winters of 1829, 1830, and 1838, and always in very small numbers, which kept together and did not mingle with the flocks of common geese; a peculiarity which the bird also evinces in captivity, since M. de Lamotte, of Abbeville, kept three individuals in an enclosure in company with *A. ferus*, *A. segetum*, and *A. albifrons*; but they always remained apart and evinced no disposition to ally themselves with either of them; and a male in the Gardens of the Zoological Society in the Regent's Park, and a female on the ornamental water in St. James's Park, would not associate with any of the various species with which they were surrounded.

Meyer says:—"Towards the spring these geese become restless, flying to meadows, waste lands, and heathy commons, and finally leave their winter-quarters for more northern regions. Their migratory journeys are performed usually in the day; and the speed at which they sometimes fly has been noticed to amount to forty or fifty miles an hour. The numbers that journey together vary from five to fifty or sixty; and when in large flocks, they form a triangular figure, headed by the father of the foremost family."

The number of eggs laid by this goose has not been ascertained. The female belonging to the Ornithological Society, and kept on the ornamental water in St. James's Park, deposited eight, which, Mr. Yarrell says, were rather less than those of a Bean-Goose, of a pure white, and measured $3\frac{1}{8}$ inches in length by $2\frac{1}{4}$ inches in breadth.

I must not conclude my account of the Pink-footed Goose without recording my obligations to Earls Ducie and Fitzhardinge for the assistance they have kindly rendered me by forwarding the fine examples from which my figures were taken, nor to Mr. Alfred Newton for the sight of a pair of goslings obtained by him in Ice Sound, on the western side of Spitzbergen.

The figures are about, or perhaps a little more than, half the natural size.



ANSER ALBIFRONS.

J. Gould & H.C. Fisher, del. et lith.

Walter, imp.

ANSER ALBIFRONS.

White-fronted Goose.

Anas albifrons, Gmel. edit. Linn. Syst. Nat., tom. i. p. 509.

Anser albifrons, Bechst. Naturg. Deutschl., tom. iv. p. 898.

THE White-fronted Goose is a regular winter visitor to the British Islands. It is supposed to come from the north; but from what particular regions is not known with certainty. Mr. Newton has confirmed Faber's observations that at least a few summer in Iceland, by stating that on the 11th of May 1858 he saw several freshly killed examples at Reykjavik, in that country; and Reinhardt includes it in the birds of Greenland. Lapland is also said to be frequented by it: but this is certainly not the case; for Mr. Wolley remarks that the only White-fronted Goose he met with in that country was the small species which Mr. Newton believes to be the true *Anas (Anser) erythropus* of Linnæus, and for which the Laps have a name, while they have none for *A. albifrons*; he was also of opinion that Nilsson is in error in assigning it a place in the fauna of Sweden, and in stating that it is the common Fell Goose of that country. As regards Norway, however, Messrs. F. and P. Godman affirm that they frequently saw flocks of from seven to ten feeding in the pools and creeks of the marsh near Bodo, in Norway, from which they all departed towards the end of May; but those gentlemen make no mention of *A. erythropus*, and possibly the birds they saw belonged to that species.

Sir John Richardson states that in spring White-fronted Geese pass through the interior of the fur-countries of America in large flocks to their breeding-places in the woody districts skirting the Mackenzie, to the north of the sixty-seventh parallel, and also the islands of the Arctic Sea; but whether his remarks have reference to our bird or the American, which is now regarded as different, and named *Anser Gambeli*, is a question I cannot determine. Their migration southwards commences in September; and their return to the fur-districts is often the first indication of winter having begun within the Arctic Circle. In England the *A. albifrons* arrives in September and October, occasionally appearing in very large flocks, and departs again in March and April to its breeding-haunts. In like manner, and at the same periods, it is very generally dispersed over the southern portions of the European continent; and there also similar movements take place. Temminck states that it is very common in Holland during its autumnal migration, but is less numerous in Germany and the interior of France. Lord Lilford found it to be common in winter in Epirus and continental Greece. The Russian naturalist Ménétriés says that, at the same period, it appears in considerable flocks in the neighbourhood of the Caspian Sea, particularly near Bakou and the neighbouring lakes, where it passes the winter, and departs towards the end of February. Dr. Leith Adams states that it is the most common Goose on the Nile, and is usually seen in vast flocks at daybreak, returning to the shallows from feeding all night in the wheat-fields, but decreases southwards, and is rarely seen beyond the marsh at Edfoo. The same gentleman elsewhere states that this bird is a winter visitant to the lakes and rivers of the Punjab. In China, according to Mr. Swinhoe, it forms part of the wild fowl procurable in the markets of Shanghai and Tientsin; and he has also met with it between Takoo and Peking in North China; and, lastly, Temminck affirms that examples from Japan are exactly like our own birds.

I have been favoured by several kind friends with some fine examples of this Goose for the furtherance of this work. The Earl of Enniskillen sent me a pair from Ireland; and the Earl of Ducie, besides kindly obtaining permission from Lord Fitzhardinge for examples to be forwarded to me from his Lordship's estate in Gloucestershire, transmitted the following note:—"When you are writing on the Wild Geese, you ought to hear something of those frequenting the Severn, and their habits on the alluvial flats belonging to Lord Fitzhardinge. The spot is about ten miles from here (Tortworth Court, Wotton-under-Edge). There the Geese are regularly preserved, and the shooting of them affords great sport. I have been out the only two days of shooting this year, and on each day we killed nine. They are first found feeding on the grass, and about noon are driven over towards the guns, which are posted between them and the Severn. They then betake themselves to the mud flats, and when hungry attempt to get to the grass-meadows again. By this time the guns are posted under hedges at right angles to their probable line of flight; and as they come over, in flocks of varying size, shots are fired with long guns at from forty to seventy yards distance. The whole system is, I believe, unique in this country. The Geese arrive about the 23rd or 25th of September, are never known to be two days later, and generally leave again about the end of November. The White-fronted are not so numerous as the Pink-footed, but are increasing in number."

As a bird for the table the present species is perhaps one of the best of the wild geese; and there are few

winters in which the London markets are not well supplied with it. A fine-conditioned gander weighs from five to six pounds, and measures about 4 feet 3 inches from tip to tip of the wings when spread, so that it is a smaller bird than the Bean- and Grey Lag-Geese. The sexes are so nearly alike in colouring that they are scarcely distinguishable; both have the black interrupted bars on the breast, a character which differs considerably in extent in different individuals.

Macgillivray gives so meagre an account of this species that it would seem to be far less plentiful in Scotland than in England; yet Sir William Jardine has met with it in Dumfriesshire and in the Edinburgh market, and St. John says that "it arrives in Morayshire from its breeding-quarters in the arctic and northern regions about the middle of October in small companies of from six to twelve, and, if left tolerably undisturbed, frequents regularly the same swamp or piece of marsh till the end of April, feeding on aquatic plants, and in the spring frequently grazing on the young clover or green wheat. It is more easy of approach than any other wild goose;" and he "has often seen it feeding in small hollows and spots easily got at, where the Bean-Goose would never trust itself. Its cry is very loud and peculiar, sometimes wonderfully resembling the loud laugh of a human being, whence its trivial name of "Laughing Goose." Sir John Richardson mentions that the Indians of the American fur-countries imitate this sound by patting the mouth with their hand, while they repeat the syllable *wah*." Mr. Thompson informs us that it "is a regular winter visitant to Ireland, where, as in Great Britain, it is, next to the Bean-Goose, the species most frequently met with, and is brought during the season of every year to the Dublin market."

Mr. Selby remarks that "this species varies from the Bean-Goose in preferring low and marshy districts rather than the upland and drier haunts affected by that bird, and in such localities subsists on aquatic grasses, being very seldom seen to frequent corn- or stubble-fields." A specimen sent to him which had been killed near Alnwick, in Northumberland, "had its stomach gorged with the tender shoots and leaves of the common clover (*Trifolium pratense*), upon which it had been feeding on the termination of a severe snow-storm." The bird also feeds on the leaves of turnips, beetles, other insects, and their larvæ. Its flight is described as vigorous, and its gait on the ground as characterized by grace, rapidity, and ease. When a flock proceeds to any distance, the birds of which it is composed keep in single file.

The White-fronted Goose is not known to breed in a wild state in any part of our islands; and a pair in the Gardens of the Zoological Society in the Regent's Park brought forth their brood from one of the islands to which they were restricted, and showed great anxiety for their safety. The egg is pale buffy white, about 2 inches and 10 lines in length by 1 inch and 11 lines in breadth.

Speaking of this bird, as seen in Norfolk, Mr. Stevenson says:—

"This species, which is never observed in very large flocks, can scarcely be called a regular winter visitant, being rarely seen in our markets, except in severe weather. As an exception, however, to this rule, in the mild winter of 1851-2, a very unusual number of wild geese were shot in different parts of the county; and on the 20th of December, the Norwich market exhibited the unusual appearance, amongst other fowl, of two couple and a half of White-fronted, with Bean and Bernicle Geese, from Hickling and other localities; and another White-fronted, from Blakeney, was sent up to Norwich the same day. All these birds were in perfect plumage—the White-fronted Geese, from the markings on the breast, being evidently adult; but their poor condition seemed to indicate 'hard times,' although, as already remarked, the weather was then unusually mild with us, and continued so up to the following February. From Mr. Dowell's notes for the same year (1851) I find that on the 18th of December he saw a flock of some twenty White-fronted Geese at Holkham, and on the same day he received a fine specimen which had been killed at Blakeney. This goose is considered by Lord Leicester rare at Holkham, except in hard weather, when it commonly appears in flocks of from five to ten, and, being less shy, is easier of approach than others; but singularly enough, during the severe winter of 1870-71 this species, as Lord Leicester informs me, was not seen at all at Holkham; and a single adult bird which I purchased in the Norwich market, on the 18th of February, was the only example that came under my notice during that inclement season.

"The few recorded in my own note-books, since 1854, have been all killed during sharp frosts, between December and February—which agrees with Hunt's description of this species, that 'they visit the fenny parts of this county in small flocks, in severe winters.' In West Norfolk, according to Mr. Lubbock, a good many White-fronted Geese are sometimes observed with the Bean-, or, as now distinguished, more probably with the Pink-footed. Blakeney and Holkham have been already mentioned as localities where it is occasionally remarked; and the brackish waters of Salthouse would seem to have attractions, as a fine old bird in my own collection was killed there on the 22nd of December 1866, and Mr. Dowell had one sent him from the same place so early as the month of October, 1850. The Messrs. Paget describe them as 'occasionally seen on Breydon;' and Hickling Broad appears to be a favourite resort in sharp weather.

"The majority of specimens procured are in immature plumage, the bars on the breast being either wanting or only partially assumed."

For further particulars as to the localities in Norfolk in which this bird has been procured, I must refer the reader to my friend Stevenson's third volume on the birds of that county.

The front figure is about half the natural size; the young birds somewhat less than life.



BERNICLE LEUCOPSIS.

J. Wolf & J.C. Richter, del. et lith.

Walter, Imp.

BERNICLA LEUCOPSIS.

Bernicle Goose.

Anas leucopsis, Temm. Man. d'Orn., p. 531.

Anser leucopsis Bechst. Naturg. Deutschl., tom. iv. p. 921.

— *bernicla*, Leach, Syst. Cat. of Indig. Mamm. & Birds in Brit. Mus., p. 37.

Bernicla leucopsis, Boie, Isis, 1822, p. 563.

Few sights are more attractive to the lover of nature than a "skein" of wild geese passing through the air—a string of wandering birds which have quitted some far-off locality, and are journeying onward to a haven better suited to their requirements than the one they have left. How wonderful are the migrations of these birds, and at what great heights are they sometimes performed! The smaller birds probably make their journeys at a similar altitude to that of the "skeins" of geese which occasionally pass over the Metropolis, or of the flights of cranes which periodically cross the Rhine; but birds so small as the Swallow and the Wheatear cannot be seen at such an elevation, and therefore are not noticeable.

Flights of wild geese are equally interesting to the sportsman and to the gunner, whose only regret is that the birds mostly pass on without resting; they do, however, sometimes alight on an estuary, marsh, or extensive field, but are not allowed to remain there long without molestation. During the winter the Bernicle Goose is a common bird in the British Islands, and is equally abundant on the continent of Europe, particularly in Jutland, Holstein, Holland, and some parts of France; it also sparingly occurs in many countries further east. According to the best authorities, it arrives in September and October, is more generally diffused over the western than the eastern coasts, and departs for more northerly regions early in the spring, few or none remaining after the middle of March. "Its migratory journeys are performed during both night and day, in considerable flocks, and invariably along the sea-coast, skirting the land around headlands and bays, and passing only when necessitated over the open sea. Their roosting-places are also on the sea-coast. Their flight is strong and powerful, and a considerable noise is produced by the wings on their alighting" (Morris, 'Brit. Birds,' vol. v.)

As I have had little or no opportunity of observing this bird in a state of nature, I must here, as in many other instances, draw upon the labours of some of my contemporaries. Speaking of the bird as seen by him in Scotland, Macgillivray says:—

"This very beautiful bird more frequently retires to the sea than to the lakes during its periods of repose, or when driven from its feeding-grounds. A large flock then presents a beautiful spectacle, and the birds sit lightly on the water, and when advancing elevate their necks. Not less beautiful do they appear when on wing, now arranged in long lines, ever undulating, at one time extending in the direction of their flight, at another obliquely or at right angles to it, sometimes in an angular figure, and again mingling together. Their voice is clear, and rather shrill, but strikes agreeably on the ear when the cries of a large flock are heard from a considerable distance. They can on occasion run with very considerable speed, but ordinarily walk sedately and prettily. Their food consists of grass, especially the juicy stems of *Agrostis alba*, as well as the blades and roots of other plants. They also feed in marshes, and by the margins of pools and small lakes. The nest is said to be formed of grass, and to contain six or eight eggs. I have examined several specimens from Parry's Arctic Expeditions. Of two presented to Professor Jameson, one is two inches and seven-eighths long, an inch and eleven-twelfths broad; the other is two inches and six-eighths long, an inch and seven-eighths in breadth: they are of an elliptical form, both ends equal, and of a greyish white tint."

Thomson informs us that the Bernicle Goose "is a regular winter visitant to Ireland, where its favourite places of resort are the extensive sandy parts of the coast which are exposed by the receding tide, bordered by short pasture, or having islets of this nature rising here and there above its level surface." "Its greatest haunt" known to him "is an immense sandy shallow bay on the coast of Louth, bordered by an extensive tract of pasture and marshy ground called Lurgan Green, from which it is called Lurgan-Green Bernicle over a considerable part of the island. There immense numbers spend the whole of the year, except the period appropriated to the reproduction of their species, when they are absent for about five months, from the middle of April to that of September. I have rarely passed this locality *en route* from Belfast to Dublin without seeing vast flocks of these birds (numbering sometimes between 300 and 400), either on the sands or the greensward raised but little above them. I have seen them within shot of the coach, and as regardless of its passing as a flock of tame geese—indeed more so, for the latter would have had the impudence to cackle, while the Bernicle had the good taste to remain silent. They were never feeding

when I observed them, though doubtless they partake of the pasture. No person being permitted to fire a shot on Lurgan Green was probably the cause of their tameness. They were captured in little pitfalls, dug in the earth, without being in the least degree injured. Several placed in the aquatic menagerie at the Falls, near Belfast, at once became tame, and proved to be of a mild and gentle disposition. About the middle of October, in the years 1848 and 1849, flocks of about twenty in number were seen flying over the sea and points of land in a southerly direction, off Analong, at the base of the mountains of Mourne. They flew in a line, like wild geese, about twenty yards above the sea or ground, and were headed by an old stager whose adult plumage was strongly defined. In Belfast Bay the Bernicle is a rare visitant, chiefly in the early part of winter; but a single bird has been obtained there as late as the beginning of August. The bird has been met with in many other parts of the country; but its only regular haunt is the locality above mentioned—Lurgan Green.”

Mr. Selby states that “upon the Lancashire coast, the Solway Frith, &c. it is very abundant, frequenting the marshy grounds that are occasionally covered by the spring tides, and such sands as produce the sea-grasses and plants upon which it feeds. Like the rest of the genus it is a very wary bird, and can only be approached by the most cautious manœuvres. It is sometimes shot by moonlight when it comes on the sands to feed, by persons crouched on the ground, or from behind any occasional shelter in such places as the flocks are known to frequent. Its flesh is sweet and tender, and highly esteemed for the table. It is a bird of handsome shape, and from the length of its neck and tarsi stands high upon the ground. When caught alive it soon becomes very tame, and thrives well upon grain &c.; but no attempts have been hitherto made to domesticate the breed.”

The history of this species, brief as it is, would be still more so (and, moreover, incomplete) without at least an allusion to the old legends connected with it. Its trivial name of Bernicle [or Barnacle] is derived from an oft-told tale, the absurdity of which has scarcely, if ever, been surpassed. It is that the bird derives its origin from the Barnacle shell, the *Lepas anatifera* of Linnæus. “This curious fancy,” says Macgillivray, “which no doubt arose from the slight resemblance of the filaments of that animal to the sprouting feathers of a young bird, is still entertained by many persons; but, like the milking-propensity of the Goatsucker and the winter submersion of the Swallows, it might now, I think, be allowed to rest in its grave.” Those who may wish to read the legend in part or in the whole, may refer to Professor Max Müller’s ‘Lectures on the Science of Language,’ p. 540, or to the 12th volume of Shaw’s ‘General Zoology,’ p. 50.

Mr. Selby states that no attempt has been made to domesticate this fine Goose. It is to be regretted that this has not been done; for pinioned birds readily breed in a semidomesticated state at Hawkstone, the seat of Viscount Hill, who kindly allowed me to shoot one for the purpose of the present work. I suspect, however, that it would be necessary to pinion the young birds so reared, to prevent their obeying the impulse that would doubtless urge them to migrate to countries better suited to their existence during summer—probably Lapland, Finland, northern Russia, and Siberia.

Mr. Newton, in his ‘Notes on the Ornithology of Iceland,’ informs us that, according to Faber, this species arrives in Iceland about the middle of April, and departs about the middle of October. He found it most abundant in the South-west, but does not believe that it breeds on the island.

There is no perceptible difference in the colouring of the sexes; but the markings of the male are stronger and more beautifully arranged.

The Bernicle is a smaller and more elegant bird than the Bean Goose, and on the other hand is much larger than its near ally the Brent, its weight being about seven pounds.

As it is impossible to represent so large a bird of the natural size, my figures are necessarily much reduced.



BERNICLE RUFICOLLIS.

J. Gould & H.C. Richter, del. et lith.

W. Wood, sculp.

BERNICLA RUFICOLLIS.

Red-breasted Goose.

Anas ruficollis, Gmel. edit. Linn. Syst. Nat., tom. i. p. 511.

— *torquata*, S. G. Gmel. Reise, tom. i. p. 181, tab. 14.

Anser ruficollis, Pall. Spic. Zool., tom. iv. p. 12, tab. 4.

Bernicla ruficollis, Boie, Isis, 1822, p. 563.

IF the *Bernicla ruficollis* be not one of the gems of ornithology, it certainly is the finest species of its own particular family; for no other Goose excels it in the richness of its colouring or the fantastic character of its markings. That a member of this usually sombre-coloured family of aquatic birds should be so finely adorned, is somewhat astonishing, and cannot but have attracted the notice of every ornithologist. In its structure, contour, gait, and carriage while walking over the green sward, its actions are as pleasing as it is trim in appearance and beautiful in colouring. Of the extreme rarity of the species every ornithologist is fully aware, since few collections in Britain and still fewer on the Continent and in America, can boast of possessing examples. Why is this (when, unlike the *Alca impennis*, it is still an inhabitant of our globe, and probably as abundant in the country where it is destined to dwell as any other species of wild Goose is in its own particular locality)? Because that country is a distant one and, moreover, a part of our globe which, if not inaccessible to man, is so sterile and inhospitable as to offer but little inducement for any one to visit it: the most northern regions of Siberia most writers agree in stating to be the true home of the Red-breasted Goose—a country unequalled for the rigours of its winter-season and for being as pestiferously hot at the opposite period of the year. From this, its summer home, the bird probably migrates in winter towards the great rivers and morasses of the more southern parts of Siberia, the Amoorland, China, and Persia, a few wanderers sometimes extending their peregrinations still further in the same or a more westerly direction, and finding their way to Turkey, the mouths of the Nile, Holland, France, Italy, and even Britain, where it appears to have occurred more frequently than in any of the countries around it. Temminck states that in Russia it is found about the estuaries of the Rivers Ob and Lena. Latham says it breeds there and retires south in autumn, and also affirms that it frequents the Caspian Sea, returning north in small flocks as the summer approaches. At the time Mr. Yarrell wrote, two instances had been recorded of its occurrence in Scandinavia, one in Holland, one in France, and one in Germany; more recently one has occurred in Italy, a specimen having been obtained on the 12th of February 1869, between Scarperia and Borgo San Lorenzo, twenty-two miles (or thereabouts) from Florence: *vide* 'The Ibis' for 1869, p. 242, where Dr. H. H. Giglioli states that "it was an adult male, in full plumage; and this is, I believe, the only well-authenticated instance of the occurrence of this rare eastern Goose in Italy."

The first British-killed specimen was taken near London, at the beginning of the severe frost of 1766; it passed into the possession of the celebrated collection formed by Marmaduke Tunstall, and is now one of the most important specimens in the Museum of Newcastle-upon-Tyne. Another, taken alive near Wycliffe, in Yorkshire, about the same time, soon became familiar, was kept among other Ducks in a pond, but, though it associated freely with them and seemed partial to one in particular, never produced young. It continued alive for some years, and then lost its life by an accident. Besides the above, others have been killed near Berwick-upon-Tweed, and in Norfolk, Cambridgeshire, and Devonshire. Respecting the Norfolk specimen, Mr. Stevenson informs me that "the only example of this rare species in Norfolk appears to be that noticed by Messrs. Sheppard and Whitear, and also by the Messrs. Paget, as having been purchased by the late Mr. Lilly Wigg, at Yarmouth, which, by some unfortunate mistake, was plucked and eaten. It was said to have been shot at Halvergate, in 1805. Mr. Hunt, of Norwich, in his 'British Ornithology,' states that he was assured by Mr. Wigg that he purchased the bird in the Yarmouth market; other contemporary local naturalists give the same account of it, but I can furnish no further authority. Mr. Gurney, however, tells me that he had *feathers* of this bird given to him by Mr. Sparshall, who received them from Mr. Wigg."

In the Museum at Leyden there are two beautiful examples (an old and a young bird), which, I believe, were captured in Holland; and I have one now before me, which has been kindly placed at my disposal, for the furtherance of the present work, by A. W. Crichton, Esq., who obtained it from Mr. Stafford S. Allen, a gentleman whose travels and collections, formed in the neighbourhood of the Nile, are so well known. Mr. Frank, of Amsterdam, assured me that he had every reason to believe, from information which he considered to be authentic, that some few years since at least half-a-dozen

Red-breasted Geese were sold in the market of that town, plucked and eaten ; so little was the rarity of the species known at that particular place and period.

Those Fellows of the Zoological Society of London who take an especial interest in the inhabitants of its aviaries, cannot have failed to notice a living example, in the finest state of plumage, in one of the enclosures set apart for Ducks and Geese. This fine individual, although it has now passed more than twenty years in semiconfinement, has never been "sick or sorry," but, as regularly as the seasons have run round, has cast off its feathers and effected its moult as perfectly as it would have done in its native home. It has now become as tame and familiar as any Goose can be. Many longing eyes have doubtless looked upon it, accompanied with the desire that, in the event of its death, their owner might become its possessor ; but the National collection is its proper resting-place ; and we only hope that when it does die it may be in a respectable dress, that those who view this interesting bird there may regard it with as much pleasure as the thousands have done who have seen it in life*.

In form, size, and general contour, the Red-breasted Goose is more nearly akin to the little Brent than any other Goose ; and as we have every reason to believe that the living bird in the Zoological Gardens is a female, and its plumage is in strict accordance with the specimens of the opposite sex I have had opportunities of examining, we may naturally infer that, as is the case with the Brent Goose, no difference occurs in the colouring of the sexes, and that the habits and economy of the two species have a general resemblance.

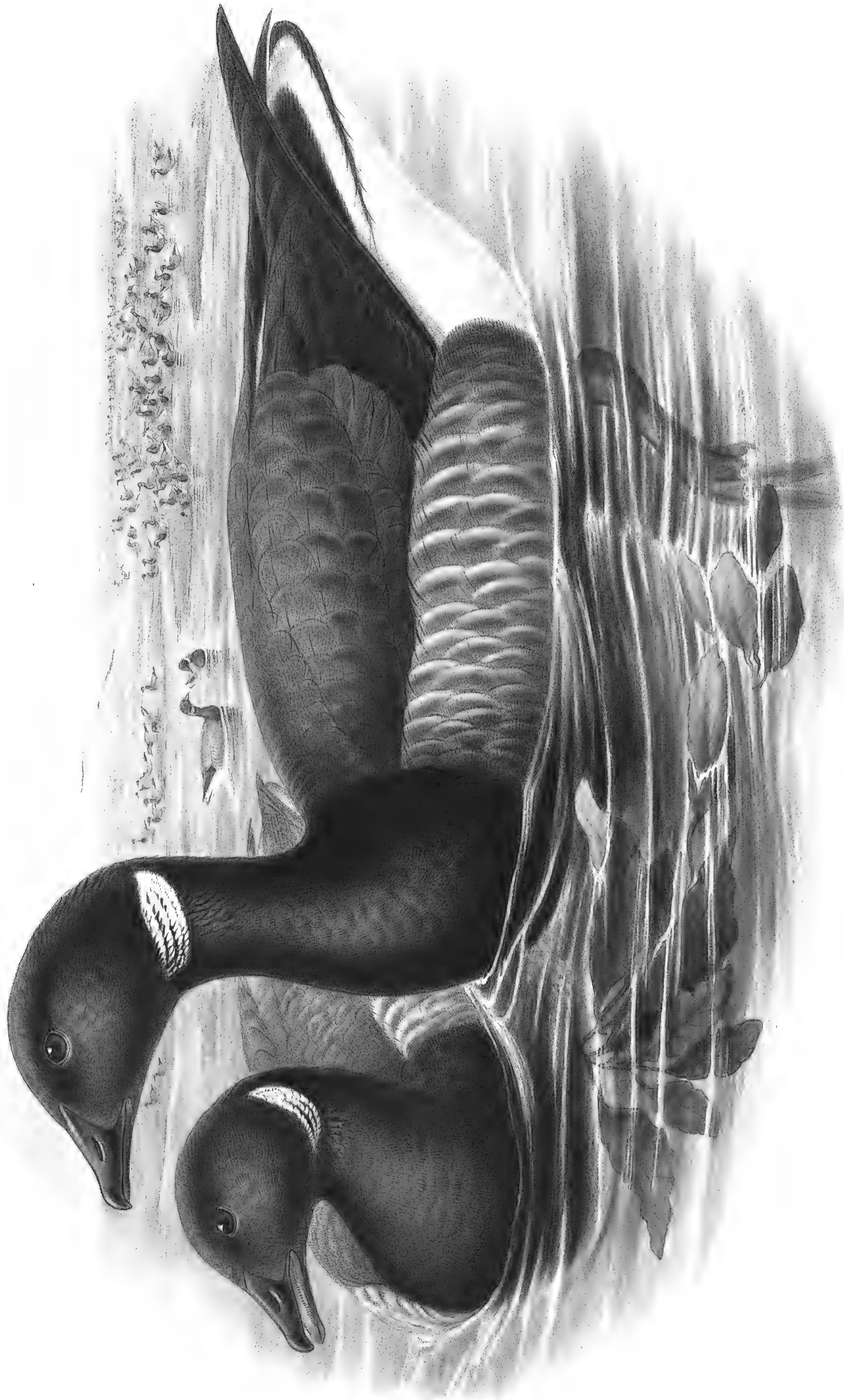
As Mr. Yarrell truly remarked, but little is known respecting this beautiful species. "The most interesting recent notice," he says, "I have been able to find is by M. Ménétriés, in his *Catalogue Raisonné* of objects of zoology observed by the naturalists attached to the Russian expedition to the vicinity of the Caucasus and the frontiers of Persia. This gentleman mentions that, in 1828, a considerable flock of this species appeared at Leukoran, probably driven there by strong winds ; they were so exhausted by fatigue that they were caught by hand ; and many were preserved in captivity, to which they were easily reconciled. They always kept together, and uttered a gentle call-note when any of their party separated from the others, or when a bird of prey hovered over them ; this was the only sound that was heard. Of the food placed before them they preferred green vegetables to grain, and drank often."

The flesh of the Red-breasted Goose, being quite free from any fishy taste, is said to be highly esteemed for the table.

Latham states that it "is called by the Ostiaks Tschakwoi, from its voice ; and by the Samoids Tschagu."

The front figure is somewhat under that of life ; the hinder one represents an immature bird procured on the Nile.

* While these pages were being printed, this beautiful and valuable bird was, unfortunately, killed by a Swan, who, in one of those moments of ire to which that bird is subject, fell upon the poor little Goose, and, the keeper being absent, beat it to death in a few minutes. As above suggested, the stuffed skin will be added to the National Collection.—June 1870.



BERNICLE BRENTA.

Johnson & H.C. Richter, del et lith.

Walter, Imp.

BERNICLA BRENTA.

Brent Goose.

Anas bernicla, Linn. Faun. Suec., p. 40.

Anser bernicla, Ill. Prod. Syst. Mamm. et Av., p. 277

—— *torquatus*, Frisch, Vög. Deutschl., tom. ii. p. 156.

—— *brenta*, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 37.

Bernicla torquata, Boie, Isis, 1822, p. 363.

—— *melanopsis*, Macgill. Man. of Nat. Hist., Orn., vol. ii. p. 151

—— *brenta*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 46.

To see this species in a state of nature, the ornithologist must go down, during November and the three following months, to the embouchure of the Thames, visit the inland waters of Southampton, the low salt marshes of the coasts of Sussex, Suffolk, and Norfolk, or any locality of a similar character in other parts of England, in Scotland, and in Ireland. Companies of forty, fifty, or sixty individuals will there attract his attention as they wing their way from one part of the flat shallow estuary to another; or he may have an opportunity of seeing flights of hundreds or, speaking within bounds, of thousands; yet the London excursionist to Herne Bay, Margate, or Ramsgate will never see one, for the simple reason that, at the period of the year when those places are resorted to, the bird is far away, performing the duties of incubation in countries so distant that, with few exceptions, the hardest of our mariners and the most enthusiastic of egg-collectors have failed to reach its breeding-home—a long distance within the Arctic circle being, doubtless, the principal cradle of this common winter-bird with us. In the eastern parts of America it is as numerous in winter as in our islands, and equally scarce at other times, but, according to Dr. Baird, of Washington, has not yet been found on the Pacific side of that continent.

During the summer months, the Brent Goose is to be met with at the Faroe Islands, and in Iceland, where, according to Faber, it arrives about the middle of April, but seems to be rare, as it is only met with occasionally here and there throughout the island. Dr. Richardson states that it breeds in numbers on the coasts and islands of Hudson's Bay and the Arctic Sea, but is rarely seen in the interior. Captain James C. Ross says that it did not remain near Felix Harbour, Boothia, to breed, but went still further north, and that it is to be met with in summer in the highest northern latitudes that have been visited. It was found breeding on Parry's Islands, in lat. 74° 75'. In Parry's Expedition, on the 16th of June, a nest with two eggs was brought on board from Ross Islet, lat. 80° 48' N., perhaps the most northern land ever visited by man. It was at the same time seen in large flocks about Walden and Little Table Islands. Mr. Newton informs us that it is numerous all round Spitsbergen, except perhaps on the east side, and that "Dr. Malmgren found it breeding on the Dépôt Holm and also on the shores of the mainland, in Treurenberg Bay; Messrs. Evans and Sturge found it breeding on the South-Cape Islands; and one of our party killed a young bird, hardly able to fly, on Round Island." That the bird is confined to the northern regions there can be no doubt; and it would seem that the Mediterranean is the limit of its occurrence in a southern direction, since Loche states that it only occasionally appears in Algeria.

Let us return to our own islands. "Upon the Northumbrian coast," says Mr. Selby, "a very large number of these birds annually resort to the extensive muddy and sandy flats that lie between the mainland and Holy Island, and which are covered by every flow of the tide. In this locality, tolerable-sized flocks usually make their appearance in the early part of October, which are increased by the repeated arrival of others till the beginning of November, at which time the equatorial movement of the species in this latitude seems to be completed. This part of the coast appears to have been a favourite resort of these birds from time immemorial, where they have always received the name of *Ware Geese*, given to them, without doubt, in consequence of their food consisting entirely of marine vegetables. This I have frequently verified by dissection, finding the gizzard filled with the leaves and stems of a species of grass that grows abundantly in the shallow pools left by the tide, and with the remains of the fronds of the different algæ, particularly of one, which seems to be the Laver (*Ulva latissima*). These were mixed with a considerable quantity of sharp sand, but without any portion of animal or shelly matter, although Wilson states they feed occasionally upon small univalve and bivalve mollusca. In this haunt they remain until the end of February, when they migrate in successive flocks as the individuals happen to be influenced by the season; and before April the whole have disappeared. When they depart, the flock about to migrate rises high into the air by an extensive spiral course, and then moves

off seaward in a northerly direction. When feeding, which they do at the ebb of the tide, or moving from one place to another, they keep up a continual hoarse cackling or, as it is termed, *honking* noise, which can be heard at a great distance, and has not unaptly been compared, when so heard, to the cry of a pack of hounds. They are at all times extremely watchful, and can only be approached within gunshot by the person of the shooter being concealed. This is effected, in the northern parts of the kingdom, by means of a flat-bottomed boat, so built as to draw very little water, and whose gunwale barely rises above the surface, armed with a large fowling-piece that traverses the half-deck upon a swivel. In this boat the fowler lies flat, and directs its motion by a paddle or small oar till he comes within range of the flock, when he fires either as they float upon the water or just as they rise. Great havoc is sometimes made in this way, not only amongst the Brent Geese but amongst Widgeon and other kinds of wild-fowl, as we learn from Colonel Hawker's amusing treatise, to which I refer my readers, and where they will find every direction necessary for this particular kind of sporting. Upon Holy Island sandy flats, where the above method was introduced about 1829, by a man from the Norfolk coast, I am credibly informed that about twenty-two Brent Geese were killed and secured at one discharge during the season of 1831. Previously to this mode of shooting being adopted, all the Brent Geese and different species of Ducks upon our northern coast were killed by moonlight, by fowlers placing themselves in various parts of the lake and patiently waiting for the approach of the wild fowl as they flew about in quest of feeding-places. Their polar or summer migration is directed to very high latitudes, where they breed and rear their young in quiet security. The nest is formed of vegetable materials, in the swamps of those desolate regions; and they lay ten or twelve white eggs. . . . When captured alive, this Goose may soon be rendered very tame (as I have found from experience), and, being a bird of handsome figure and light carriage, is a considerable acquisition on large pieces of water. No steady attempts, however, appear to have been yet made to increase the breed in a domestic state, though, as an article of food, it is superior to most of the *Anatidæ*, and equally valuable in the quality of its feathers and down. When tame, it eats readily all kinds of grain, as well as grass and other vegetable diet."

Mr. Thompson, who states that it is abundant in Ireland, occurring on both sides of the island, wherever there is plenty of its favourite *Zostera marina*, gives a very long account of its habits, as observed in Belfast Bay (*vide* 'Natural History of Ireland,' vol. iii. p. 54). He says, "they generally arrive there by the first week of September, and sometimes remain until May. Strictly marine, they fly to the deep water in the afternoon, and remain there during the night, and at sunrise return to their feeding-grounds, generally proceeding in small flocks, and alighting altogether about the same place. They are very wary, and avoid in their flight any objects with which they are not familiar. They swim quickly, do not often dive, and usually remain but a short time under water.

It would seem that the food of this bird varies according to circumstances: thus on the coast of Northumberland it appears to feed on *Ulva latissima*, in Ireland and Scotland on *Zostera marina*, in Hudson's Bay on *Ulva lactuca*; and in America, according to Wilson, it also partakes of "small shell-fish."

Two eggs, from Parry's second Expedition, presented to Professor Jameson by Mr. Fisher, are thus described by Macgillivray:—"One is two inches and a half in length by an inch and five and a half eighths; the other, two inches and five-eighths by an inch and six and a half eighths. They are of a nearly elliptical form, the broadest part being almost central, and one end a little larger than the other; the colour of one asparagus-green or pale greyish green, of the other paler and approaching to apple-green." Mr. Hewitson, on the other hand, says, "the eggs of this species differ from those of the other Geese in being slightly tinted with a faint brownish colouring, whilst they are all, when quite fresh, either pure white or slightly tinted with cream-colour."

Some slight variation occurs in the colouring of different individuals; but this, I think, is due to age, and I believe that both sexes are alike in outward appearance at the same period of their existence.

I cannot close this memoir of the Brent Goose without recording my obligations to the Earl of Enniskillen for his kindness in sending me a fine pair of these birds from Ireland, for the furtherance of this work, and that I might have an opportunity of testing the quality of their flesh as a viand, which I found juicy and excellent. The average weight of the two birds was three pounds and a quarter.

The Figures are about three-fourths of the natural size.



CYGNUS OLOR.

CYGNUS OLOR.

Mute Swan.

- Anas cygnus*, var. β , Linn. Faun. Suec., p. 38.
— *olor*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 501.
Cygnus gibbus, Bechst. Naturg. Deutschl., tom. iv. p. 815.
— *olor*, Boie, Isis, 1822, p. 563.
— *mansuetus*, Flem. Hist. of Brit. Anim., p. 126.
— *sibilus*, Pall. Zoog. Ross.-Asiat., tom. ii. p. 215.
— *immutabilis*, Yarr. Proc. Zool. Soc., 1838, p. 19.
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OF the members of the beautiful genus *Cygnus*, comprising among others the Whooper of Europe, the Trumpeter of America, the black-necked Swan of Chili, and the "rara avis in terris" of Australia, the Mute Swan is at once the most majestic, stately, and graceful of the whole. Whether it be or be not indigenous in Britain, or whether the numerous individuals which now grace her waters are the descendants of birds introduced in times gone by, is not easily ascertained; it will therefore be desirable to dispense with the doubt and deal with the subject as now presented to us. This pride of our waters has a noble bearing during the season of love, which is only equalled by the beauty of its spotless plumage and the display it makes while in company with the female. Its natural home is the water, for traversing the surface of which its body, and indeed its whole structure, is so admirably adapted that the hand of man has never been able to improve upon such a model of buoyancy, a model unequalled in this respect by any other feathered creature. On the water its movements are elegant and graceful in the extreme; on the land they are just as awkward. Its flight is laboured, and its great wings appear to battle with the wind in its progress through the air. Its voice is harsh and inharmonious, and is wanting in the softness of the notes of some of the other species.

"The Swan," says Mr. Yarrell, "is, perhaps, of all others, the most beautiful ornament of our rivers and lakes. Poets of all ages and countries have made it the theme of their praise, but none with more characteristic expression than our own Milton, who, in his 'Paradise Lost,' says:—

'The Swan with arched neck
Between her white wings mantling, proudly rows
Her state with oary feet.'

The works of the painter would often be tame and spiritless without the addition of its portraiture; kings and potentates have framed laws for its protection, an infringement of which was regarded as a felony and punished accordingly; and its flesh was considered worthy of forming a chief viand at great feasts."

"To expatiate," says Swainson, "upon the graceful and majestic movements of this noble bird when slowly sailing upon the water, is quite unnecessary; it may literally be said to sail upon the glassy element; for at such times its wings are gently raised and the feathers sufficiently ruffled to catch the wind and to perform the office of sails," an attitude which appears to be peculiar to it.

"The countries inhabited by this majestic and well-known species in a wild state are the genial provinces of the continent of Europe, but more particularly the inland seas and lakes bordering upon Asia, where, according to modern travellers, it is still found in its native freedom. At what period it became domesticated is wholly uncertain; but it has for many centuries been spread over all the parts of civilized Europe; and of all the natatorial birds yet domesticated it is justly esteemed the most graceful.

"The docility and gentleness of the Swan is well known to all those who have witnessed the confiding manner in which it will receive food from the hand; but if treated with cruelty or harshness it is by no means a despicable enemy; the strength and muscular power of its wings is very great, and might endanger the fracture of a limb to those who wantonly assail it. The males at the breeding-season, like all other animals, whether docile or savage, will fight desperately, and frequently to the destruction of one of the combatants. Dr. Latham affirms that he has known full-grown boys injured by the attack of one; and he must be a powerful man who is able to withstand an encounter with an enraged male."

The tame or Mute Swan is very numerous on the river Thames; "and," says Latham, "they prove a delightful ornament to the whole length of that river from the point where the traffic of the metropolis ceases quite to its source. We see on the river Trent and many other waters, often great numbers; but the most noble swannery is, we believe, near Abbotsbury, in Dorsetshire, where, in the open part of the Fleet, are to be seen six or seven hundred." And the numbers do not appear to have decreased; for

Professor Newton, writing to me in July 1859, says, "I have been at the swannery at Abbotsbury—a very fine sight. There were upwards of eight hundred at the last counting." The royalty belonged anciently to the abbot, since to the family of Strangeways, and now to the Earl of Ilchester.

On the Thames and other rivers, great lakes, and ponds the Mute Swan commences its nest in March; and by the middle of April the six or seven olive-white eggs are incubated. During this period the male is in constant attendance upon the female, occasionally taking her place upon the eggs, or guarding her with jealous care, giving chase and battle, if necessary, to every intruder. The nest is often placed in an exposed situation, on an island in preference to the river's bank, is of large size, and constructed of herbage of various kinds, such as weeds, flags, &c. sparingly lined with the soft feathers of the parent birds. If there be any unusual rise in the water, the female raises her eggs out of harm's way by adding fresh materials to the nest. In a month or thereabouts the cygnets are hatched and taken to the water, where they usually swim on the lee side of the mother, and at this early period possess all the energies necessary for the continuance of their existence, swimming quickly, and feeding upon the tender succulent plants which are pulled from the bottom by their parents. These downy cygnets, being extremely pretty and even graceful, are the admiration of all who see them. If they become fatigued, they scramble on the back of the mother and nestle among the secondary feathers, by which means they obtain both warmth and shelter—a practice which is continued for two or three weeks. Their colour at this time is a light bluish grey, with black beak and legs, a dress which is carried for about a month, when a change begins to appear, and by the end of October they are clothed in whitey-brown feathers—a costume which is borne until the second year, when these feathers are gradually shed and white ones take their place; but the perfect plumage and the rich orange-colouring of the bill are not attained until the commencement of the third year.

"The Swan's nest, from its ample dimensions," says Mr. Stevenson, "is always a conspicuous object, whether placed amongst the rank herbage on the river's bank, at the mouth of a marsh-drain, or on the little islands and reedy margins of the broads themselves; and from the summit of that littered mass the sitting bird commands all approaches, whilst her mate keeps guard below. To my mind an old male Swan never looks more beautiful than when, thus 'on duty,' he sails forth from the margin of the stream to meet intruders; with his head and neck thrown back between his snowy pinions, and every feather quivering with excitement, he drives through the rippling water, contenting himself, if unmolested, with a quiet assertion of his rights, but with loud hisses and threatening actions resenting an attack. When the young, too, under the joint convoy of their parents, have taken to the water, the actions of both birds are full of grace and vigour, and the deep call-notes of the old pair mingle with the soft whistlings of their downy nestlings. What prettier sight presents itself upon our inland waters than such a group disporting themselves in the bright sunshine of a summer's day, when the pure whiteness of the old bird's feathers contrasts with the green background of reeds and rushes, and the little grey cygnets on their mother's back are peeping with bright bead-like eyes from the shelter of her spotless plumes? This habit of taking the young on her back is not, as some have supposed, adopted only as a means of safety when crossing a strong current, but is a method of brooding her young on the water, very commonly practised by the female Swan when her cygnets are small; and she will sink herself low in the water that they may mount the more easily. Whether at the same time she gives them a 'leg up' by raising them on the broad webs of her own feet I cannot say positively; but this is not improbable, since a favourite action in Swans is that of swimming with one foot resting upon the lower part of the back, the sole of the foot being uppermost. The down of the nestlings is replaced by feathers of a uniform slate-grey, and though in some a sprinkling of white feathers may be seen in their first autumn, they do not acquire their full plumage till the following summer, when from twelve to fourteen months old. It is, however, in that intermediate stage (the least attractive as regards form or plumage) that they are most in request for edible purposes. Such cygnets as either elude the pursuit of the swanherds in August, or are intentionally left with their parents, are invariably driven away by the old ones, later in the season, to shift for themselves, and congregate in small parties until paired off for nesting. The orange-red colour of the beak is not acquired till the third year, up to which time, though perfectly white in plumage, they are known as 'blue beaks;' and the development of the knob or 'berry' is a matter of age."

Much has been written respecting the harm done by Swans in the destruction of fish in our rivers; but I firmly believe that this occurs to a very limited extent, their natural food being aquatic plants and the grasses of the meadows, and that on the contrary they effect much good by clearing the thick beds of weeds: they may take a little of the spawn of fish during the limited period in which it is deposited; but I believe the perfect fish are seldom molested; and probably their only animal food consists of mollusks and crustaceans when an opportunity occurs for their capture.

Latham states that the *Cygnus olor* is found wild in Russia and Siberia, most plentiful in the latter; and Mr. Dresser informs me he has himself seen it in a wild state on the banks of the Southern Danube, and also on the island of Bornholm, in Denmark, whence he has eggs.

The principal figure is about half the natural size.



CYGNUS FERUS.

CYGNUS FERUS.

Wild Swan or Whooper.

Anas cygnus, Linn. Faun. Suec., p. 38.

Cygnus ferus, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 37.

——— *musicus*, Bechst. Naturg. Deutschl., tom. iv. p. 830.

——— *melanorhynchus*, Wolf u. Meyer, Taschenb. Deutsch. Vög., tom. xi. 498.

——— *olor*, Pall. Zoog. Ross.-Asiat., tom. xi. p. 211.

——— *xanthorhinus*, Naum. Vög. Deutschl., 1842, tom. xi. p. 478, tab. 296.

Olor musicus, Wagl. Isis, 1832, p. 1234.

AMONG the MS. notes respecting this species which are now before me, I find one which states that, during the winter months the Market of Leadenhall, in London, and that of Shanghai, in China, are annually supplied with it—a fact which will at once inform the reader how extensively the Whooper is distributed over the northern portions of the Old World. In whatever country a bird breeds, that country must be regarded as its proper home; and hence the Whooper may claim for its native habitat all the regions bordering the arctic circle of the Old World; or I may state, in other words, that Iceland (where Professor Newton says it breeds in many places), Lapland, Finland (where Mr. Dresser informs me he obtained eggs at Ijå), Northern Russia, Siberia, China, and Japan are all tenanted by this noble species, until the severities of winter impel it gradually to move southward to countries where the climate is milder, and food obtainable. It is for the like reason that the British Islands and the countries of continental Europe lying in similar degrees of latitude are frequently favoured with its presence during the winter months; its presence or absence, however, is very irregular, and apparently dependent on the degree of cold prevailing in the far north. Mr. Tristram mentions that one was brought to him in the flesh at Jerusalem, having been shot on the Pool of Solomon two or three days before, which he believes to be the most southern locality yet quoted for the species.

The principal counties in England in which the Wild Swan rests are Lincolnshire, Norfolk, and Suffolk; but if these be untenable from the severity of the season, it resorts to others further south and west. From all these counties, and also from Ireland, which it usually frequents at the same period, it beats a retreat as early as the return of the sun has rendered its far northern homes suitable for its reception; and it has always been evident to me that the northern migrants to this country are as much influenced by the movements of the great luminary as those which come from the south and summer with us.

No one, perhaps, has paid more attention to the arrival and departure of the Swan than Mr. Stevenson; I therefore do not hesitate about quoting some passages from the as yet unpublished volume of his valuable 'Birds of Norfolk,' with which he has kindly favoured me.

The late Dr. Macgillivray, Professor Newton, and Mr. Stevenson term this bird Whooper instead of Hooper, the latter gentleman remarking that the trivial

“name being derived from the peculiar trumpeting note of the species, I have preferred to spell it as in whooping-cough, the word 'Hooper' having no special signification.

“Sir Thomas Brown, with his usual accuracy of observation, remarks of this species:—'In hard winters, Elks, a kind of Wild Swan, are seen in no small numbers; if the winter be mild, they come no further southward than Scotland; if very hard, they go lower, and seek more southern places, which is the cause that, sometimes, we see them not before Christmas or the hardest time in winter.' This account agrees most accurately with our experience of its habits at the present day, since (with the exception of one or two instances, in which the birds did not come under my own observation) I have no record of Wild Swans killed before December, and then only through an early commencement of frost and snow, the more usual time of their appearance extending from January to March. So much, however, do their numbers depend upon the severity and duration of frosty weather, that a record of severe winters will as surely furnish a list of great Swan-years.

“In 1854-55, a long and hard winter, when wild fowl of all kinds were extremely abundant, I saw upwards of twenty Whoopers, that had been killed on our coast or inland waters, but all of them between January and March; and this was also the case in 1860-61, when a severe frost, lasting with little intermission from December to the end of the following February, brought great numbers of Wild Swans and other fowl to our shores; though, from the broads and other inland waters being early frozen over, they were chiefly confined to the coast and salt marshes, or passed on further to the south. The return of these fine birds in spring, on their passage northward, is occasionally remarked, of which an instance occurred in the first week of March 1861, when, the weather at the time being mild and open, a 'herd' of twelve were seen to alight early in the morning on the open water of 'Bargate,' at the entrance to Surlingham Broad; but, being disturbed, later in the day they again took wing and

quitted the neighbourhood altogether. In January 1864, and again in the winter of 1869-70, several were shot in this county; but for the last twenty years at least there has been no such season for Whoopers as that of 1870-1, when the hard weather of that memorable winter commenced with a heavy fall of snow on the 20th of December, increasing day by day until it was over a foot deep on the level. The frost was so intense that the thermometer, even by day, registered only a few degrees above zero; and this lasted with but little abatement up to the 12th or 13th of January. A rapid thaw on the 14th cleared the ground of most of the first fall of snow; and, though frosts continued at night, the weather moderated considerably up to the 28th, when the snow again fell heavily, and the broads and smaller streams were thickly ice-bound up to the first week in February. My first notice of Wild Swans in that season was an intimation from Mr. Anthony Hammond, that in the last week of December he had seen a 'herd' of forty passing along the coast at Horsey, near Yarmouth; and during the first week in January a flock of twenty-six were observed on one occasion feeding close in shore off Holme Point, near Hunstanton; and another lot of seven frequented the entrance to Heacham creek. On the 12th several appeared off the Sherringham beach, passing along the coast; and on the same day, far inland, a considerable number were both heard and seen passing over the town of Wymondham. As to the numbers actually procured in Norfolk during February and the preceding month I have no means of judging accurately, since by far the larger portion were sent up to London for sale, only some half-dozen appearing at intervals in the Norwich Market. Mr. J. H. Gurney, jun., was informed by a dealer in Leadenhall Market that he had received as many as a hundred Whoopers during the frost, chiefly from King's Lynn; and one poulterer at Lynn stated he had had thirty.

"As a rule, however, these Wild Swans by no means confine themselves to the sea-coast, or even to the broads and streams in close vicinity, but, following the winding course of our rivers, are almost sure to make their appearance, during a prolonged frost, in certain favourite localities, even though far inland. Some forty years ago, as the late Mr. Howlett, of Bowthorpe, informed me, that portion of the Yare which lies between Cringleford and Colney was so much frequented by Wild Swans in hard winters as to be locally termed the 'Swan River,' and he once counted sixteen; but though in those days the adjoining marshes were more frequently flooded, and thus afforded the most tempting feeding-grounds, yet to this day, the low meadows about Earham, Bowthorpe, and Colney, on the above river, and Costessey on the Wensum, all within three or four miles of Norwich, are a constant resort of the Whooper. In the winter of 1870-71, a flock of seven took up their quarters in that particular part of the Yare; and though constantly disturbed, and two of their number shot, the survivors were remarked from time to time, at different points of the stream, up to the end of February. A remarkably fine Whooper in the Norwich Museum, which was killed at Bowthorpe in February 1830, and is said to have weighed twenty-six pounds, also measured four inches and a half along the ridge of the upper mandible, but had no black at the base.

"The distribution of colour on the bill in this species forms the most marked external distinction between it and the Mute or Tame Swan (*Cygnus olor*)—in the former the base of the bill being yellow and the extremity black, in the latter the base black and the extremity flesh-coloured or reddish orange, according to age. The internal differences exhibited by the Whooper in the convolutions of the trachea are also very marked, as shown by Yarrell in his anatomical illustrations; but that these had not escaped the observation of Sir Thomas Browne is shown by his remark (when writing of the 'Elks' or Wild Swans) that in them, 'and not in common swans, is remarkable that strange recurvation of the wind-pipe through the sternum; and the same is also noticeable in the Crane.' The rufous tinge on the head and cheeks, in the Wild Swan as in our semidomesticated species, is noticeable more or less in most specimens; and in a very fine bird, in the possession of Mr. F. Frere, of Yarmouth, shot on Breydon in February 1865, this ferruginous or orange-red upon the tips of the feathers extends likewise to the neck, and is more vivid than in any example I have seen."

"The siren song of the Swan," says Swainson, "before its death, which has been the theme of so much beautiful poetry, is now well known to be fabulous; for the voice is only remarkable for its harshness. Mr. Selby observes that it consists of two notes, and has not unaptly been compared to the discordant union of the modulation of the Cuckoo with the scream of the Gull, or the sound of the clarinet in the hands of a beginner. Some, however, still assert that, when on the wing in large flocks or resting on the water, their united cries, becoming softened by distance, are not unpleasant to the ear. 'This,' remarks Mr. Selby, 'I can readily believe; for under such circumstances I have ever found that the incongruous mixture of sound from Gulls, Guillemots, and other tribes of sea-fowl (when collected about the breeding-places), mixed with the whistling of the breeze and the murmurs of the intervening water, reaches the ear not very dissimilar to that of a band of martial music.'

"The Wild Swan evinces as great an aptitude for domestication as the tame species. When caught alive it soon becomes very tame; and when provided with a spacious piece of water, naturally furnished with its proper food, it will thrive equally well. It feeds upon the roots, stems, and leaves of aquatic plants, for procuring which its long neck, as in other birds of its own family, is absolutely necessary. When swimming, it carries its neck much more upright than does the common Swan, with little of that graceful arch for which the latter is distinguished. It walks also heavily and awkwardly, with the head lowered and the neck reclining over the back."

The Wild Swan and its young undergo the same changes as the tame Swan; the structure of the nest, its situation, and the number and colour of the eggs are also similar.

The principal figure in the Plate is about half the natural size.



CYGNUS MINOR.

J. Wolf & H. B. Richter, del. et lith.

Walter, Imp.

CYGNUS MINOR.

Bewick's Swan.

- Cygnus olor* β . *minor*, Pall. Zoog. Rosso-Asiat., tom. ii. p. 214. no. 316.
——— *islandicus*, Brehm, Vög. Deutschl., p. 832, tab. 41. fig. 1.
——— *minor*, Keys & Blas. Wirbelth. Eur., p. 82.
——— *musicus minor*, Schleg. Rev. Crit. des Ois. d'Eur., p. 112.
——— *melanorhinus*, Naum. Vög. Deutsch., 1842, tom. xi. p. 497, tab. 297.
——— *musicus*, Faber, Prodr., p. 81.
——— *musicus* β , *minor*, Blas. List of Birds of Eur., Eng. edit. p. 204.
——— *Bewickii*, Yarr. Linn. Trans., vol. xvi. p. 445.
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ORNITHOLOGISTS are now very generally agreed that the little Swan to which the late Mr. Yarrell assigned the name of *Cygnus Bewickii*, but which had been previously discriminated as new to the British Fauna by Mr. R. R. Wingate, of Newcastle-on-Tyne, had for many years before been known to continental naturalists, and had received from them various specific appellations, the earliest appearing to be that of *Cygnus minor*, from Pallas, a term to which modern writers give the preference. I have therefore no hesitation in figuring the bird under the name of *C. minor*, but gladly retain for it the English appellation of Bewick's Swan; for surely there is no one of our departed naturalists who more highly deserves the perpetuation of his name,—not that my testimony to his merits is of any importance, since his own unsurpassed natural-history delineations will hand down his fame to all future times. Mr. Swinhoe states that he has seen the bird exposed for sale in the Shanghai markets, in China, just as it is in those of London and Norwich; and it was also observed by Von Middendorff and Von Schrenck in the countries visited by those celebrated naturalists—the Amoor, Siberia, &c.

The occurrences of Bewick's Swan in Great Britain are far too numerous to be enumerated in the present work, the character of which is to generalize rather than to go into minute detail; but I may mention that examples have been killed in Yorkshire, Cambridgeshire, Durham, Somersetshire, Huntingdonshire, Norfolk, Oxfordshire, Derbyshire, and Lancashire, full particulars of which will be found in the 'Zoologist' and other similar publications. With respect to Cornwall Mr. Rodd remarks:—"This species was so long confounded with *C. ferus* as a small variety, that I have ventured to record it as Cornish; the distinctive characters of the two birds are beautifully illustrated in a series of anatomical engravings in Yarrell's third volume of his 'British Birds.'"

"In external appearance," remark Messrs. Jardine and Selby, "Bewick's Swan bears a very close resemblance to the Common Hooper, and upon a cursory view may be easily mistaken for a small variety of that bird, which, indeed, appears to have been the case. The detection of several specimens which have remained for many years in the collections of individuals as common Wild Swans shows that it is not a new comer, but may, with the Hooper, have visited this country for an indefinite period, though not in such numbers as the latter is known to do. The character which distinguishes Bewick's Swan from the Hooper consists in the great inferiority of size, the former being about a third less than the usual run of the latter:—the average length of *C. Bewickii* being three feet ten inches, the width six feet; the length of the Hooper being five feet, the width eight feet and upwards."

What has been said respecting the Whooper (*Cygnus ferus*) is in a general sense equally descriptive of the habits and manners of its smaller congener. They both, with but few exceptions, inhabit the same countries, are influenced by the same migratory impulses, arising from precisely the same causes, and their actions and economy are very similar. They are both denizens of the arctic portion of the Old World; but, contrary to what has been asserted, the *C. minor* does not appear to occur in Iceland, south of which it is probably found in all the arctic portions of Europe, Eastern Russia, and Siberia, whence it migrates southward when the severity of cold renders those countries untenable. In England we receive its visits much after the manner of those of the Whooper, but apparently in smaller numbers. In Ireland, where Thompson says it "is probably a regular winter visitant, it occurs more frequently" than with us. According to Macgillivray it visits Scotland annually at the same season, and appears to be more numerous or more easily obtained during severe or long-continued snow-storms. Mr. Stevenson concurs in Mr. Gurney's opinion that the *C. minor* is more marine in its habits than the *C. ferus*, never proceeding so far inland as its closely allied congener.

The last-named gentleman having kindly granted me permission to make extracts from the third volume

of his 'History of the Birds of Norfolk,' a work of great interest from the obvious truthfulness of his observations and remarks, I here annex his account of the differences by which Bewick's Swan is especially distinguished:—

“This species, besides its smaller size (being one third less than the Whooper at the same age), exhibits the following external differences, as given by Yarrell. ‘The head is shorter and the elevation of the cranium greater in proportion to the size of the head, the beak narrow at the middle and dilated towards the point. The wings when closed do not extend quite so far beyond the roots of the tail-feathers; the tail itself is somewhat cuneiform; and the toes appear shorter in proportion to the length of the tarsi.’ To these I may add, from the examination of several specimens, both adult and immature, since the year 1855, that the proportion of yellow to black in the bill of the adult Bewick's Swan is much less than in the Whooper, never extending so far along the sides of the upper mandible, but rounding off behind the nostrils. The colour itself in some freshly killed birds is decidedly more of a lemon-yellow than orange. The membrane beneath the lower mandible also, which in the Whooper is yellow, is black in the adult Bewick's Swan, and light grey in the young, a distinction apparently overlooked by Yarrell. The distribution of black and yellow on the upper mandible varies, however, in different specimens; and I am somewhat inclined to believe that the broad band of black upon the ridge of the bill extends nearer, by age, to the forehead, as in one or two examples in pure white plumage, I have seen traces of the black extending quite up to the base of the bill, the usual yellow band across the upper part showing faint indications of black mixed with the yellow colour. This is not the case with birds showing the slightest remains of grey in their plumage; and in such immature examples the tints of the bill, both black and yellow, are less vivid. An adult bird, purchased in Norwich Market on the 1st of February, 1865, weighed thirteen pounds; and of two killed in the winter of 1870–71, a male weighed twelve pounds and a quarter, and a female nine pounds. In many adult birds of this species that I have seen, the feathers of the upper part of the head, especially, have been more or less tinged with rust-colour. Internally the convolutions of the trachea present as marked a difference between this species and the Whooper, as between the latter and the domestic Swan; but a reference to Yarrell's illustrations will render it unnecessary for me to give here any further description.”

I have long been aware that the extent of yellow and black markings of the bill are very variable; and Professor H. Schlegel, of Leyden, is of opinion that in England we only see young birds or females which have more yellow on their bills than fully adult birds; but we certainly do get old birds also, as is shown by the well-developed convolutions of the trachea. It is probable, I think, that specimens sometimes occur in which the bill is almost wholly black; otherwise why has the term *melanorhinus* been given to a bird of this form by Naumann?

Of the flesh of the Wild Swans as a viand, St. John says, that of those which feed inland is perfectly free from any strong and unpleasant flavour, their food consisting almost wholly of a kind of water-grass with a bulbous root, of which there is a plentiful supply in the lochs of Sutherlandshire, and doubtless other parts of Scotland; and the birds become very fat, so much so as to make it exceedingly difficult to preserve the skins, the only part of them which he put to any use. “When the feathers are picked out, there remains a great thickness of very beautiful snow-white down, which, when properly dressed by a London furrier, makes boas and other articles of ladies' dress of unrivalled beauty.”

Speaking of the bird on Loch Spynie, St. John says, “It usually comes in smaller companies than the Hooper; I never saw above eight together, usually only four or five. They are easily distinguished, being shorter and more compact-looking birds. They also swim rather higher in the water, and are much tamer. Until they have been shot at and frightened, it is easy to approach them. Their plumage is of a pure and snow-like whiteness. The Wild Swan, on the water, is by no means so picturesque a bird as the tame Swan, as it seldom arches its neck or spreads out its wings to act as sails as the latter bird does. On wing, however, the Wild Swan is unrivalled.”

The egg, as figured by Mr. Hewitson, is creamy white, three inches and three quarters in length, by two inches and seven eighths in breadth.

The sexes are similar in plumage; but the male is smaller than the female, its weight being from nine to fourteen pounds, or about half that of the Whooper.

The principal figure is about half the natural size.



TADORNA VULPANSER.

J. Gould & H. C. Richter, del. et lith.

W. Wood, Imp.

TADORNA VULPANSER.

Sheldrake.

Anas tadorna, Linn. Faun. Suec., p. 39.

— *cornuta*, S. G. Gmel. Reise, tom. ii. p. 185, tab. 19.

Tadorna familiaris, Boie, Isis, 1822, p. 563.

— *Bellonii*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 72, pl. 45.

— *vulpanser*, Flem. Hist. of Brit. Anim., p. 122.

— *gibbera*, *littoralis*, et *maritima*, Brehm, Vög. Deutschl., pp. 856, 857, 858, tab. 42. fig. 1.

Vulpanser tadorna, Keys. et Blas. Wirbelth. Eur., p. 84.

It must, I think, be admitted that the Sheldrake is one of the most attractive and ornamental of the *Anatidæ* indigenous to the British Islands—the breadth of its markings, the purity of the white portions of its plumage, and the rich red of its bill and legs, all combining to render it a creature of great beauty. Besides these features to recommend it to our notice, its actions and manners are at once pleasing and graceful: it walks over the grass with ease, swims buoyantly, and ever deports itself with sprightliness; its flight, too, is in accordance with its other qualifications; for when rising in the air, and displaying its colouring to the greatest advantage, it flies off to the sea or to wherever its attention may be directed, in a style which must be characterized as elegant and vigorous. What part in the economy of nature is this princely species of Duck destined to perform—the useful, or the ornamental? The former it cannot be; for its flesh is strong, musky, and unsavoury, and consequently scarcely fit for human food; we must therefore regard it in the latter sense; and in this respect no bird plays its part more to our satisfaction; for, although by nature it is a strictly maritime species, whose places of resort are the most sterile of our sandy dunes and arid sea-coasts, if pinioned it readily becomes domesticated, and soon makes itself at home on any lake, pond, or sheet of water on which it may be placed; and hence it has become a general favourite with all who take an interest in water-fowl. Another reason for this favouritism may be assigned—namely, that while the Pintail, the Teal, the Mallard, and other members of the Duck tribe which are subject to periodical changes of plumage throw off their gay attire at Midsummer, and become of the dull brown hue of their females, the Sheldrakes of both sexes, having once acquired their beautiful adult garb, always retain it.

Much has been written respecting the breeding of the Sheldrake in the interior of the country, some authors affirming that salt marshes, if not salt water, are essential to its existence; but I am prepared to state that this is not the case; for, among many other persons whom I might mention, no one has been more successful in rearing it than Mr. John Noble, of Berry Hill, near Taplow, in Buckinghamshire, on whose beautiful artificial lake several of these fine birds annually breed when the season of incubation arrives, and may be seen busily disporting themselves from year's end to year's end. It is also said that water is injurious to the young brood, and that they should be kept from it for some time after they are hatched; this in the main may probably be worth attending to, but broods are successfully reared at Berry Hill without any precaution of the kind. A clutch of young Sheldrakes were hatched under a hen of the common Fowl from eggs laid the second week in June; on the 21st of August they were nearly as large as the adults, and at this time had the bill of a purplish flesh-colour; the eyes dark brown; the feet clouded purplish yellow; face white; back of the head and neck black; all the under surface white; no band of chestnut on the breast; tertiary mark brown; and no appearance of the knob on the bill. By the 8th of October in the same year the chestnut band had become almost perfect, and the plumage in every respect assimilating to that of the adult, so that in a month later the one could scarcely be told from the other.

With regard to the parts of the British Islands in which the Sheldrake is to be seen in a state of nature, the difficulty is to say not where it may, but where it may not be met with; for it is to be found more or less in every county bordering the sea, from Cornwall to the Hebrides; wherever there are any low sandy districts in the neighbourhood of the sea and its great inlets, denes and dunes of any extent, and warrens in the vicinity of the ocean, there it may be seen. In Essex, Suffolk, Norfolk, and Lincolnshire, on the east, and the flat shores of Lancashire, on the west, this bird does now, or did a few years ago, bring forth its young. On the continent of Europe the Sheldrake inhabits all the maritime coasts, from the Mediterranean to the Baltic, and is equally numerous in North Africa, Asia Minor, in India, and all along the sea-shores and the borders of the great rivers of China and Japan. In America it is not found; neither did I meet with it in Australia; and I believe, but am not certain, that it does not occur in South Africa.

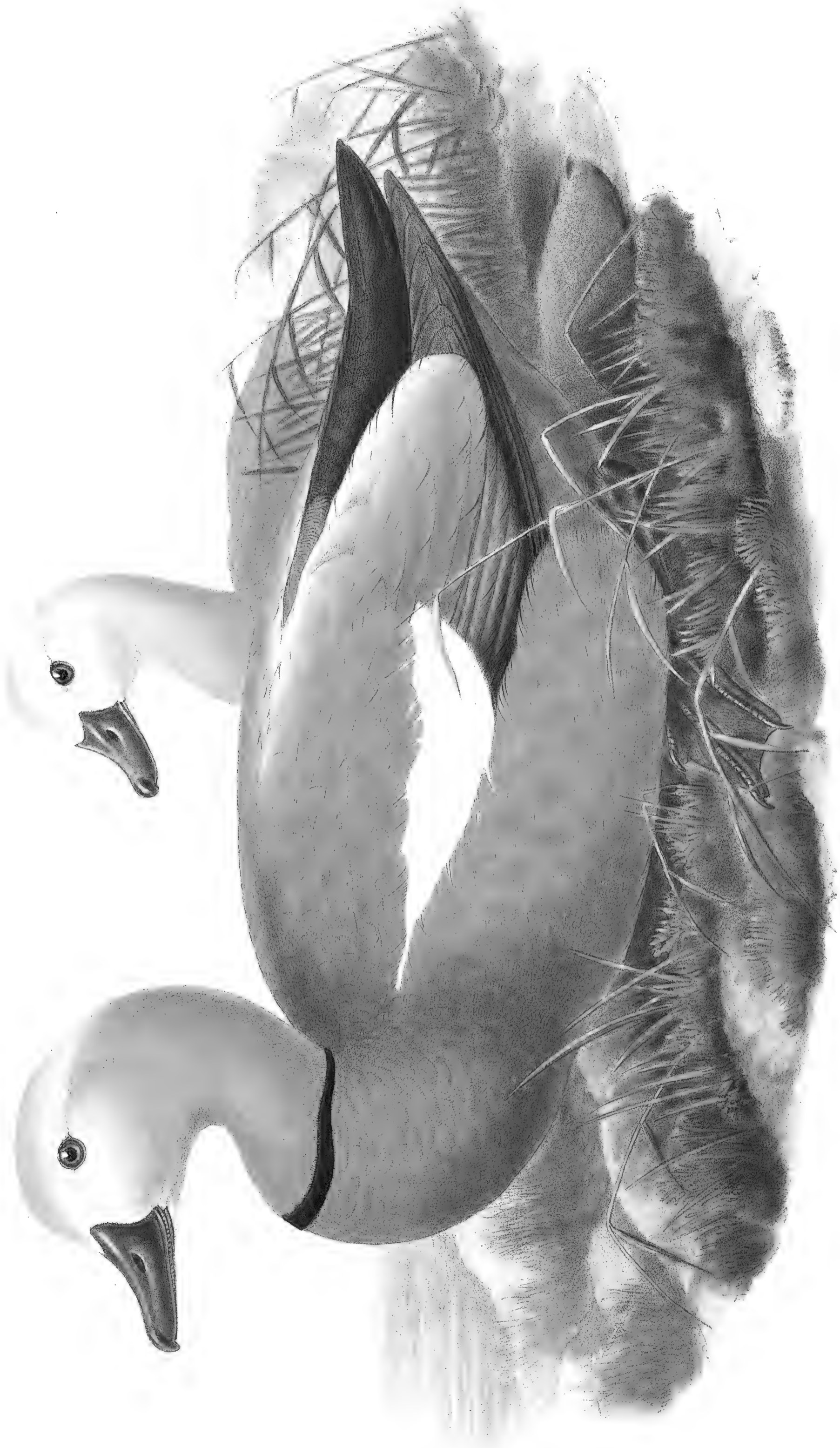
“The Sheldrake,” says Mr. Selby, “continues in its native haunts through the whole year, and when once paired seems to live with the same mate till accident or death dissolves the connexion. Montagu

remarks that the males do not appear to attach themselves to the females till the second year, when they have acquired the adult plumage; and I have also observed this to be the case on the Northumbrian coast, where these birds are common upon such parts as present a barrier of sand-hills, the chosen breeding resort of this species. In addition, however, to those that reside permanently on our shores, we are visited by considerable numbers during their periodical flights to and from the more northern countries of Europe. In the beginning of March I have sometimes seen hundreds together upon a favourite locality, where they have continued for a few days, and then departed for higher latitudes, this being the time of their return from their equatorial or winter migration. The rabbit-burrows, with which the sand-hills of the coast are so often perforated, are the places that the Sheldrake usually selects for nidification; and in such of these as have been deserted by the original inhabitants, the females form their nests of bent-grass and other dry vegetable materials, sometimes as far as ten or twelve feet from the entrance, lining them with fine soft down plucked from their own breasts. They lay from twelve to sixteen eggs, of a pure white, or with a very faint tinge of green, and of an oval form, being equally rounded at both ends. These are incubated for thirty days before the exclusion of the young, this being the period common to most of the *Anatidæ*. During this time the male keeps an attentive watch in the immediate vicinity of his mate; and when hunger calls her from her charge, he instantly takes her place and covers the eggs till her return. As soon as the young are hatched, they are conducted, or, as more frequently happens, carried in the bill by the parents to the water's edge; and upon this their native element they immediately launch, seldom quitting it till fully fledged and well able to fly. Bewick observes, that if the family in their progress from the nest to the sea should happen to be interrupted by an intruder, the young ones seek the first shelter, and squat close down, whilst the parents, directed by the instinctive feeling that so universally prevails throughout the feathered race at this interesting period, adopt the same kind of stratagems as the Partridge, wild Duck, &c., feigning lameness and inability of flight, in order to attract attention and divert the pursuit to themselves. As the Sheldrake is much prized as an ornamental appendage to large pieces of water for its handsome form and varied plumage, the inhabitants of the coast are in the practice of watching the old birds to their nests during the early part of the breeding-season, and digging up the eggs. These are placed under a hen or tame Duck; but great care and attention is requisite in rearing the young, and it is seldom that more than three or four survive from a hatching of a dozen eggs. They soon become tolerably tame and answer to the call of the person who feeds them; when fully fledged, however, being very active birds, they are apt to stray away, and, if left with their pinions un mutilated, generally in time fly entirely off, though I have known them return, in two or three instances, after an absence of many months . . . Upon the approach of spring, the fleshy knob at the base of the upper mandible, which during the autumn and winter is scarcely perceptible, begins to swell and acquire a beautiful *crimson* hue, and at its full development is nearly as large as a marble. At this season, also, the males pay particular court to the females, erecting themselves and uttering a shrill whistling note, repeated with great quickness, and attended with a frequent movement of the head; they are also very jealous and irascible at the approach of any other bird to their mates. The food of the Sheldrake, in its wild state, consists of marine vegetables, molluscous shell-fish, insects, &c.; but when domesticated thrives well upon grain, and indeed upon the usual fare of poultry."

"On examination of the gizzards of nine birds killed in Belfast Bay, Strangford Lough, and Dundrum Bay, in winter weather of all kinds, and in the months of March, April, and May," says Thompson, "I found them all to contain a number of minute univalve shells, with some sand or gravel. A few of these, from the two first-mentioned localities, were entirely filled with *Paludina muriatice*, a most abundant species. The tenth individual, shot in Belfast Bay, in February 1849, during mild weather, had its stomach wholly filled with minute mollusca, *Montacuta purpurea*, in profusion, *Skenea depressa*, and a few *Paludina muriatice*. Its crop was full of the two former species, chiefly of very small *Skeneæ*, it alone containing not less than 9000 of these shell-fish; the stomach produced still more, so that 20,000 of these minute mollusca were estimated to be in the bird at the same time. The *Skenea* is about the size of clover-seed, or one-eighteenth of an inch in diameter; the *Montacuta*, when large, is one-twelfth of an inch broad. The bird was very fat, as might be expected from such nutritious diet, the same on which the Grey Mullet (*Mugil chelo*) attains a great size in this bay."

Prince Frederick, of Holstein, tells me that in his country the Sheldrakes habitually lay their eggs in the earth-burrows of the foxes, with which they live in harmony—but will not go into the holes of the badger, as that animal will eat their eggs; and hence, I suppose, has arisen the specific term *Vulpanser*, and the trivial name of Fox-Duck or Fox-Goose, sometimes given to this bird.

The Plate represents a male and a group of young, of the size of life.



CASARCA RUTILLA.

J. Gould & H.C. Richter del. et lith.

Höfner, Imp.

CASARCA RUTILA.

Ruddy Sheldrake.

Anas rutila, Pall. Nov. Comm. Petrop., tom. xiv. p. 579, tab. 22. fig. 1.

— *casarca*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 511.

Tadorna rutila, Boie, Isis, 1822, p. 563.

Vulpanser rutila, Keys. und Blas. Wirbelth. Eur., p. 84.

Tadorna casarca, Macgill. Man. of Nat. Hist., Orn., vol. ii. p. 163.

Casarca rutila, Bonap. Geog. and Comp. List of Birds of Eur. and N. Amer., p. 56.

FROM the circumstance of the trivial name of this species being "Ruddy Sheldrake" it would naturally be supposed that it is closely allied to the bird figured in the preceding plate, the *Tadorna vulpanser*; and to a certain extent it is; but, as every ornithologist is aware, the two birds have been generically separated. The Common Sheldrake is one of the most ornamental of our water-fowl, graceful in its actions, beautiful in its markings, and domestic in disposition—traits which render it an especial favourite; the Ruddy Sheldrake, on the other hand, although a finely coloured bird, and by no means devoid of beauty, is more *Anserine* or Goose-like in its actions and economy, and is more adapted for the land than the water, on which element it is less graceful and buoyant; its bill and legs, too, are coarse and black—instead of being richly coloured, like those of the Common Sheldrake.

The *Casarca rutila*, unlike the *Tadorna vulpanser* (which is indigenous to our islands), is merely a visitor, and one of the rarest birds so classified in our lists, its occurrences here being few and at periods far apart. The first British specimen is said to have been killed as long ago as 1776, and to still form a part of the collection at Newcastle-on-Tyne. The late Mr. Fox, of Durham, appears to have been the first to notice it as British, from the example above alluded to, which previously belonged to Marmaduke Tunstal, and which was believed to have been shot at Bryanstone, near Blandford, in Dorsetshire. Yarrell states that two other specimens have since been killed—one in the south of England, now in the collection of the late Mr. Selby, and the other in January 1834, at Iken, near Orford, on the coast of Suffolk, which passed into the possession of Mr. Manning, of Woodbridge. Thompson, in his 'Natural History of Ireland,' states that an example of this species was shot "on the Murrough of Wicklow, by Mr. John Moreton of that town, on the 7th of July, 1847. The Murrough is an extensive low sandy tract bordering the sea, such as is resorted to by the Common Sheldrake (*T. vulpanser*) for the purpose of breeding. "On the next day," adds Thompson, "the specimen came into the possession of T. W. Warren, Esq. Its plumage indicates a male, nearly adult." Besides the above, the Rev. F. O. Morris speaks of another as having been obtained on Sanday Island, one of the Orkneys, by Mr. Strang, in October 1831.

The range of the Ruddy Sheldrake over the surface of the globe appears to be almost as extensive as that of the Common Sheldrake; for it is found in most of the warmer parts of Europe and, I believe, the whole of Africa, from the Cape of Good Hope to the Mediterranean, and, like most other species which frequent the latter part of that continent, Palestine, the Holy Land, Asia Minor, and Persia; it is also one of the commonest species of Ducks in the peninsula of India, in Thibet, China, Formosa, and Japan. The justly celebrated Russian naturalist, Pallas, states that it does not extend beyond 50° N. lat., and that in Mongolia, where it breeds in Marmot-holes and hollow trees, it is held sacred by the Mongols and Calmucks. Dr. Hooker observed it breeding in the rocks of the Himalayas, and Dr. Adams in Sikkim and Ladakh. The following extracts will show that the bird has many habits in common with the Sheldrake, particularly that of breeding in holes; like that species, too, it is said to be almost unfit for human food:—

Mr. W. H. Simpson, in his 'Fortnight on the Dobrudscha,' says, "The earth-cliffs about Kustendjé" (the eastern terminus of the Danube and Black-Sea Railway) "are much resorted to by birds for breeding, from the facility with which they are perforated. The Ruddy Shelduck breeds in these places, and also in the holes of Trajan's Wall, and in other holes up the country. Though the bird is plentiful, it is by no means easy to obtain the eggs. I and my friend spent the greater part of the day in driving a tunnel into a bank where one had been seen to come out. But our labour was in vain; for, after advancing several yards, working one at a time, prostrate and in the dark, the original hole was found to fork off into two branches. The natives sometimes obtain a sitting, and the young ones are brought up for domestic purposes."—*Ibis*, 1861, p. 365.

"Hundreds of these birds," says the Rev. H. B. Tristram, in his 'Notes on the Ornithology of North Africa,' "resort to the salt lakes of Bou Guizoun, Waregla, Tuggurt, &c. At Bou Guizoun I captured some half-dozen nestlings of various ages in the downy state, some of them scarcely more than a day old; and yet the only place where they could possibly have bred, and where we had procured a nest three days

previously, was a range of cliffs more than twelve miles distant. This was in May 1856."—*Ibis*, 1860, p. 81.

In Mr. O. Salvin's 'Five Months' Birds'-nesting in the Eastern Atlas,' it is stated that "though this bird is numerous on all the salt lakes of the elevated plains, its egg is one of the most difficult to obtain. One nest only rewarded our labours. The rarity of the eggs is hardly surprising when the situation chosen by this bird for its nest is considered. It selects a hole or crevice of a cliff for its breeding-place, and associates with the Raven, the Black Kite, and Egyptian Vulture during the period of the reproduction of its young. Almost immediately on encamping at Ain Djendeli we used daily to see a pair of Ruddy Sheldrakes pass over our tent, their direction always being backwards and forwards between the cliffs to the south of us, and the small marsh between us and the lake. After careful investigation, the nest was discovered to be in a hole in the face of a rock, which required all the skill of Mohamed, and all our appliances of ropes &c., to reach. The result was four hard-set eggs, which are now in the collections of Messrs. Tristram, Simpson, Wolley, and myself. Though the Arabs were aware of the habits of the bird, we did not succeed in obtaining any more."—*Ibis*, 1859, p. 362.

In Palestine Mr. Tristram found the *Casarca rutila* near the Dead Sea, and obtained its eggs in a cliff in Northern Galilee, among some Griffons' (*Vultur fulvus*) nests in May.

The late Mr. Strickland says it is frequently to be seen in the poultry-shops at Smyrna; and Messrs. Dickson and Ross state it is abundant at Erzeroum, frequenting the marshes during the daytime, and feeding late in the evening and early in the morning in corn- and stubble-fields—that it arrives about the middle of March, and departs at the end of November; they also remark that it is rarely seen on the water.

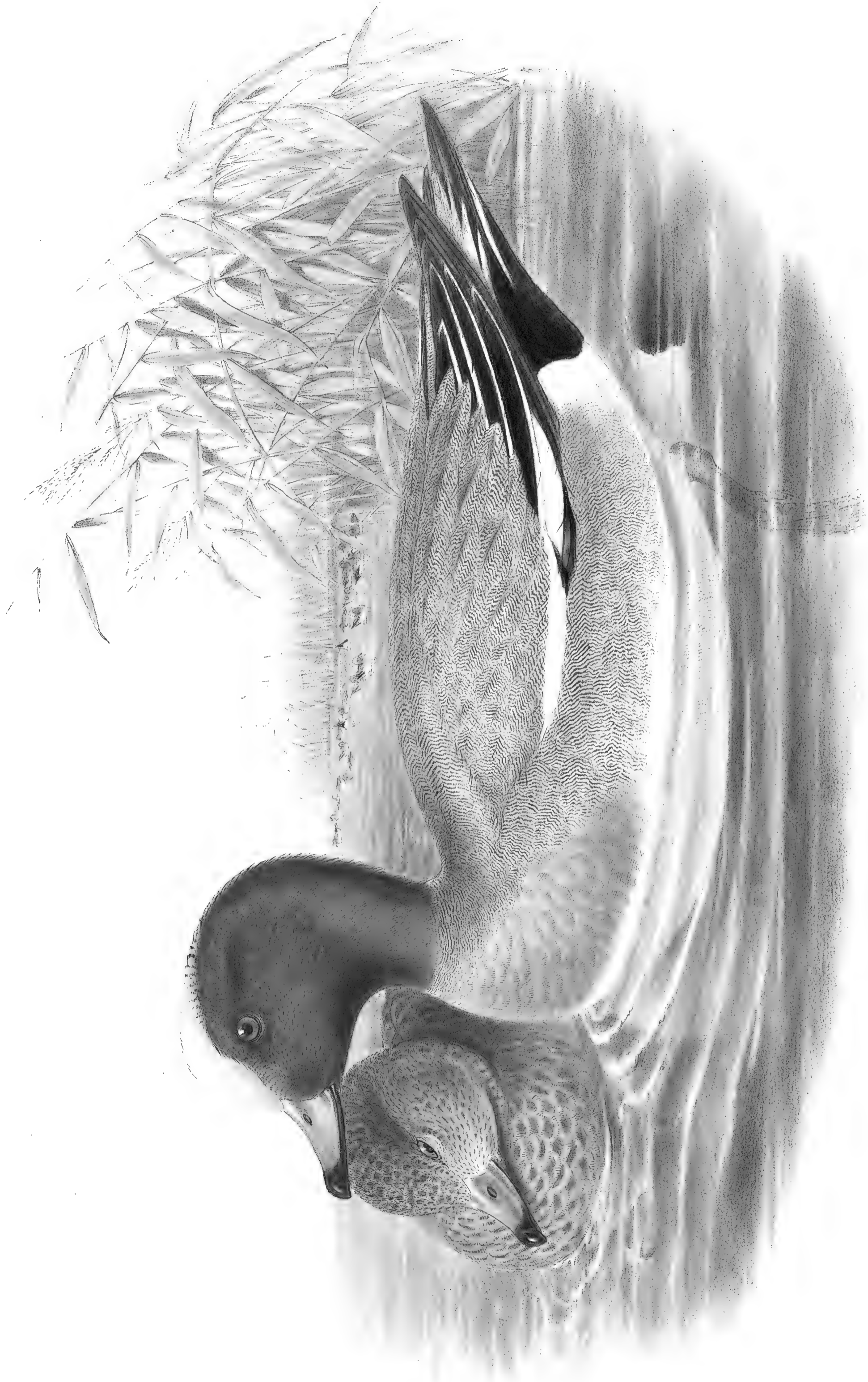
"The Ruddy Sheldrake, or Brahminy Duck, as it is called in India," says Mr. Jerdon, "is a well-known winter visitant to all parts of the country. It is generally seen, even at this season, in pairs or small parties, frequenting alike rivers, brooks, jheels, and lakes. It walks well on the ground, and grazes in the young corn-fields, just like Geese; it also picks up seeds of grass, grain, &c. Towards the close of the cold weather the Brahminy Ducks assemble in numbers, and on the Chilka Lake I have seen thousands in one flock in April. The call is peculiar and Goose-like (resembling a clarinet, says Pallas), sounding something like *à-oung*, and hence the name of *Aangir*, which, according to Pallas, is given to this bird among the Mongols." Mr. Yarrell says that this sound is uttered while the bird is flying, and that at other times it cries like a Peacock, especially when kept confined, and that it now and then clucks like a hen. Dr. Jerdon says, "The Hindoos have a legend that two lovers, for some indiscretion, were transformed into Brahminy Ducks, that they were condemned to pass the night apart from each other on opposite banks of the river, and that all night long, each in its turn, asks its mate if it shall come across, but the question is always met by a negative:—'Chakwa, shall I come?' 'No Chakwi.' 'Chakwi, shall I come?' 'No Chakwa.'"—*Birds of India*, vol. iii. p. 792.

Captain L. H. Irby, in his 'Notes on Birds observed in Oudh and Kumaon,' says, "The Ruddy Sheldrake (*Casarca rutila*), Brahminy Duck of Europeans, the *Chukwa* of the natives, probably so called from its cry," is "very common in the cold season on the large rivers and lakes, but is seldom seen on the small jheels, except in the vicinity of rivers. During the day, immense flocks rest on the sand-banks of rivers, and towards dusk break up into pairs and disperse in various directions. Should one bird be killed, its mate will not leave the spot, but continue flying round for some time, calling repeatedly. It is a shame to shoot them, as their flesh is proverbial for its dryness and other bad qualities. There is a strange Hindoo legend about the *Chukwa*, the pith of which is, that any person who kills one is for ever after doomed to celibacy."—*Ibis*, 1861, p. 249.

The food of the Ruddy Sheldrake consists of aquatic plants and their seeds, insects, the fry of fish, grain, &c. They lay eight or nine creamy-white eggs; and when the young ones come forth, the mother will often carry them, from the place of hatching to the water, in her bill.

The above passages comprise all the information of interest on record respecting this bird. I am aware that it might have been compressed into two or three paragraphs; but I have thought it only an act of justice to the various writers to let each speak for himself. I have only to add that there is but little difference in the outward appearance of the sexes; perhaps a lighter-coloured head and the absence of the black ring from the neck of the female are the only ones; and I am not certain that in the latter this is constant.

The Plate represents the two sexes, nearly of the size of life.



MARECA PENELOPE.

J. Gould & H.C. Richter, del. et lith.

Waller, Imp.

MARECA PENELOPE.

Widgeon.

Anas penelope, Linn. Faun. Suec., p. 44.

— *fistularis*, Briss. Orn., tom. vi. p. 391, tab. xxxv. fig. 1.

— *Wigeon*, Vieill. Ency. Méth., Orn., part i. p. 129.

Mareca penelope, Selb. Ill. Brit. Orn., vol. ii. p. 324.

— *fistularis*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 131, pl. 50.

THE Widgeon is a compact and trim little duck, whose structure is equally well adapted for walking on the land and for swimming on the water. Its weight is about two pounds, though some examples may be a trifle more and others a little less. As an esculent it is sometimes remarkably good, particularly when rich and succulent grasses have formed a part of its diet. Unlike the Mallard and Shoveller, which feed in soft and oozy places, or the Scaup, which gathers mollusks from the bottom, the Widgeon wanders over marshes and nibbles the grasses and other plants which there abound, much after the manner of the goose. Even a cursory examination of the peculiar formation of its bill, its feet, and legs will be sufficient to show that they are admirably adapted for such a mode of feeding; and as regards flight, few ducks are better furnished with the means of progression through the air. In disposition it is less shy than its congeners; and from the vast numbers which frequent our eastern and southern coasts during the months of autumn and winter, it affords an abundance of amusement to the sportsman and gunner at those seasons of the year. In all parts of England the Widgeon must be regarded as a winter-visitant; but in Scotland a few remain during the summer and breed. That some Widgeons arrive on the south coast of England from their northern breeding-quarters as early as the month of September I can affirm, since, while on a visit to A. J. B. Beresford Hope, Esq., at Bedgebury Park, Kent, the keeper brought in, on the 28th of that month, as nondescript birds, two which he had just shot, and which proved to be young Widgeons of the year. It is generally stated that the bird does not breed in this country; but that it will occasionally do so in partial confinement is evident from the following note, kindly communicated to me by the Rev. John Fountaine, of Southam, in Norfolk:—"A pair of Widgeons I have had pinioned in my decoy for five or six years have bred this season (1864) and reared their young ones, which I have had plenty of opportunities of watching since they were very small up to the present time, when they are able to fly. This I believe to be an unprecedented occurrence; for I never knew of an instance of the Widgeon breeding in this country, either in a wild or tame state." Granting that the main body of the Widgeons that winter here go northward to breed in March or April, it becomes necessary to state into what countries they proceed for that purpose. According to Mr. Wolley and Mr. Wheelwright it breeds abundantly in Lapland, being one of the most numerous of the birds of that country; and Mr. Proctor informed Mr. Yarrell that a few breed in Iceland, forming their nest generally among low bushes near the edge of the fresh waters. Generally speaking the Widgeon frequents, at one season or the other, the whole of the northern and temperate regions of the Old World, from Iceland in the west to Japan in the east. In Finland it is especially common during summer, as it doubtless is in all the northern portions of the countries within the limits I have mentioned. In China, in India, and in Southern Europe it also occurs during summer as numerously as with us. Loche states that it is found in all the three provinces of Algeria; and Dr. Baird that it is an accidental visitor to the Atlantic coast of the United States of America. On examining a number of male examples, differences in their plumage may be observed not unworthy the attention of the ornithologist, some having the whole of the shoulder or upper half of the wing white, while in others the same part is mottled with brown. This difference was pointed out to me, in the first instance, by Mr. Fountaine, coupled with the remark that the whiteness of the shoulder shows very conspicuously when the bird is swimming; I consider that the examples thus distinguished are the older birds. The females are more uniform or browner, as may be seen in the accompanying plate.

Speaking of the birds inhabiting Sutherland, Mr. Selby says:—"As the Widgeon had not previously been detected breeding in Britain, we were much pleased to see several pairs upon the smaller lochs near Lairg, which, we concluded, had their nests among the reeds and other herbage which grew in their vicinity. We were not so fortunate as to find one here; but afterwards, upon one of the islands of Loch Laighal, we sprung a female, which was shot from her nest containing seven eggs. It was placed in the heart of a large rush-bush, and was made of decayed rushes and reeds, with a lining of warm down from the bird's body. The eggs were smaller than those of the Wild Duck, and of a rich cream-white colour." Sir William

Jardine, who accompanied Mr. Selby, mentions that "Widgeons were seen upon Loch Shin, Loch Naver, Loch Loyal, and Loch Hope. They were by no means abundant; and it is possible that the birds in this district were at the most southern limit of their breeding-stations, and bore no proportion whatever to the immense flocks which frequent our coasts in winter." A more recent writer, St. John, in his 'Natural History and Sport in Moray,' says:—"In Sutherland I have found the nest, and in Loch Naver and elsewhere the Widgeon breeds regularly, though not in any great numbers. I have shot Widgeon in this country on the 9th of September. There was a small flock of eight or nine; and the two which I shot were evidently young, and must have been bred in the neighbourhood. The migrating Widgeon begin to arrive early in October or at the end of September; by the beginning of November there are immense numbers, and their shrill whistle enlivens all the larger lochs and swamps. Towards night every Widgeon seems to be in motion, flying to their feeding-places, either in the shallows or along the edges of the water, where they can get at the grass and water-plants which form their food. Their flight is very rapid, and divided into small companies; they flit to and fro in every direction until they settle down to feed. During the daytime they all collect and rest in the centre of the lochs. The Widgeon, like the Teal, is late in acquiring its full plumage; and in the flocks but a small proportion of Drakes, in full beauty, are seen. It is also late in coming into full season for the table, and is in best condition from February to April. Like other wild fowl, when driven to feed on the sea-shore, it soon loses its eatable quality. The Widgeon is the most perfectly proportioned of any water-fowl, and the plumage of the male is peculiarly bright and beautiful. Both on land and in the water it is very active; when on shore it walks upright and rapidly, and on the water is unrivalled in swimming. The nest is similar to that of other water-birds, the eggs being well protected by the down of the female. The young, when hatched, have rather a brown- than a green-coloured covering, in this also differing from the common duck, teal, &c."

Mr. Dann informed Mr. Yarrell that the Widgeon "is the most abundant of all the Duck tribe in Lapland, frequenting the grassy swamps, lakes, and rivers. They appear with the first breaking-up of the ice, in pairs; and as soon as the females begin to lay, the male loses his beautiful plumage, and secretes himself in willow-swamps and in the most inaccessible morasses; nor does he recover his former appearance until November or December. The females lay from five to eight eggs. They also breed on the Dovre fjeld, as high as the birch grows, and in many other parts of Norway and Sweden, but only in straggling pairs. They migrate south early in September, appearing in great flocks on the coasts of Norway and Sweden. The young keep among the rushes and reeds in the lakes, the old birds betaking themselves to the shallows on the coast. They entirely leave Sweden in the winter."

The following interesting note respecting this species was communicated to the late Sir John Richardson by the Rev. Mr. Booth, of Friskney, in Lincolnshire:—"Skelton tells me that the Widgeon does not willingly dive: of course, if driven to it, it can; but it does not dive for its food; and though in play it sometimes splashes under water, it never remains beneath the surface. The Widgeon is '*an amazing fowl to graze, a strange eater of grass.*' It is especially fond of 'flutter-grass' (*Glyceria aquatica* vel *fluitans*?), which it crops on the surface; but it likewise eats many other herbs. When the decoy has been so full of Widgeons that they have devoured every blade on the landings, Skelton has taken advantage of their absence in the night, when they resort to the salt marshes on the sea-coast, and laid down sods pared from the fields, on which they readily graze. In common with the Mallard, Teal, and Pintail, they are very fond of Willow-weed seeds (*Epilobium*), with which he feeds all the fowl in the decoy, as they prefer it to oats and every other kind of grain."—*Faun. Bor.-Amer.* vol. ii. p. 436, note.

Dr. Jerdon, speaking of the Widgeon in India, remarks that it "cannot be said to be either common or abundant, although it is met with occasionally in every part of the country in small or moderate flocks."

The Widgeon emits, chiefly during flight, a peculiarly shrill whistling note, which has obtained for it, in some parts of England, the name of Whew Duck; and its French name of *Canard siffleur* has reference to the same sound.

During the proper season great numbers of Widgeons are taken in the decoys; and we have the authority of Colonel Hawker that, like the fox in hunting, it affords the finest sport for coast night-shooting, ample directions for which will be found in that gentleman's well-known work on sport and sporting.

Mr. Thompson, after stating that the Widgeon frequents the marine loughs &c. of Ireland in great numbers for above six months of the year, gives an interesting account of the modes of shooting it, &c., to which, as it is too lengthy for extract, I must refer my readers (see his 'Natural History of Ireland,' vol. iii. p. 100 *et seq.*).

The Plate represents a male and a female, about the natural size.



SPATULA CYPPIATA.

J. Wolf & H. C. Richter del. et. lith.

Milton May

SPATULA CLYPEATA.

Shoveller Duck.

Anas clypeata, Linn. Faun. Suec., p. 42.

— *rubens*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 519.

Spatula clypeata, Boie, Isis, 1822, p. 564.

Rhynchaspis clypeata, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 115, pl. 48.

Spathulea clypeata, Flem. Hist. of Brit. Anim., p. 123.

Clypeata macrorhynchus, Brehm, Vög. Deutschl., p. 876.

— *platyrhynchus*, Brehm, *ibid.*, p. 877.

— *pomarina*, Brehm, *ibid.*, p. 878.

— *brachyrhynchus*, Brehm, *ibid.*, p. 879.

ALTHOUGH not very numerous at any time either in England, Scotland, or Ireland, we have abundant evidence of the occurrence of the Shoveller Duck, both in summer and winter, in all the three countries. It is especially partial to meres, ponds, and shallow waters, such as are seen in Holland, Belgium, and elsewhere, and, in India, to tanks and reservoirs; indeed it appears to have an instinctive knowledge of countries, however distant, that are subject to heavy rains, as an evidence of which, I may mention that I saw our Shoveller in the southern parts of Australia during the rainy season of 1839, when nearly the whole of the grassy flats were covered with water, and shot at a pair that rose before me on the shallow lagoons at Segenoe, in New South Wales, but did not succeed in killing either. The late Mr. Coxen, of Yarrundi, obtained a fine male, the skin of which I examined, and am therefore certain as to the identity of the species; unfortunately it was so much mutilated by rats a few days after, that it was not worth preserving, or I should have brought it with me on my return to England. Since that period I have never seen an Australian specimen, neither have I been favoured with a sight of one from Java or any of the adjacent islands; but that it does visit those important countries, and also Borneo and the Philippines, is more than probable, since it is a common bird in India and China, and, according to Temminck, is as numerous in Japan as it is in any portion of Europe, over the whole of which, except in the extreme north, it has been observed; it is also found in Africa, and extends its range over the northern portions of America, specimens having been received by me from as far south as Guatemala; at the same time it appears to be less numerous in the New than it is in the Old World. By some of our earlier writers the Shoveller was regarded as a winter visitant only to our islands; but the following extracts from the works of more recent authorities will show that it very frequently breeds therein:—

Mr. Hewitson tells us that “Mr. John Hancock has the nest and eggs of the Shoveller, which were found upon Prestwick Carr, a piece of waste ground of considerable extent near Newcastle-upon-Tyne, covered with heath and furze, boggy and intersected with drains, and having a piece of water near its centre. From thence, towards the end of May, a nest was brought to him containing nine eggs; it was composed of grass, mixed with the down of the bird, and was placed in the centre of a furze bush, by which it was sheltered. Two or three weeks after this a second nest was found, at a short distance from the spot from which the other had been taken: it was constructed of the same materials, was similarly situated, and contained ten eggs; these were quite fresh, and led to the supposition that they belonged to the same bird which had been previously deprived of its eggs.

“I have likewise received the eggs of the Shoveller from Norfolk, from Mr. Salmon, taken on the 10th of May from a nest which was placed amongst a quantity of green rushes, but without the profusion of feathers so generally observed in the nests of this tribe of birds, there being barely a sufficient quantity of dry grass to keep the eggs from the bare sand; it was much exposed, and contained eight eggs, which were within a few days of hatching.

“The Messrs. Paget state that the Shoveller is occasionally not at all uncommon in Norfolk, and that several nests, containing altogether fifty-six eggs, were found, during one summer, in Winterton Marshes.

“Mr. Charles St. John has found the eggs of this species on the banks of Loch Spynie, in Morayshire; and Mr. Henry Milner tells me that it breeds on Hornsea Mere, in Yorkshire. The eggs differ considerably in size.”

Further evidence of the bird's breeding in Norfolk is contained in the following note, obligingly forwarded to me by Lord Walsingham, from Merton Hall, Thetford, on the 24th of June, 1869:—“You may, perhaps, care to know that not less than eight or ten pairs of Shovellers are in the habit of breeding here every year; this summer we gave away two sittings of eggs to a neighbour, who was anxious to rear some.”

That the bird also breeds in Dorsetshire is certain, two young birds which are in the collection of W. Thompson, Esq., of Weymouth, having been shot in the Frome river, a few miles below Dorchester, in July 1867.

The Shoveller seldom, if ever, dives for its food ; neither does it ramble by night over the land far away from water. Its principal nourishment consists of aquatic grasses and other succulent plants, to which is probably added small freshwater mollusks, worms, and insects, for securing which its remarkably constructed bill is admirably adapted, the edges of both mandibles being thickly beset with fine pectinated laminae, aptly compared by Wilson to a weaver's reed, by means of which the bird has the power of retaining any nutritive matters it may find, and of rejecting the mud and other substances not congenial to its stomach.

The Shoveller is subject to two very marked seasonal changes of plumage. During winter and spring its black bill, blue-green head, white breast, chestnut-coloured abdomen, blue shoulders, and black and white streaming tertiaries render him a very beautiful object, his beauty being greatly enhanced by his pale yellow pupils, seated like gems in the centre of his blue-green head ; but, as soon as the female begins to incubate, those colours disappear, and, like the Mallard and the Teal, he assumes the more uniform brown colouring of the female ; this garb is again thrown off in October or November, and the former one reassumed.

Mr. J. H. Gurney, Jun., has called my attention to a fact, which, indeed, had not escaped my notice, that some females are more red or chestnut-coloured on the abdomen than others, the reason of which is not well understood ; it may be due to age, or to the normal change not having taken place. On reference to the accompanying Plate it will be seen that, ordinarily, the female, besides differing from her mate in having a mottled brown garb, has the eyes brown and the bill olive, while the legs and feet are, like those of the male, of a fine orange-yellow.

As a tenant for the aviary or home ponds and lakes no bird is better adapted than the Shoveller, its disposition being as tame as its plumage is ornamental. When in good condition its flesh as a viand for the table is unsurpassed by that of any of the Duck tribe ; indeed so much is it prized on this account, that authors on both sides of the Atlantic bear testimony to its excellence. Selby says "it is very delicate and well-flavoured, and, in consequence, highly esteemed ;" Wilson that it is uniformly juicy and well-tasted ; and Audubon that "no sportsman who is a judge will ever pass by a Shoveller to shoot a Canvass-back," the excellent quality of whose flesh is proverbial. As an article of food it is therefore much sought after ; and hundreds are sent from Holland to the London markets during every autumn and winter.

The Shoveller breeds in the central parts of marshy districts, the nest, which is placed on the ground, being usually formed in the tufts of coarse herbage abounding in such situations. The eggs are from ten to twelve in number, of a buffy white, with a faint tinge of green, and measure a trifle more than two inches in length by one inch and a half in breadth.

The young were formerly stated to be at first very shapeless and ugly, and the bill to be as broad as the body ; but this was long since disproved by Mr. Youell, in the thirteenth volume of the 'Transactions of the Linnean Society,' and by Yarrell, who says :—"That the bill of the young Shoveller, when hatched, is not dilated laterally, I can myself answer. During the summer of 1841 a pair of Shovellers made a nest and brought out their young on one of the islands in the Gardens of the Zoological Society. The bills of these ducklings were as narrow and the sides as parallel as the bills of some Gadwalls which were hatched at the same time on another island in the same piece of water."

The Plate represents two males and a female, of the natural size. The plant is the Marsh Marygold (*Caltha palustris*).



ANAS BOSCHAS, Linn.

Hübner, Imp.

J. Wolf & H. C. Scherl, del. et lith.

ANAS BOSCHAS, *Linn.*

Mallard or Wild Duck.

Anas boschas, Linn. Faun. Suec., p. 46.

— *adunca*, Linn. Syst. Nat., tom. i. p. 206.

— *fera*, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 39.

— *archiboschas*, *subboschas*, et *conboschas*, Brehm, Vög. Deutschl., pp. 862, 864, 865, tab. xlii. fig. 2.

ON referring to the opposite plate the reader will perceive figures of the male and female of a species of Duck which plays a most important part in the world; for although it does not inhabit every part of the globe, its distribution is very extensive, and where it is not indigenous it is one of those birds which, has become thoroughly domesticated, and, moreover, accompanies the Caucasian in all his wanderings, and, wherever he settles down in a foreign land, forms part and parcel of his surroundings, contributing to his enjoyment and constituting no inconsiderable portion of his subsistence. Among the Hindoos, the Chinese, the Australians, the New-Zealanders, and many other nations, either the pure bird itself or some of the domestic varieties derived from it may be seen almost as constantly as the common fowl,—the Black Duck of the River Plate, our own snowy Aylesbury birds, and many other varieties all having the *Anas boschas* as a common progenitor. In Europe it is distributed universally, from the arctic circle to the confines of the Mediterranean and Black Seas, and from Britain to the most eastern parts of Russia, being as common on the Don and the Volga as it is on the broads of Norfolk and Suffolk. In North Africa, India, China, Formosa, and Japan it is as numerous in certain localities as with us. In America it occurs in the northern portion only, or from the latitude of Hudson's Bay to Mexico, but not further south, except the few stragglers which are said to be now and then seen in Guatemala. In Australia and New Zealand it certainly does not naturally occur; neither have I seen examples from any of the Polynesian islands, although its range may extend to some of them.

From the many favourable localities for the breeding of this Duck in almost every part of England, Ireland, and Scotland vast numbers, both of the old and young birds (or "flappers" as they are termed), are annually sent to our markets through the agency of the gunner and the decoy-man. With reference to the numbers taken by the latter means, I may mention that Mr. J. H. Gurney, jun., informs me that "in the Ashby decoy, which was one of the most famous in Lincolnshire, he learns, from the 'Stamford Mercury,' that the greatest number between 1833 and 1867 was 4287."

Speaking of the habits, manners, &c. of the Mallard, Macgillivray says:—

"Marshy places, the margins of lakes, pools, and rivers, as well as brooks, rills, and ditches, are its principal places of resort at all seasons. It walks with ease, even runs with considerable speed, swims, and occasionally dives, though not in search of food. Seeds of gramineæ and other plants, fleshy and fibrous roots, worms, mollusca, insects, small reptiles, and fishes are the principal objects of its search. In shallow water it reaches the bottom with its bill, keeping the hind part of the body erect by a continued motion of the feet. On the water it sits rather high, with the tail considerably inclined upwards; when searching under the surface, it keeps the tail flat on the water; and when paddling at the bottom, with its hind part up, it directs the tail backwards. The male emits a low and rather soft cry, between a croak and a murmur, and the female a louder and clearer jabber; both, on being alarmed, and especially in flying off, cry 'quack;' but the quack of the female is much louder. When feeding they are silent; but when satiated they often amuse themselves with various jabberings, swim about, approach each other, move their heads backward and forward, 'duck' in the water, throwing it up over their backs, shoot along the surface, half flying, half running, and, in short, are quite playful when in good humour. On being surprised or alarmed, whether on shore or on the water, they spring up at once with a bound, rise obliquely to a considerable height, and fly off with speed, their hard-quilled wings whistling against the air. When in full flight their velocity is very great. Like other Ducks they impel themselves by quickly repeated flaps, without sailings or undulations. In March they pair, and soon after disperse and seek a breeding-place. When incubation commences, the male takes his leave, though he keeps in the neighbourhood, and, joining others, undergoes his annual moult. The female sits very close, and rather than leave her charge will often allow a person to approach quite near. Frequently on leaving the nest she covers it rudely with straw and feathers, probably for the purpose of concealing the eggs. The young are hatched in four weeks, and,

being covered with stiffish down and quite alert, accompany their mother to the water, where they swim and dive as expertly as if they had been born in it."

In autumn, winter, and spring the Mallard is clothed in the style of plumage represented in the front figure of the accompanying plate; but the latter season being passed and reproduction achieved, his finery is exchanged for a sombre dress of various shades of brown, the beautifully curled feathers on his rump are thrown off, and his appearance so closely resembles that of the female that they are scarcely distinguishable one from the other. This summer-plumage of the Drake is carried while the Duck hatches forth her young; so that father, mother, and chicks, on the latter assuming their first feathers, are all very much alike in appearance. A change, however, soon takes place in the plumage of the Drakes, who assume a characteristic dress, which, as before stated, is carried through the winter and spring.

The change in the plumage of the Mallard is thus characteristically described by the late Mr. Waterton from personal observation:—

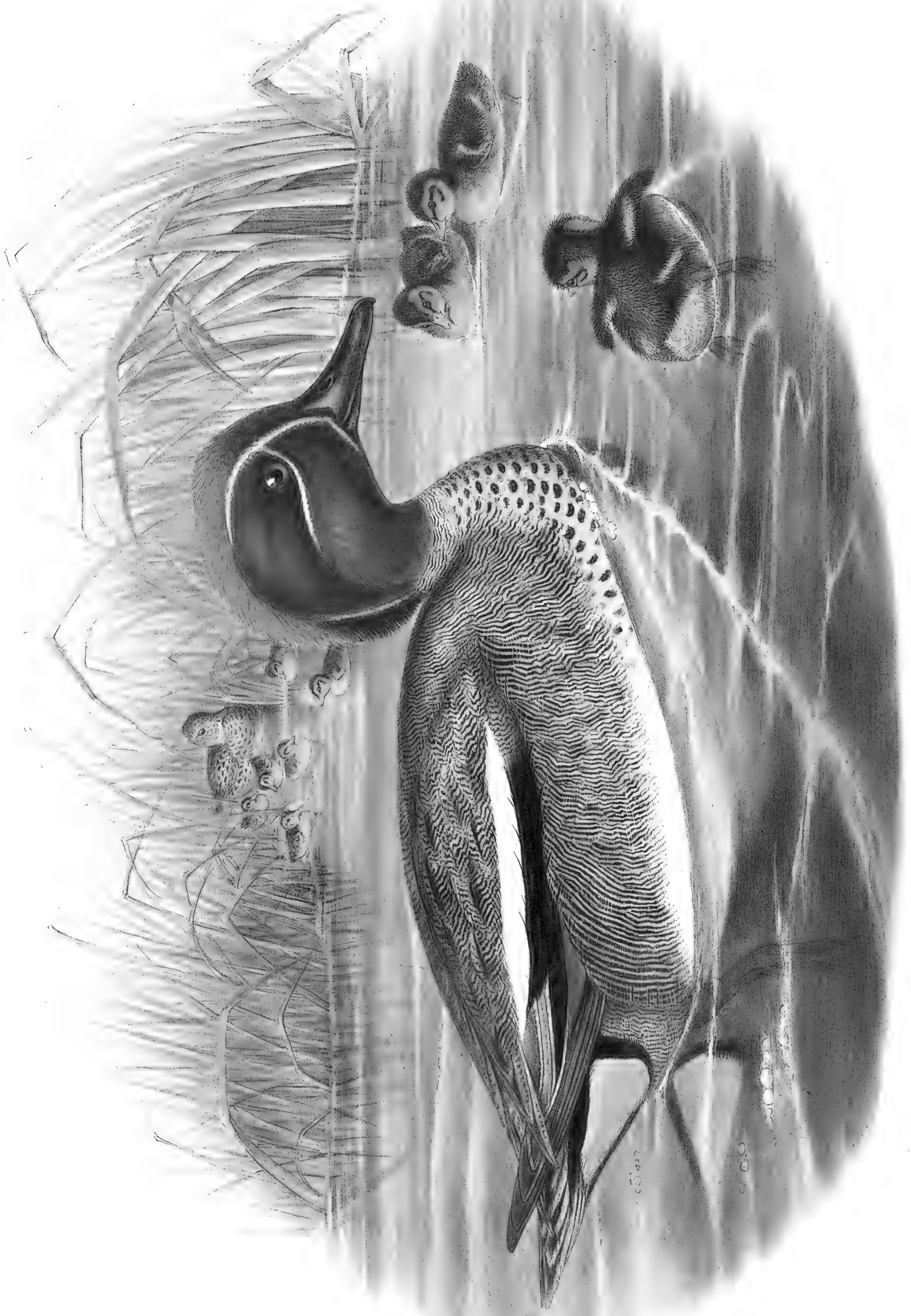
"At the close of the breeding-season the drake undergoes a very remarkable change of plumage. On viewing it, all speculation on the part of the ornithologist is utterly confounded; for there is not the smallest clue afforded him by which he may be enabled to trace out the cause of this strange phenomenon. To Him, alone, who has ordered the Ostrich to remain on the earth, and allowed the Bat to range through the ethereal vault of heaven, is known why the Drake for a very short period of the year should be so completely clothed in the raiment of the female that it requires a keen and penetrating eye to distinguish the one from the other. About the 24th of May the breast and back of the drake exhibit the first appearance of a change of colour. In a few days after this the curled feathers above the tail drop out, and grey feathers begin to appear amongst the lovely green plumage which surrounds the eyes. Every succeeding day now brings marks of rapid change. By the 23rd of June scarcely one single green feather is to be seen on the head and neck of the bird. By the 6th of July every feather of the former brilliant plumage has disappeared, and the male has received a garb like that of the female, though of a somewhat darker tint. In the early part of August this new plumage begins to drop off gradually; and by the 10th of October the drake will appear again in all his rich magnificence of dress, than which scarcely any thing throughout the whole wide field of nature can be seen more lovely or better arranged to charm the eye of man. Thus we may say that once every year, for a very short period, the drake goes, as it were, into an eclipse, so that, from the early part of the month of July to about the first week of August, neither in the poultry-yards of civilized man nor through the vast expanse of nature's widest range can there be found a drake in that plumage which at all other seasons of the year is so remarkably splendid and diversified."

The situation of the nest is exceedingly varied, being sometimes placed among the reeds at the edge of the water the birds frequent; at others it is constructed far up on the heath or in the forest, and not unfrequently on the head of a pollard oak or willow, in a hollow of the bare ground, in the midst of a tussock of grass, under a stone, &c. The composition of the nest is as varied as its site, being in some instances a bulky mass rudely constructed of flags, sedges, grasses, &c., at others of grass intermixed and lined with feathers and down. The eggs are from six to ten in number, rather larger and longer than those of the common fowl, and of a dull light greenish stone-colour. The chicks immediately after their exclusion from the eggs are exceeding alert, have all their energies perfect, and readily seek for, and obtain, their insect food both on the land and on the water, and hide themselves, on the approach of a fancied enemy, with great facility among the herbage or any other object that may offer seclusion and safety; indeed, at this period of their existence their shyness is most remarkable, a disposition not readily effaced if an attempt be made towards their domestication, either when hatched by a tame Duck, or by their frequent foster-parent, the ordinary fowl.

The Mallard frequently interbreeds with the Pintail, the Muscovy Duck, and other species, the produce being sometimes twice the weight of those from which they spring: thus in December, 1862, the late Earl of Craven sent me two birds, the product of a cross between the Mallard and the Pintail, which weighed, the one 6 lbs. 3 oz., the other 6 lbs. Of course these enormously heavy Ducks were domesticated and not wild birds. The weights of two wild Mallards I killed at Somerleyton, in fair but not extraordinary condition, were respectively 2 lbs. 11 oz. and 2 lbs. 15 oz.

It is quite unnecessary for me to speak of the excellence of this bird as a viand for the table, or the usefulness of its feathers, since both are so generally known that they need not be commented upon; neither need I attempt to describe the various modes of capturing the bird on its arrival in this country by means of nets, decoys, &c.; those who desire information on these points will find them admirably described and illustrated in the Rev. Richard Lubbock's 'Observations on the Fauna of Norfolk.'

The figures are a trifle smaller than the natural size, with a flight of these birds in the distance,



QUERQUEDULA CRECCA.

QUERQUEDULA CRECCA.

Teal.

Anas Crecca, Linn. Syst. Nat., tom. i. p. 204.

Querquedula minor, Briss. Orn., tom. vi. p. 436, pl. 40. fig. 1.

————— *secunda*, Ray, Syn., p. 147, A 6.

————— *crecca*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 146.

————— *crecca*, *subcrecca*, et *creccoides*, Brehm, Handb. der Naturg. Vög. Deutschl., pp. 884, 885, 886.

THE Teal is the least of the Ducks inhabiting the British Islands, and is much valued for the beauty of its plumage, the elegance of its contour, and the delicate flavour of its flesh. The collector places his mounted specimen in the most conspicuous part of his museum, and the sportsman is often induced to leave his marked-down Woodcock for the chance of a shot, should a flight of Teal splash into the neighbouring rivulet, or circle over the moor.

Although not a cosmopolitan, this pretty little Duck enjoys a very wide range over the Old World, and, besides being generally dispersed in our islands, is equally numerous in similar latitudes in all the countries lying eastward of us, as far as China and Kamtschatka; northward it proceeds to the regions of the Arctic circle, and southward to the verge of the equator; in a word, it is found in Morocco, Algeria, Egypt, Asia Minor, Persia, and India, as well as in Europe. In all these countries its flesh is highly prized, and consequently much sought for as an article of food. It is plain, therefore, that if the Teal did not extend its range to thinly peopled countries, and select sites for the duty of incubation which are difficult of detection, it would soon become extirpated. The Rook and the Heron nidify in the most conspicuous places, and the cradles for their young are so prominently displayed that they may be seen from a great distance; the Teal, on the contrary, resorts to the most secluded situations for this purpose; and hence it is the bird still continues so abundant, and that such large numbers are annually sent to our markets during the autumn and winter months. To what cause are we to assign the delicate flavour of the Teal? It is most probably due to the nature of the food upon which it subsists: this is neither fish nor any animal substances that can impart a strong or rancid flavour, as in the case of those species of the family whose lives are spent upon the seas—Scoters, Eiders, &c. No; the food the Teal consists of the points of the finest grasses, the leaves of water-plants, seeds, grain, insects, small freshwater mollusks, and probably worms.

As autumn approaches, the rivers, rivulets, and the great ponds of the woodlands and open moors are all more or less resorted to by the Teal in small parties of eight or ten in number, or in flights of fifty or more. In these situations, the birds, if unmolested, remain during the entire day on the surface of the water, rising and falling with every ripple, or sitting on the banks; as evening approaches, they become more animated, and the whistling *crick* of the male is heard; and when night begins to throw a veil over the face of nature, they simultaneously rise, and quit the waters for the morass, the ploughed field, the oozy mud-bank, or wherever they may obtain a supply of food; at daylight they return to their usual sanctuary, where they preen their feathers, and the males swim round each other in circles before settling to rest for the day.

These latter remarks apply to the bird as seen with us in autumn and winter, when it has partially or wholly left the northern parts of our islands for the more temperate ones of the south. As spring approaches, most of those that have escaped the gunner and the devices of the decoy-man return again to the places of their former resort, and there incubate in all suitable situations. Some, however, stay and breed in many of the counties of England and Ireland. The site chosen is sometimes on the hill-side, in the neighbourhood of a river or loch, at others far away out on the heath or on the moor, even to the distance of many miles, the slight nest being placed in the midst of the heather, in a tussock of grass, or any other herbage that may effectually screen it from sight. A little rill of water may perchance be close at hand, or a wet sloppy morass or a pool not far off, to which the young, on their exclusion from the egg, are immediately conducted, and where they are most assiduously guarded by their parents from the attacks of harriers and any other animals by which their lives may be endangered; but the voracious pike, which often abides in such situations, not unfrequently lessens their number. At Scoulton Mere, in Norfolk (celebrated for one of the largest colonies of Black-headed Gulls in England), several pair breed annually, and the proprietor, Major Weyland, affords them strict protection. Their nests are usually placed in the shrubberies and plantations which surround the Mere.

“The Teal,” says Mr. Lubbock, “is taken every year in great numbers in our decoys, in that at Winterton, in particular, where more than two hundred have been caught at once in a single pipe. Although it

congregates in immense numbers, in decoys it does not fly in such large flocks as many other Ducks, from twenty to twenty-five Teal being a considerable number. I have once known of a flock of sixty, but this is a very singular occurrence."

Unlike most other kinds of birds, all the Ducks undergo a second seasonal change, and the Teal among their number: during the spring and the early part of summer the male is dressed in gay attire, which, after the breeding-season, is exchanged for a more sombre livery, so closely assimilating to that of the female that it is not easy to distinguish one sex from the other; this plumage is carried until late in the autumn, when it is again exchanged for the gayer dress.

The flight of the Teal is dashing and spirited; it rises directly from the water, and flies off in a straight line, or threads with vast facility through the branches of the alders and other trees growing by the sides of the little nooks and secluded places in which it is frequently flushed. Wonderfully rapid, indeed, is the flight of this bird when fairly on the wing, or when it comes sweeping round the sportsman, who may be on the *qui vive* for a shot, and who must be quick, indeed, if he wishes to bag any of the flight.

On the water the Teal is light and buoyant, swimming high above the surface, and displaying its fine plumage to the greatest advantage, particularly the beautiful buff stripe near the scapularies of the male; on the land it has none of the awkward gait of the diving-ducks, but walks with ease and comparative elegance of movement.

The Teal readily becomes semi-domesticated, and will breed in the ponds and lakes of the pleasure-ground, even in such situations as the Zoological Gardens in the Regent's Park. The decoys, in which the greater number sent to our markets are taken, differ much in their character; some are great open sheets of water, like Fritton in Suffolk, while others comprise a number of ponds, as at Nacton in the same county. In that first named, Mallards, Pintails, Widgeon, and Teal are often to be seen indiscriminately mingled; but at Nacton it is far otherwise: there each pond is tenanted almost exclusively by a single species, the Teal always going to the smallest and the highest up the glen—a circumstance of great advantage to the owner, G. Tomline, Esq., who, through his clever decoy-man, Skelton, can obtain a dozen Teal any morning he pleases, without disturbing the Mallards and other birds below. I shall not easily forget how much I was interested by the sight presented to me on visiting this peculiar decoy, nor Mr. Tomline's kindness in forwarding to me from time to time examples of all the Duck tribe, taken therein in their finest states of plumage, for the furtherance of the present work—an act of courtesy and liberality which I have much pleasure in here acknowledging.

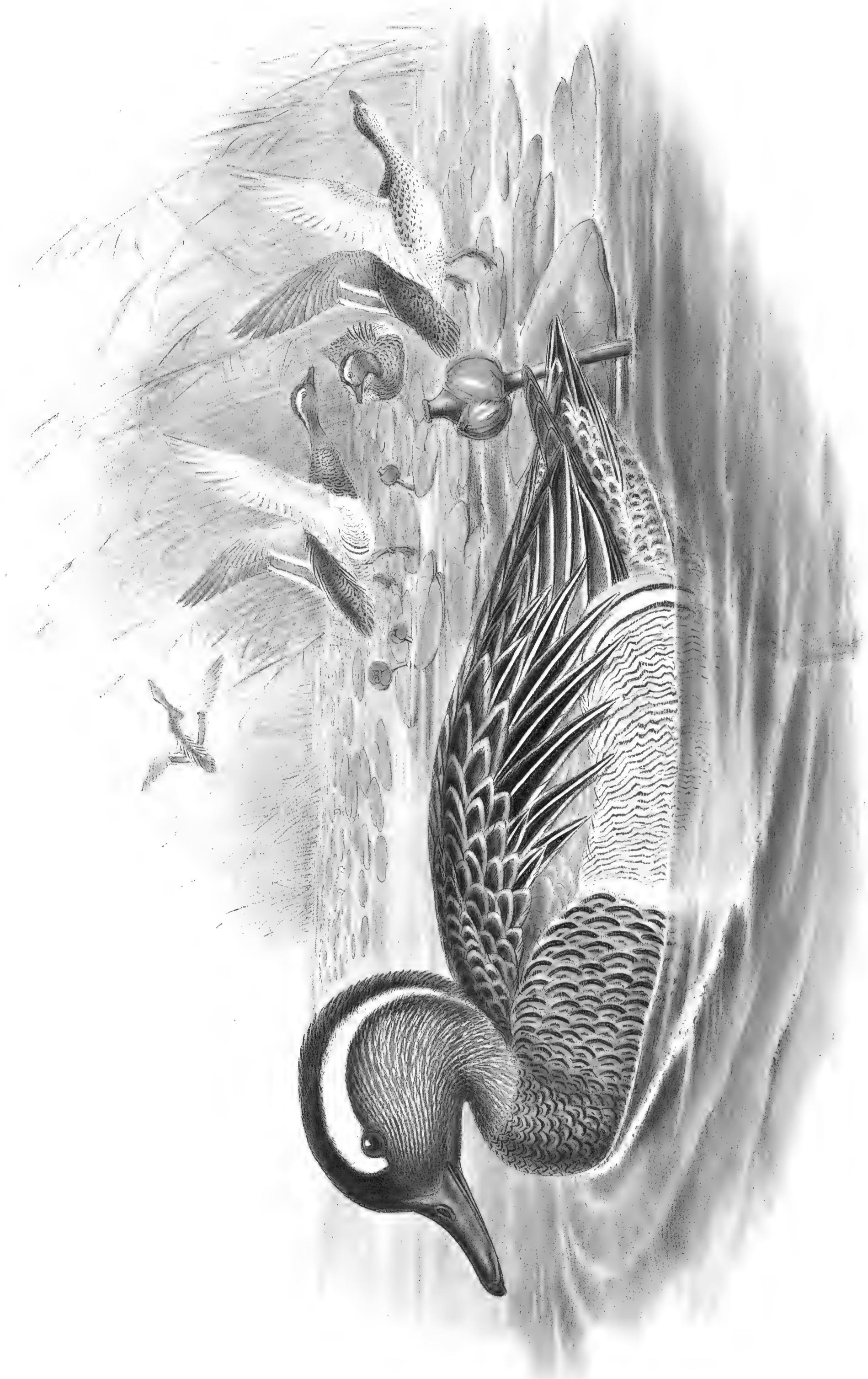
"The well-known Teal," says Mr. Jerdon, "is one of the most abundant of the visitors to India. It frequents tanks and rivers, often in immense flocks. Large numbers are netted or caught in various ways to supply the Tealeries. It is strictly a night-feeding species; and about sunset immense flocks may be seen and heard flying in different directions to their feeding-grounds." In Cunningham's 'Ladakh, Physical, Statistical, and Historical,' it is mentioned that he "shot three Teal on the Saraj Dal, a small lake at the head of the river Bhága, at an altitude of 16,000 feet."

That ardent lover of nature, and excellent sportsman, St. John, speaking of the Teal as seen by him in Sutherlandshire, says it "can scarcely be called a winter bird with us, although occasionally a pair or two appear; but in spring they come in numbers to breed and rear their tiny young in the swamps and lochs. Nothing can exceed the beauty and neatness of this miniature Duck. It flies with great swiftness, rising suddenly into the air when disturbed, and dropping as quickly after a short flight. In spring the drake has a peculiar whistle; at other times the note is a loud quack. A pair of Teal, if undisturbed, will return year after year to the same pool for the purpose of breeding. Like the wild Duck, they sometimes hatch their young a considerable distance from the water, and lead them immediately to it. In some of the mountain lakes the Teal breed in great numbers. When shooting in August, I have occasionally seen a perfect cloud of these birds rise from some grassy loch."

The eggs are of a lengthened form, measuring one inch and nine lines in length by one inch and four lines in breadth: they are of a creamy white, and eight to twelve in number. The nest is composed of grasses, pieces of flags and various kinds of herbaceous plants, and lined with down and feathers.

In North America our Teal is represented by a distinct species, the *Querquedula Carolinensis*, which much resembles it; but the males of the Transatlantic bird are easily recognized by the absence of the buff stripes on the back, and the presence of a light-coloured crescent on either side of the breast, just in front of the wing.

The accompanying Plate represents a male and a brood of young, of the size of life, with a reduced figure of a female in the distance.



QUERQUEDULA CIRCULA.

QUERQUEDULA CIRCIA.

Garganey.

Anas Circia, Linn. Syst. Nat., tom. i. p. 204.

— *Querquedula*, Linn. *ibid.*, p. 203.

Querquedula, Briss. Orn., tom. vi. p. 427, pl. 39. figs. 1 & 2.

————— *æstiva*, Briss. *ibid.*, p. 445.

————— *Circia*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 143, pl. 51.

————— *circia*, *glaucopteros*, et *scapularis*, Brehm, Handb. der Naturg. aller Vög. Deutsch., pp. 881, 882, 883.

Pterocyanea querquedula, Bonap. Compt. Rend. de l'Acad. Sci., tom. xliii., séances des 15 et 22 Sept. 1856.

Cyanopterus querquedula, Blas. List of Birds of Eur., Engl. edit. p. 21.

It may be considered by some of my contemporaries that, in accordance with the views of modern systematists, I ought to have adopted the generic titles of *Nettion* and *Pterocyanea* or *Cyanoptera* for the Teal and Garganey respectively; but, while I admit the desirability of separating them from the old Linnæan genus *Anas*, I do not think they differ so much from each other as to warrant their being regarded as pertaining to distinct genera; besides which I am aware that by many of my readers these minute subdivisions are considered unnecessary. I have therefore retained them both under the term *Querquedula* proposed by Stephens long anterior to those above mentioned.

All that I have said respecting the beauty and elegance of the Teal equally applies to the present bird, since, if possible, its summer dress is even more graceful than the nuptial costume of the Teal, the beautiful pencillings of its flanks, the lengthened and pointed form of its scapularies, the delicacy of its grey tints, the crescentic edgings of the feathers of its breast, and the conspicuous white superciliary mark, contrasted with the darker colouring of the surrounding parts, rendering it second to none of the *Anatidæ*. Unlike the Teal, however, this species must be regarded as a visitor to, rather than a stationary species in, our islands; although it regularly breeds, but in small numbers, in Norfolk, and perhaps some others of the eastern counties of England. The Teal, as will be seen by my account of that species, breeds with us regularly, and is far more abundant here in winter than in summer, its number, at that season, being greatly increased by accessions from distant northern countries. The Garganey or Summer Teal, on the other hand, is most abundant in spring, at which season vast numbers arrive from the southern and eastern portions of the continent. In all parts of France, Holland, Germany, Spain, and Italy it is far more numerous than in our islands; and the further we proceed in an eastward direction, the more abundant it becomes. North Africa, Persia, and India appear to be especially congenial to it; and we learn from Mr. Swinhoe that it is also an inhabitant of China and the island of Formosa. Its principal resort in our islands are the eastern and southern counties, or those which are directly opposite to the shores of the Continent. In the month of May it may be looked for on the coasts of Suffolk, Norfolk, and Lincolnshire, whence many are annually sent to the London markets for natural-history purposes or for the table. In Scotland and in Ireland it is far less numerous than with us, and is even less abundant in the latter country than in the former.

Mr. Rodd states that it is a rare visitant to Cornwall; but, a few summers since, several were obtained in the neighbourhood of Penzance in very beautiful plumage. Its occurrence in Wales is also said to be rare, as it is along the western coast generally.

The Rev. R. Lubbock informs us that this elegant little Duck breeds sometimes in Norfolk, and that "broods are often found upon the broads in July and August. They generally appear in March, whence their name of Summer Teal. I have seen the immature bird in August; on comparing it with two young Teal, killed on the same day, it was easily distinguished by the greater length of its neck, more slender habit in general, and the lighter colour of the plumage. A friend received a pair alive, in March 1822, from the Winterton decoy, the female of which deposited an egg in the basket during her journey. The Garganey is very rarely seen in severe weather; indeed I cannot recollect a single instance. Great numbers are bred in confinement in Holland. According to the following observation, taken from Girdlestone's 'Memoranda,' the nest of this Duck is rarely found:—'Garganey breed often in Norfolk; but as they deposit their eggs in the most inaccessible reed-beds, their nests are never discovered, although the young birds, yet unable to fly, are often seen. They usually appear on the broads in March, and those which do not intend to breed here depart about the end of April.'"

Referring to this passage, Mr. Alfred Newton writes to me:—"Since Mr. Girdlestone's time the nests have been often found. I have several eggs from Hoveton Broad, where it breeds annually, and I believe that a considerable number of birds of this species are always found among the 'flappers' which are shot in July."

Dr. Jerdon states that "the Blue-winged or Garganey Teal is, perhaps, still more abundant in India than the Common Teal. It occurs in vast flocks, feeding at night chiefly, and has a swift flight. Numbers are caught and fed throughout the summer in our Tealeries, and, like the Teal, are most excellent food. Vast quantities of both these birds are annually caught alive, some by large flap-nets, others by nooses fixed to a long line across a jheel, and in some places by a man wading with his head above water, concealed in a large earthen chatty, several of which have been previously set afloat."

The Garganey becomes tolerably contented in confinement, but is very sensitive to the cold of our climate; were this not the case, I know of no aquatic bird so well adapted to the ornamental water, or that would contribute more to the pleasure of those admirers of the Duck tribe who may be desirous of keeping some of the species in a semidomesticated state.

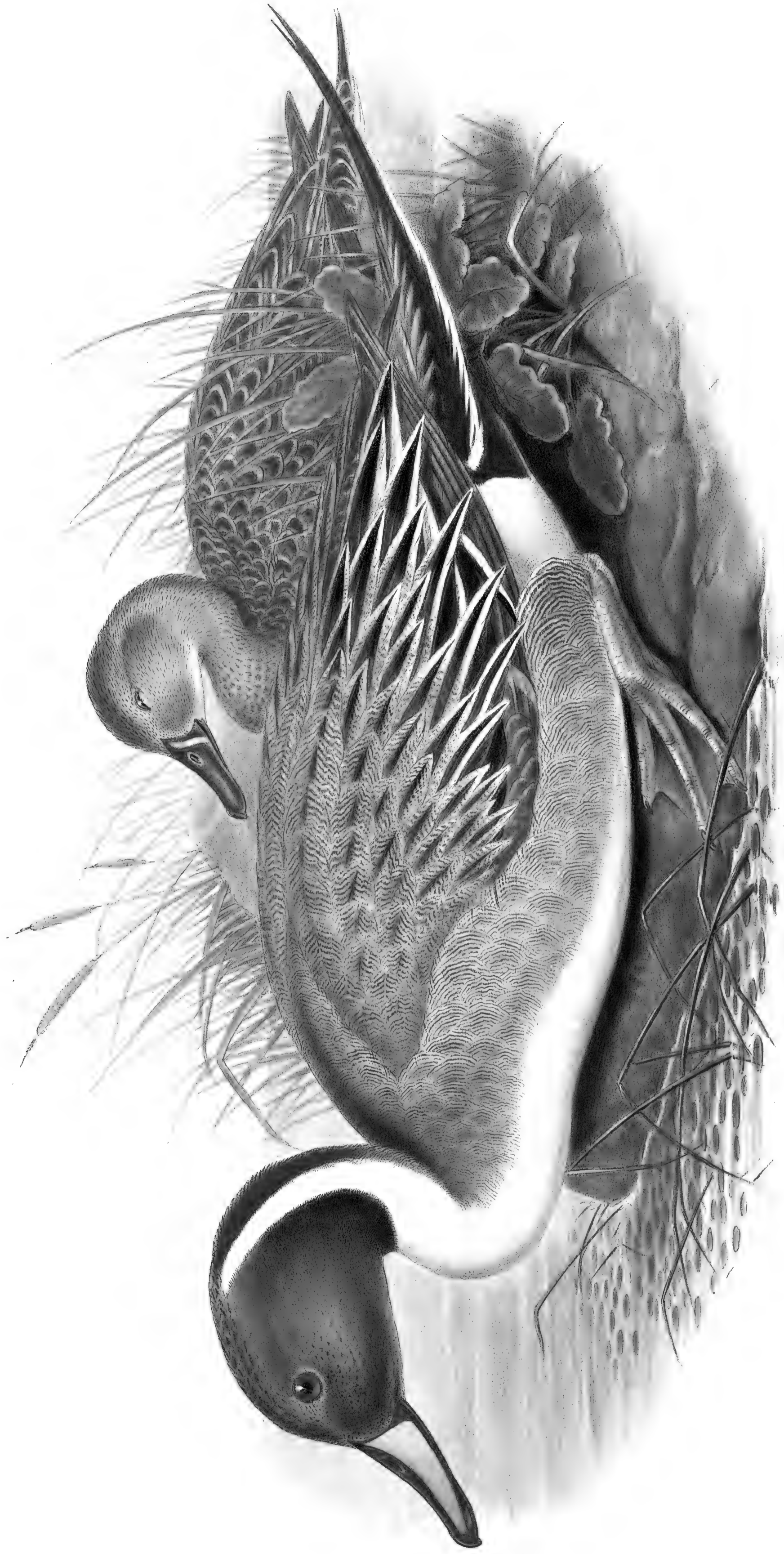
The male Garganey, being subject to the same changes of plumage as the Teal, throws off about mid-summer the fine livery in which he is decked in spring, and assumes a more sombre dress, somewhat resembling that of the female, in which state he remains until the ensuing spring, when he is again stimulated to pair and perform the duty of incubation.

The nest is said to be formed of dry grass, and placed in a bunch of reeds. The eggs, which are ten or twelve in number, are of a buff colour, one inch and nine lines in length by one inch and three lines in breadth.

The following is a free translation of some passages respecting the Garganey from M. Bailly's 'Ornithologie de la Savoie':—

"The Garganey arrives in Savoy during the month of March and the early part of April, in pairs or small companies, which stay on our waters and marshes for a few days only, being stimulated to proceed to the North of Europe for the purpose of reproduction; but occasionally some couples remain and breed in our dreariest marshes. There they select, in a miry place, an inaccessible spot, raised above the water and covered with compact tufts of rushes and grass, for the formation of the nest, which is made by the female thrusting herself into one of the thickest of these tufts, treading it down in the centre, and lining the space with herbage, feathers, and down. It is extremely difficult to discover the nest, in consequence of the grasses overhanging it, and the stalks of the rushes concealing the entrance. The eggs are from seven to twelve in number, and are of a dirty white, lightly tinted with red. Each family keeps to itself till the end of August or the beginning of September, when those reared in the same district unite and emigrate. During this autumnal movement, the bird passes through our valleys, but always in smaller numbers than in the spring, none remaining during the winter. Although timid, the Garganey is easily approached, is elegant in contour and plumage, vivacious in its movements both in the air and on the water, flies in troops, and, while so doing, is seen to sport and play in a thousand ways, and to emit its cry, which is very similar to that of the Land-Rail, which resembles *krec-krec* or *kric-kric*, and is often repeated in the same tone, whence its trivial names of *Criquet* and *Criquant*."

The Plate represents a male, of the natural size, and a group of both sexes, reduced. The plant is the *Nuphar lutea*.



DAFILA ACUTA.

Walter. Scap.

J. Gould & H. C. Richter del et lith.

DAFILA ACUTA.

Pintailed Duck.

Anas acuta, Linn. Faun. Suec., p. 44.

— *caudacuta*, Leach, Syst. Cat. of Indig. Mamm. and Birds in Coll. Brit. Mus., p. 38.

Dafila caudacuta, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 127, pl. 49.

— *acuta*, Eyton, Hist. of Rarer Brit. Birds, p. 60.

Anas longicauda (Briss.), Brehm, Vög. Deutschl., p. 868.

— *caudata*, Brehm, *ibid.*, p. 869.

Trachelonetta acuta, Kaup, Natürl. Syst., p. 115.

Querquedula acuta, Selb. Ill. Brit. Orn., vol. ii. p. 311.

— *caudacuta*, Macgill. Man. of Nat. Hist. Orn., vol. ii. p. 170.

Phasianurus acutus, Wagl. Isis, 1832, p. 1235.

AMONG the British members of the *Anatidæ*, or family of Ducks, there are three species which have especial claims to our notice: these are the Mallard, the Teal, and the Pintail. From the first have sprung all our domestic varieties, the excellence of whose flesh need not be dwelt upon; neither is it necessary to speak in praise of the delicate flavour of that of the little Teal; equal, if not superior, to both, is the flesh of the Pintail, a bird which is characterized by a greater elegance of form, and a more pleasing contour, than either of its congeners—one, moreover, which sits on the water with especial grace, and swims with unusual speed. All three species assimilate in the readiness with which they become partially domesticated, imparting life to our lakes and ornamental waters, in their wide and almost general distribution over the globe, and in the total change of costume which takes place at opposite seasons of the year. The plumage of the Pintail, though not so gay and contrasted as that of the Mallard or the Teal, is very pleasing, from its chaste and harmonious colouring; in form the bird is slender and elegant, its neck being considerably lengthened, and its two central tail-feathers prolonged to such an extent as to have obtained for it the name of Sea-Pheasant. How great is the contrast between the long central tail-feathers of this species, and the short curled ones of the Mallard!

In the British Islands the Pintail is very local; and although our eastern decoys supply the markets of London with a goodly number about a month before and after Christmas-time, few are either taken or shot at other seasons. Montagu states that it is most abundant in the north of England and Scotland, and especially in the Orkney Islands. "This assertion, however," says Mr. Selby, "I must in part contradict, as the result of long observation tells me it is of *rare occurrence* in the *northern counties* of England; and the same may be said of the southern districts of Scotland." Montagu's assertion, however, with regard to the Orkneys, is confirmed by the late Robert Dunn, who states that it is tolerably plentiful there, particularly in the island of Sanda, where it frequents the inland lakes more than the sea-shore, and leaves early in spring; he never met with it in the neighbouring Shetlands. In Cornwall, Mr. Rodd tells us that it is common at the Land's End in severe weather.

"A winter visitant to this country," says Yarrell, "it remains here till the spring, and is obtained by wild-fowl shooters on the coast as well as by fenmen on the rivers and lakes of the interior. It is one of the first species taken when the decoys begin to be worked in October." In Ireland it is a regular winter visitant in small numbers, and, as in England, is locally distributed. With regard to its distribution over other parts of the world, I may mention that it is tolerably common in North Africa, in the Grecian Islands, and thence throughout Europe, from the Mediterranean to the extreme north of Lapland, in Palestine, Asia Minor, throughout India, the Amoorland, China, Formosa, and Japan; in America it is found from the fur-countries to Honduras, and, doubtless, in all those parts of Mexico that are suitable to its habits. In confirmation of this vast extent of range, I may quote the following authorities.

Mr. E. C. Taylor, Dr. Leith Adams, and Mr. S. S. Allen, all enumerate it among the birds of Egypt; Captain Loche states that it inhabits the three provinces of Algeria; the Rev. Mr. Tristram mentions that specimens were shot near the brook Kedron, in Palestine; Mr. Jerdon says it is one of the most numerous winter visitants to India, frequenting large tanks and jheels, often in immense flocks; Mr. Swinhoe includes it in the lists of birds seen by him at Amoy, and between Takoo and Peking, in China, and in the island of Formosa; Captain Blakiston and Mr. H. Whitely in the birds of Japan; Von Schrenck in those of Amoorland; Dr. Walker obtained specimens, during the voyage of the 'Fox,' at Godhaven, in Greenland; Captain Blakiston in British North America; Mr. Brown includes it in his 'Synopsis of the Birds of Vancouver's Island;' Dr. Baird states that it is found over the whole of North America; and Mr. Salvin saw it at Belize, and observed it to be common on the Lake of Dueñas during winter.

That the Pintail does not habitually breed in this country is certain; but Mr. John Hancock informed Mr. More that he has known it to breed spontaneously in a swamp in Northumberland, which is now drained, and he believes the bird still breeds occasionally on the Northumbrian moors.

The evidence adduced by Mr. Henry Milner and Mr. Wolley in the following extract from the last edition of Mr. Hewitson's 'Illustrations of the Eggs of British Birds,' tends to prove that the eggs of the Pintail are unusually small for the size of the bird, and, moreover, are very like those of the Long-tailed Duck (*Harelda glacialis*); hence it will be read with interest.

"A few years ago," says Mr. Wolley, "I was very much surprised at the appearance of an egg given me by a gentleman (Mr. Henry Milner), who had brought it from Iceland in 1846, and who assured me it was out of a nest from which he himself had shot a female Pintail as it rose. It seemed so small for the bird, was so different from eggs previously supposed to be genuine, and looked like what I had been accustomed to consider Long-tailed Duck's. This single egg from Iceland, I accordingly valued very highly, and looked upon it as a veritable Pintail's, though this discovery of Mr. Milner's, like all others founded upon single nests, perhaps still wanted confirmation.

"In common with some other ornithologists, I had long been almost in a state of despair about most of those Ducks which do not occasionally, at least, breed in Great Britain. It was this which, more than anything else, determined me to take a journey to the far north; and, for many reasons, the fenny regions beyond the gulf of Bothnia seemed the most promising. On the 7th of June, 1853, I was some hundred miles up the river which forms the boundary between the territories of the King of Sweden and the Czar. Stopping at a house by the water-side, I could get nothing to eat but a few eggs, among which were nine of some kind of Duck, the appearance of which was exactly like the one I have mentioned as being brought from Iceland; but, having no means of identifying them, I dropped them into the kettle without the least remorse. On the 14th of June, some hundred miles further north, in fact within half an English mile of where I am now writing (Muonioniska), after a long and fruitless search for eggs, a Duck fluttered up a few yards off. There was a rush to the spot, greatly to the peril of the nest, sunk as it was in the moss. It was lined with down, and contained four eggs. The place was marshy, a few yards from the forest, on the rise of the hill. At midnight I went again to try and obtain the bird; it was just taking a circle over the nest, and it bent its long neck down to see that all was safe. I had a good look at it, as the sun was still shining. Twelve hours afterwards I had a shot at it as it rose rather wildly; but it did not seem to be hurt, and, as I had to continue my journey, I now reluctantly took the eggs; but I hoped that the down would serve to identify them, for amongst it were several breast-feathers. In the meantime, if I could trust my eyes, the bird was a hen Pintail; the eggs were, perhaps, a week sat upon, and just like some others I had attributed to the same bird. On the 18th of June, I and my line of beaters put up the old ones from three nests at different times in the course of twenty-four hours in a large marsh. I saw two very well, one of which I examined with my glass as it stood with its neck up in an open place some sixty or seventy yards off. It was a Pintail. All the eggs were nearly hatching, and the young, of which I preserved one or two, were all of the same species. I also kept the down and scattered feathers from each nest; and now I considered I had genuine Pintail's eggs of my own taking. But the most permanent proof was still wanting—the skin of a bird I myself should obtain from the nest. It was not till last season that I got this proof. On the 20th of May, 1854, I visited the same marsh; and in a little wooded island of a few yards in circuit, a Duck rose almost under my feet, and I shot it, feeling sure it was a Pintail, as it proved to be. There were six eggs, a day or two sat upon. The nest was made of a few twigs, mixed and lined with down from the mother's breast. It is usually made of long bleached grass, or anything that comes to hand. This bird breeds generally in marshes, and not very near large pieces of water. The eggs seem to be usually six or seven in number. The Pintail is one of the earliest breeders among the Ducks. They appear as soon as the water begins to open, and may be seen standing in pairs at the edge of the ice. As soon as the Ducks are hard sitting, the Drakes go about in flocks, having apparently deserted their mates." The eggs are of a clay-colour, slightly tinged with olive, and measure about two inches in length by one inch and a half in breadth.

In Lapland Mr. Wheelright always found the nest of the Pintail in the small willow plantations that skirt the foot of the fells. He obtained his first nest on the 4th of June.

Different as is the garb of the two sexes in winter, as shown on the accompanying Plate, soon after the female has incubated her eggs, the male throws off his finery, and assumes a dress so like that of his mate, that, except in size, the two sexes are very similar in appearance; the summer dress, however, is carried but a short time; for early in autumn the fine winter costume of the male is again assumed. Selby believed that these changes were produced by a change in the colour of the feathers, rather than by a renewal of them; but I think that this is not the case, and that the feathers are shed upon each occasion.

The Plate represents an old male, of the size of life, with a reduced figure of a female in the distance.



CHAULELASMUS STREPERA.

J. Gould & H.C. Richter, del. et lith.

Walter, imp.

CHAULELASMUS STREPERA.

Gadwall.

Anas strepera, Linn. Faun. Suec., p. 43.

— *cinerea*, Brehm, Vög. Deutsch., p. 871.

Chauliodus strepera, Swains. Journ. Roy. Inst., vol. ii. p. 19.

Ktinorhynchus strepera, Eyton, Monogr. Anat., p. 137.

Chaulelasmus strepera, G. R. Gray, List of Gen. of Birds, 1840, p. 74.

Querquedula strepera, Macgill. Man. Nat. Hist., Orn., vol. ii. p. 169.

I BELIEVE it will be admitted that some species of our water-fowl are numerically much more abundant than others: thus the common Wild Duck is extremely plentiful in all the countries it inhabits; and the same may be said of the Teal; while the Shoveller and Tufted Duck, although common birds, are fewer in number, and somewhat less circumscribed in their habitat. The Gadwall is not numerous anywhere. In the British Islands, as in Europe generally, except, perhaps, in Holland, its appearance is uncertain, and its numbers never very great; indeed it mostly occurs either singly or in pairs.

Leadenhall Market, the great emporium for water-fowl, is the best locality for the British collector to obtain specimens for his cabinet—a batch of aquatic birds from the decoys of Suffolk, Norfolk, and Lincolnshire frequently comprising a solitary Gadwall; and examples are often occurring in the great crates of Ducks sent from Holland. In the central and southern parts of the European continent it is about as common as in Holland, North Africa, Asia Minor, and India; in fact we may say that it inhabits the temperate regions of both the Old and the New World; for it is distributed over the whole of the northern portion of America, from the fur-countries to Florida, and in the Old World, from Europe to Japan.

“From Dr. Richardson’s account,” says Swainson, “it braves the rigours of the arctic regions, breeding in the wooded districts of the Barren Grounds, up to their most northern limits, in lat. 68°; and he shot specimens on the Saskatchewan, towards the middle of May.

“The haunts of the Gadwall, in America, are the lakes, rivers, and marshes of the interior, particularly such as abound with reeds and rank aquatic grasses, in which they so much delight as seldom to visit the sea-coast: their food of course is procured in such situations, and consists of aquatic insects, plants, and seeds. They feed during the night, and pass the day concealed amongst the weeds and rushes. In comparison with the Mallard and other kindred forms, its powers of flight are very superior; and, unlike most of the river-ducks, it dives with the same facility and frequency as many of the marine ducks.”—Anim. in Menag., p. 252.

Little or no information respecting the breeding-places of the Gadwall in the Old World has been recorded; and perhaps the only authentic eggs known are those laid by captive specimens in our menageries. The bird has bred repeatedly in the Gardens of the Zoological Society; and an egg “left unhatched,” says Mr. Yarrell, was of a buffy white, tinged with green, and measured two inches and two lines in length, by one inch and eight lines in breadth. Mr. Hewitson, in the third edition of his ‘Coloured Illustrations of the eggs of British Birds,’ states that Mr. Proctor “found a single nest of the Gadwall in Iceland, placed near the edge of some fresh water, among reeds; it was composed of dry grass, and the eggs were five in number.” But Mr. Alfred Newton is somewhat doubtful as to the bird’s breeding in that country; for in his ornithological notes to Mr. Sabine Baring Gould’s ‘Iceland, its Scenes and Sagas,’ he says, “looking upon this as a bird of much more southern range, I have omitted its name from my list, but shall willingly own I am wrong, on receiving good testimony to the contrary.”

Thompson says the Gadwall is of rare occurrence in Ireland, and enumerates only about twenty examples as having come to his knowledge in eighteen years, but adds that he had been informed by Mr. J. Watters, Jun., of Dublin, “that he has seen at least one on sale by wild-fowl dealers in the course of every winter for some years past, all of which had been killed in Ireland,” and remarks “this singularly agrees with what is said of the Gadwall in the east of England; for the Rev. Mr. Lubbock informs us that it is scarce in Norfolk, but is generally seen in Norwich market once or twice in the winter.”

Mr. Jerdon, in his recently published ‘Birds of India,’ informs us that the Gadwall is by no means a rare bird in any part of that country during the cold weather, that it generally frequents the more open and larger tanks in moderately large parties, that its flight is rapid, and its voice not unlike that of the common duck, and that it is justly considered one of the best wild ducks for the table. Temminck states that specimens from Japan do not differ in any respect from those found in Europe.

Structurally the Gadwall is a swimming and buoyant rather than a diving bird, its general contour being

graceful, its bill small and narrow as compared with that of other ducks, its feet delicate, and its wings long and pointed. "The windpipe," Mr. Yarrell informs us, "is rather small in calibre, with a slight enlargement of the tube about two inches above the bony protuberance. The voice is loud; and hence it obtained the name of *strepera*." Its food, like that of the Common Duck, the Pintail, and the Teal, is said to consist of grasses and water-plants; its flesh is savoury and excellent.

That with proper care and attention this species might become semidomesticated seems likely. I have mentioned above an instance of its breeding in the Gardens of the Zoological Society; and Dr. Bachman, in a note to Audubon, says:—"In the year 1812 I saw in Dutchess County, State of New York, at the house of a miller, a fine flock of Ducks, to the number of at least thirty, which from their peculiar appearance struck me as different from any I had before seen among the varieties of the tame Duck. On inquiry, I was informed that, three years before, a pair of these Ducks had been captured in the mill-pond, whether in a trap or by being wounded, I cannot recollect. They were kept in the poultry-yard, and, it was said, were easily tamed. One joint of the wing was taken off to prevent their flying away. In the following spring they were suffered to go into the pond, and they returned daily to the house to be fed. They built a nest on the edge of the pond, and reared a large brood. The young were perfectly reconciled to domestication, and made no attempts, even at the migratory season, to fly away, although their wings were perfect. In the following season they produced large broods. The family of the miller used them occasionally as food, and considered them equal in flavour to the Common Duck, and more easily raised."—*Aud. Orn. Biogr.*, vol. v. p. 354.

To say there is no external difference in the sexes would be to assert an untruth; but, the male being much less adorned than the males of its congeners, the sexes are necessarily much more alike. The female is in fact very similarly clothed to the female of the common Wild Duck (*Anas boschas*), but may at all times be distinguished from her mate by her plainer clothing and by the greater delicacy of her structure.

The male has the head and neck greyish brown, spotted and ringed on the nape with dark brown; the under part of the neck, back, and breast lunulated with black; scapularies and sides barred with zigzag lines of white and brownish black; lesser wing-coverts chestnut-red; greater coverts, rump, and under tail-coverts black; speculum pure white, bordered below with black, so as to form three broad bands on the wing of chestnut, black, and white; abdomen dull white; rump and tail-coverts glossed with green; bill blackish olive; irides hazel; legs, toes, and interdigital membranes orange-yellow, claws black.

The female has the head mottled brown, streaked with blackish brown; a pale stripe over the eye; upper and under surface light reddish brown, each feather edged with a lunule of blackish brown in the centre, lesser wing-coverts hair-brown, with paler margins; speculum the same as in the male; tail dark brown, edged and tipped with buffy brown and white; chin and throat white; abdomen white; bill paler than in the male, and margined with yellowish orange.

The Plate represents a male of the size of life, and a female considerably reduced.



NYROCA FERINA.

NYROCA FERINA.

Pochard.

Anas ferina, Linn. Faun. Suec., p. 45.

— *rufa*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 515.

Fuligula ferina, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 193.

Nyroca ferina, Flem. Phil. of Zool., vol. ii. p. 260.

Aythya ferina, Boie, Isis, 1822, p. 564.

— *erythrocephala*, Brehm, Vög. Deutschl., p. 919.

THE Pochard, like so many other members of the *Anatidæ* or Duck tribe, must be regarded as a migrant rather than a resident species in the British Islands; for, although it has been known to breed therein, the instances are but few in number, and have occurred at uncertain intervals. It is, indeed, strictly a winter visitant, arriving in autumn from, and departing again in spring to, more eastern and northern countries. The numbers which resort to Ireland are but few as compared with those that visit Scotland and England; and even here it is less abundant in the western portions of the country than it is in the eastern and southern. In Iceland it has been seldom observed, and is said to be only occasionally seen in Norway, Sweden, and Lapland. Temminck gives as its habitat "the north; tolerably common in Russia, in Denmark, and the north of Germany; appears twice a year as a migrant on the coasts of England, Holland, and France; common in autumn on the seas, the lakes, and rivers of Germany, Holland, and France." It is also found on the great lakes of Algeria; and Mr. Jerdon informs us that it occurs throughout the whole of India, in small parties, generally on the larger and more open tanks, but appears to be more abundant in the western provinces than in Bengal. North America was also included among its habitats until a very recent period; but Dr. Baird and some other ornithologists regard its American representative as distinct, and it is now known as *N. americana*.

As an article of food the Pochard ranks among the best of our winter ducks; but I imagine that its excellence in this respect depends greatly upon the nature of the food of which it has partaken for some time previous to its capture; for, like that of the celebrated Canvas-backed Duck of America (to which it is nearly allied), the flavour of its flesh is somewhat uncertain; under favourable circumstances it doubtless merits the description given of it by Mr. Walker in the 'Original,' "Its flesh is exquisitely tender and delicate, and may almost be said to melt in the mouth; but it has little of the common wild-duck flavour, and is best eaten in its own gravy, which is plentiful, without either cayenne or lemon-juice."

The entire structure of the Pochard denotes that its diving-powers are of no common kind; and accordingly we find that it spends some portion of its time on the ocean diving for mollusks and other marine objects; at the same time it evinces a great partiality to rivers, broads, inland lakes, and ponds, on the borders of which it finds an abundance of those succulent grasses and roots of plants which communicate both flavour and tenderness to its pectoral muscles.

No bird is better adapted for the aviary and ornamental waters than the Pochard, and, from the tameness of its disposition and the beauty of its appearance, it is often selected for this purpose.

"Although this well-known bird," says Swainson, "truly belongs to the natural division of the *Fuligulinæ* or Sea-Ducks, it is yet one of those very few which frequent fresh water in preference to salt; and it possesses, moreover, a very decided aptitude for domestication; hence, from being almost a common bird in a state of nature, and therefore easily procured, it is one of those which every gentleman may possess with advantage if his grounds contain a piece of water sufficiently large to admit of enjoyment to the bird, and where its dexterity in diving may interest and amuse the spectator. It becomes very tame in confinement; and we have Colonel Montagu's authority for saying that no bird appears sooner reconciled to the menagerie. One that was in his possession, and that had been winged, took to feeding on corn immediately, and after three years' confinement was in high health and very tame; it should nevertheless have free access to water, being unable to exert itself much on land from the backward position of its legs and the great size of its feet.

"In the British Islands it is, then, most abundant in the fens of Lincolnshire and Norfolk; but of late years the numbers have very considerably diminished, and the majority of those that are sent to the London markets, where they are often called Dun birds, are procured by shooting. Mr. Selby says that in the northern parts of England, and in Scotland, it is somewhat rare. This he attributes to the deficiency of some particular food or from those districts being out of its migratory line; we are more disposed, however,

to attribute it to the simple fact that these northern parts of the empire are too cold for the Pochard, in proof of which it passes them over that it may, by going more southerly, secure to itself a warmer atmosphere for the winter.

“The Pochard is a remarkably good diver, swims very rapidly, and flies swiftly, in a compact flock, differing in this from the generality of the Ducks, which fly in a triangular form. Mr. Selby says that it breeds among aquatic herbage, laying twelve or fourteen eggs of a greenish-white colour; Mr. Yarrell, ten or twelve.

“In former times, when these birds were much more abundant than they are now, vast numbers were taken with nets. This mode of capture is thus described by Montagu. ‘Poles were erected in the avenues of the decoy; and after a great number of these birds had collected for some time on the pool, to which Wild Fowl only resort by day, going to the neighbouring fens to feed by night, a net at a given time was erected by pulleys to these poles, beneath which a deep pit had previously been dug; and as these birds go to feed just as it is dark, and are said always to rise against the wind, a whole flock may be taken together in this manner; for when once they strike against the net they never attempt to return, but flutter down its sides till they are received into the pit, whence they cannot rise; and thus, we have been told, twenty dozen have been taken at one catch.’”—*Anim. in Menag.* p. 259.

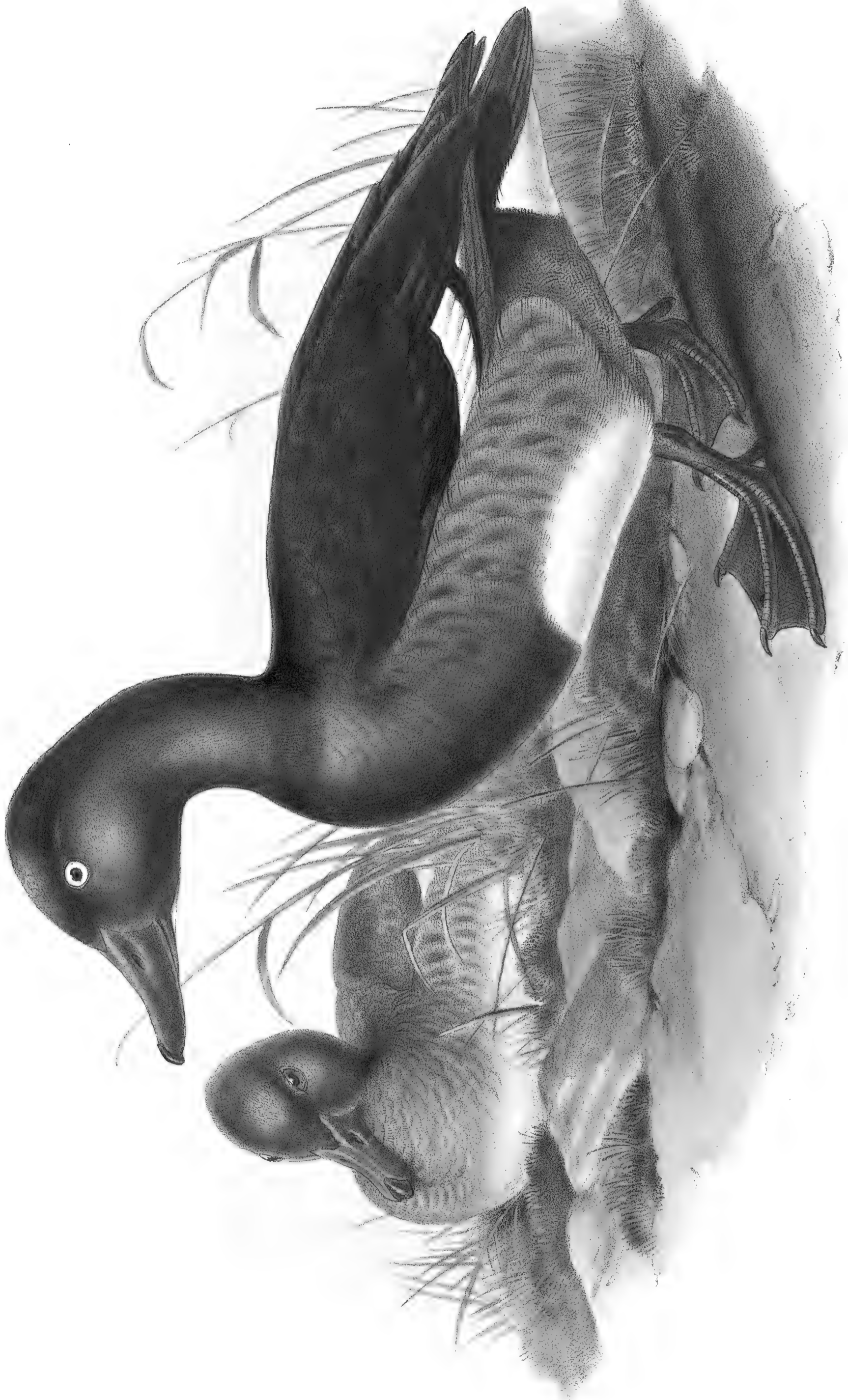
The Rev. Mr. Lubbock, in his ‘Birds of Norfolk,’ says:—“The Pochard frequents our broads in large flocks during winter, resting generally in the daytime on some of the larger decoys, and in the evening flight removing to the most extensive waters, such as Brandon Water, Horsey Mere, Hickling Broad, &c. This last is a favourite haunt of the Pochard, on account of its shallowness, which gives the bird easy access to those beds of weed from which it draws its support. The whole night is spent by these birds in diving for their food; and the ‘working,’ as the gunners call it, of a large flock of Pochards may be heard on a still night at least half a mile. During this time they, in general, do not present a favourable shot to the fowler, as half the flock is under water, and they sit very widely dispersed. But no sooner does the grey light of morning glimmer faintly than the Pochards begin, as the gunners term it, to ‘head up’ together, in preparation for a flight to their day-quarters, and at this time a very profitable shot is often made with a swivel gun and punt. Although they frequent decoys they will not enter the pipe; or if stragglers do so, they immediately escape by diving back again. The plan of taking this bird by a net stretched on lofty poles, which rises suddenly and takes the Pochards in their flight, has never been resorted to in Norfolk.” The bird is said to breed, occasionally at least, in Norfolk; for, according to Mr. Girdlestone’s memoranda, three examples shot by him on Hickling Broad proved to be young birds, which had doubtless been bred in the neighbourhood; and it is believed still to breed in Yorkshire; for some eggs sold in one of Mr. Wolley’s collections were said to be from that county, but, for obvious reasons, the precise locality was withheld.

Mr. Thompson states that “in Ireland the Pochard is a regular winter visitant, but varies much in numbers in different years. In some seasons scarcely any are to be seen; the more severe the winter the more numerous they generally are. During portions of two or three successive winters about the years 1837, 1838, and 1839 they were very abundant. Where the river called Conswater joins Belfast Bay, at ‘Adam’s Point,’ is a favourite resort; and one day in particular, during a very severe snowstorm, they were literally in thousands there—the surface of the river exhibited one living mass.”

The voice of the Pochard is a low whistle when not alarmed; at other times it becomes a rough croak.

As will be seen on reference to the opposite plate, the two sexes differ considerably in their colouring, the red head and neck and black breast of the male being replaced by mottled brown in the female.

The front figure represents a male, of the natural size.



NYROCA LEUCOPHTHALMOS.

Fig. 1. 186 B. Har. 186. A. 186.

W. 186. 186.

NYROCA LEUCOPHTHALMOS.

White-eyed or Ferruginous Duck.

- Anas nyroca*, Gld. Nov. Comm. Petrop., tom. xiv. p. 403.
— *ferruginea et africana*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 522.
— *glaucion*, Pall. Zoog. Rosso.-Asiat., tom. ii. p. 268.
— *leucophthalmos*, Bechst. Naturg. Deutschl., tom. iv. p. 1009.
Nyroca leucophthalmos, Flem. Hist. of Brit. Anim., p. 121.
— *leucophthalma*, Bonap. Geog. & Comp. List of Birds of Eur. & N. Amer., p. 58.
Aythya nyroca, Boie, Isis, 1822, p. 564.
— *leucophthalmos*, Brehm, Vg. Deutschl., p. 917.
Fuligula nyroca, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 201, pl. 55.
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NOTWITHSTANDING the numerous specimens of this trim little diving Duck that are to be found in the public and private collections of Great Britain, it is by no means a common bird with us; and by far the greater number of the examples alluded to have been purchased in our markets, to which they had been sent, with other wild fowl, from Holland. There is no reliable evidence of its having been procured in Scotland, although one is said to have been seen in the Edinburgh market by Sir William Jardine; and Thompson states that it has not been obtained in Ireland. Mr. Rodd does not include it in his 'Ornithology of Cornwall.' There are, however, several recorded instances of its having been killed in Norfolk and Cambridgeshire and other parts of our eastern coasts; even in Western Europe it is much more scarce than in the eastern portions, such as Turkey, Southern Russia, &c.; there, however, it is abundant enough, and in Asia Minor, Persia, and some parts of India. It also frequents the greater part of North Africa. In France, Italy, Portugal and Spain it is not scarce, but is not to be met with every time the sportsman goes out. It is in autumn and winter, and probably in those seasons only, that it is to be found in the western parts of the Continent, the same periods of the year in fact in which it usually occurs with us. On this head, Mr. J. H. Gurney, jun., writes to me thus:—"According to my experience most Nyrocas are got in Leadenhall market in November. I should say it was very rare to see an adult male, and probably never so early as the month I have named; although I have had at least eight of these Ducks, four of which were bought in English markets, I never saw but one; and in none of the foreign markets have I ever seen a really adult bird: but I have bought what is even more interesting—the nestling. I doubt if it be possible to tell young male Nyrocas from young females by the plumage alone. They present every variation of shade. Even females vary very much in plumage, but get lighter as the spring advances."

Although Temminck states that this bird occurs only accidentally and in small numbers in Holland, it is certainly thence that the greater number (both living and dead) are brought to our markets; his statement, therefore, requires some qualification.

The White-eyed Duck may be readily kept in confinement if provided with suitable ponds, such as those in the Gardens of the Zoological Society, where it not only thrives, but, I believe, has bred. It swims and dives with the greatest ease, and often remains for a long time beneath the surface. Except during its migrations, it generally flies at a low elevation, with a somewhat heavy action. The Rev. F. O. Morris states that "its food, consists of the roots, buds, shoots, and seeds of various aquatic plants, insects, small frogs, the fry of fish, but rarely, according to Temminck, of the fish themselves. Its nest is built among the rushes bordering rivers, ponds, and marshes, is usually composed of the same materials, and is well supplied with down from the breast of the female as a lining. The eggs, which are nine or ten in number, are white, slightly tinged with green, and measure about two inches in length by one inch and a half in breadth. The young are taken to the water and provided with food by their mother as soon as hatched."

The following notes respecting this species by more recent writers will probably be regarded with interest.

"Although the White-eyed Duck," says Mr. Stevenson, "has been killed in many instances in Norfolk, it can only be considered a rare visitant, occurring at uncertain intervals, and generally in severe winters or during the succeeding spring months. Of recent examples I may mention the following:—

"An adult male killed at Horsey, near Yarmouth, on the 16th of April 1850, and four examples shot near Yarmouth in the remarkably cold spring of 1855; of these an adult male was killed on the 12th of February, two other birds during the first week in April, and the fourth about the same time. Of the three last, two were also males in perfect plumage. A pair shot at Dorsingham, near Lynn, in March 1868—the

male, on the 20th, and the female on the 21st. An immature male at Hickling, January 17th, 1867, during very severe weather.

“Some years back a Duck of this species was taken in the Hanworth decoy; and one taken in a decoy at Hampstead, near Holt, lived fifteen years in confinement. (See ‘Zoologist’ for 1851, p. 3116.)”

Mr. Salvin, in his ‘Five Months’ Birds’-nesting in the Eastern Atlas,’ informs us that “this bird also breeds at Zana and Djendeli,” and that he was there “more fortunate in obtaining its eggs than those of the other species of Ducks.”

The Rev. H. B. Tristram remarks, in his ‘Notes on the Ornithology of Northern Africa,’ that “the White-eyed Duck seemed tolerably abundant on the Lake Halloula; and one nest rewarded our research.”

Dr. Leith Adams, in his ‘Notes and Observations on the Birds of Egypt and Nubia,’ says the White-eyed seems to be the most common species of Duck, and that he noticed it among the rapids of the Second Cataract.

Mr. S. S. Allen also mentions it as being one of the Ducks which are more or less abundant in Egypt and Nubia, “being found in large flocks on the sand banks in the river or scattered in smaller parties about the inland marshy pools and canals. But the localities beyond all others favoured by them are the large, shallow, brackish lakes surrounded by marshes, which extend at intervals all along the coast from Alexandria to Port Said, the most important being Lakes Mareotis, Etko, Bourlos, and Menzaleb, on which the town of Damietta stands. To the three last of these lakes particularly, immense numbers of Ducks resort, which suffer no perceptible diminution from the efforts of the Arabs of the neighbouring villages, many of whom make their living by snaring and netting them for sale.”

In Palestine it would seem to be rare, since the Rev. H. B. Tristram mentions that he only met with one now and then.

Mr. Wright remarks that it is perhaps the commonest Duck which visits the island of Malta, where it arrives in the autumn, winter, and spring.

Messrs. Elwes and Buckley state that it is not uncommon in Turkey, and probably breeds there.

Lord Lilford says that the White-eyed Duck arrives in the Ionian Islands generally in March, in small numbers, and breeds in Epirus and Albania, and that it is occasionally seen there in winter but is far from common at that season.

In western Greece, according to Mr. Simpson, it is less numerous than some other allied species, and keeps to the open water more than the true Ducks.

Captain Irby states that in Oudh and Kumaon it is “extremely numerous in the cold season, and is very good for the table.”

Dr. Jerdon says:—“This little Duck is exceedingly common in Northern and Central India, less so in the South. It frequents both tanks and rivers, but prefers grassy tanks, wooded jheels, and rivers. It appears to feed a good deal during the day, and is met with in large parties scattered among the grass or weeds, the birds often rising singly.”

Bailly, in his ‘Ornithology of Savoy,’ informs us that “this charming Duck, which our sportsmen and dealers in game call *Sarcelle*, on account of the small size of its body, seldom comes to our valleys except in spring, March or April. Its appearance in autumn, the season of migration for the other species of the family, is mostly accidental. It usually arrives in couples or small companies, but sometimes singly, among a flight of other species. It is alert and very restless during its stay on our waters; but one sometimes surprises it among thickets of rushes while occupied in searching for food, and it is easily shot as it rises. It is rarely met with in open places. Its flesh has an agreeable taste; and it is often eaten as an ‘aliment maigre’ on fast-days.”

The principal figure in the accompanying Plate is of the size of life.



J. Gould & H. C. Richter, del. et lith.

BRANTA RUFINA.

Walter Imp.

BRANTA RUFINA.

Red-crested Duck.

- Anas rufina*, Pall. Reise, tom. ii. p. 713.
Branta rufina, Boie, Isis, 1822, p. 564.
Fuligula rufina, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 188, pl. 54.
Callichen ruficeps, Brehm, Vög. Deutschl., p. 922.
——— *rufinus*, Brehm, Vög. Deutschl., p. 924, tab. 42. fig. 4.
Netta rufina, Kaup, Natürl. Syst., p. 102.
Mergoides rufina, Eyton, Cat. of Brit. Birds, p. 57.
Aythya rufina, Macgill. Man. Nat. Hist., Orn., vol. ii. p. 191.
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So many instances are on record of the occurrence of this fine Duck in England, that I have no hesitation in following my contemporaries in giving it a place in our avifauna, and a figure of it in the present work. It must, however, be regarded as a southern and eastern rather than a northern species, and consequently as an accidental visitor to our islands. That it is tolerably common in North Africa is certain, since the late Captain Loche states, in his 'Catalogue des Mammifères et des Oiseaux observés en Algérie' that it is abundant on all the great lakes of that country; and Mr. Salvin, in his 'Five Months' Birds'-nesting in the Eastern Atlas,' states that he frequently saw several pairs in the open pools at the upper end of the marsh of Zana; where two nests were obtained, one of which contained seven eggs, of a most brilliant fresh green colour while unblown, but which, when the contents were expelled and the shells had become dry, were sadly diminished in beauty. As we might reasonably infer, its range extends in an easterly direction from this country to India; for we learn, from Mr. Jerdon's work on the birds of that country, that it is there found throughout the greater part of the peninsula, but is more rare in the south. It chiefly frequents the larger tanks and jheels, generally keeps to the middle part of the water, and is a wary bird, not usually allowing a near approach. Its flesh is juicy, tender, and high-flavoured, and by some persons is considered the finest Duck for the table. A writer in the 'India Sporting Review' remarks that "during the day the Red-crested Ducks are constantly on the move, now pursuing one another, now screaming, all up at once, then down again." I have received specimens from the Himalayas; and Colonel Sykes includes it in the 'Birds of the Deccan,' but observes that it is rare in that part of India. According to Dr. Latham, it inhabits the vast lakes of the desert of Tartary, and is sometimes seen on the great lakes lying on the east side the Uralian Mountains, but not elsewhere in Siberia.

The *Branta rufina* is included in works on the birds of Germany, is mentioned by Necker in his notice of the birds of Geneva, has been observed at Genoa; Savi includes it in his 'Ornithology of Italy;' and "it will be recollected," says Mr. Yarrell, "that our celebrated countryman Willughby obtained this duck in the market at Rome." Bailly states that it is rare in Savoy, and, when it occurs, generally arrives towards the end of winter or the beginning of spring, sometimes in couples, at others in small parties of from three to six in number; and he adds that in Switzerland, where it is more numerous, it arrives about the same time. According to Degland it is found on the shores of the Black Sea and in various parts throughout France. Benoit, in his 'Ornitologia Siciliana,' states that it is common and stationary, especially during winter and spring, in some parts of Sicily, but that large accessions are seen to arrive from the eastward. Mr. H. E. Dresser informs me that the bird is not uncommon at a lake called "Albufueras," near Valencia, in Spain, and is often to be bought in the market of that city. He was told by a person who lives close to the lake that it breeds there, but he knew nothing of its habits. Lord Lilford found it common at Butrinto during the first winter he passed at Corfu, but saw very few the succeeding one. Temminck states that the Red-crested Duck inhabits the countries of North-eastern Europe, and migrates periodically over the Caspian Sea to Hungary, Austria, and Turkey, less regularly to the great lakes of Switzerland, but never resorts to the shores of the Ocean: that it also visits Holland is certain; for I have myself found the bird in the flesh in our London market, among a great mass of ducks sent to us from that country. This brings us nearly home to England, where, as before stated, it has several times been killed.

"I had the pleasure," says Mr. Yarrell, "of first noticing this handsome Duck as an occasional visitor to this country in January 1826, when a male was shot near Boston while feeding in fresh water in company with some Widgeons. Though a well-known species, it had not previously been recorded to have been killed in England. During the same winter several others were obtained; more than one occurred in the London markets, and were eagerly purchased for collectors. Since then a specimen has been killed at Yarmouth, another at Colchester; and the female figured by Mr. Gould, in his 'Birds of Europe,' was killed out of a flock of eighteen on the Thames, near Erith, in Kent."

The food consists of mollusks, fish, worms, and aquatic plants.

Mr. Blyth assures me that the crest is capable of erection to the extent I have represented, and that in this state it forms a most beautiful appendage, and adds greatly to the beauty of the bird, especially in the breeding-season, when the bill becomes of a bright orange-red.

On reference to the opposite Plate, it will at once be seen how greatly the two sexes differ in colour and ornamentation, the female having the crest less developed and being devoid of the body-tints which render the male so conspicuous.

Could I have furnished a more detailed account of this bird, I should have had much pleasure in so doing; but unfortunately the peculiarities of its habits and economy seem to be entirely unknown. Mr. Eyton appears to have considered it to be allied to the Mergansers, and therefore proposed for it the generic name of *Mergoides*; and certainly the form of the bill and crest would induce most persons to entertain the same opinion; but a further examination of the structure of the bird would show that it does not belong to the *Merginæ*.

The following descriptions of the two sexes are from the pen of Mr. Jerdon, a gentleman who has had ample opportunities of observing the bird in a state of nature—an advantage I have not enjoyed.

“Male :—head, cheeks, throat, and upper part of the neck reddish bay; the feathers on the crown elongated and of a silky texture, forming a crest somewhat paler than the rest of the head; back, wings, and tail yellowish brown; the bend of the wing, a large spot on each side of the back, the speculum, the base of the primary quills, and the flanks white; lower part of the neck, breast, and abdomen deep black; bill bright vermilion-red, the tip white; irides red; legs orange-red.

“The female has the upper parts yellowish brown, darker on the head and neck, and the crest less developed; half of the speculum greyish white, the other pale-brown; base of the quills white, tinged with brown; breast and flanks yellowish brown; belly grey; bill and feet reddish brown.”

The Plate represents the two sexes, of the natural size.



FULIGULA CRISTATA.

J. Gould del. et lith.

W. Yar. imp.

FULIGULA CRISTATA.

Tufted Duck.

Anas fuligula, Linn. Faun. Suec., p. 47.

— *scandiaca*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 520.

— *cristata*, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 39.

— *colymbis*, Pall. Zoog. Ross.-Asiat., tom. ii. p. 266.

Glaucium minus, Briss. Orn., tom. vi. p. 411, tab. xxxvii. fig. 1.

Fuligula cristata, Steph. Cont. Shaw's Gen. Zool., vol. xii. p. 190.

Nyroca fuligula, Flem. Phil. of Zool., vol. ii. p. 260.

Aythya fuligula, Boie, Isis, 1822, p. 564.

— *cristata*, Brehm, Vög. Deutschl., p. 916.

Platypus fuligula, Brehm.

THIS bonny little Duck, with its graceful top-knot and brilliant golden eye, plays a conspicuous part among the water-birds of the British Islands, to which, however, it must, I think, be regarded as only a winter visitant; for, although it is known to breed in several parts of England, the greater number of those that come to us from the north in September and October depart again in March and April with the same regularity as the Redwing, the Fieldfare, and other northern migrants. It is unnecessary to name any particular counties or shires as localities frequented by it; for it is equally numerous in every one, from the extreme north of Scotland to the most southern portion of England; and it is just as widely spread over Ireland, in all suitable situations, among estuaries, broads, and other great sheets of water. During very severe weather it ascends such rivers as the Thames, the Ribble, and the Tamar, and is there frequently met with singly, in pairs, or little flocks. On the extensive broads of our eastern coasts it occurs in still greater numbers, frequently in company with other Fuliguline Ducks, Scaups, Pochards, &c. Now what I have said as to the general dispersion of the Tufted Duck over the British Islands applies equally to its distribution over the Continent of Europe, indeed, I may say, over the temperate regions of the Old World, from Holland to Japan; in the north it is especially numerous in Norway, Finmark, Russia, and Siberia; in the south it extends from Morocco eastwards to India and China: it is equally common in all suitable localities in the northern regions of Africa, being plentiful, according to Loche, on the great lakes of Algeria; many travellers testify to its being numerous on the banks of the Nile; Mr. Tristram states that it is found in Palestine; and, lastly, Dr. Hartlaub informs us, in the 'Proceedings of the Zoological Society' for 1868, that it goes as far south as the Pelew Islands, and remarks that this must be regarded as a curious fact, since the bird had not been known previously to occur in any of the Indian or Polynesian Islands. The Tufted Duck does not, I believe, go to South Africa, neither does it visit Australia, nor is it found in North America. With respect to its occasionally breeding in England, Mr. A. G. More states, on the authority of Mr. Borrer, that a brood of Tufted Ducks was found near Horsham in May 1853, and another at West Grinstead in 1854; that Mr. W. H. Slaney had known of one nest in Shropshire; that mention is made in the 'Zoologist' (p. 2879) of a brood having been observed on Malham Water, in the West Riding of Yorkshire; and that Mr. Hancock describes the bird as breeding occasionally in Northumberland. The above are supposed to be instances of truly wild birds having remained here to breed while the main body departed to their summer homes in countries further north. At Clumber and Osberton, in Nottinghamshire, numbers breed every year: I am sure I shall be speaking within bounds when I say that seven years ago as many as thirty broods were annually hatched on those splendid estates; and I see no limit to the increase of these pretty Ducks thereon if the voracious pike be kept within bounds, a point of the utmost importance; for the late excellent fifth Duke of Newcastle informed me that almost every Tufted Duckling hatched on the edges of the Clumber Lake was devoured by that tyrant of fresh waters, that the few which escaped destruction during the infantile stages of their existence were subsequently pulled down, and that the keepers had seen a fully adult bird in the jaws of a twenty-pound pike. On questioning the Duke as to the origin of his birds, he told me he believed they were the descendants of a pinioned pair that had been placed on the lake many years back. The Tufted Ducks at Osberton, which breed as freely but in lesser numbers than at Clumber, are doubtless from the same stock. The two properties are contiguous, and the river unites their waters. My late excellent and valued friend G. S. Foljambe, Esq., regarded his Tufted Ducks with the highest interest, a feeling fully participated in by his son and successor, the present Mr. F. J. S. Foljambe, who, in January 1871, kindly favoured me with the following notes respecting them:—

“ I hope soon to get you a pair of Tufted Ducks, and shall be very proud to see the portraits of

Osberton Ducks in your work. I never saw so many on the water, and for that very reason I am the more particular not to allow them to be disturbed; but there is a reach of still water out of hearing of the lake, where I hope to be able to get them before the end of the week. I always consider that the frost, at least in this neighbourhood, saves the Ducks, as the decoys shorten the numbers of their mess ten to one more than the sportsman's gun; and even most of the rivers are now frozen up. I am especially well situated, and my sanctuary swarms; but I have only Mallard, Teal, Widgeon, Pochard, and Tufted Ducks in sight. Goosanders fly over, but the piece of water is too small for them to stay on it. I cannot recollect the time when the water has been without two or three pairs of Tufted Ducks from November to April; but I believe the first instance of their breeding here was in the year 1853 or '54. The nest was found by the keeper, and shown to me. To the best of my recollection it contained six eggs, of which I took four, placing three in the collection at this place, and giving one to Sir William Milner. The keepers at Clumber spoke to having observed broods on that lake a year or two previously. The nest I saw was thatched like a Magpie's; but I am told that those which have been found here since were not roofed. The Tufted Ducks have lately increased in number, I believe in consequence of the introduction of the American weed. During the frost we have had as many as forty together. We never find them in the river above or below the lake, except in a reach of still water which acts as a mill-dam. I noted that, when two or more are in company, *one* always remains as a sentry while the others are under water. They begin to leave in March; but two or three pairs annually remain till June and have occasionally brought off their broods in July. I do not allow the nests to be searched for or the birds at all disturbed. The nest mentioned above was built of rushes, or what we call 'flags,' and partially concealed amongst those growing close to the edge of the water. I have heard of eight eggs in one nest; and I believe, at Lord Galway's, at Serlby, a brood of eight was hatched off."

The late Mr. John Wolley informed me that the Tufted Duck also breeds freely at Osmaston and other places in Derbyshire; but these have originated in tamed birds.

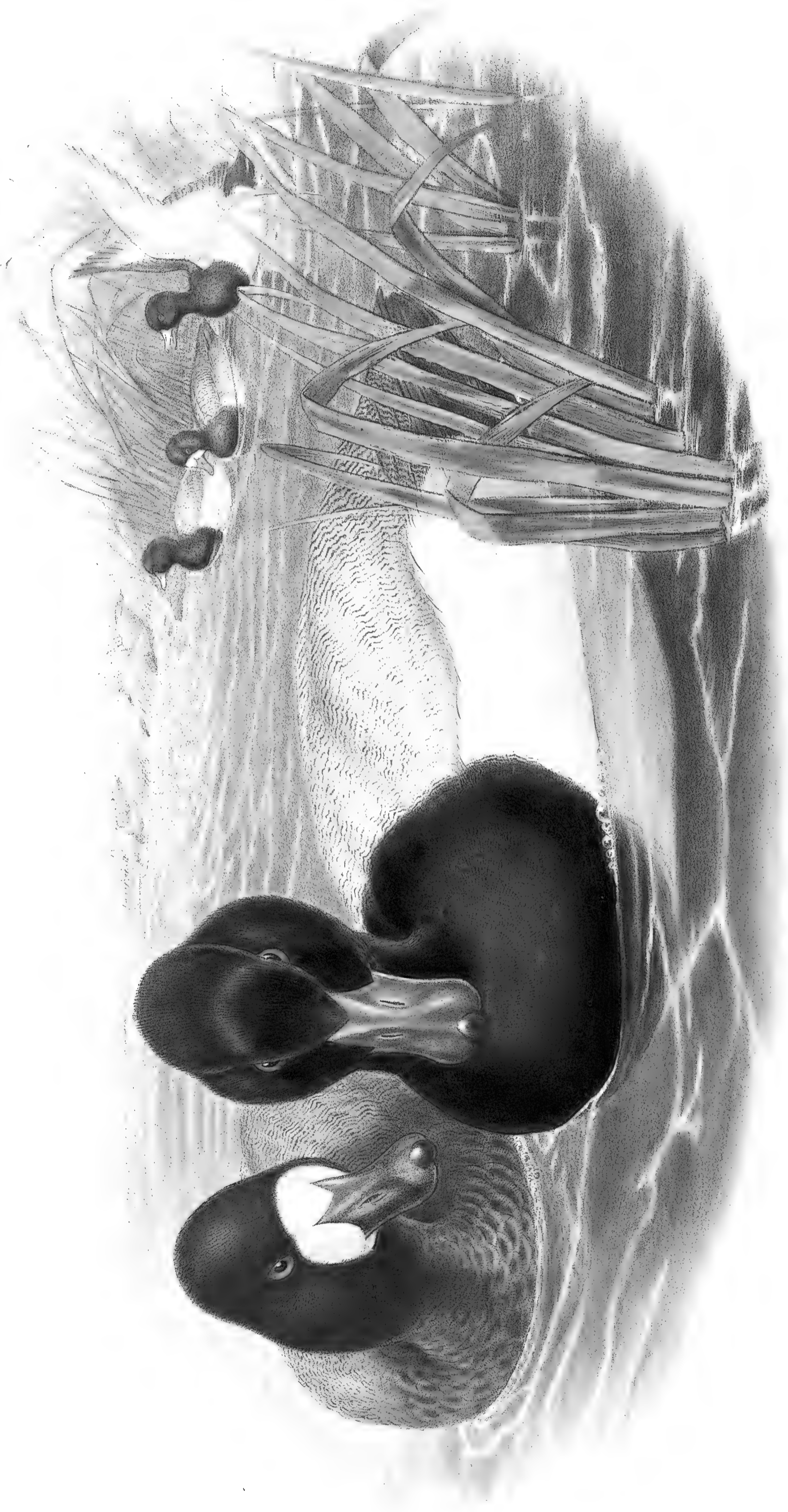
Like the other Fuliguline Ducks, this species flies rapidly and directly, swims with the utmost ease and very quickly, and dives so expertly that it is with difficulty shot on the water; and by this means readily escapes from the decoy, as, instead of rising and flying forward when within the tunnel, it immediately dives and returns to the open pool: it is by diving, also, that it obtains its food, which, when among lakes, pools, marshes, and the still parts of rivers, chiefly consists of insects, testaceous mollusks, and worms; at sea, mainly of bivalve mollusca. Its flesh is tender and well flavoured, but is not in much demand; still it is not uncommon in the markets, where it is sometimes sold under the name of Black Widgeon.

Speaking of the bird in Ireland, Thompson says:—"At that beautiful sheet of water, Ballydrain Lake, this species is seen to great advantage. When it was frozen over on the 27th of January, 1833, in addition to a few wild Ducks and Teal, a number of Tufted Ducks appeared in company with Pochards. During February the Tufted Ducks continued there; and on the 3rd of March, a warm day for the season, twenty-six males, with fine crests and pure white sides, and twenty-five females, with apparently no crests, brownish sides, and generally of a brownish black colour, were congregated together. About a dozen Pochards, too, appeared, with their bills concealed in their dorsal plumage,—a favourite position of the *Fuligula* when quietly resting on the calm waters of an inland lake or the sea by day; at full tide, in particular, they are thus seen sleeping or enjoying their rest after the toil of flight or feeding during the preceding night."

The following details were taken from the three examples shot by Mr. Foljambe, and kindly sent me to form the subjects of the accompanying illustration. They consisted of two males and a female; one of the former weighed two pounds and two ounces, the other male and the female an ounce less than two pounds each. A white band across the primaries and partially across the secondaries of both sexes must show very conspicuously during flight, but not so when the wings are closed. The crown and crest of the male is purplish black; the cheeks and upper part of the head appear purple in one light and deep green in another; the tertiaries and tail-feathers are bronzy brown; centre of the back, upper surface, chest, and anal region black, the latter minutely freckled with brown; the remainder of the plumage white, freckled with brown on the flanks; irides brilliant orange-yellow; bill beautiful bluish grey; tarsi greyish brown.

The female is chestnut-brown where the male is black, has the anal region white, the irides not so fine as in the opposite sex and inclining to light brown, and a few light feathers in the front of the face. With respect to these light feathers, Mr. J. H. Gurney, Jun., informs me that he is "quite sure they are a mark of youth, though ignored by British authors, and that they exist in very young females and, perhaps, in males."

The figures represent the two sexes, of the natural size.



Moulden's Birds of the North

WATER, HOP.

Water, hop.

FULIGULA MARILA.

Scaup Duck.

Anas marila, Linn. Faun. Suec., p. 39.

—— *frenata*, Sparrm. Mus. Carls., tab. 38.

Fuligula marila, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 198.

—— *Gesneri*, Ray; Eyton, Hist. of Rarer Brit. Birds, p. 58.

Nyroca marila, Flem. Phil. of Zool., vol. ii. p. 260.

Aythya marila, Boie, Isis, 1822, p. 564.

—— *islandicus*, Brehm, Vög. Deutschl., p. 911.

—— *leuconotus*, Brehm, *ibid.*, p. 913.

Marila frenata, Bonap. Compt. Rend. de l'Acad. Sci., tom. xliii. séances des 15 et 22 Sept. 1856.

Anas subterranea, Scopoli (Bonap.).

Fulix marila, Baird, Cat. of N. Amer. Birds in Mus. Smiths. Instit., p. 1.

How much more numerous are the members of the great family of *Anatidæ*, or Ducks, in all the northern portions of the globe than in the countries lying southward of the equator! Such genera as *Clangula*, *Harelda*, *Fuligula*, *Mareca*, *Nyroca*, *Oidemia*, and *Somateria* are almost wholly wanting in the latter division of the world: they are exclusively northern forms; and species of most (if not of all) of them are inhabitants of the British Islands.

The Scaup Duck with us is strictly a winter visitant; for, although it is stated that Sir William Jardine shot a female attended by her young on a small loch between Loch Hope and Eriboll, in Sutherlandshire, in the month of June 1834, that is, I believe, the only instance of such an occurrence, and it is just possible that he may have been mistaken as to the young bird. Scaups, like many other species, begin to arrive from the north in autumn, and immediately spread themselves over the maritime portion of Britain, where they enter bays, estuaries, and the mouths of all the great rivers, from north to south. If the weather be severe, the London markets receive a fair supply; no epicure, however, would think of purchasing a Scaup for the table, any more than he would a Scoter or a Sheldrake—the flesh of this molluscous-feeding bird being strong, fishy, tough, and unpalatable, when compared with that of the delicate grass-eating Pintail, Teal, Widgeon, and Mallard. The unsavoury nature of its flesh does not, however, detract from its interest in the eyes of the naturalist; for he sees in it the typical illustration of one of the many genera into which the *Anatidæ* are now divided.

In a state of nature the Scaup is a fine showy species, the males with their large dark-green heads and hoary-grey backs presenting a strong contrast to the brown bodies and white faces of the other sex. I am unable to say whether the transformation of plumage common to so many of the males of other Ducks takes place in this species also; in all probability it does, and both sexes closely assimilate in outward appearance just after the season of incubation. In Iceland the Scaup breeds freely, and most of the collectors who have visited that island have had no difficulty in procuring its eggs. Professor Reinhardt states that it is also found in Greenland, at which we need not be surprised, since it is known to inhabit the whole of the northern regions of America, as well as all the countries in the same latitude in the Old World, from Norway to Siberia, China, and Japan; the Scaup is, in fact, a frequenter of the countries just within and without the arctic circle in all situations suitable to its habits. That in the cold season it goes as far south as Amoy, in China, we have the authority of Mr. Swinhoe; while, nearer home, it not only occurs at the same period in all parts of Southern Europe, but also in Algeria and in most of the other provinces of Africa north of the line. In India it is scarce and, according to Mr. Jerdon, is only found on the northern hills.

If the various local faunas of the birds of our islands be consulted, the reader will learn that, according to Mr. Rodd, it is rare in the western districts of Cornwall, a few only occurring in severe weather, that in Morayshire it is now less numerous than formerly (at least so says Mr. St. John); and Mr. Dunn states that it is plentiful in Orkney, but less so in Shetland. These affirmations apply more or less to particular periods; for at one season it may be scarce in those and many other localities, and at another just as numerous. Why this should be, it is not easy to explain; and hence it will answer no good end to enumerate in detail the rivers, lakes, and indentations of the sea in which the Scaup has been seen or shot in this country; but I may state that, besides being found on the southern part of the European continent, it is especially abundant in Holland and in all the fluviatile portions of Austria, Hungary, Turkey, &c.

“The Scaup,” says Mr. Selby, “prefers the muddy shores of the ocean or such parts only of rivers as

admit the influence of the tide, where it can obtain a plentiful supply of its chief food, the smaller univalve and bivalve shell-fish. It is in this country a regular winter visitant, and, except in very mild seasons, is numerously distributed along such of our shores as suit its peculiar economy. It seldom arrives before the end of October or the beginning of November; and its influx increases in proportion to the severity of the weather, fresh arrivals constantly occurring as the northern countries become frozen up. On the advance of spring, it again migrates towards the pole, advancing, for the purpose of breeding and passing the summer, to very high latitudes. . . . The Scaup is an excellent diver, and obtains its food by searching the mud beneath with its bill. It also swims well and swiftly; but its flattened shape makes it appear to be deeply immersed in the water. Its flight is strong, but not rapid; and the weight of its body and concavity of its wings compel it always to rise against the wind. It is a very wary bird, and appears to know the precise distance at which it is safe; from which cause, and the resistance given by its plumage, it is not easily killed. In confinement, it soon becomes tame, and, if provided with water, thrives well upon grain and other food eaten by poultry; and under this regimen its flesh is said to improve in flavour, and not to be inferior to that of the Wild Duck. It makes a hoarse grunting sort of noise, and has a singular habit of tossing up its head and opening its bill, particularly during spring, while swimming and sporting on the water." "It is a beautiful sight," says Meyer, "to observe a string of these birds swimming on the sea, and especially to notice the usual manner in which they rise from that element. When one of the extremities of such a long body rises in the air, the rest follow as their turn comes; and thus they are, as it were, drawn up one by one from the surface of the water; and when pursuing their course, they continue to keep the same order in the air; on alighting, the same regularity." Richard Dann informed Mr. Yarrell that "the Scaup Duck, in its migration south, does not make its appearance on the western coast of Europe until late in the winter, and then only in comparatively small numbers; its migration appears to be more southerly than westerly. It breeds on the swamp and lakes towards the north of the Bothnian Gulf, near Lulea, in considerable numbers. I have shot the young there previously to their being able to fly. Being a diving duck, they avoid the reeds, and keep out in the open water. They are also numerous in the Dovre Fjeld mountains, frequenting and breeding near swampy solitary lakes as high as the birch-wood grows. At whatever season the Scaup is shot, it is generally very fat and heavy."

Eggs of the Scaup-Duck were brought from Iceland by Mr. Proctor, who states that the bird is very common there, that it sometimes places its nest among the thick herbage and at others upon the bare stones by the edge of the freshwater lochs, and that it makes only a slight nest of a few stems of grass, but thickly lined with down, and lays from five to eight eggs of a uniform clay-brown, two inches and three-eighths in length, by one inch and five-eighths in breadth.

To show the wild and singular situations resorted to by this bird for the purpose of breeding, the following extract from some details communicated to Mr. Hewitson, by the late John Wolley, may be cited:—"I had not recognized the Scaup-Duck at all amongst the innumerable flocks and families of water-fowl I had seen on the Torneo and Muonio rivers in 1853; but many of the natives had talked of a large kind of 'Sorrti' (tufted Duck), which seemed to be this bird. Soon after the ice was washed out of the river at Muonioniska last spring, I commenced an 'upping' towards the mountains of the Norwegian frontier. After about a week's punting and towing we came to the head quarters of the Scaup-Duck . . . the wider and stiller parts of the river were studded with pairs of this conspicuous bird. At the remote peasant's house called 'Nyimakka' I examined several, which had been caught on artificial floating islets, where the birds get entangled in snares as they climb up to rest and plume themselves. On a little moor at the head of a quiet reach of the river, just where a fierce torrent swept into it, I found a nest which an ermine had lately ransacked; but the favourite little islands where they regularly breed were not yet quite free from snow. Some ten days later, when there should have been eggs upon these islands, they were mostly under water from the unusually high floods, caused by the sudden melting of the snow in the mountains; and the real danger for our lives, as we tossed down the rocky rapids, did not allow us to think of many promising shots."—*Eggs of British Birds*, vol. xi. p. 427.

In Lapland Mr. Wheelwright found the Scaup Duck not uncommon, and he often met with them breeding, both in the low grounds and on the fell-meadows.

The following is a description of the colouring of the soft parts soon after death:—

Male.—Bill, rich leaden blue, with a black nail; irides fine yellow; tarsi and toes light greyish olive, darker or blackish on the joints; the interdigital membranes were also inclined to black.

Female.—Bill leaden black, crossed by a band of grey near the tip; irides, legs, and feet as in the male; weight 2lbs. 7 oz.

The Plate represents the two sexes, of the size of life.



ENICONETTA STELLERI.

Steller's Duck.

- Anas dispar*, Sparrm. Mus. Carls., fasc. 1. tab. 7 & 8.
— *occidua*, Bonn. Enc. Méth. Orn., part 1. p. 130.
— *Stelleri*, Pall. Spic. Zool., tom. vi. p. 35. tab. 5.
Fuligula dispar, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 206.
Polysticta Stelleri, Eyt. Rare Brit. Birds, p. 79.
Stelleria dispar, Bonap. Geog. & Comp. List of Birds of Europe and N. Am., p. 57.
Eniconetta Stelleri, G. R. Gray, List of Gen. of Birds, 1840, p. 75.
— *dispar*, Gray & Mitch. Gen. of Birds, vol. iii. p. 624.
Somateria Stelleri, Alf. Newt. in Proc. of Zool. Soc. 1861, p. 400.
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THE present highly interesting bird is a member of a great group of Diving Ducks which is peculiar to the northern regions of Europe and America—a group which, in accordance with the advanced state of ornithological science, has been divided into almost as many genera as there are species. Of these the genera *Eniconetta*, *Lampronetta*, and *Somateria* are preeminently oceanic in their habits, seldom, if ever, breeding far from the sea, and have a structure and character of plumage admirably adapting them for procuring their food beneath the surface of the water. They all frequent deep bays and shallow parts of the ocean, where they readily obtain shelled Mollusks, Crustaceans, and the other marine creatures which form the staple of their diet. The members of these genera are mostly distinguished for the richness of their colouring and the beauty of their markings: and thus we find ornamentation among the birds of the northern regions, as well as in those frequenting the tropics. I may instance among others the King Duck, with its highly coloured bill and frontal appendage, the well-known Harlequin, and the *Lampronetta* with its spectacle-like markings. Steller's Duck also has many pleasing features to recommend it to our notice.

The native habitat of this bird is the boreal regions of the Old World, from the North Cape in Norway to Behring's Straits. Like so many other Siberian birds, it also visits the north-western portions of America. Steller obtained specimens in Kamtschatka; the late Mr. Wolley and his travelling companion, Alfred Newton, Esq., procured examples in Eastern Finmark; and Von Middendorff found it breeding on the flat "tundras" of the Taimyr, in Northern Siberia. All who have had the good fortune to see the Steller's or Western Duck, as the bird is frequently termed by English ornithologists, affirm that it assembles in companies more or less numerous, and that its actions and economy resemble those of the Eiders: in confirmation of this statement, I transcribe the notes on this bird published by Mr. Newton in the 'Proceedings of the Zoological Society of London' for 1861, accompanying which is a figure of the egg of this and several other rare birds.

"Towards the end of June and in July 1855, when in East Finmark, in company with Mr. W. H. Simpson and the late Mr. John Wolley, we saw several small flocks of this species at various places along the Waranger Fjord; but we could never detect an old male in the breeding-plumage, and I imagine that one is seldom to be found there in summer; but in winter and spring adults certainly occur. . . . Though we made unceasing inquiries, we could not ascertain that Steller's Duck breeds in any part of Norway or in the adjoining districts of Russia. In its habits it seems to resemble the common Eider, as much as it does in general appearance; and those I saw were only to be distinguished, at a distance, from the females or young males of that species by their smaller size. They were generally found swimming near the shore, sitting at low water on the seaweed-covered rocks, or flying near the surface from point to point. On one occasion, just as we had crossed a small but rapid river, a few hundred yards from its mouth, a large flock came flying down over the water. They passed quite close to us, but our guns were not at hand. I presume they had been feeding higher up the stream; but at no other time did I ever see them at any distance from the shore."

That a species which frequents the seas fringing the northern shores of Norway should occasionally extend its visits to the British Islands is no more than might be expected; and we have at least two well-authenticated instances of its having been killed in England. The first was shot at Caistor, near Yarmouth, on the 10th of February 1830; this specimen was presented to the fine Museum at Norwich by the Rev. George Steward. The other was obtained at Filey, in Yorkshire, on the 15th of August 1845, by Mr. G. Curzon, of Weston Lodge, Derbyshire. Both these specimens are males, and rank among the rarest objects of our avi-collections.

The nests found by Von Middendorff on the 25th of June contained from seven to nine newly laid eggs,

which, according to the figure accompanying Mr. Newton's paper above referred to, are of a greenish stone-colour, with a few dirty stains all over the surface, probably obtained by contact with the materials upon which they are laid. They measure two inches and three-eighths in length, and one inch and five-eighths in breadth.

The male has the head and upper part of the neck white; between the bill and the eye on each side a patch of sea-green, which nearly unite on the forehead; each eye surrounded by a ring of black, broader behind than in front; on the occiput a broad band of verditer green; from the lower mandible down the centre of the throat a streak of blackish brown, which very nearly approaches the broad band of deep bluish black encircling the base of the throat, and which is united behind to the bluish-black of the back and upper tail-coverts; below the bluish-black neck-collar a crescentic mark of white; wing-coverts white; primary wing-feathers and tail deep brown; secondaries and tertiaries white on the inner, and deep blue on the outer web; narrow inner web of the scapularies white, the broader outer web deep blue; breast and abdomen chestnut, fading into buff on the flanks, and deepening into blackish brown in the centre; vent and under tail-coverts very dark brown; just before each wing a few of the white feathers of the sides of the breast are tipped with black, forming a small oblong patch; bill deep olive, with a yellower nail; irides brown; feet dark olive-brown, the webs darker, inclining to black.

The female, as stated by Mr. Yarrell, so closely resembles the females of the Eider and King Ducks, that the only difference necessary to be noticed is that the greater coverts and secondaries are tipped with white, forming two bars, between which is a bluish-black speculum.

The front figures in the Plate represent two males, the size of life, with a reduced figure of the female in the distance, and were drawn from specimens obtained from the Waranger Fjord by Mr. Alfred Newton.



SOMATERIA MOLISSIMA .

Stoull & McCricker, del. et lith.

Müller, Imp.

SOMATERIA MOLLISSIMA.

Eider Duck.

Anas mollissima, Linn. Faun. Suec., p. 41.

— *Cuthberti*, Pall. Zoogr. Ross.-Asiat., tom. ii. p. 235.

Anser lanuginosus, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 37.

Somateria mollissima, Boie, Isis, 1822, p. 564.

— *St. Cuthberti*, Eyton, Hist. of the Rarer Brit. Birds, p. 58.

Fuligula mollissima, Bonap. Syn. Birds of Unit. States, p. 388.

THE Eider Duck has especial claims to our notice, first, because it is really a fine bird, and, secondly, on account of the important part it plays in commerce. Its range over the globe is somewhat extensive, since it frequents alike the continents of Europe, Asia, and America, its principal places of resort being a few degrees within and without the arctic circle. Thus it is plentiful in the northern parts of Britain and along the shores of Norway, Sweden, Lapland, Denmark, Iceland, Spitzbergen, Greenland, Nova Zembla, and other places in the same degree of latitude. It is strictly oceanic in its habits, always evincing a preference for small islands gradually sloping towards the sea, and rarely visiting the mainlands. Under ordinary circumstances the Eider is most difficult of approach; but in the breeding-season its usual shyness is thrown off, and, like the Rook and the Woodpigeon, it courts our protection and friendship; patiently and without evincing any displeasure does the female then allow her nest to be robbed of the beautiful down she has plucked from her own breast to form a warm covering for her eggs; again and again will she permit the toll to be taken, seemingly desirous alone of being allowed to remain on the selected site and bring forth her young. Few of those who feel the comfortable warmth of an Eider-down coverlet ever give a thought to the bird which affords the material of which it is composed—a material so wonderfully elastic that the entire contents of the quilt may be compressed into the closed hand. Yet it is this down which renders the bird so valuable and which contributes so largely to the revenue of the proprietors of the islands whereon the bird breeds, some idea of the extent of which may be obtained from Mr. C. W. Shepherd's account of a visit to the north-western peninsula of Iceland, where it is stated that Vigz, a small island three quarters of a mile wide, is tenanted almost exclusively by Eider Ducks, which the widow whose property it is makes her sole care.

“On the coast was a wall built of large stones, just above the high-water level, about three feet in height, and of considerable thickness. At the bottom, on both sides of it, alternate stones had been left out, so as to form a series of square compartments for the ducks to make their nests in. Almost every compartment was occupied; and as we walked along the shore a long line of ducks flew out.

“The farmhouse itself was a great marvel. The earthen walls that surrounded it, and the window-embrasures were occupied by ducks; on the ground the house was fringed with ducks; on the turf slopes of the roof we could see ducks; and a duck sat in the scraper.”

The yield of down is about 100 lb. per annum, worth from twelve to fifteen shillings per pound.

“In Mr. Crowe's Consular Report from Iceland, recently issued by the Foreign Office, it is stated that the Eider Duck is found in great numbers on the coast of that island. Early in July it lands on the numerous small islets or holms in the bays and fiords, where it lays its eggs after lining its nest with down plucked from its own body. As the bird is protected from molestation by severe laws, it has become tame, and always repairs to the same spot to hatch its young. As soon as the eggs are laid, the owners of the hatching-grounds rob the nests of the down and a part of the eggs, both which the poor bird replaces a second and a third time, when she is left to complete the process of incubation, but with her body completely denuded of down. This method of procuring it has had recourse to because the down of the dead bird loses its elasticity, and is of comparatively little value. The hen bird gives eight to nine ounces of down to a nest; but when cleansed, this weight is diminished by half. The value of the uncleaned down is about 8s. a pound, and the cleaned down about 19s. the pound. The annual produce is about 6000 pounds weight of down, valued at about £5000. Sometimes one little holm will give its owner an annual income of £150; and such is the care taken of these useful birds, that during the hatching-season no guns are allowed to be fired in their vicinity; and foreign vessels arriving are forbidden to fire salutes, for the same reason.”—*Land and Water*, Feb. 1867.

The Eider Ducks pair some time in March; and “about April,” says Mr. Selby, “they are seen assembling in small groups along the Northumbrian shores, from whence they cross over to the Fern

Islands in May, soon after which the females begin to prepare their nests, and usually commence laying about the twentieth of that month. As soon as this takes place and incubation commences, the males leave the females and again spread themselves along the shore in companies of four or five together." Brännich, who wrote an express treatise on the Eider Duck, informs us that their first object after pairing is to procure a suitable place for their nest, preferring the shelter of a juniper bush, where it can be had; where there is no juniper, they content themselves with tufts of sea-grass, bundles of sea-weed cast up by the tide, the crevices of rocks, or any hollow place they can find. Some of the Iceland proprietors of breeding-grounds, in order to accommodate them, cut out holes in rows on the smooth sloping banks where they would not otherwise build, but gladly take possession of them when scooped out to hand. It is not a little remarkable that, like several other sea-birds, they almost always select small islands, their nests being seldom, if ever, found on the shores of the mainland or even on a large island. The Icelanders are so well aware of this that they have expended a great deal of labour in actually forming islands, by separating from the main island certain promontories joined to it by narrow isthmuses. The reason of this preference for islands seems to be security from the intrusion of dogs, cattle, and other land animals, to whose vicinity they have so great an aversion that the Icelanders are careful to remove these as well as cats from their settlement.

"Both sexes work in concert in building their nest, laying a rather coarse foundation of drift grass, dry tangle, and sea-weed. Upon this rough mattress the female spreads a bed of the finest down plucked from her own breast and by no means sparingly, but heaping it up so as to form a thick roll quite round the nest. When she is necessitated to go in quest of food after beginning to sit, she carefully turns this roll of down over the eggs to keep them warm till her return. It is worthy of remark that though the Eider Duck lays only five or six eggs, it is not uncommon to find ten or more in the same nest, occupied by two females who live together in perfect concord. The quantity of down in each nest is said by Von Troil to be about half a pound, which by cleaning, is reduced by one-half. Its extraordinary elasticity appears from the fact that three quarters of an ounce will fill a large hat; and Pontoppidan says that two or three pounds of it, though pressed into a ball which may be held in the hand, upon being allowed to expand, will fill the covering of a large bed. It is worthy of notice, however, that it is only the down taken from the nests which has this great elasticity; for what is taken from the dead birds is said to be far from as light as that the female plucks to form a bed for its young. It is on this account that it is prohibited by the laws of Norway to kill the Eiders for their down."—*Rennie's edit. of Montagu's Orn. Dict.*

"The food of the Eider," says Macgillivray, "consists of bivalve mollusca, which it obtains by diving, as well as of crustacea, fishes, and the roe of both. I am not aware of its ever feeding upon vegetables in its natural state; and yet when domesticated it has been found readily to eat grain. This remarkable facility of transition from an animal to a vegetable food appears to be very common in this family of birds, and is said to produce a corresponding change in their flesh as an article of food. That of the Eider, under its common regimen, is, I think, fully as palatable as the flesh of the Mallard. The flight of this bird is direct, steady, and moderately rapid, being performed by continuous quick beats of the wings, generally low over the water. It swims well, sitting lightly, although from the flatness of its body it seems to sink considerably, and on diving is capable of remaining a considerable time under water."

I agree with Audubon in believing that if this bird were domesticated it would prove a valuable acquisition, both on account of its feathers and down and its flesh as an article of food; and that this would not be a matter of difficulty is certain, since the thirteenth Earl of Derby and Mr. Selby both succeeded in rearing young birds from the egg, which lived for more than a year; and two males and a female are at this moment (April 1870) living in the Gardens of the Zoological Society in the Regent's Park, which have become so tame that they readily advance towards any stranger and take pieces of biscuit or other food from his hand. This is the more surprising when we consider how different must be the garden enclosures from the stormy seas and the supply of marine animals there obtained; it shows how readily the bird accommodates itself to the situation in which it may be placed.

The accompanying Plate will furnish a better idea of the differences in the colouring of the sexes than any verbal description however minute. As is the case with the generality of the Ducks, the male is not always so beautifully adorned as there represented; for not only do the feathers of the head give place after the pairing-season to others of a different hue, but by the time the female has hatched her eggs, a total change also occurs in the plumage of the body, and during the months of autumn the two sexes are very much alike.

I cannot conclude my account of the Eider without recording my obligations to C. Monfort, Esq., of Worthing, for the loan of the very fine examples killed by him in the Orkneys.

The front figure in the Plate represents a male about four-fifths the natural size; the reduced ones in the distance show the difference in the colouring of the sexes.



SOMATERIA SPECTABILIS.

J. Gould & H.C. Richter, del. et lith.

Walker Imp.

SOMATERIA SPECTABILIS.

King Duck

Anas spectabilis, Linn. Faun. Suec., p. 89.

Somateria spectabilis, Boie, Isis, 1822, p. 564.

Fuligula spectabilis, Bonap. Syn. Birds of Unit. States, p. 389.

IN size, general contour, and in the colouring of some parts of its plumage, the King Duck resembles the Eider; but different indeed are the form and colouring of its bill, and the hue of its legs and feet. How successfully by varying ornamentation does nature furnish characters by which one species may be distinguished from another! In their habits and entire economy the two birds are said to assimilate as closely as they do in general structure and appearance. However far north the Eider may proceed, the King Duck is found still further towards the pole, and is probably much more common in the high northern latitudes than its congener, who makes the comparatively warm islands of Britain one of its breeding-places, which the King Duck never does. In a word, the Arctic regions, both of the Old and New World, are the natural home of the present species; and its visits to England, Scotland, Ireland, Norway, Sweden, and Denmark, the United States of America, and California must be regarded as merely accidental.

“The King Duck has acquired a place in the list of our British Birds,” says Mr. Hewitson, “by having appeared two or three times upon our coast. It is abundant in Spitsbergen; and Holbœll expresses his surprise that it is very seldom seen in Iceland, whilst in Greenland it is spread over the whole country, although its proper breeding-zone lies further north than the part of the country inhabited by Europeans. It is found breeding, though very rarely, in the sixty-seventh degree of latitude, but is not numerous south of seventy-three degrees. In its habits it very much resembles the common Eider. It migrates in the same direction, but begins later in autumn to move towards the south. Its spring migration also begins later, although it has to go a greater distance northwards, probably because the sea is not earlier open. The young birds occasionally become victims to their unwillingness to move south, by remaining till the sea is everywhere ice-bound. In its powers of diving, this species far surpasses all the other Greenland birds; it also remains the longest time under water. It uses its wings in diving, and descends to the depth of two hundred yards, remaining as much as nine minutes under water. These remarks are translated from Holbœll’s ‘Faunæ Groenlands,’ which is singularly deficient in that information as to its nesting-habits which would have been the most valuable.”—*Hewitson, Ill. of Eggs of Brit. Birds*, vol. ii. p. 417.

“Vast numbers of this beautiful Duck,” says Sir James Clark Ross, “resort annually to the shores and islands of the Arctic regions in the breeding-season, and have on many occasions afforded a valuable and salutary supply of fresh provisions to the crews of vessels employed in those seas. On our late voyages comparatively few were obtained, although seen in very great numbers. They do not retire far to the south in winter, but assemble in large flocks. The males by themselves and the females with their young brood are often met with in the Atlantic Ocean, far distant from any land, where the numerous crustaceans and other marine animals afford them abundance of food.” Upon this passage Mr. Hewitson remarks:—“The great distance from land at which these birds were met with by Capt. Ross may be explained by the statement of Holbœll as to their vast power of diving, who says also that it is wonderful with what instinct they discover banks in deep water.”

In Asia the King Duck is found on the coasts of Siberia and Kamtschatka; and in North America it is plentiful about Hudson’s Bay and Labrador, but, according to Audubon, rarely advances further south along the eastern coast of that continent than the neighbourhood of the Bay of Boston.

From Otho Fabricius we learn that the natives of Greenland hunt the King Duck, both for their down and skins, in the following manner:—On discovering a flock upon the water, the natives assemble in their canoes and begin shouting and making as great a noise as possible; this sudden outcry so frightens the birds that, instead of flying away, they begin to dive; the moment they come to the surface they are again pursued; and, after three or four of these chases, the birds begin to be so tired that they are easily taken and killed. The flesh is accounted excellent, and the gibbous part of the bill an especial delicacy; the skins are sewn together, and made into various comfortable articles of clothing.

Mr. Hewitson says the eggs are five in number, somewhat less than those of the Eider, and usually, though not always, of a bluer tint, and sometimes of a deep blue-green. They are about two inches and a half in length by one inch and three quarters in breadth.

Mr. Newton, in his ‘Notes on the Birds of Spitsbergen,’ says:—

“This species has several times been noticed :—by Professor Lovén, in Ice Sound, in 1837 ; by Professor Sundevall, in Bell Sound, the following year ; and by Professor Nordenskjöld, who killed two examples on the south-east coast in 1858 ; but it is certainly not of common occurrence there, as most writers have asserted. I very much question if it breeds in the country ; and it has not been met with further north than Ice Sound, lat, 76° N., where last year I believe I saw a young drake flying on the 22nd of July ; and Ludwig, the same day, was in unsuccessful pursuit of three birds which were, I suspect, of this species. Dr. Malmgren, however, showed me one which was shot out of a small flock at the beginning of the month, in Safe Haven. Another little flock was also observed by him in August, on the Horn-Sound Islands ; but in the south-east harbour of Bear Island, on the 18th–19th of June, he saw a very large flock, consisting of hundreds of ducks and young drakes, with only one or two old drakes among them. They do not appear to breed there.”

From the late Mr. Wheelwright's ‘Spring and Summer in Lapland,’ we learn that the King Duck is only occasionally seen in Lapland ; and from Mr. Newton's ‘Notes on the Birds of Iceland,’ that it is by all accounts a rare bird in that country, and that those which occur there are generally only stragglers from Greenland and elsewhere.

In Mr. H. E. Dresser's Translation of Pastor Sommerfeldt's ‘List of Birds noticed in East Finmark,’ it is stated that the King Duck is not a common bird, though it has been said to have been found in numbers in the Varanger Fjord in October. It is true enough that in October and November the Eider Ducks collect in large flocks and fly about over the Fjord and the surrounding country in the afternoon and the dusk of the evening ; but in these flocks the Eider constitutes the chief portion. Steller's Duck is also found in large numbers, but the King Duck only singly in proportion to the other species.

In Mr. Henry Reeks's ‘Notes on the Zoology of Newfoundland,’ it is stated that “the King-Eider, which is there called ‘King-bird’ is tolerably common during its periodical migrations, and is frequently shot in company with the Eider. On the 17th of December, 1867, I obtained an adult male, and on the 19th an immature bird of the same sex ; the latter was one of two killed at a shot, with eight of the Eider. King Ducks are more abundant at some seasons than others : in 1865 twenty of these birds were killed at a double shot by one of the settlers at Cow-Head. Young males resemble the females during their first year, but in the second have the throat and neck copiously spotted with white. The adult female is easily distinguished from the female of *S. mollissima* by its much smaller size, its shorter bill, and by having a more decided rufous tinge on the upper plumage.”—*Zoologist*, 1869, p. 1759.

Although several examples of the King Duck have undoubtedly been killed on the shores of the British Islands, all the recorded instances are not to be relied on. Messrs. Paget, on the authority of the late Mr. Samuel Wigg, state that a female was shot on Breydon Broad, near Yarmouth, in July 1813 ; and the Rev. L. Jenyns mentions one as having been killed at Aldborough, in Suffolk. More recently, two instances of its occurrence at Lowestoft have been recorded ; but Mr. Stevenson is not inclined to give credence to this statement. It is said that it formerly bred on Papa Westra, one of the Orkneys ; but the late Mr. R. Dunn sought for it there in vain. The late Mr. Thompson, after saying that it is extremely rare in Ireland, mentions the occurrence of a female, shot at Kingstown Harbour in October 1837 ; two on the coast of Kerry, one in the winter of 1843, at Derrynane, the other in that of 1845–6, at Tralee Bay ; and a fourth which was shot on the 11th of March 1853, while swimming alone in Belfast Bay. This bird, which came under Mr. Thompson's examination on the 12th, weighed 3 lbs. 5 oz. ; the bill was dusky, having the colour and appearance of india-rubber as sold by the stationers ; tarsi and toes very pale olive or dull fawn-colour ; the membranes dusky ; irides very dark brown. On dissection it proved to be a female ; the stomach was filled with the remains of crustacea and mollusca, viz. an *Inachus* of middle size, the largest *Portunus arcuatus* he had seen (and perfect, excepting the arms), a *Nucula margaritacea*, and a small *Buccinum undatum*. “The preceding notes,” adds Mr. Thompson, “relate to more King-Eiders than are on record as obtained in Great Britain south of the Orkney Islands, at least until 1845.”—*Nat. Hist. of Ireland*, vol. iii. p. 116.

I am especially indebted to my friend Dr. Rae, the celebrated Arctic traveller, for a drawing made by him, at my request, of the proportions and colouring of the bill and surrounding soft parts of the male, and which he kindly transmitted to me soon after his return from one of his journeys in search of the lamented Franklin ; the colouring of this ornamental part of the bird may therefore be regarded as strictly accurate. I believe that two, three, or more years elapse before the protuberance above the bill assumes the form and colouring represented ; for in some examples I have seen it was but little developed, while in others it was about midway in size ; and I suspect that it is only in the breeding-season that it is so large and so highly coloured as it is depicted in my Plate.

The front figures represent fully adult examples of the two sexes, somewhat under the natural size.



OIDE MIA NIGRA.

J. Wolfers del. H. Buchter del. et lith.

Heller & Cohen, Imp.

OIDEMIA NIGRA.

Scoter.

- Anas nigra*, Linn. Syst. Nat., tom. i. p. 196.
— *cinerascens*, Bechst. Naturg. Deut., vol. iv. p. 1025.
— *cinerea*, S. G. Gmel. Reis., tom. ii. p. 184.
— *atra*, Pall. Zoogr., tom. ii. p. 247, tab. 18.
Oidemia nigra, Flem. Brit. Anim., p. 119.
Fuligula nigra, Degl., Orn. Europ. tom. ii. p. 470.
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It will not be necessary for my readers to be told that our earth is encircled by zones termed the frigid, the temperate, and the torrid. Every school-boy knows the principal features of the poles; but perhaps there are persons who are not aware that although the conditions of the Arctic and Antarctic circles are much alike, the bird-life of these opposite ends of the globe is very dissimilar, or that Guillemots, Puffins, Divers, and Ducks of peculiar types, and very numerous in species, inhabit the northern, while Penguins, Albatrosses, and Petrels, but no Ducks, or scarcely any, inhabit the ice-bound lands of the south. The bird whose history I am about to give pertains to the north, and belongs to one of the peculiar types of Ducks above alluded to—the genus *Oidemia*, all the known species of which, commonly termed Scoters, are strictly denizens of the icy regions. They are strikingly different in colour, and somewhat in structure, from every other form in the great family of the *Anatidæ*. That nature's general laws are sometimes infringed is evident from the peculiar coloration of the birds of this genus, which does not, as is generally the case, assimilate in any way with the objects surrounding them; for what can form a greater contrast than their jetty-black colour with the masses of snow and floating ice-mountains of the part of the ocean they inhabit, the borders of the inland rivers and lakes, or the tussocky parts of the marshes upon which they breed? The black colouring of the Scoters is most positive, and in the present species there is no indication whatever of a white mark on any part of its plumage.

When the rigours of winter induce the Scoter to leave the north and seek the more temperate latitudes and seas surrounding the British Islands, and those which wash the shores of Holland, France, and Spain, it may be seen in flocks of many hundreds; and in the winter season we can scarcely take a trip from Dover to Calais, or from Folkestone to Boulogne, without the vessel steaming through little knots of the Scoter, while, from the deck, strings of forty or more may frequently be seen passing to and fro between one part of their feeding-grounds and another; how useless, therefore, would it be to enumerate the particular localities in which this bird has been shot. When a solitary individual leaves the seas for our inland waters, or ascends the Thames and other rivers far above the tide-way, we may be sure that it is incited to do so by some unwonted cause, perhaps from sickness or an internal injury; this remark, however, does not apply to the small companies which are said now and then to visit the great lakes of Cumberland, Westmoreland, &c. Saline lakes are more in unison with their habits and mode of life than fresh waters; for mollusks, shrimps, and other Crustaceans are as plentiful on their sandy bottoms as on the bed of the sea. The kind of animals mentioned form the principal food of the Scoter; which, being a marine bird, is supposed to partake of the nature of fish, and is therefore eaten in France and Spain during Lent and on fast-days. Before parting from our friends across the straits, let me append a published account of the mode employed in killing this bird. If it be true (and Mr. Yarrell appears not to have doubted it), it at least shows how plentiful the Scoter must be on the shores of the Mediterranean: it also tends to enlighten us as to the vast amount of bird-life in the North during the short summer months; for be it recollected that the vast flocks which winter in our seas and in the Mediterranean return to the northern parts of the Old World at this time. But to the *battue*!

“I am indebted,” says Mr. Yarrell, “to H. L. Long, Esq., of Hampton Lodge, Farnham, for a copy of a French account, by M. Hugo, of the mode in which many of these birds are obtained upon the various salt lakes in the vicinity of Martigues, at the mouth of the Rhone. These numerous salt lakes are frequented in winter by large flocks of aquatic birds. With the first appearance of frost the Scoters and other Ducks arrive in numerous small flocks, and a destructive sort of *battue* takes place, in which all who can are induced to participate with great eagerness. About Christmas, when the Scoters have made their appearance, printed bills are posted at Marseilles, Aix, and all the principal towns in the vicinity, stating the intended order of attack upon the birds, and the day and hour at which it is to take place. The mayors of two or three of the principal places make the necessary arrangements. On the eve of the day fixed upon, all the shooters are divided into parties, and each has a boat, a pilot, and a commander

appointed. The assemblage is large, filling the inns and the lodgings to be had at private houses. In the morning, at the sound of a drum, the embarkation takes place on the lake named for the first attempt. The boats, filled with sportsmen, form an extended circle round the flocks of birds at one part of the lake; the boats then draw in, diminishing the circle by degrees, till the crews are within gunshot of the intended victims. At a well-known and preconcerted signal, a partial discharge takes place at the unfortunate birds while swimming on the surface of the water. Many are killed on the spot; those which escape the first fire attempt to save themselves by flight, when a second discharge assails them in the air; many more fall, and with broken wings and loud cries are picked by the shooters, who divide the spoil, not without many altercations, and return to land. After a short respite, the birds having again collected together on that or some other neighbouring lake, a second advance takes place in the same manner, and the day is passed in making a succession of attacks, each followed by a retreat for a time to allow the birds to reassemble. A *chasse*, as it is termed, of a somewhat similar character, is performed near Bastia, the capital of Corsica; but in this locality the Scoter is always accompanied by numbers of the Red-throated Diver, which appear to act the part of sentinels outside the flock of Ducks; and so quick-sighted are these sentinels, and so instantaneously do they dive, and so rapidly do they swim under water, that hundreds of Scoters are killed to one couple of Divers."

Enough has been said to show that this bird is strictly a winter visitant with us; but that it does remain within the precincts of the British Islands until late in the spring, and even in some instances until summer has fairly set in, is evident, Mr. Dann having seen flocks off Dungeness as late as the middle of June; and a writer in 'The Zoologist' states that the Lake of Windermere is visited every year, about the first week in July, fourteen having been observed off Wray Castle at that period in 1848. The Scoter must, therefore, commence the task of nidification immediately after its return home. Up to the present time we have no record of its having bred in the British Islands. Mr. Dann states that it breeds in Scandinavia, where Wallengren makes it a bird of his second or Birch-region, nesting as it does from 800 to 2000 feet below the snow-line; and Mr. Procter found it breeding in Iceland, which is probably its most western limit, for Professor Reinhardt does not include it among the birds of Greenland. Eastwardly, according to Pallas, it visits the Caspian Sea. In the far north, the late Mr. John Wolley found it breeding at Muionioniska in Lapland, late in the season; and Mr. Alfred Newton informs me that "it is plentiful enough in the interior of that country, where it is known as the 'Sea-Bird' *par excellence*, and its musical notes add to the pleasure with which a naturalist explores the countless lakes of that desolate region." The nest is generally placed in some sheltered spot on the ground, and the eggs, which are six or seven in number, are of a pale buff slightly tinged with green, somewhat more than two inches in length by about one inch and three-quarters in breadth.

The diving powers of the Scoter are as perfect as those of any other species which resorts to that mode of procuring its food from the bottom of the turbulent sea; its whole structure, its flattened tarsi, large feet, and dense plumage are all admirably fitted for the purpose. Its flight is rapid, straight, and of sufficient duration to convey the bird from the sea to the inland lakes, or from one part of its feeding-ground to another; generally, however, these passages from place to place are performed near the surface of the water; but it is said to mount higher in the air when necessity requires it so to do.

The entire plumage of the male is deep black glossed with greenish blue; irides brown; eyelash orange; base of the bill bluish black, the remainder dull black, except a narrow line of orange down the middle of the tubercle at the base, and the central portion of the upper mandible, which around the nostrils is orange, and towards the tip yellow; legs and toes reddish black.

The female differs in being dark brown instead of black, in having the chin and throat greyish white, the under surface silky brocoli-brown, and in the tubercle at the base of the bill less elevated.

Mr. A. Newton has kindly sent me the following description of the young before they are able to fly, from Mr. Wolley's 'Loose Memoranda.'

"Dull sooty black above, neutral tint beneath, the feathers towards the middle of the body shading into white at the tips. Top of the head black to a little below the eye, where a light-grey patch commences. Many of the light feathers tipped with darker colour, so as to give a somewhat pepper-and-salt effect. Under wing-coverts tipped with white. Down greyish white. Nostrils nearly halfway between the base of the bill and the tip, somewhat elevated towards the back. Nail of the bill very large and expanded. Inside of mouth yellowish. Feet and shanks yellowish brown, darker at the joints."

The Plate represents two males and a female, a trifle less than the size of life.



OIDEFMA FUSCA .

J. Gould & H.C. Bachm. del. et lith.

Walter. Imp.

OIDEMIA FUSCA.

Velvet Scoter.

Anas fusca, Linn. Faun. Suec., p. 39.

Melanetta fusca, Boie, Isis, 1822, p. 564.

Oidemia fusca, Flem. Phil. of Zool., vol. ii. p. 260.

Anas fuliginosa, Bechst. Naturg. Deutschl., tom. iv. p. 962, tab. 36.

Fuligula fusca, Bonap. Syn. of Birds of United States, p. 390.

THE marine ducks figured in this work under the generic title of *Oidemia* are rendered prominently distinct from all the other members of the numerous family of birds to which they belong, by the deep-black velvet-like colouring of the males. The species pertaining to our fauna are three in number, of which the Velvet Scoter is the largest and in every respect the most powerful. It not only frequents the seas and estuaries of the British Islands, but is also found on the shores of all parts of Europe, from the Baltic to the Mediterranean, and is probably identical with the Velvet Scoter inhabiting the sea-coast of the eastern side of North America. Although the Scoters have wings sufficiently powerful to enable them to fly with vigour when necessitated so to do, they are most at home on the water; and their natural feeding-ground is the bottom rather than the surface; for they neither eat fluviatile grasses and floating weeds, like the Shoveller, nor seek their food on the open marsh, like the Widgeon; their whole structure is adapted for diving, and their gizzards for crushing the hard shells of the mollusks and crustaceans which they search for on the sandy ridges at the bottom of the sea within soundings. In such situations they brave the severest storms; and there they may be seen in small companies of from six to ten or twenty in number, at one moment descending to the bottom for food, and at another rising to take air, battling with the turbulent waves and piercing winds. To the seas of the British Islands, however, the Velvet Scoter only resorts in winter, arriving in October and November, and departing in April and May. During its sojourn here, it sometimes ascends rivers such as the Ribble and the Thames. During the severe winter of 1866-7 a splendid old male was killed at Cookham, in Berkshire; and many other instances of its occurrence inland might be cited; but these instances of departure from the normal habits of the bird are quite exceptional. Although it leaves the coast entirely at the approach of summer, and takes up its quarters in freshwater lakes for the purpose of breeding and rearing its young, it never resorts to any of our Highland Lochs, but seeks the more peaceful solitudes of Lapland, Finland, and Archangel, the nursery of the young of so many of our rarer birds; there it is that the old spend their summer, breed, shed their feathers, and assume a new livery of velvety black or brownish black, according to the sex. By the time this change is effected the young are able to fly, and have become sufficiently strong to leave their upland homes for the sea, and gradually proceed on their journey southward, until both the parents and their broods arrive, and again enliven our shores with their presence in autumn. In America, a similar movement takes place; for there, as with us, the Velvet Scoter, if it be really the same, frequents the temperate seas in winter, and retires northward to Newfoundland and Labrador in summer. Audubon, who found them breeding there, has given a minute description of their proceedings.

The above is a slight and general account of the habits and mode of life of the Velvet Scoter, respecting which, as seen with us, much has been written, but not, I believe, generally read; this remark, however, does not apply to the professed ornithologist; for he is perfectly acquainted with the bird, and therefore I cannot teach him anything.

St. John in his 'Tour in Sutherlandshire' says:—"The heavy but handsome Velvet Ducks ride quietly on the sea in small companies, at the distance of about two hundred yards from the shore, apparently keeping over some ridge of sand or other feeding-ground, down to which they are continually diving. These birds drift along with the tide, till it has carried them beyond the place where they feed; then they rise, and fly back for some distance, looking more like Blackcocks than Ducks; and dropping again into the water, they continue their diving till the tide has drifted them beyond the end of their feeding-ground; and this they do again and again."

For the following interesting note respecting this species, I am indebted to the kindness of Captain Elwes of the Scots Fusilier Guards:—"I find, on referring to my notes, that a male Velvet Scoter killed by me near Stromness on the 15th of April 1865, had the legs and toes pinkish magenta on the inner, and orange-red on their outer surface; the interdigital membranes slaty black; the eyes light bluish white; the colour of the bill is not described, as I was not at that time so particular respecting the colours of the soft parts. The bird is very common in Gutter Sound between the islands of Faray and Hoy, and is found there in flocks of from two or three to

twenty from October until the 20th of April, when they migrate to the north. The Sound above mentioned is their favourite resort; and although a few are found in the neighbourhood, yet they are never so plentiful elsewhere. They are strictly marine in their habits, and hardly ever come to land: their power of diving is extraordinary, and is not surpassed by any other bird with which I am acquainted, except the Great Northern Diver; for they can remain under water nearly two minutes, and always seem to dive to windward. Though they are usually very wild, yet from their great weight, and the small size of their wings, they are very slow in rising, and a shot may easily be obtained by running down on them before the wind, as they are then obliged to rise towards the boat. They are extremely hard to kill—so much so that, out of fourteen we knocked down, only four were procured, all of which were shot in the head. The white bar on the wing is very conspicuous during flight, and distinguishes them from every other bird. Their food consists chiefly of small shell-fish, which they procure at a great depth; and consequently their flesh is very strong and fishy." In order to obtain the correct colouring of the bill, which Captain Elwes had omitted to note, I wrote to Mr. J. H. Dunn, of Stromness, and requested him to shoot a fine old male, and immediately send me the head by post. This he did, after a voyage of ten miles taken expressly for the purpose; and I should be wanting in courtesy did I not here acknowledge his kind attention. With the head were transmitted the following notes:—

"The Velvet Scoters generally arrive here early in, or not later than the middle of, October; they remain all the winter, and depart about the beginning of May. Occasionally I have seen an odd one or two later in the season, but these were doubtless either unhealthy or wounded birds. While here, they are most numerous about the islands of Cava, Ryssay, and Fara, and may there be seen in small companies of from two or three to twelve or fourteen in number. Their departure and arrival are both very gradual. They begin to disappear toward the end of April; and by the close of May all have left. They reappear in like manner, and all have arrived about the beginning of November. In the places above mentioned as many as sixty or eighty may be seen any day during winter. It is equally plentiful in other parts of Orkney besides those above mentioned; but in Shetland I only saw two or three during a residence of eleven years."

That the Velvet Scoter is occasionally found in considerable numbers on the sea bordering the marshy county of Norfolk is certain; for Mr. Lubbock speaks of upwards of twenty specimens having been obtained there in the winter of 1829-30; and in some notes supplied to Mr. Stevenson by the late Sir William Jackson Hooker, no less than nineteen are stated to have been killed on the coast, near Yarmouth, in March 1832. Mr. Stevenson does "not know of any instance of so many being taken in any one season of late years; but several males, females, and young birds have been shot on the coast during the last few winters. Like the common species they are occasionally found on the larger Broads, and other inland waters."

The egg of the Velvet Scoter is very correctly figured in Mr. Hewitson's 'Coloured Illustrations of the Eggs of British Birds,' from an example in the Lapland collection of the late Mr. John Wolley, who states that "the bird makes its nest under the sweeping branches of a small Norway pine, if such is to be met with; but in the colder regions of the country, it must find some other shelter. When it prefers an island, which it more seldom does, in the inhabited districts at least, it chooses a dry spot a few yards from the water's edge. It is one of the latest breeders among the ducks, and the number of the eggs is very variable." "The usual number," according to Yarrell, "is six, and they are of a nearly uniform cream-colour, two inches and three quarters in length by one inch and seven eighths in breadth." Mr. Dann informed Mr. Yarrell that "it is common during the summer months in the interior of the whole of Scandinavia, north of latitude 60°. It frequents and breeds on the large lakes of the mountainous districts, especially those of which the shores are flat and boggy and covered with vegetation. In Lapland it is numerous everywhere, and the eggs are much sought after by the natives. It is also abundant in the Dovre-fjeld, appearing at the latter end of May. They hatch very late, seldom before the end of July. Their nests are placed on hummocks, amongst the willow-swamps or long grass near the water. They frequent the lakes as high as the birch grows."

The Plate represents a male, a female, and some young birds, about the size of life, the latter being figured from a specimen kindly lent me for the purpose by Arthur W. Crichton, Esq.



OIDEMIA PERSPICILLATA.

J. Gould & H.C. Richter, del. et lith.

Halter, imp.

OIDEMIA PERSPICILLATA.

Surf-Scoter.

Anas perspicillata, Linn. Syst. Nat., tom. i. p. 201.

Oidemia perspicillata, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 219.

Melanitta perspicillata, Boie, Isis, 1822, p. 564.

Fuligula perspicillata, Bonap. Syn. of Birds of United States, p. 389.

Pelionetta perspicillata, Kaup, Natürl. Syst., p. 107.

“THE sea and its living wonders!” What a vast field for the contemplation of the naturalist is embodied in those words! for how variable and extraordinary are the productions of the watery portion of our globe, and how deeply are they imbued with interest—whether we regard the forests of *Fuci*, which grow in its shallower portions, the extensive beds of corallines which are building up a base for some future continent, the myriads of those lower organisms shedding phosphorescent light, the *Physaliæ*, the Gasteropoda, the fishes of innumerable forms, or the gigantic whale! nor less remarkable are the numerous kinds of birds which habitually frequent its surface, the aerial Frigate-Birds, the buoyant Albatroses, the tripping Petrels, the diving Penguins, the rock-loving Puffins and Guillemots, and others, as numerous and as varied as those of the dry land. To say that animal life is feebly represented in the ocean, or that a voyage over its surface is necessarily monotonous, is untrue; for even in its midst both birds and the lower forms of life are extremely numerous, and it is well known that every part of its shores is tenanted by a vast variety of different genera and species, whose structure is as ill-adapted for the wide expanse as the Albatros is for the roaring rollers which the bird here represented loves to frequent, and whence it is called Surf-Duck or Surf-Scoter. This remarkable species may surely be included among the “sea’s living wonders;” for how extraordinary is the form of its bill and head, how brightly are they coloured, and how curiously are they marked! Those who have not had opportunities of seeing the bird in a state of nature will scarcely believe that any duck is so fantastically adorned; yet such is really the case; and fresh-killed specimens will outvie my drawing in every respect. In America this bird is very abundant along the shores of the eastern coast, from Florida to Labrador; but, being a northern species, it frequently crosses to the seas of Norway, Denmark, and Holland, and also to those of the British Islands, where it has been killed sufficiently often to entitle it to a place in our avifauna. Ornithologists are divided in their opinions as to whether the Surf-Scoter found on the north-western portion of America be the same as the one frequenting the eastern coasts; if they be identical, then the bird probably ranges over all the northern shores of the globe.

For a knowledge of the habits and economy of the Surf-Scoter, we must refer to the interesting pages of the celebrated American writers Wilson and Audubon. According to the former, “this duck frequents the shores and bays of the sea, particularly where the waves roll over the sandy beach. Their food consists principally of small bivalve shell-fish, spout-fish, and others that lie in the sand near its surface. For these they dive almost constantly, both in the sandy bays and amid tumbling surf. Their skins are remarkably strong, and their flesh coarse, tasting of fish. They are common in winter along the whole coast, from the river St. Lawrence to Florida, but leave us early in May for their breeding-places in the north.”

“While proceeding,” says Audubon, “towards the sterile country of Labrador, in 1833, I found the waters of the Gulf of St. Lawrence alive with ducks of different species. The nearer we approached the coast, the more numerous did they become; and, of the many that presented themselves to our anxious gaze, the Surf-Duck was not the least abundant. It is true that in the noble bays of our coast, in the Sound between New York and the Hook, on the broader waters of the Chesapeake, and beyond them to the mouths of the Mississippi, I had seen thousands of Surf-Ducks; but the numbers that passed the shores of Labrador, bound for the far north, exceeded all my previous conceptions. For more than a week after we had anchored in the lovely harbour of Little Macatina, I anxiously searched for the nest of this species in vain. At length I found that a few pairs had remained in the neighbourhood; and one morning while searching for the nests of the Red-breasted Merganser over a vast oozy and treacherous freshwater marsh of about three miles in length, two miles distant from the harbour, and fully five and a half from the waters at the Gulf of St. Lawrence, I suddenly started a Surf-Duck from her treasure. The nest was snugly placed amid the tall leaves of a bunch of grass, and raised fully four inches above its roots. It was entirely composed of withered and rotten weeds, the former being circularly arranged over the latter, producing a well-rounded cavity, six inches in diameter, by two and a half in depth. The borders of this inner cup were lined with the down of the bird, in the same manner as the Eider’s nest; and in it lay five eggs, the smallest number I have ever found in any duck’s nest. They were two inches and two-eighths and a half in length, by one

inch and five-eighths in their greatest breadth, more equally rounded at both ends than usual, the shell perfectly smooth, and of a uniform pale yellowish or cream colour. I saw no male near the nest, but in the course of the same day met with several males by themselves, about four miles distant from the marsh, as I was returning to the harbour. This induced me to believe that, like the Eider and other ducks that breed in Labrador, the males abandon the females as soon as incubation commences. I regret that, notwithstanding all my further exertions, I did not succeed in discovering more nests or young birds. The Surf-Duck is a powerful swimmer and an expert diver. It is frequently observed fishing at the depth of several fathoms, and it floats buoyantly among the surf or the raging billows, where it seems as unconcerned as if it were on the most tranquil waters. It rises on wing, however, with considerable difficulty, and in this respect resembles the Velvet Duck; but when once fairly under weigh, it flies with great rapidity and to a great distance, passing close to the water during heavy gales, but at the height of forty or fifty yards in calm and pleasant weather. It is uncommonly shy, and therefore difficult to be obtained, unless shot at while flying or when asleep and, as it were, at anchor in a bay, or near the shore; for it dives so suddenly as to elude the best percussion-lock guns. The female, which was killed as she flew from the nest, uttered a rough, uncouth, guttural cry, somewhat resembling that of the Goosander on similar occasions; and I have never heard any other sound from either sex. I have never seen this bird on any freshwater lake or river in any part of the interior."

I am indebted to the kindness of Mr. H. E. Dresser for the following interesting notes on the bird as seen by him in Nova Scotia:—

"The Surf-Scoter is not uncommon on the coast of New Brunswick during its spring migration, and in some seasons occurs in great numbers. This was the case in 1862, when I spent a few days at Lepreaux Lighthouse, which is placed on a rocky point jutting out from the mainland into the Bay of Fundy. On my arrival there on the 25th of April myriads of ducks were flying past, among which Surf-Scoters were more numerous than any other species. They followed the line of the coast at a short distance from the shore, and in passing the point generally steered close in, or flew over the end of the point itself. On the 26th I spent the day among the rocks; and I never recollect seeing waterfowl in such countless numbers as I did on that day, all wending their way northward. Velvet, Common, and especially Surf-Scoters, were the most numerous; but there were also many Eiders, Brents, Long-tailed Ducks, with a few Harlequins, Great Northern Divers, and some others. The Surf-Scoters flew in large compact flocks, from eight to ten deep. I determined the length of the flocks by watching them as they passed certain points, the distance between which was known to me; and I thus found that one compact flock was at least half a mile in length, a second reached from one point to another, distant nearly a mile and a quarter. I made several very telling shots amongst them, knocking over eight at one discharge, and six and four at a double shot, though I was only using a light fifteen-bore gun. I found them, however, very hard to recover; for during the time the dog was retrieving them one or two were sure to come to and paddle off, and the sea was too rough to go out in a boat to pick up the cripples. The males proved to be far more numerous than the females, of which sex I only killed three during the whole day. The flesh of the Scoter is generally considered very unpalatable; but during my stay the lighthouse-keeper's wife gave us some capital dishes composed of it. Perhaps hunger was the sauce that made it so pleasant to me; but I suspect that the manner in which they were prepared had a great deal to do with it; for I have repeatedly tried the experiment when camping on the sea-shore, but always failed in rendering it agreeable."

Professor Nilsson states, in his 'Fauna of Scandinavia,' that the Surf-Scoter is so rare in that part of the world that it had only occurred once or twice,—the first time in 1833, when the specimen from which his description and figure was taken was killed in Kazesuando, and sent to the Stockholm Museum by the Rev. L. L. Læstadius; the second was killed at Calmar on the 14th of June 1846, and was sent to the same museum by the Pilot Wirsén.

In our islands, examples have been procured on the coasts of Orkney; and the late Robert Dunn states that he saw a specimen in Rona's Voe, Shetland, in June 1847. I have myself had an example from the Frith of Forth; Mr. Bartlett had one sent to him for preservation, as mentioned in 'The Naturalist,' vol. iii. p. 420. In September 1865, Mr. Rodd, of Penzance, informed me that he had just seen a splendid male Surf-Scoter, which was captured in a disabled state by a boy at Scilly, and that a specimen in his own collection was brought to him by a man who said he had picked it up within reach of the shore. Still more recently a fine male was shot by Mr. J. H. Dunn near Stromness, at the end of March 1866. It is now in the possession of Vauncey Harpur-Crewe, Esq.

The female differs from the male in having the entire plumage of the body dull brownish black, and in being devoid of the rich colouring of the bill, and the patches of white on the head and the back of the neck, as will be seen on reference to the reduced figure of this sex on the opposite Plate, where two males are represented of the size of life.



CLANGULA GLAUCION.

Walter Inap.

J. Gould & C. Richter del et lith.

CLANGULA GLAUCION.

Golden-eye.

- Anas clangula* et *A. glaucion*, Linn. Faun. Suec., p. 43.
— *hyemalis*, Pall. Zoog. Rosso-Asiat., tom. ii. p. 270.
Clangula chrysophthalmos, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 182, pl. 56.
— *vulgaris*, Flem. Hist. of Brit. Anim., p. 126.
— *leucomelas*, Brehm, Vög. Deutschl., p. 927.
— *peregrina*, Brehm, *ibid.*, p. 929.
— *glaucion*, Brehm, *ibid.*, p. 929.
Glaucion clangula, Kaup, Natürl. Syst., p. 53.
Anas (Glaucion) clangula, Schrenck, Vög. des Amurlandes, p. 481.
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THIS ornamental species of Diving-Duck is a winter visitant to the British Islands, over the whole of which, at that season, it is more or less abundantly distributed, sometimes singly, at others in pairs, and not unfrequently in sufficient numbers to be designated small flocks. It does not confine itself to the shores or the tidal arms of the sea, but often ascends such rivers as the Thames, the Ribble, and the Annan, and frequently resorts to lakes, large ponds, and other sheets of water; in most instances, however, the birds met with in inland situations are females, particularly those that frequent the smaller streams. The gaily attired males are more shy and keep out of harm's way with the customary caution of all highly coloured birds. To watch the stately-swimming old Drakes, with their large green heads and full golden-coloured eye, through an opera glass is very interesting. When engaged in feeding, their diving-power and the quickness with which they descend are truly marvellous; and the singular attitudes assumed by the male during the season of courtship cannot but please and astonish all who have an opportunity of witnessing them. The extraordinary manifestations of love exhibited by the males in the morning and the early part of the day, during the months of spring, have often been seen in the Gardens of the Zoological Society in the Regent's Park. I have attempted to depict one of these *outré* positions in the accompanying Plate, on reference to which it will be seen that the head is thrown back on the lower part of the back, with the bill at a right angle to the body, an attitude which is repeatedly assumed as the males approach each other, or slowly pirouette, as it were, in circles round the female.

The short thick bill of the Golden-eye, its great feet, and dense plumage clearly indicate some peculiarity in its habits; and we accordingly find that they are very different from those of the Mallard, the Shoveller, the Pintail or the Teal. These latter birds live principally on grasses, aquatic plants, and worms; the Golden-eye, on the other hand, subsists upon aquatic insects, shelled mollusks, and other objects which are only to be obtained at the bottom of the water, and hence the reason of its continuous immersions; the throat, stomach, and gizzard of a female, sent to me by John Michell, Esq., of Forcett Park, Darlington, were crammed with *Notonecta glauca*, two species of *Corixa*, and the larvæ of a species of gnat.

The Golden-eye does not breed in England. In the higher parts of Norway and Sweden, especially in Lapland, and Finmark, the nursery of so many of our winter visitants, it breeds in abundance, and of course in many other northern countries; the distribution of the Golden-eye is, in fact, so extensive that very few of the other members of the family enjoy a wider range; for although not included by Jerdon in 'The Birds of India,' it inhabits all the countries of Europe, Siberia, northern China, and Japan, is equally numerous throughout the northern portions of America, and I believe there are few countries within the arctic circle from which it is absent.

Mr. Dann informed Yarrell that the Golden-eye is "numerously spread over the whole of Lapland, as far as the wooded districts extend, both to the westward range of mountains which separate Norway from Sweden, as well as the eastern parts. It breeds in small numbers on the coast of Norway, but not from Stavanger northwards, and on the Dovre Fjeld mountains. It prefers rivers to lakes, particularly the neighbourhood of falls and rapids. The Lapps and settlers place boxes with an entrance-hole in the trees on the banks of the rivers and lakes, in which the Golden-eye lays its eggs. Although the birds are always robbed of their eggs they gain nothing by experience, but seem to have such a predilection for holes in trees, that if such cavities are to be found, artificial or natural, they always appear to prefer them to any other locality. . . . There have been many speculations and opinions as to the mode the Golden-eye adopts to carry its young down from the holes of the trees wherein they are hatched, and which are frequently ten or twelve feet from the ground and at some distance from the water. That the bird does transport them is beyond doubt. The Lapps, whom I frequently interrogated, were ignorant of it, beyond the mere fact of their carrying them; and there

is, I believe, but one person who has actually witnessed the manner—the clergyman at Quickiock, in Lulea Lapmark, near the source of that chain of vast lakes whence the Lulea river flows, who was once a witness, and who, while botanizing by the side of the lake near Quickiock, where the bird breeds in great numbers, saw a Golden-eye drop into the water, and at the same instant a young one appear; after watching some time, and seeing the bird fly backwards and forwards from the nest five times, he was enabled to perceive that the young bird was held under the bill, and supported by the neck of the parent.”

The advantage taken by the natives of Lapland and Finmark of the bird's habit of laying its eggs in the holes of trees and similar situations is mentioned by nearly every writer on the natural history of those countries. Linnæus, when near Lycksele, had his attention drawn to the cylinders of wood, closed at top and bottom, and with an aperture on one side, which were placed on the highest part of the loftiest fir trees, in order to tempt the wild ducks to lay their eggs in them. Mr. Wheelwright mentions that he always took the eggs from the *holkar*, or tubs set up in trees, or from the hollows of trees themselves, and never from the ground; and Pastor Sommerfeldt informs us, in his ‘List of Birds observed in East Finmark,’ translated by Mr. H. E. Dresser, that, in order to obtain possession in the easiest manner of the eggs of this bird, the Lapps put up, along the Tana river and in the woods, hollow trees about two ells high, with a hole in the side. When the bird has discontinued laying, they empty the nest. Occasionally the cavity chosen is so small that it would seem impossible for a Duck to enter it. Mr. Hewitson mentions one, observed by him in Norway, that was about twelve feet from the ground and about a foot in diameter inside, with an entrance so narrow as hardly to admit the hand.

The Golden-eyes, “like most of our Ducks,” says Macgillivray, “betake themselves to the Arctic regions, whence they return in autumn, making their appearance in the beginning of October, and continuing to increase in number until the winter has fairly set in, when they are met with in all parts of the country, from Shetland and Orkney on the one side, and Lewis Island on the other, to the southern extremity of England. In Ireland, also, they are regular winter visitants. It is chiefly to lakes, pools, and rivers that they resort. But, although essentially lake-ducks, they often, especially in frosty weather, resort to estuaries, as well as the open coasts, where they procure testaceous mollusca, crustacea, and fishes.”

“Owing to the pied appearance of the males, the Golden-eyes make a fine show on the water, and especially on those dull dark pools of the North Highlands and Hebrides of which the surrounding scenery is dismal enough at all seasons, but especially in winter. When undisturbed, they float lightly, but if alarmed have the faculty of sinking deeper, swim with great speed, dive instantaneously, and are active and lively in all their movements,” except on land, where, Mr. Selby states, it “proceeds in a shuffling ungainly manner, from the backward position of its legs and the great size of its feet.” “They fly with rapidity, and in a direct manner; their small, stiff, sharp-pointed wings producing a whistling sound, which, in calm weather, may be heard at a considerable distance. If shot at while feeding, they dive, and appear, after a considerable interval, at a great distance; but, owing to their vigilance and activity, it is difficult to get near them, although, when without a gun, I have several times been allowed to approach within shooting-distance, and on such occasions they merely swim slowly away. In rising from the water, they strike it with their feet and wings to the distance of several yards; but on occasions they can rise at a single effort, especially when there is a breeze.

“The females and young are greatly more numerous, in proportion to the males, in the southern parts of the country; and in the northern, flocks are sometimes seen composed entirely of males. It is said that, in their southward migration, the males advance first, the young remaining a considerable time behind the females; and in proceeding northward, the males again take the lead, being several days in advance.”

Mr. Wheelwright states that “the egg of the Golden-eye varies very much in colour and size; and it is remarked by the old settlers, who watch the habits of the bird closely (for its eggs afford them a good supply of food), that the old birds always lay the fewest, finest, and largest eggs.” How many eggs are deposited at a laying does not appear to have been correctly ascertained: from five to ten would seem to be the normal number; they are of a beautiful pale pea-green, and are two inches and three-eighths in length by one inch and five-eighths in breadth.

Few Ducks present so great a contrast in the size and colouring of the sexes as the male and female of the present species; irrespective of the difference in their plumage, the latter may always be distinguished from the former by the eye being pale straw-yellow instead of a rich golden. In all probability the old males, after the breeding-season, change their brilliant plumage of winter to one closely assimilating to that of the female, and again assume it late in the autumn. The young males closely resemble the females.

The Plate represents a male and a female of the size of life, with reduced figures of two males in the remarkable attitude above described.



HISTRIONICUS TORQUATUS.

J. Gould & H.C. Richter. del. et lith.

Walter. Imp.

HISTRIONICUS TORQUATUS.

Harlequin Duck.

Anas histrionica et *A. minuta*, Linn. Syst. Nat., tom. i. p. 204.

Clangula histrionica, Boie, Isis, 1822, p. 564.

Harelda histrionica, Keys. und Blas. Wirbelth. Eur., p. 87.

Fuligula histrionica, Bonap. Syn., p. 394, no. 345.

Cosmonessa histrionica, Kaup, Natürl. Syst., p. 40.

Phlyaconetta histrionica, Brandt, Mém. de l'Acad. Imp. Sci. de St. Pétersb., 1849.

Histrionicus torquatus, Bonap. Compt. Rend. des Séances de l'Acad. Sci., tom. xliii. séances des 15 et 22 Sept. 1856.

Anas (Harelda) histrionica, Schrenck, Vög. des Amur-Landes, p. 483.

THIS fantastically marked Duck is a native of the northern parts of both hemispheres, excepting continental Europe: at the same time it is somewhat restricted in its habitat; in winter it frequents shoal bays and inlets of the sea, and on the approach of spring resorts to inland waters and the more turbulent streams and torrents, for the purpose of nidification. In its affinities it is almost as nearly allied to the Smew as it is to the Golden-eye, and, so far as we yet know, is the only member of its genus. From its summer quarters stragglers, which are generally females or young males, wander in winter into more southern latitudes, visit Vancouver Island and the north-western portion of the American continent, the south-eastern coasts of the United States, and occasionally reach the Baltic countries and Britain. Respecting its occurrence in our islands, much confusion exists, owing to the mistakes made by even our best ornithologists in regarding immature examples of other species, such as the Long-tailed Duck (*Harelda glacialis*), as female or youthful specimens of the Harlequin Duck. I fear, therefore, that much that has been written has to be discarded, and little added in favour of its having a place in our avifauna; such a claim, however, feeble as it may be, it certainly possesses.

Mr. J. H. Gurney, Jun., with an amount of pains-taking which does him the utmost credit, has lately furnished me with a list of the reported occurrences of this bird in our islands, accompanied by some very judicious remarks.

The result of his investigation tends to prove that the Harlequin Duck has only been found in our islands in two instances,—the first of which was recorded by Colonel Montagu, in his well known ornithological dictionary, published in 1802, on the authority of Mr. James Sowerby, in whose collection of the rarer British birds he had an opportunity of examining both sexes killed in Scotland, on the domain of Lord Seaforth; the other, a male, was shot by Major W. Ross King, off Buchan, on the coast of Aberdeenshire. "I learn from Major King," says Mr. Gurney, Jun., "that it was obtained immediately after several days' storm from the north-east, that it was swimming a short distance only from the shore, and that it appeared to be either wounded or much exhausted. In his opinion it would more likely have died than found its way back to its own country. It proved to be in very fair plumage, but in poor condition. Major King skinned it, and had it stuffed; but during his temporary absence it was, unfortunately, so much injured by damp and moths that it had to be thrown away."

Mr. Frederick Bond informs me that he well recollects seeing three or four young females in Leadenhall Market, many years ago, during a very severe winter: unfortunately he did not purchase them. From Mr. Bond's intimate acquaintance with ornithology, I have no doubt the birds he remembered were of this species.

"I am inclined to believe," says Professor Newton, in 'The Ibis' for 1859, "that a good deal of misconception exists as to the geographical range of this species, which I think will be found to be much more limited than is usually supposed to be the case. I am pretty sure that in Europe, with the exception of Iceland, and Western Asia it only occurs as an accidental straggler. As far as Mr. Wolley's experience goes, it is not known as a bird of Lapland, including in the term the north of Norway or Finmark; and I can hardly understand its being, as Temminck states, "abondant dans les contrées orientales de l'Europe" without its occasionally appearing in the district so assiduously worked by my friend; for I presume there can be no doubt that Temminck did not intend to refer to any but the *northern* part of eastern Europe. In more southern Scandinavia it is certainly rare. I cannot find that it is known in European Russia; but it seems to occur accidentally on the Caspian and Sea of Aral. It is also said to be met with about Lake Baikal; and, if the report be true, I think this must be taken, according to our present knowledge, as its normal western limit in Asia; for in the course of Dr. Middendorff's travels it appears to have been found only in the extreme east of Siberia. It probably also occurs in Japan."

Mr. Proctor informed Mr. Hewitson "that the Harlequin Duck is by no means common in Iceland, where it chiefly frequents cascades and rapidly running streams, building its nest (which is composed of dry leaves, grass, and reeds, lined with down) amongst low bushes and water-growing plants, the eggs being from six to eight in number. . . . Mr. G. C. Atkinson, of Newcastle, whilst visiting the celebrated Geysers during a summer's ramble in Iceland, had the eggs brought to him, together with the bird, which had been shot in rising from them. . . . I have to thank Mr. Henry B. Milner," continues Mr. Hewitson, "for the following particulars:—'Of this species, which is scattered throughout the island, though nowhere abundantly, I was fortunate enough to discover one nest containing six eggs. It was situated on an island in the rapid river Laxa, nearly in the centre, amongst the low arbutus; I also saw a female and two half-fledged young ones in a stream near the Geysers. As far as I could observe, the Harlequin Duck only haunts the rapid rivers and streams. I saw about twelve pairs while in Iceland, and never in one instance observed them in any of the numerous lakes which abound throughout the island.' . . . Holbœll says that this is a rare bird in North Greenland, whilst it is very common between 62° and 65° N. lat. The nest is always on the bank of a very rapid brook, and is so well concealed under plants and willows that it is very rarely discovered. The young ones are immediately led into the sea. They like a ruffled sea, and, when not breeding, are usually found at the most outward islands, where they dive in the midst of the breakers."

Audubon states that the flight of the Harlequin Duck "is rapid and generally straight. At sea it flies at a small height; but when flying over the land or even when approaching it, should there be any suspicion of danger, it rises to a considerable height. Its food consists of shrimps, small fishes, roe, aquatic insects, and mollusca, which it procures by diving. The flesh is dark-coloured and generally tastes of fish; but that of the female is good during the period of her sojourn on the freshwater ponds."

The same author informs us that "the male takes three years to acquire his full plumage, though many individuals breed in the second year;" but neither Audubon nor any other author, so far as I am aware, informs us whether the fantastic colouring of the male is constant, or if it be only assumed during the breeding-season—that is, a nuptial dress only. Judging from what is known with respect to the Mergansers and the diving ducks allied to the Harlequin, probably the latter is the true state of the case, and in winter both sexes are very similarly coloured.

The eggs are pale buff with a slight tinge of olive, and are two inches and an eighth in length by one inch and five eighths in breadth.

"The colour of the male is so singularly diversified," says Swainson in his 'Animals in Menageries,' "as to require much precision in a description which is to convey any accurate idea of the bird. We should say that the ground-colour of the whole plumage, both above and below, is bluish black—of different tints, indeed, but in all parts dark; upon this ground are many bold bands, stripes, and spots of white, giving the bird a most elegant appearance. A large patch of this sort fills up the head between the eye and bill; another, small and round one is just on the ear; and a third, longer and narrower, is behind it; the crown is margined on each side by a stripe of white, which changes to ferruginous after it passes the eye; at the bottom of the neck is a narrow white collar, which separates the deep black of the head and throat from the cinereous or lavender-black of the breast; on each side of the breast is a broad transverse stripe of white, margined above and below by a narrow one of velvet black; the greater wing-coverts terminate in a white bar, and the outer edges of the tertials are marked with black and white stripes; the speculum, which covers all the secondary quills, is of a very dark glossy blue; sides of the body and flanks chestnut-brown; vent, rump, and tail-coverts velvet black; at the base of the tail on each side is a white spot; quills and tail brownish; bill and a small fleshy flap of naked skin at the base of the upper mandible bluish black, tip and legs brown."

The female is thus described by Dr. Richardson:—"Above, dark liver-brown; quills and tail blackish brown; rump and the flank-feathers that hang down over the thigh pale umber; a spot behind the ears, a smaller one on each side of the forehead, and some mottling under the eye white; upper part of the breast and the sides under the wings yellowish brown, edged with brownish grey; rest of the under plumage greyish white, broadly barred across the middle of each feather with dove-brown. The size is much inferior to that of the male."

The Plate represents a male, of about the natural size, a female, considerably reduced, and a second male in the distance.



HAARELDA GIACIALIS.

J. Gould & H.C. Richter del. et lith.

Walter, Imp.

HARELDA GLACIALIS.

Long-tailed Duck.

Anas glacialis, Linn. Syst. Nat., tom. i. p. 203.

— *hyemalis*, Linn. Faun. Suec., p. 44.

— *longicauda*, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus. p. 37.

Pagonetta glacialis, Kaup, Natürl. Syst. p. 66.

Crymonessa glacialis, Macg. Man. of Nat. Hist., Orn., vol. ii. p. 186

Harelda glacialis, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 175, pl. 58

Clangula glacialis, Boie, Isis, 1822, p. 564.

DURING the months of summer the Long-tailed Duck frequents the northern regions of Europe, Asia, Greenland, and America, but on the approach of autumn bids farewell for a short period to the land of its birth, and gradually wends its way to the southward; some proceeding to European seas, others to China and Japan, while others, again, wander along the eastern and western coast-lines of America, their progress southward being accelerated or retarded by the nature of the season or the state of the weather; seldom, however, do even solitary individuals proceed so far as the latitudes of the Mediterranean, the Island of Madeira, or the Azores. Scotland, Ireland, and England, lying in the direct line of migration, naturally come in for a full share of visitors; but, as might be expected, the northern parts of our islands are more often favoured with its presence than the southern and western; hence, in the Orkneys, the Shetlands, and in all the armlets of the sea on the eastern side of Scotland, from the mouths of the most northern rivers and Cromarty Bay to the Firth of Forth on the east, and the Clyde on the west, the Long-tailed Duck may be seen in such numbers, during the months of autumn, winter, and early spring, as to render the word common an appropriate term. Further south than this (for instance, the coasts of Norfolk and Suffolk, and the opposite ones of Lancashire and Wales) it gradually becomes more scarce, and it is only in rigorous winters and at stormy periods that the bird is found in Cornwall and Devonshire. What has been said with regard to the bird's movements in Britain, holds good in all countries of a similar latitude. With us, of course, it does not breed; but in Iceland, Spitsbergen, Nova Zembla, Greenland, Hudson's Bay, and doubtless in northern Siberia it nidifies and rears its young. Those persons who are acquainted with the Mallard (*Anas boschas*) must, as a matter of course, have remarked the changes of plumage which take place in the male after the breeding-season, and have noticed that, having performed the duty of reproduction, he throws off his beautiful green head-dress and short curly tail-feathers, and dons a plumage differing but little from that of his spouse, which he continues to wear until the young are able to fly. Another change then takes place; and by November the Drake is again beautifully attired, and only requires the heightening of the wax-yellow colouring of the bill and the acquisition of the rich glossy green tint on the head to render his appearance sufficiently attractive to enable him to again leave his bachelor life and seek a mate for the ensuing summer. Now this mode of life and a similar transformation of plumage is more or less common to all the members of the *Anatidæ*, whether it be the gaily coloured and richly ornamented Mandarin Duck of China, or the Little Teal of our own islands. In winter and spring the males of those species are conspicuously different from the females; but in summer the sexes can scarcely be distinguished except by dissection. The Long-tailed Duck is similarly metamorphosed at opposite seasons of the year, but, unlike all other Ducks, is as beautiful, although of a different colour, at one season as at another, the plumage of both sexes undergoing a total change, so that they have a dress common to both in summer, and another equally common to both in winter, the only differences being, that the long central tail-feathers and the large crest of the mature male, shown in the front figure of the accompanying Plate, are never seen in the female. In summer the male has the long tail-feathers and a rich chestnut, grey, and black dress: the female has the same colours; but being destitute of the ornamental tail-feathers, her appearance is that of a dumpy short-tailed Duck. From what has been said it will be apparent that the bird is rarely seen in its summer dress in this country; indeed the numerous notes kindly sent to me by Mr. Stevenson and others, as well as the evidence of all previous writers, tend to prove that it seldom, if ever, occurs here at that season.

The somewhat flattened tarsi, large hind toe, and broad interdigital membranes of the Long-tailed Hareld, as it is sometimes called, clearly indicate that it is one of the diving Ducks, and that it descends to the bottom for its food, consisting of mollusks, crustaceans, sea-worms, and other lowly organized inhabitants of the deep. When it accidentally ascends our rivers or resorts to our freshwater lakes and meres, it is out of its place, far removed from its own element, which is low down the tide-way in the brackish salt water.

Here it is seen in small troops of from ten to forty in number, toppling over the waves and looking truly interesting. Such scenes as this may be frequently observed in the Firth of Forth, at the mouths of the larger rivers in Scotland, and in similar situations in some parts of Ireland. Its wing-powers, when assailed by the gunner in his sea-boat, are sufficient to enable it to get out of harm's way, by flying seaward, or from one part of the estuary to another; its diving-powers also are by no means insignificant. It is therefore not readily approachable, and the acquisition of specimens is no easy task. When paired and breeding on the far-off islands of the mysterious northern regions, it is much more tame in disposition, and attired in a dress which closely assimilates in colour to the surrounding herbage of the sippy fells with their moss-covered stones and scanty vegetation.

Professor Reinhardt includes it in his "List of the Birds hitherto observed in Greenland" (Ibis, 1861), but does not furnish us with any details respecting it. Captain Blakiston, in his notes "On the Birds of the Interior of British North America" (Ibis, 1863), mentions that he saw it in Hudson's Bay; and Mr. Ross states that it is abundant on the Mackenzie. Mr. A. E. Verrill, in his "Notes on the Natural History of Anticosti," published in the Proceedings of the Boston Natural-History Society for 1862, states that the Long-tailed Duck breeds abundantly, and is very common there. Mr. A. Newton, in his "Notes on the Birds of Spitsbergen" (Ibis, 1865), says the *Harelda glacialis* "is one of the few regular visitants to that country, where, however, it seems to be scarce; but it occurs as far north as the Dépôt Holm, lat. 80° N., where Dr. Malmgren saw a female bird. He also saw a pair in Kobbe Bay, on the 28th of May, 1861, and in 1864, on the first of August, met with a family party of five on a small pool of fresh water on one of the Horn Sound Islands." Mr. H. Whitely, jun., obtained several specimens at Hakodadi, in Japan, in January 1865, from native bird-catchers, and states that it was common in the harbour in winter (Ibis, 1867); and Mr. R. Brown includes it in his "Synopsis of the Birds of Vancouver Island" (Ibis, 1868). The late Mr. Wheelwright, in his 'Spring and Summer in Lapland,' says:—"The Long-tailed Ducks made their appearance on the Tana river towards the middle of May, and, after remaining there a short time, retired up the fell-lakes to breed. Before breeding, we always saw them in small flocks; and I think of all Ducks these are the most restless; for they are never still, but continually chasing each other about, uttering a pleasing note, which Nilsson likens to the tone of a clarionet, 'a gleck, a gleck.' The only nest I obtained was on the fell-meadow where the Lap Buntings breed. I was walking down a narrow track-way by the side of a fell-lake, on the night of the 27th of June, when I nearly trod upon an old female sitting on her nest. Although her head was turned towards me, she never attempted to rise, and I caught her on the nest, which contained seven fresh eggs. The next morning I saw two young broods on the water, apparently a few days old. During the breeding-season the old males appear to leave the females and congregate in small flocks; and even in the end of June we used to see, occasionally, six or eight males on the river at Quickiokk."

Mr. Hewitson "met with this species in Norway in considerable numbers, always in flocks, roving from place to place, and apparently unattached to any particular localities, sometimes sweeping past within a few yards with great rapidity, uttering their strikingly wild musical and most interesting cries.

"Eggs were brought from Iceland by Mr. G. C. Atkinson, who found a nest near the margin of a small lake, lined with down and containing six eggs.

"Mr. Proctor tells me that the bird is common in the last-mentioned country, and that it makes its nest amongst low brushwood and aquatic plants at the edge of the fresh water, of a few stems of grass and reeds, well lined with down, and usually lays from six to ten eggs, which, however, in one instance were twelve in number. When recent they are of an asparagus-green colour, approaching to apple-green, with the shell smooth; of a broad oval form, an inch and eleven twelfths to two inches and a twelfth in length, and generally an inch and a half in breadth."

"The male," says Macgillivray, "in swimming, raises his tail obliquely, in rough water almost erects it, and is remarkable for the grace and vivacity of his movements. Their flight is rapid, direct, and generally performed at the height of a few feet. They rise easily from the water, especially when facing a breeze, and alight rather abruptly. Sometimes during the day, but more frequently at night, they emit various loud rather plaintive cries, as well as cacklings of various shorter guttural notes, which I think can neither be easily imitated nor well expressed in words. In the north-eastern isles this bird is known by the name of Caloe, as well as the whimsical one of Coal-and-Candle-light, both derived from its cries; and in the Hebrides it is named Ianbhochail, ian signifying a bird, and bhochail expressing its soft protracted note."

The front figure in the opposite plate represents a male, of the natural size, in winter plumage, the reduced figures a male and a female in that of summer.



MERGUS CASTOR, Linn.

MERGUS CASTOR, *Linn.*

Goosander.

- Mergus merganser*, Linn. Faun. Suec., p. 47.
——— *castor*, Linn. Syst. Nat., tom. i. p. 209.
——— *rubricapillus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 545.
Merganser Raii, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 36.
——— *gulo*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 161, pl. 53.
——— *castor*, Bonap. Geog. and Comp. List. of Birds of Eur. and N. Amer., p. 59.
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THE GOOSANDER is the largest and the finest species of *Mergus* known. The plumage of the male in his nuptial dress is remarkably striking, the rich green of the head, the delicate salmon tint of the breast and abdomen, and the jet-black of the back being all most harmoniously arranged; and in this state few water-birds are more beautifully attired. The members of the genus to which it belongs dwell entirely on the waters, and, like the Cormorants, live almost exclusively on fish: the Mergansers, however, are more lacustrine in their habits; for they do not go far out to sea, or fish so frequently in great estuaries and bays, but prefer the inland lochs and great lakes of the countries they respectively inhabit. With few exceptions, all the species are found in the northern hemisphere, in the Old and the New World, and consequently are natives of high latitudes. The above somewhat general remarks apply to the four species which frequent our waters, and not to the one inhabiting Brazil, or to the two frequenting the streams of the Andean ranges; for although they undoubtedly belong to the same family, they pertain to very distinct genera. In summer the Goosander is to be found in the northern portions of Europe, where, and in other countries in similar high latitudes, it breeds. The greater part of those which come to us in autumn are doubtless from Iceland, Norway, and Lapland. I am aware that Macgillivray, Dr. Dewar, and others have stated that the bird breeds in the Outer Hebrides and other parts of Scotland; but I trust I shall be excused if I doubt this, and suggest that the Red-breasted Merganser may have been mistaken for it. It is in November that those who live in the Midland counties of England look for the arrival of the Goosander; and so truly does it keep the time of coming that it seldom varies more than a few days. The late Duke of Newcastle informed me that the small number which pass the winter on his fine lake at Clumber, in Nottinghamshire, generally arrive within a few days of the 15th of November, and remain until the following spring, when they suddenly leave for their breeding-grounds in the north. The quantity of fish that the ten or twelve Goosanders which resort to Clumber lake destroy during their five months' sojourn must be enormous; for a twenty-pound pike does not, in my opinion, take a larger weight of fish per diem than one of these voracious birds. The Duke very kindly invited me to Clumber, and assigned me a bedroom the windows of which opened towards the lake, that I might see how regularly the Goosanders fished the upper and shallow part of the stream at sunrise. As if acting in concert, the troop kept nearly in line, and traversed the lake from end to end; the morning meal over, and their appetites appeased, they resorted to the low and deeper water, and there remained until evening, when they again resumed their fishing. In a trout-stream, I know of no bird that would be more destructive; for the alacrity it displayed in diving clearly convinced me that no fish could escape.

The employment of the word "nuptial" at the commencement of this paper, with reference to the plumage of the Goosander, will have indicated that this fine species is subject to a change of costume; and no metamorphosis could effect a greater difference in appearance than is exhibited by the male before and after the breeding-time. As soon as the nesting-period is over, he gradually throws off his beautiful silky green head-dress, the black colouring of his back, and the buffy colouring of his breast, for a plumage so similar to that of the female that, were it not for his superior size, at a short distance the two sexes could not be distinguished from each other. The young of both sexes are alike in colour, and very similar to the old female, until at least the second year.

The site chosen for the incubation of its eggs is a hole in a tree, under a great stone, the lee side of a bush, or among the herbage by a lake-side. The late Mr. Wheelwright, in his 'Spring and Summer in Lapland,' tells us that the only two sets of eggs found by him were both placed on the bare ground. Mr. Hewitson states that "the eggs of this species were first added to our collections by the perseverance of Mr. Proctor, of Durham, who procured them during his visit to Iceland. The nests he found there were upon small islands in the freshwater lochs near the sea-coast. They were composed of very few materials—a small quantity of dry grass, with a lining of down and feathers—and contained from four to six eggs, which nearly resemble those of the Red-breasted Merganser, but larger, and of a lighter colour."

Mr. Alfred Newton informs me that both, in Lapland and Southern Sweden, Mr. Wolley invariably found the Goosander breeding in holes of trees, or in artificial nest-boxes affixed to the trunks of trees by the settlers for the use of this species and the Golden-eye. This therefore must be regarded as its usual mode of nidification; and it is only when trees fail, as in Iceland, that it adopts the plan of forming its nest in the open.

Old Acerbi, quoted by Mr. Yarrell, states, in his 'Travels in Lapland,' that "The person who waylays the bird for her eggs places against a fir or pine tree, somewhere near the bank of the river, a decayed trunk with a hole in its middle; the bird enters and lays her eggs in it; presently the peasant comes and takes away the eggs, except one or two. The bird returns, and, finding but a single egg, lays two or three more, which are purloined in the same manner, the bird again returns and, as if she had forgotten the eggs she had laid, proceeds once more to complete the intended number. She is defrauded of her eggs as before, and continues repeating the same process four or five times, when the peasant, who has by this time gathered perhaps a score of eggs from the same nest, suffers her to lay the last for the increase of her family. As soon as the eggs are hatched, the mother takes the chicks gently in her bill, carries and lays them down at the foot of the tree, where she teaches them the way to the river, in which they instantly swim with astonishing rapidity."

This account of the Goosander would be incomplete without a word on its flight. When the bird is hard pressed and cannot escape by diving, it readily takes wing and flies vigorously. If chased in a boat, while ascending our inland rivers, it frequently eludes the pursuer by diving back under the boat and rising again at a distance out of gun-shot. When on the surface and unmolested, it swims deep in the water, with its neck upright and its tail wholly submerged.

In conclusion, although I have given prominence to the Clumber Lake, I must state that in winter it visits in small numbers all similar waters in the northern parts of England, that it is also seen on the broads and decoys of Norfolk, Suffolk, and Lincolnshire, and that the Ribble, the Trent, and the Thames may enumerate it among the birds which irregularly plash down upon their glassy surface. Those that do so are, however, generally males in their plain dress, or females, and are known to gunners and country-people as Dun Divers and Saw-bills. So seldom do they see the male in his fine spring plumage, that, if they did, they would not know what it was.

Head and upper part of the neck black, glossed with green and purple; remainder of the neck, breast, and under surface beautiful rich buff, fading into white on the tips of the under tail-coverts, and minutely undulated with grey on the thighs; upper part of the back and inner scapularies deep rich black; outer scapularies buff; centre of the back dark grey, lower part of the back and rump light grey, undulated with dark grey; tail slate-grey, with black shafts: of the lesser wing-coverts those nearest the body are grey, with a band of black at the tip, while those along the margin of the shoulder have an additional band of white, the remainder of the lesser and all the greater coverts creamy white; primaries blackish brown, becoming much lighter on their inner webs; secondaries creamy white, with a wash of brown near the tip of the inner web; tertiaries buff, the first four with a narrow line of black along the margin of the outer web, the fifth similarly margined on both webs, and the sixth narrowly margined on the outer web, and stained with black on the inner web near the tip; bill rich deep blood-red, with the exception of the culmen and the tip of the upper and the under surface of the lower mandible, which are black; legs and feet orange-red, webs darker; nails pale brown; irides crimson-red.

The young male has the throat whitish; head and upper part of the neck deep rusty brown; upper surface grey, with a dark centre to each feather; under surface white, washed in some parts deeper than in others with buff; wing-coverts grey, with black shafts; primaries as in the adult; posterior portion of the greater coverts and the secondaries white, on the apical half of their outer webs, back, and tail as in adult; bill, feet, and eyes also, but paler.

The Plate represents a male and a female, somewhat smaller than the size of life, with a reduced figure of a Kingfisher in the distance.



MERGUS SERRATOR.

J. Gould and H. C. Fischer, del. et lith. Maclean & Co., New York.

MERGUS SERRATOR.

Merganser.

Mergus serrator, Linn. Syst. Nat., tom. i. p. 208.

———, var. *leucomelas*, *serratus*, et *niger*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 546.

Merganser cristatus, Briss. Orn., tom. vi. p. 237, pl. 23.

——— *niger*, Briss. Orn. tom. vi. p. 251.

——— *serrata*, Shaw, Gen. Zool., vol. xii. p. 165.

IF my readers were to picture to themselves a zone in the northern hemisphere between the 40th and 70th degrees of latitude, and could further carry in their mind all those parts of the land that are studded with lakes, or intersected with rivers and salt lagoons, they would then be able to form a just conception of the area over which the Merganser is spread. In the British Islands generally all the northern lakes, bays, and inlets of the sea are frequented by it. It also occurs in similar situations in Denmark, Norway, Sweden, Russia, Switzerland, and Savoy, and doubtless on all the other waters between the Black Sea and Kamtschatka; the north of China and Japan are also among the countries in which it is found. In America it frequents all the lakes and rivers from Canada to Texas. It is also, I believe, found in Iceland. In the British Islands it is rather a northern than a southern bird; for although it is sometimes killed as far south as the sheltered bays of the Hampshire coast, and as far west as the waters of Cornwall and Scilly, it is during the winter months only that such occurrences take place. Although comparatively a common bird, and so widely distributed, I question if more than one out of twenty of my readers has seen the Merganser in a state of nature. To those who have the desire to do so, I may say that the bird is a constant resident in all the northern parts of Scotland, Ireland, the Western Islands, Orkney, and Shetland, wherever such situations as those above described occur. I must remark, however, that its presence depends greatly upon its freedom from persecution; if absent from its usual haunts, molestation is the cause. In the London markets, and doubtless in those of Liverpool, Manchester, and Edinburgh, specimens may frequently be seen during the months of winter, showing that the gunner, in his flat-bottomed boat, has pulled his trigger at the Saw-bill (as it is commonly called), as well as at the more profitable Mallard. As an article of food, I suspect few birds can be more unsuited; and hence the only purchaser of those that grace the market-shambles is the Taxidermist, who obtains them at a price remarkably low, especially if they be females, or young males of the year, as is mostly the case; for the finely-plumaged males either do not migrate so far south, or by the exercise of greater vigilance contrive to keep out of harm's way.

Like the other species of the genus, the Merganser differs very considerably in the colouring of the sexes. The fine coral-red bill of the male, his double-crested green head, showy epaulets, and lovely-coloured breast, all combine to render him one of the handsomest of our water-birds. This spring or nuptial dress is not, however, carried all the year; for when the female has commenced the task of incubation, or has taken her young to the water, he becomes careless, as it were, of his finery, throws off his gaily-coloured feathers, and assumes an appearance so much like that of the female, that at a distance, except by their difference of size, one could not be distinguished from the other. The males are now said to associate by themselves in small communities of ten or more in number, regardless both of their females and of their progeny. On the approach of spring the sombre dress is again exchanged, the finer garb renewed, the female sought for and wooed, and some quiet place on the loch-side selected for the nest; and thus we are brought round to the period whence we started.

I fear that some of my readers will perceive an inconsistency between the accompanying illustration and the description; but it is not at all impossible that a male should carry his fine garb and remain with the female till the month of July, the period when the young are hatched; indeed it is probable that he frequently does so.

Much of the time of the Merganser is spent on the water. The lengthened form of its body, the oily character of its plumage, and its entire structure are, indeed, admirably adapted for swimming and diving. The bird frequently hunts in companies, commencing at the lower end of a reach or river, and gradually fishing the whole stream from end to end; and since, as with the voracious Cormorant, digestion goes on quickly, the amount of fish each Merganser takes is enormous. "Comparisons are odious" is an old saying, but I cannot omit remarking how vastly more destructive must be this bird to the salmon and trout than the cheerful little Water-Ouzel.

Independently of lochs and rivers, the Merganser seeks its living in most of the bays and salt-water estuaries, where it feeds on sand-eels and other fishes common to such localities.

The young, as will be seen from the figures in the accompanying Plate, taken from examples about ten

days old, have the elongated form of the adult, and a silken kind of plumage well adapted to resist wet. The colouring of their bodies is not without beauty. When feathers take the place of the infantine costume, the birds grow so rapidly that in four or five weeks their full size will be attained. Both males and females are now alike; and the style of dress assumed is carried by the former until the second year, when it suddenly changes to the finer dress.

So graphically has Mr. Selby described the habits of this bird, that I do not hesitate to give the following extract from his 'Illustrations of British Birds;' to which I shall add a copy of a letter received from Jeffery Whitehead, Esq., of Devonshire Villa, Muswell Hill, furnishing some particulars of the colouring of the bird in the month of January, when it appears to be in its most beautiful state of plumage.

"Upon the Northumbrian and other coasts of the north of England," says Mr. Selby, "the species is a regular winter visitant, but always more abundantly in severe than in mild seasons. It haunts the bays and inlets where small streams discharge themselves, as well as the estuaries of rivers, but seldom advances far beyond the influence of the tide. In the Highlands and Isles of Scotland these birds are found at all seasons of the year, making the freshwater lakes of the interior their residence during the summer, and in winter, should they become frozen, resorting to the salt-water inlets. They breed upon the margins of the lakes, or in preference upon the islets with which many of them are diversified. Upon Loch Awe, in the Western Islands, they are common; and their nests have been repeatedly found by Sir William Jardine and myself upon the several islands that beautify its western extremity. The nest is always situated a few yards beyond the highest water-line, frequently beside a large stone covered with brambles and coarse herbage, or under the shelter of some thick bush. It is composed of dried grass, small roots, &c., intermixed with feathers and a quantity of down of the bird, which appears to be added to as incubation advances. The eggs are from seven to eleven in number, of a colour intermediate between cream-yellow and wood-brown, and in size and shape like those of the Common Duck. The bird sits remarkably close, and will sometimes allow itself to be almost trodden upon before it will quit the nest. The Merganser is an excellent diver, remaining for a long time submerged, during which it makes rapid progress. In this way it frequently escapes when wounded, merely raising its bill above water to take breath and again dipping down, without causing any perceptible disturbance of the surface."

"The male Merganser," says Mr. Whitehead, "which I have requested Mr. Leadbeater to submit to your inspection, was shot by myself on Loch Fleet (a salt-water loch) on the east coast of Sutherlandshire, on the 1st of January. Much of its beauty has faded already; for when I first handled it I was much struck by the exquisite pink colour of the lower part of the breast and belly. I know not what to compare it to; it was more delicate than that of the Roseate Tern as figured in your 'Birds of Europe:' it vanished within two or three hours after death."

The adult male has the head and upper part of the neck dark shining green, and the occipital crest still darker, approaching to black; neck white, with the exception of a narrow line from the occiput to the back, which, as also the shoulders, are black; shorter scapularies white, the longer ones black; on each side immediately in front of the wing a conspicuous tuft of feathers of a pure white, broadly margined with rich velvet black; lesser wing-coverts white; greater coverts and secondaries black at the base, their outer halves being white, and with the lesser coverts forming three conspicuous white bands on the wing; primaries brownish black; tertiaries white, edged with black; lower part of the back and upper tail-coverts, sides and flanks grey, minutely freckled with black; tail brownish ash-colour; lower part of the neck pale reddish brown, streaked and varied with black; breast and under surface very delicate pinkish salmon-colour; under tail-coverts white; bill bright red, the culmen dark brown, and the nail somewhat lighter; irides red; legs and toes reddish orange; membranes dark reddish brown.

The female has the head, occipital crest, and back of the neck dark brown; back, scapularies, and lesser wing-coverts umber brown; greater coverts and secondaries brownish black, terminated with white, forming two white bands; primaries and tertiaries dark or brownish black; neck mingled reddish and pale brown; under surface pale buff; upper tail-coverts and tail ashy brown; sides of the bill and nostrils fleshy red; culmen reddish black; irides red; legs and toes very fine reddish orange; the membranes olive-brown.

The young birds, when a few days old, have the head and all the upper surface light chocolate-brown; above the eye a small patch, and below it a stripe of white; below this and on each side of the neck is a wash of rusty red; all the under surface, the shoulders, and the extremity of the abbreviated wings and three large spots on the sides, within the dark tint of the upper surface, white; bill and legs pale fleshy red.

The Plate represents a male, a female, and five young birds about the size of life.



MERGUS CUCULLATUS, *Linn.*

Hooded Merganser.

Mergus cucullatus, Linn. Syst. Nat., tom. i. p. 207.

Merganser Virginianus cristatus, Briss. Orn., tom. vi. p. 258.

——— *cucullatus*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 168.

SEVERAL instances are on record of the occurrence of this ornamental species of *Mergus* in England and on the continent of Europe; but its true home is America, over the northern portion of which, from the United States to the Fur-countries, it is very numerous distributed, and where, like the other members of the genus, its movements are influenced by the season; that is to say, in the summer months it lives in the north, where it breeds, and migrates southward as far as the Gulf of Mexico in autumn and winter.

Mr. Selby has the honour of having made known its first occurrence in Britain, through the medium of the first volume of the 'Transactions of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne,' p. 292. The specimen referred to was killed near Yarmouth during the winter of 1829. "Since that period," says Mr. Yarrell, "T. C. Eyton, Esq., has obtained a specimen, which was killed in the Menai Straits, near Bangor, in the winter of 1830-31. Mr. Hoy, of Stoke Nayland, in Suffolk, obtained an adult male, as recorded in the 'Naturalist;' and I have heard of another that was shot at Benton Park, the estate of Anthony Ralph Biddulph, Esq."

Mr. W. Christy Horsfall, of Horsforth Low Hall, informs me that he has a pair in his collection which were killed in the neighbourhood of Leeds. With such evidence of the occurrence of the bird in our islands, I must necessarily give it a place in the 'Birds of Great Britain.' The spring dress of the Hooded Merganser, like that of the other species of the genus, is by no means devoid of ornament, the beautiful hood of the male, which is capable of being raised and depressed at the will of the bird, adding much to the grace of its appearance. That this hood or crest is merely a seasonal decoration, I think there can be no doubt; for I have seen male specimens killed at the season when the female necessarily has her entire attention devoted to her progeny, which were so much like females in outward appearance as to convince me that at that time both sexes are similarly attired. These forlorn males now proceed southward and rove about until the autumn, when nature again prompts them to associate with the females; they gradually assume their courting-dress, once more become beaux, and when spring arrives pair and proceed north to their breeding-quarters. This, however, only occurs in America; for I question if any of those that have been found in Europe have been known to breed therein: this being the case, I shall be excused for giving a lengthy extract from Audubon's 'Ornithological Biography,' descriptive of the habits of the bird as seen in America:—

"Excepting the Smew or White Nun, the Hooded Merganser is the handsomest of its family. Its broad and rounded crest of pure white, with an edging of jetty black, renders the male conspicuous on the waters to which it resorts, as the activity of its motions and the rapidity of its flight contribute to render it a pleasing object. It seems to prefer fresh water, and is by no means frequent along the sea-coast. Long, narrow, and moderately deep creeks, or small ponds, are more frequented by it than large rivers or lakes. On the waters of the Western and Southern States, these Mergansers are seen to arrive from the north early in October. At the approach of night, a person standing still on the banks of such a river as the Ohio, first hears the sound of wings whistling through the air, and presently a different noise, like that produced by an Eagle stooping on his prey, when, gliding downwards with the rapidity of an arrow, he dimly perceives Hooded Mergansers sweeping past. Five or six, perhaps ten, with quick beats of their pinions, fly low over the waters in wide circles, and, having spied the entrance of a creek, shoot into it; and in a few seconds is heard the rushing noise they make as they alight on the bosom of the still pool. Up the creek the Mergansers proceed, washing their bodies by short plunges, and splashing up the water about them. Then they plume themselves, and anoint their feathers, now and then uttering a low grunting note, apparently of pleasure. Now they dive in search of minnows, which they find in abundance, and which no doubt prove delicious food to the hungry travellers. Having satisfied their appetite, they rise on wing, fly low over the creek with almost incredible velocity, return to the broad stream, and rove along its margin until they meet with a clear sand-beach, where, secure from danger, they repose until the return of day.

"This bird ranges throughout the United States during winter, content with the food it meets with in the bays and estuaries of the eastern coast and in the inland streams. The dam of the Pennsylvania miller is as agreeable to it as that of the Carolina rice-planter; and I have found them as full of life and gaiety on

the numerous streams and pools of the interior of the Floridas as on the Missouri and great lakes. When the weather becomes too cold for them they move southwards, many proceeding towards Mexico.

“The Hooded Merganser is a most expert diver, and so vigilant that at times it escapes even from the best percussion gun. If you wound one, never follow it; for the bird, when its strength is almost exhausted, immerses its body, raises the point of its bill above the surface, and in this manner makes its way among the plants until, finding some safe retreat along the shore, it there remains, and you may search for it in vain, unless you have a good dog. Even on wing it is not easily shot. If on a creek, ever so narrow, it will fly directly towards its mouth, although you may be standing knee-deep in the middle.

“Like all the rest of the genus, which, when far north, breed on the moss or ground, the Hooded Mergansers that remain with us nest in the same kind of situation as the Wood Duck. They dive as it were directly into their wooden burrows, where, on a few dried weeds and feathers of different kinds, with a small quantity of down from the breast of the female, the eggs are deposited. They are from five to eight in number, measure one inch and three-fourths by one inch and three-eighths, and in other respects perfectly resemble those of the Redbreasted Merganser. They are laid in May, and the young are out some time in June.

“The young are conveyed to the water by their mother, who carries them gently in her bill; for the male takes no part in providing for her offspring, but abandons his mate as soon as incubation has commenced.

“The affectionate mother leads her young among the tall rank grasses which fill the shallow pools or borders of creeks, and teaches them to procure snails, tadpoles, and insects. On two occasions the parents would not abandon the young, although I expected that the noises I made would have induced them so to do, but in both instances followed their offspring into the net I had set for them. The young all died in two days, when I set the old birds at liberty.

“The Hooded Mergansers move with ease on the ground, and even run with speed. When migrating, they fly at a great height, in small flocks, without any regard to order. Their notes consist of a kind of rough grunt, variously modulated, but by no means musical, resembling the syllables *croo*, *croo*, *crooh*. The female repeats it six or seven times in succession when she sees her young in danger. The same noise is made by the male, either when courting on the water, or as he passes on wing near the hole where the female is laying her eggs.

“The males do not acquire the full beauty of their plumage until the third spring, but resemble the females for the first year. In the course of the second the crest becomes more developed, and the white and black markings about the body are more distinct. The third spring it is complete.”

The male has the forehead brown; sides of the head and crest black, with a large patch of white in the centre of the latter; back and two crescentic marks on each side of the chest black; scapularies black, with a stripe of white down the centre; flanks marked with undulated lines of yellowish brown and brownish black; bill reddish black; irides golden yellow; feet yellowish brown, claws dusky.

The female, which is considerably smaller than the male, has the head and crest of a yellowish brown; chin whitish, upper part of the neck and the sides of the head greyish brown; upper surface, wings, tail, and flanks blackish brown, with paler edges; speculum greyish white; breast and abdomen pale yellowish brown.

The young resemble the female from their first moult.

The accompanying Plate represents an adult, nearly as large as life, in its summer plumage; while in the distance are reduced figures of both sexes at the same period. The plant is the *Ranunculus fluvialis*.



MERGUS ALBELLUS.

Smew, or Nun.

Mergus albellus, Linn. Syst. Nat., tom. i. p. 209.

——— *minutus*, Linn. *ibid.*

——— *Asiaticus*, S. G. Gmel. Reis., tom. ii. p. 188, t. 20.

——— *stellatus*, Brünn. Orn. Boreal., no. 98.

——— *pannonicus*, Scop. Ann., i. no. 92.

Merganser stellatus, Briss. Orn., tom. vi. p. 252.

——— *cristatus minor*, Briss. Orn., tom. vi. p. 243.

Mergellus albellus, Bonap. Comptes Rendus de l'Acad. des Sci., tom. xliii. séances des 15 et 22 Sept. 1856.

I THINK it was a happy simile when this bird was compared with a nun; for where can we find one more chaste in its colouring, more graceful in its form? Let us be fanciful for once at least, and consider the Smew as the representative among birds of all that is fair and all that is charming. Romance apart, this is really one of the prettiest, if not the most beautiful, of water-birds; to see it, however, with its plumage pure and unsullied, it must be viewed in a state of nature. How different is the bird when seen in our Museums! The taxidermist, in despite of all his care, has found it impossible to preserve more than its skin and feathers; the glory of the bird has fled with its departed life: and this, unfortunately, is the case with all birds; for, however beautiful their mounted skins may appear, they are but shadows of the past. The Smew is not sufficiently common in this country to admit of many persons seeing it in its wild state: the British Islands are not its native home; and its visits to us are only paid when the severities of the winter within the Arctic circle force it to seek more genial climes. In mild winters we are scarcely favoured by it at all, and then only by young males or females. Perchance Norway, Sweden, and Denmark are ice-bound; if so, Great Britain, Holland, France, and Spain are visited by it; and it is now that the males arrive. It will be useless for me to enumerate all the places in which this bird has been killed: during the next severe winter, it would be just as likely that we might see the Smew on one of the long reaches of the Thames as in the Ribble or Tamar, the Norfolk Broads, or the Lakes of Cumberland and Wales. The home of the Smew, as I have before said, is within the Arctic circle; and from thence it migrates towards the equator, some proceeding to Central Europe, and others to India, China, and Japan. But in none of those countries has it been known to breed; indeed, the place of its nidification had not been recorded with any degree of certainty until the indefatigable researches of the late Mr. Wolley placed it beyond doubt; and I feel I should be wanting in respect to that gentleman's memory were I not to acknowledge his great services and sacrifices in the cause of ornithological science, and give some extracts from the very interesting paper on this portion of the bird's economy, published by him in the first volume of 'The Ibis.' It may not be known to many of my readers that Mr. Wolley spent two dreary winters in Lapland, for the sole purpose of ascertaining the breeding-places and obtaining the eggs of some of our rarer birds, which nidify there early in the spring, when travelling from England to that country is impracticable. Although the Smew was one of the last with whose nidification he has made us acquainted, it is by no means one of the least in interest.

The delicate white plumage, relieved by crescentic markings of black, is characteristic of the male alone; for the female is very differently coloured, as will be seen on reference to the distant and reduced figure in the accompanying Plate, or to the detailed description of the sexes given below. It is only during the months of winter and spring that this pure-white plumage is borne: about midsummer a complete change takes place; for as soon as the bird is mated, this delicate attire disappears, and one very similar in colour to that of the female commences, and is perfected by the time the young are hatched: this change will even take place with birds in captivity, as I have witnessed in the aviaries in the Gardens of the Zoological Society in Regent's Park. The white crest is moulted, as well as the rest of the plumage; but no material change occurs in the colouring of the space before the eye: that nearly circular patch of greenish black also distinguishes the young males of the year from the females, to which they assimilate in many other respects. The annexed illustration, then, depicts the bird in its full winter dress, and, with the accompaniments, is intended to represent a tranquil winter scene. Neither spirit nor animation seems to possess the two males. How different, however, are they at other times, especially just before their pairing, or when they leave us for their northern home! They then exhibit the greatest animation, stretching forward their necks, erecting their crests, and swimming and circling in the water as if their bodies turned on a pivot. Thus did I see the Smew during a tour through Holland; and long shall I remember it. I wish it were in my power to give further details respecting the habits, actions, and economy of this winter visitant to our country;

but the time it spends with us is so short that but few opportunities of observing it are afforded us. I trust that the following extract from Mr. Wolley's valuable paper will supply my deficiencies.

Mr. Wolley, after having ascertained that the native names of the Smew among the Laplanders are *Ungilo* and *Uinilo*, states that "In 1857 the clergyman of Muonioniska, Priest Liljeblad, had been transferred to Sodankyla; and in the spring of this year, an intelligent young man, Carl Leppajervi, went to be assistant to his former teacher. I gave Carl strict charge to make every inquiry for *Uinilo* in that part of the world, and of travellers from Kemi Trask. On the 30th of July, 1857, as I passed by the homestead of Regina's Calle, the famous steerer of the Muonio Falls, there was given to me a wooden box, such as is used in the country for carrying butter on a journey, addressed, 'To the English gentleman Joh Woleg in Muoniovaara.' The box was not tied or secured in any way; and on the lid being opened there first appeared a well-written Finnish letter, of parts of which the following is an exact translation:—'Matthias Lakso of Madekoski-kyla, on the Kitinen-joki, five Swedish miles from Sodankyla, has found on the Liesi-joki eggs of Uinilo, and has brought to me three. . . . They were found on the 8th day of the Summer-month [June] 1857. Of an old birch trunk the wood was rotted away, and it was left hollow, forming a hole in which they were. There were two men in company, and the other man has given four eggs to the priest; there were seven of them, but there was no down brought. The Uinilo was also killed, and with the eggs it too is sent.—CARL LEPPAJERVI. First day of the Hay-month [July] 1857.'

"The next thing in the box that struck my eye was a stiff-necked skin of a female Smew, with hatching-spots on the under side; then five or six eggs of other birds; and lastly, well wrapped in tow, were the three Smeus. The eggs rather staggered me at first sight, they were so like Widgeons'. On comparing them with a series of something like fifty Widgeons' eggs, I found they were nearly of the same size, though rather below the average; they were more flattened at the smaller end, and had less of the yellowish tinge about them: so that a person not much used to eggs could distinguish them. It was not long before I perceived that there was also a decided difference of texture. This could be perceived on an ordinary examination, but it became very striking on exposing the egg to direct sunshine and examining the penumbra, or space between full light and full shadow, with a magnifying-glass; the sharp 'mountainous' structure of the Widgeon's egg was strongly contrasted with the lower and more rounded character of the elevations in the Smew's. The ivory-like texture of the Goosander's egg was a pretty parallel to the character of that of the Smew."

Mr. Wolley adds, "I have seen a MS. list of birds from the German naturalist Herr Hoffmansegg, then resident at Archangel, from which it appears that *Mergus albellus* occurs in that neighbourhood, which is considerably more southerly than Muonioniska or Sodankyla. As I did not hear of it on the north or north-east coast of Norway, and as it is not known to breed in Sweden, I should be inclined to suppose it to be generally an eastern and northern bird. It is worthy of note that the very pale colour of the down of the Smew seems to be connected with its choosing holes for breeding. No bird of the Duck kind that has white down, as far as I know, places its eggs in an exposed situation."

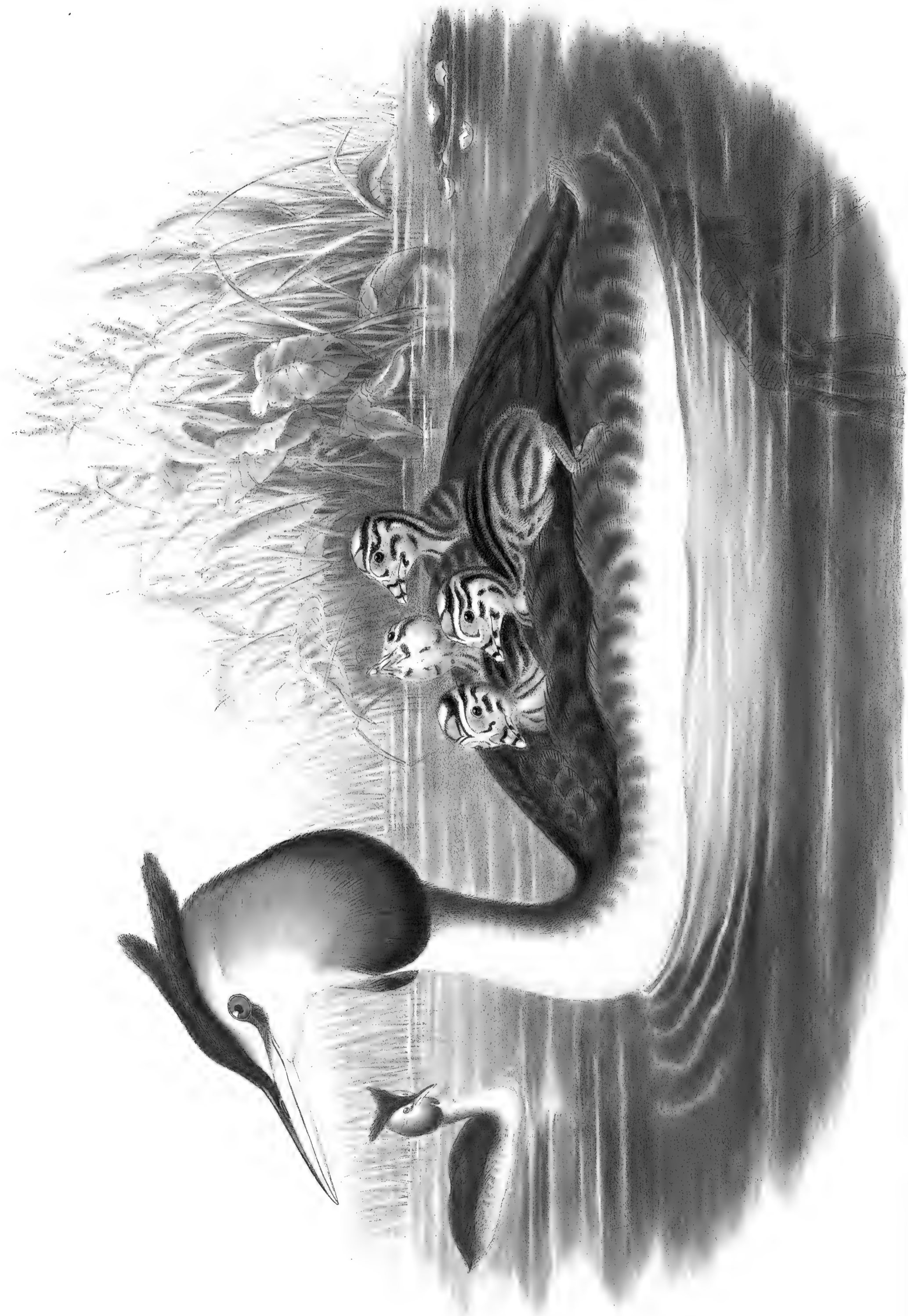
These very rare eggs, together with the whole of Mr. Wolley's collections, were bequeathed to and are now in the possession of Alfred Newton, Esq., of Elveden Hall, near Thetford, in Norfolk, a gentleman in every way worthy of such a valuable gift, since few persons possess a more intimate acquaintance, not only with our native birds, but with those of Europe generally.

The food of the Smew consists of fish, crustaceans, mollusks, and aquatic insects of various kinds. Its powers of swimming and diving are most perfect, even more so than those of flight, though these, as may be readily conceived from the extent of its migrations, are by no means inconsiderable.

The general hue of the male is pure white, relieved by an oval patch of greenish black at the base of the bill, a broad stripe of the same colour on each side of the head, and two narrow crescentic marks of black on each side of the chest; the centre of the back is also black; the rump, upper tail-coverts, and tail ashy grey; the lesser wing-coverts and scapularies white, the latter edged with black; greater coverts and secondaries black, tipped with white, forming two narrow white bands; primaries brownish black; tertials ashy grey, those nearest the body being the darkest; flanks grey, crossed by narrow irregular lines of dark brown; bill greenish lead-colour; nail horn-colour; irides reddish brown; legs, toes, and webs leaden grey.

The female, which is smaller than the male, has the head rusty red; chin white; upper and breast surface grey; under surface white.

The Plate represents two males rather less than the natural size, and a female in the distance, much reduced.



PODICEPS CRISTATUS, Linn.

J. Gould sculp. Wm. Wood engr.

Wm. Wood engr.

PODICEPS CRISTATUS.

Great-crested Grebe.

Colymbus cristatus, Linn. Syst. Nat., tom. i. p. 222.

———*urinator*, Linn. *ibid.*, p. 223.

Podiceps cristatus, Lath. Ind. Orn., tom. ii. p. 780.

Lophathya cristata, Kaup.

THE flat countries of Norfolk very closely resemble those of Holland, and are especially suited to this Grebe; and here, if unmolested, it would, after arriving in March, construct its great floating weedy nest among the reeds which fringe the sides of the little inland seas called broads. There might be seen the mated pairs sailing about in the open, with uplifted necks, coquetting and swimming round each other, displaying their silvery breasts, ear-tufts, and tippets to the best advantage. It will be observed that ornamentation is carried to the fullest extent, among the Grebes, in this species; for there is not one that is more conspicuously decorated,—the decoration being equally borne by both sexes, that they may vie with each other in the display they make during the season of love. This is no gay dress of the male to attract the female; for the crest and tippet is the nuptial costume of both. In the Norfolk broads (the place of waters and reed-beds) this elegant Grebe is a denizen. Surely it would cause regret to all if this truly indigenous bird should be utterly destroyed; a protest may reasonably be urged, that the remnant may, in future, receive the protection that will frustrate such an end. Norfolk has already lost several of its elegant birds; that the Grebe is not yet enumerated among those which are extinct is a matter of some congratulation, but at the same time of apprehension for its speedy destruction. Independently of Norfolk, Suffolk, and the fens of Lincolnshire, there are other parts of England where the Crested Grebes take up their summer residence. The extensive sheets of water in Cheshire, in Staffordshire, and Shropshire are yearly tenanted by them; and one, two, or more pairs generally rear their young in such localities.

I have now spoken of some of the places in the British Islands which form a summer home for the Crested Grebe. Independently of these there are many others, particularly in our midland counties; and from Cornwall to the Hebrides it occurs at one or other season of the year. As a matter of course, in the Emerald Isle, with its extensive waters, this bird is also found, but in much less abundance than in England.

In Holland, Germany, and Switzerland it is extremely numerous. Northward it at least extends to Sweden and Norway, spreads over the countries of Europe generally, occurs in Africa from north to south, and is also found in India (probably throughout the peninsula), and eastwardly from the Caucasus to China and Japan. Dr. Richardson states that it breeds in the North American fur-countries, and we have evidence that it is also found throughout the whole of the United States. In Australia it is represented by the very nearly allied but distinct species to which I have given the name of *Podiceps australis*.

Sufficient, I think, has been said to show that the Crested Grebe is a regular resident of the British Islands. During winter it lives at the mouths of rivers and estuaries of the sea, seeking inland waters in March or beginning of April for the purpose of breeding: it is then that the ornamental appendages of the head and neck are assumed; after the breeding-time, they are thrown off and the parts assimilate in colour with the rest of the body. Its powers of flight are limited. It is truly a bird of the waters, where it dives for fish, insects, Mollusca, and other animals, both freshwater and marine. Its nest is a large heaped-up mass of weeds, which float on the surface of the mere; and its eggs are five or six in number, of an elongated form and of a stone-white colour. When newly hatched, these little creatures of a day old present a truly singular appearance, with their painted faces and striped bodies; at this early period of their existence, their instinct and agility are astonishing. On the day they emerge from the shell, they swim and breast the gentle ripple, or dive beneath the surface, if any danger should warn them to do so. When wishing to repose, they, like young Cygnets, scramble on the back of the mother, who sails about in the sunshine with her progeny, and, if necessary to avoid danger, will dive with them beneath the surface, as I have also known the Little Grebe to do.

“Since 1851,” says Mr. Stevenson, “up to which time the bird was always numerous on the Hickley, Hornsea, and other broads, scarcely more than a single pair have been known to breed there. On the other hand, at Rooworth, Hoveton, where every care is taken to prevent molestation, they are met with during the summer months.” This gentleman adds, “I have had many opportunities of watching their habits on their first arrival in spring, when they occasionally rise on the wing and fly round and round with a strong steady flight, before settling again over some distant part of the water. At the approach of a boat, they usually dive off their nests with the least possible motion of the reeds, leaving their eggs lightly covered with loose

weed, which agrees so nearly with the surrounding herbage, as to pass wholly undetected unless carefully looked for. When unmolested, they are by no means shy, but at a respectful distance may be watched for any length of time, diving after their food, or preening their glossy feathers, the rich chestnut crests of the old birds glistening in the sun as they shake the moisture from their silky plumage. In winter the Loons quit the inland broads altogether, and betake themselves to the vicinity of the sea-coast, where they are not unfrequently killed on Breydon or other saline waters, kept open during the sharpest frosts by the action of the tides."

It may not be considered out of place, in a writer on our native birds, to question the taste of using the skin of this bird for decorative purposes. Fashion, however, will have its sway, even to the annihilation of so ornamental a bird as a Grebe. How much is this to be regretted! How palpably wrong is it that every pair which annually take up their abode on our great broads and extensive sheets of water should be harassed and shot down for this purpose! Yet such is the case. A writer in the 'Zoologist,' for the year 1851, makes a boast of having collected twenty-nine of these birds in full summer plumage, all in Norfolk. Wholesale destruction like this almost amounts to extermination: such wicked acts are most reprehensible; for, besides the cruelty, it is killing the goose that lays the golden egg.

"The under surface of the body," says Mr. Yarrell, "being of a delicate silvery whiteness, and of a shining silky appearance, one of the names of this well-known bird is that of Satin Grebe; and skins, from their beauty, are in great request for making ladies' muffs, or, more frequently, to cut up into narrow strips as trimming for pelisses. A good skin sells for six or eight francs on the Continent; and in the vicinity of the Lake of Geneva, which is frequented in autumn by these birds, it is usual for sportsmen to make parties on the lake to obtain specimens by shooting. This sport has been described to me by an English gentleman who had pursued the amusement.

"A party of four hire a boat, with able rowers, and on a calm day, when the surface of the lake is smooth, they put off, and look out, with telescopes, for a large Grebe, towards which the men row. On their approach, the bird dives; and the boatmen pull with vigour in the direction the bird has taken, in order to be near it when it comes up to the surface to breathe. One of the shooters stations himself in the bow of the boat, one at the stern, and the others, one on each side, about the middle, in order that one or the other may be in a position to take the shot as soon as the bird is visible. At the commencement of the pursuit, when the bird is strong, it frequently comes to the surface of the water out of shooting-distance, and has perhaps altered its course; but, a good look-out being kept by the shooters at their different posts, the bird is soon descried, and the rowers again urge the boat in chase; the bird dives again, and is again pursued, and, on rising, is perhaps shot at, but at too great a distance to be effectual, and the bird dives again. In this way the chase is kept up for a time: the bird, partly exhausted by the necessity of maintaining its exertions, and perhaps slightly wounded, is unable to remain so long under water; but, as the boat is close at hand, the exertion must be continued, and the Grebe still rises and dives again with so much rapidity that several unsuccessful shots are frequently made. The rowers, from practice, calculating the length of time the chase has lasted, can tell very nearly, whenever the bird dives, how many strokes of the oars will bring the boat near the place where it may be expected to rise; and by giving out this notice, and counting aloud, the interest is kept up throughout the pursuit, till a fortunate shot gives the fatal blow, when the prize is handed into the boat, and the telescope again put into requisition to find out a new victim."

Crown of the head and ear-tufts dark olive-brown; lower part of the frill pure black; chin and sides of the face fawn-white, gradually passing beneath into reddish chestnut; a stripe of reddish chestnut also surmounts the eye; back of the neck, back, and rump blackish brown, most of the feathers having greyish edges; centre of wing and primaries the same colour; but the upper part of the wing and some of the secondaries are pure white, as is also the rest of the body, the under surface being very silvery; bill light horn-colour, excepting the culmen, which is of an olive hue; irides brilliant crimson, passing, in the corners of the eye, into rosy white; between the eye and the bill a narrow mark of naked, dark olive-brown skin, continued over the bill towards the nostrils and on the base of the lower mandible; immediately below the bare skin on the lores is a little lengthened tuft of olive-brown feathers; tarsi and outer side of the toes olive beneath, and dull primrose-yellow at the upper joint in front; inside of the tarsi and toes horny white, inclining to yellow in parts; nails pale blue.

It gives me sincere pleasure to record my thanks to my excellent friend Lord Hill, for his kindness in enabling me to render the accompanying Plate so perfect as it is. From the extensive lake at Hawkstone, where it annually breeds, he has sent me examples of this Grebe in every stage, from youth to maturity. Neither am I less indebted to the Hon. Rowland Hill: both father and son take a lively interest, not only in the productions of their own, but of every other country.

The Plate represents an old bird, the size of life, with a brood of young ones a day old.



PODICEPS RUBICOLLIS.

Woodward & Lothrop, Eng.

Walter & Cohen, Eng.

PODICEPS RUBRICOLLIS.

Red-necked Grebe.

Podiceps rubricollis, Lath. Ind. Orn., tom. ii. p. 783.

Colymbus rubricollis, Gmel. edit. Linn. Syst. Nat., tom. i. p. 392.

————— *subcristatus*, Gmel. ib., p. 390.

————— *Parotis*, Gmel. ib.

————— *griseigena*, Bodd.

Pedeaihyia subcristata, Kaup.

Colymbus cucullatus, Pall. (Bonap.).

————— *nævius*, Pall. (Bonap.).

To speak of this bird as a rarity in our country would be incorrect; still it is so in a certain sense. Britain is not its true home; and the individuals that have been seen are migrants from the Continent, and particularly from the north.

It is only during the spring and breeding-season that the curious tippets and high-coloured necks and egrets adorn the varied members of the genus *Podiceps*, and it is seldom in this state of finery that the Red-necked Grebe is killed in our island; still it has occurred in this dress, and thus I have represented it. My Plate will have the greater interest when I state that the feathers of the crown and neck are drawn in their natural position, as seen in an individual which lived for some time with Mr. Bartlett, now Superintendent of the Zoological Gardens in the Regent's Park. Mr. Bartlett informed me that the bird became quite tame and familiar, and in a domesticated state changed from its winter to its full summer dress, in which state it died. It is in autumn and winter, then, when the head and neck are without ornament, or like the rest of the body, that the Red-necked Grebe visits the Norfolk and Suffolk broads and other extensive meres and inland waters, and the larger rivers of our island: instances of these occurrences are on record too numerous to mention; for in every county, from Cornwall to Orkney, it occasionally appears. In his 'List of Cornish Birds,' Mr. Rodd speaks of it as "quite as often occurring as the last species (*P. cristatus*), frequenting the same localities. Sometimes killed towards the spring, when some of the red feathers appear, characteristic of its nuptial livery." Macgillivray says, "I have procured this species, with all the other Grebes, in the Frith of Forth." Thompson, in his work on the 'Birds of Ireland,' states that he had opportunities of examining five specimens; in the stomach of one of these were found the remains of several shrimps (*Crangon vulgaris*) and fishes, with ear-bones of small Gadidæ, a pipe-fish (*Syngnathus acus*) ten inches in length, and a number of feathers of the bird's own body: none of these five individuals were adult.

The following note on the occurrence of this bird in Norfolk has been transmitted to me by Mr. Stevenson of Norwich:—

"A regular though not very numerous visitant late in autumn and early spring, appearing on our broads and inland waters between the beginning of November and the middle of March. Most of the specimens obtained are in immature plumage; but I have seen adult birds in their winter dress, and some also with traces of the red throat. According to Messrs. Gurney and Fisher (writing in 1846), a pair of this species occasionally remain to breed in this country; but these instances are, I imagine, extremely rare. A very beautiful specimen in full summer plumage, in Mr. Gurney's collection, was shot at Yarmouth about the 2nd of April, 1848, and another at Scotland, on the 22nd; but since that date their latest appearance here in spring to my knowledge, has been the 18th of March. The late Mr. Hunt, of Norwich, in his 'List of Norfolk Birds,' states that a pair of these birds were once killed near the Foundry Bridge in this city."

Temminck states that the Red-necked Grebe is nowhere more plentiful than in Holstein; and Mr. Dann informed Mr. Yarrell that it "is common, during the breeding-season, on many of the shallow reedy lakes at the head of the Bothnian Gulf, particularly between Pitea and Lulea. They seem to be confined to the vicinity of the coast of the Baltic. I have never met with them anywhere in the interior of the country, except in Scona and in the southern provinces of Sweden, although the whole of Northern Scandinavia abounds with lakes. The character of these lakes, where alone I have seen and procured specimens of the Red-necked Grebe so far north as latitude 66°, is precisely similar to that of the broads in Norfolk and the meres of Holland, where some of the Grebes are so numerous. Swedish ornithologists have confined the locality of this Grebe to the southern parts of Sweden; but having procured the old and young birds in August, and seen them in considerable numbers, two years in succession, in the same localities, no doubt can exist that they are regular visitants. The eggs I did not see; but the peasants, on finding a nest, are in the habit of leaving one egg, and the female will continue to lay, as long as one is left, until nature is

exhausted. These Grebes are by no means shy, and when undisturbed, amongst the reeds and grass, keep up an incessant croaking. They swiftly glide through the water, and dart through thick, entangled masses of weeds and grass with the ease and rapidity of a fish." The late Mr. John Wolley, acting on information supplied him by Mr. Dann, found that this bird was well known on the Kalix Noir, in the north of Sweden, and subsequently succeeded in getting specimens of its eggs from the locality where that gentleman met with it many years before.

Independently of the countries mentioned above, I may state that it inhabits every other part of Europe; it is included in the 'List of North African Birds' by Captain Loche; and specimens have been transmitted from Trebizond in Persia. It does not extend its range to the peninsula of India; but I find it included by Schrenck in his account of the Birds of the Amur-land, and Temminck says it is found in Japan. In Greenland there is a bird of this form, which is so similar to the *Podiceps rubricollis* that they have been considered identical by some, while others have regarded it as distinct, and have assigned to it the specific designation of *P. Holbælli*. Among my MSS. I find a note to the following effect:—"American specimens agree with European, except in being somewhat larger." Dr. Baird, who calls it *Podiceps griseigena*, evidently considers the bird identical with ours. It is likely, however, the American and Greenland birds may be the same, and distinct from the true *P. rubricollis*, in which case the name of *P. Holbælli*, assigned to it by Reichenbach, should be retained.

In no respect do the sexes differ in colour: the same law which affects the male is also carried out in the female; both assume the ornamental head-dress in summer, which gives place to a more sombre hue in winter.

No difference occurs in the nidification of this Grebe from that of the other members of the genus; the nest is placed on the surface of the water, among aquatic herbage and reeds, of which materials it is also built. The eggs are four or five in number, of a pale greenish white, and are somewhat smaller in size than those of *P. cristatus*. They are often stained by the materials with which the nest is built, till they acquire a rich orange-red hue; and it seems commonly the case for eggs of the Grebe to be more brilliantly dyed than those of any other species.

Crown of the head and back of the neck dark olive-brown; upper surface of the body brownish black; cheeks and throat brownish grey, bordered with greyish white; primaries brownish black; secondaries white; front of the neck, chest, and upper portion of the flanks rich rusty red; breast and abdomen silvery white; bill brownish horn-colour, except at the base, which, with the gape, is orange-yellow; irides red; tarsi clouded with pea-green; upper side of the toe bluish white, particularly in the centre of the lobes.

The young bird of the year has neither the red neck nor the elongated head-feathers; the throat is brownish, and the abdomen less silvery; the part of the neck which is red in summer is brown in the youthful state; irides brown; base of the bill paler orange.

The Plate represents the two sexes of the size of life, and a reduced bird in the distance. The plant is the Buckbean (*Menyanthes trifoliata*).



PODICEPS AURITUS.

PODICEPS AURITUS.

Horned Grebe.

Colymbus auritus, Linn. Syst. Nat., tom. i. p. 222.

Podiceps arcticus, Boie.

——— *cornutus*, Temm.

I REGRET exceedingly that the specific term *cornutus* cannot with propriety be retained for a bird which has hitherto been so familiarly known by that appellation to every British ornithologist, inasmuch as no doubt remains on my mind that it was to this species that Linnæus originally applied the term *auritus*, and not to the Eared Grebe (*Podiceps nigricollis*). On a perusal of my account of the latter species it will be found that it is a native of the warmer portions of Europe and of North Africa; while the Horned or Slavonian Grebe, as it is frequently called, habitually frequents all countries suitable to its habits lying northward of Britain as far as the Arctic circle. Nilsson states that it breeds in the reedy parts of the shallow waters of Sweden; Temminck that it is more often seen in Germany and the eastern parts of Europe, and that it is also found in France, Switzerland, Provence, and Italy. It is said to inhabit the northern parts of Asia and the vicinity of the Caspian Sea, America, from Hudson's Bay and the fur-countries (where Dr. Richardson tells us it is very common on every lake with grassy borders), Canada, and the United States, to Florida. In England it resorts to the coast and the few fenny districts yet remaining; it is not uncommon in several parts of Ireland in winter; and Macgillivray informs us it is not unfrequently to be met with in the estuaries of Scotland at the same season, and is sometimes shot in considerable numbers. Specimens have been killed in Cornwall, Devonshire, Sussex, Norfolk, Lincolnshire, and on the coasts of Durham and Northumberland. Mr. Dunn, in his useful 'Ornithologist's Guide,' says:—"This beautiful species is extremely rare both in Orkney and Shetland; but I saw seven or eight, in the month of April. It is a very shy bird, and, when alarmed, dives to a great distance, and on coming to the surface immediately takes wing. The young, known by the name of Dusky Grebe, is very rare. Two or three pairs used to frequent the Loch of Stenness, in the neighbourhood of Stromness." Sir William Jardine, who considers it to be, next to the Little Grebe, the most common species in Scotland, remarks that specimens occur during the whole winter in the Edinburgh markets.

In Ireland, according to Thompson, it "can be positively announced only as an occasional winter visitant." A few individuals, killed in the north of Ireland in winter, had come under his observation—one obtained in Strangford Lough, in November 1821, and others near Whitehouse, below Holywood, and near Bangor (all in Belfast Bay), in Coleraine, near Dublin, &c. In Wales, a specimen was shot at Penrice, near Swansea, by C. M. R. Talbot, Esq.

Mr. Newton, in his notes "On the Ornithology of Iceland," says the Horned Grebe is very generally distributed on lakes throughout the western half, and probably the whole, of the island. It arrives at the beginning of April or the first week in May, and, after breeding, departs in the autumn.

Mr. Proctor, the subcurator of the Durham University Museum, who visited Iceland in the summer of 1837, observed that "this bird frequents the fresh waters and breeds amidst the reeds and other rank herbage. The nest is large, and floats on the surface of the water, with which it rises and falls. It is composed of a mass of reeds and other aquatic plants. The eggs when first laid, are of a bluish white; but they soon become stained by the materials of which the nest is composed. Having observed one of these birds dive from its nest, I placed myself with my gun at my shoulder waiting its reappearance. As soon as it emerged, I fired and killed it, and was surprised to see two young ones, which, it seems, had been concealed beneath the wings of the parent bird, drop upon the water. I afterwards shot several others of this species, all of which dived with their young under their wings. The young were placed with their heads towards the tail and their bills resting on the back of their parents."

Mr. Stevenson informs me that "the Horned Grebe is by no means uncommon in Norfolk throughout the autumn and winter, when both young and old are to be met with in severe weather. Occasionally it remains late enough in the spring to acquire its rich breeding-plumage. A splendid pair, in full nuptial attire, in my own collection, and a young bird in that of Mr. Gurney, were killed on the 16th of April, 1862, on Sutton Broad. On dissection, they proved to be an old male and a young male and female. Their stomachs were crammed with a compact mass of feathers, mixed with, and stained by, the green *Conferva* from the surface of the water, the only particle of food being a small brown beetle in the stomach of the female. The fact of the Grebes swallowing their own feathers has been alluded to by Yarrell, Macgillivray, Fleming, and other naturalists; but no satisfactory conclusion has, I believe, been arrived at, either as to

the cause of their doing so or the means of disposing of such indigestible materials. As already mentioned, I found nothing whatever capable of sustaining life, although the stomachs were in each case greatly distended, the contents being closely matted together, and at least half an inch in diameter. I have never known the Horned Grebe to nest in Norfolk."

Audubon having had more opportunities of observing this bird in a state of nature than any English naturalist, I cannot do better than close my account of it with the following extract from his interesting 'Ornithological Biography'—

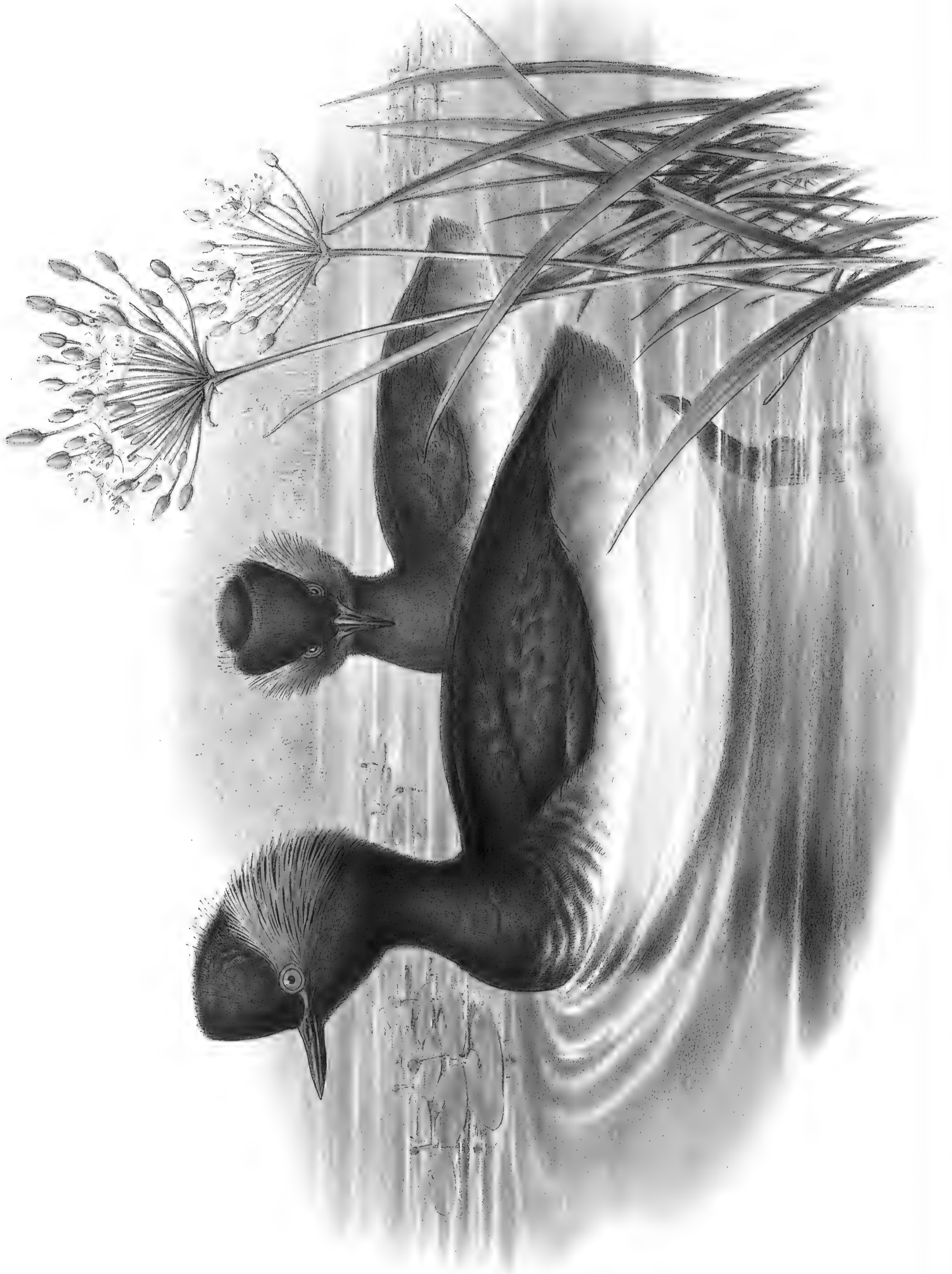
"The Horned Grebe is abundant, during autumn and winter, on the large rivers or inlets of the Southern States, but rare along the coasts of the middle or eastern districts. It is particularly fond of those streams of which the borders are overgrown by rank sedges and other plants, and are subject to the influx of the tide. In such places they enjoy greater security while searching for their food than in ponds, to which, however, they for the most part retire at the approach of the pairing-season, which commences early in February. At that time one might be apt to think that these birds could scarcely fly, as they are then rarely seen on the wing; but when they are pursued, and there happens to be a breeze, they rise from the water with considerable ease, and fly to a distance of several hundred yards. In December and January I have never procured any having the least remains of their summer head-dress; but by the 10th of March, when they are on their journey towards the north, the long feathers of the head are apparent. These tufts seem to attain their full development in the course of a fortnight or three weeks, the old birds becoming plumed sooner than the young, some of which leave the country in their winter dress.

"Although the greater number of these birds go far northward to breed, some remain within the limits of the United States during the whole year, rearing their young on the borders of ponds, particularly in the northern parts of the State of Ohio, in the vicinity of Lake Erie. Two nests which I found were placed about four yards from the water's edge, on the top of broken-down tussocks of rank weeds. The materials of which they were composed were of the same nature, and were rudely interwoven to a height of upwards of seven inches. They were rather more than a foot in diameter at the base, the cavity only four inches across, shallow, but more neatly finished with finer plants, of which a quantity lay on the borders, and was probably used by the bird to cover the eggs when about to leave them. There were five eggs in one nest and seven in the other; they measured one inch and three-quarters in length, by one inch and two and a half eighths; their shell was smooth and of a uniform yellowish cream-colour, without spots or marks of any kind. The nests were not fastened to the weeds around them; nor do I conceive it probable that they could be floated, as various writers assert they are at times."

"The food of the Horned Grebe, while on salt water, is composed of shrimps, small fishes, and minute mollusca; while on fresh water they procure insects, leeches, small frogs, tadpoles, and aquatic lizards; they also pick up the seeds of grasses, of which I found in the stomach of one individual as many as would fill the shell of one of its eggs. Their flight is performed by regular short flappings executed with great quickness."

When fully adult, both sexes are adorned with the beautiful tippet and ear-tufts; but as soon as the breeding-season is over they are again thrown off, and their livery is then very similar to that of the Dabchick (*Podiceps minor*). Two instances of this bird coming to an untimely end under unusual circumstances, have been made known to me. During one of my visits to the Leyden Museum, Professor Schlegel showed me some fine examples out of several which had dived into a fishing-net in one of the rivers of Holland, and, being unable to extricate themselves, were drowned; and when in Canada, I saw many old males at the shop of Mr. Booth, at the Niagara falls, who told me that these birds often approach too near the upper part of the fall, and are carried over into the abyss below, meeting of course instant death, and are afterwards picked up from the surface of the whirling eddy by the men on board the small steamer which daringly traverses the turbulent caldron.

The Plate represents a male and a female in their summer plumage, with a nest and eggs, of the natural size. The accompaniments are a Bearded Tit (*Calamophilus biarmicus*), which is frequently found associated with this Grebe in the Old World, and the flowering bulrush (*Scirpus lacustris*, Linn.).



PODICEPS NIGRICOCCUS.

Illustrated by Audubon and Bachman.

W. H. C. Woodcut.

PODICEPS NIGRICOLLIS.

Eared Grebe.

Colymbus nigricollis, Brehm, Blas. List of Birds of Europe, Engl. edit. p. 24.

——— *recurvirostris*, Brehm.

Podiceps auritus, Temm. Man. d'Orn., tom. ii. p. 705, et tom. iv. p. 451 (not Linnæus).

I AM somewhat surprised that so many of my brother naturalists should fall into the error of assigning to this bird a northern habitat; I question if Linnæus ever saw it, and I believe that his *Podiceps auritus* has reference to the Slavonian Grebe of English authors. Yarrell adds to the confusion by stating that the bird is also found in the Falkland Islands and some parts of the United States, which it certainly is not. Under these circumstances, and with a doubt still remaining in my mind as to its identity with the *P. auritus* of Linnæus, I have no alternative but to follow Dr. Blasius, and adopt the specific term of *nigricollis* assigned to it by Brehm, retaining of course the trivial name of Eared Grebe, by which it has always been known amongst us.

In the British Islands the *Podiceps nigricollis* has been more frequently killed in summer than in winter, although I know of numerous instances in which it has been shot in the latter season. These lacustrine birds are truly interesting; for how varied and how differently adorned are the species of the minor subdivisions of this somewhat limited family. Those persons who do not study ornithology as a whole, but confine their attention to the birds of a single country, are not prepared for the fact that all our Grebes, although kept in this work under the one generic title of *Podiceps*, are representatives of as many genera as there are species, and that in Australia the present bird is represented by the *P. poliocephalus*, our little Grebe by the *P. gularis*, and our Great Crested Grebe by the *P. australis*; in other countries, too, similar representatives occur. This will prepare my readers for the fact that these forms are very generally dispersed, some being confined to the high northern latitudes, while others dwell in more temperate and even warmer climes, as is the case with the bird now before us. In England, which it visits annually, it frequents the southern and eastern counties, rather than the northern; in Holland and Germany it is not more numerous than with us; in some parts of France, in Spain, and Italy it becomes more common; while in northern Africa, from Morocco to Egypt, no water-bird can be more abundant, wherever meres and great reed-covered sheets of water occur. Every one who has visited that country, and particularly Algeria, testify to its abundance and wide-spread distribution. Dr. Heuglin found it breeding in Egypt, and the Rev. H. B. Tristram in Algeria. The notes respecting this species by the latter gentleman I find so interesting, that I make no apology for transcribing them.

“Every here and there we came upon a nest of the Little Grebe (*Podiceps minor*), and occasionally upon that of the Great Crested Grebe (*Podiceps cristatus*); but it was rather late for both these species, which build before the end of April, and already several broods had been hatched. Still fifty eggs of one, and about a dozen of the other, was not a bad morning's take. At length, in a little secluded opening, entirely surrounded by tall reeds, through which we had the greatest difficulty in forcing the punt, we came upon a colony of Eared Grebes (*Podiceps auritus*), the chief object of my search. There appears to be this singular difference between the Eared and the Crested or Lesser Grebes—that while the two latter, though abundant throughout the Lake, are not strictly gregarious, the former builds in societies more densely crowded than any rookery. It is also later in its nidification; for, of nearly fifty nests I examined, not one was incubated, though most contained their full allowance of four or five eggs. The nests, formed like those of other Grebes, were raised on artificial islets, frequently almost touching each other, and sometimes piled on stout foundations rising from more than a yard under water. The eggs are a trifle smaller than those of *P. slavonicus*, which appear to do duty for them in many collections. We shot several of the birds, which, of course, were in very fine plumage, but we were not a little puzzled by the sudden disappearance of several which had fallen dead within twenty yards of us. At length, on pushing out in our punt into the open water, I detected the Water-Tortoises carrying off at great speed our wounded and dead birds, and, following the streak of blood through the water, at length seized one struggling with his captor, who maintained so tenacious a grasp that I hauled him on board along with the bird, and took care to secure him too for my collection. With this proof of the carnivorous propensities of the Water-Tortoise, I am inclined to believe that the havoc in the nests of Coots and Ducks may often be attributed to this plunderer. Nor are the Water-Tortoise and the Purple Gallinule the only ‘oophagi’ against whom these poor birds have to combat in the struggle for perpetuating their species. A Water-Snake frequently takes up his abode in a Coot's nest and boldly drives off the rightful proprietor. An empty nest seems to be his favourite dwelling-place; and

if a Coot's or Water-hen's nest be not tenanted by its owner, it usually supplies free quarters to a Water-Snake." (Ibis, vol. ii. p. 159.)

Thus it will be seen that Northern Africa is the great stronghold of this species. It also occurs in Asia Minor, the Caucasus, Oriental Russia, Siberia, and China, as proved by its being enumerated in Mr. Swinhoe's 'List of the Birds of Amoy.' The reader will now be able to form his own judgment as to the countries this bird frequents. In England and Ireland its visits are uncertain, though not unfrequent. In its winter dress it very much resembles the Slavonian Grebe; but it may at all times be distinguished from that bird by its more diminutive size, and by the upward curvature of the bill. In their summer dress they are so very different that a glance at the two Plates on which they are represented will be sufficient to show that they are quite distinct.

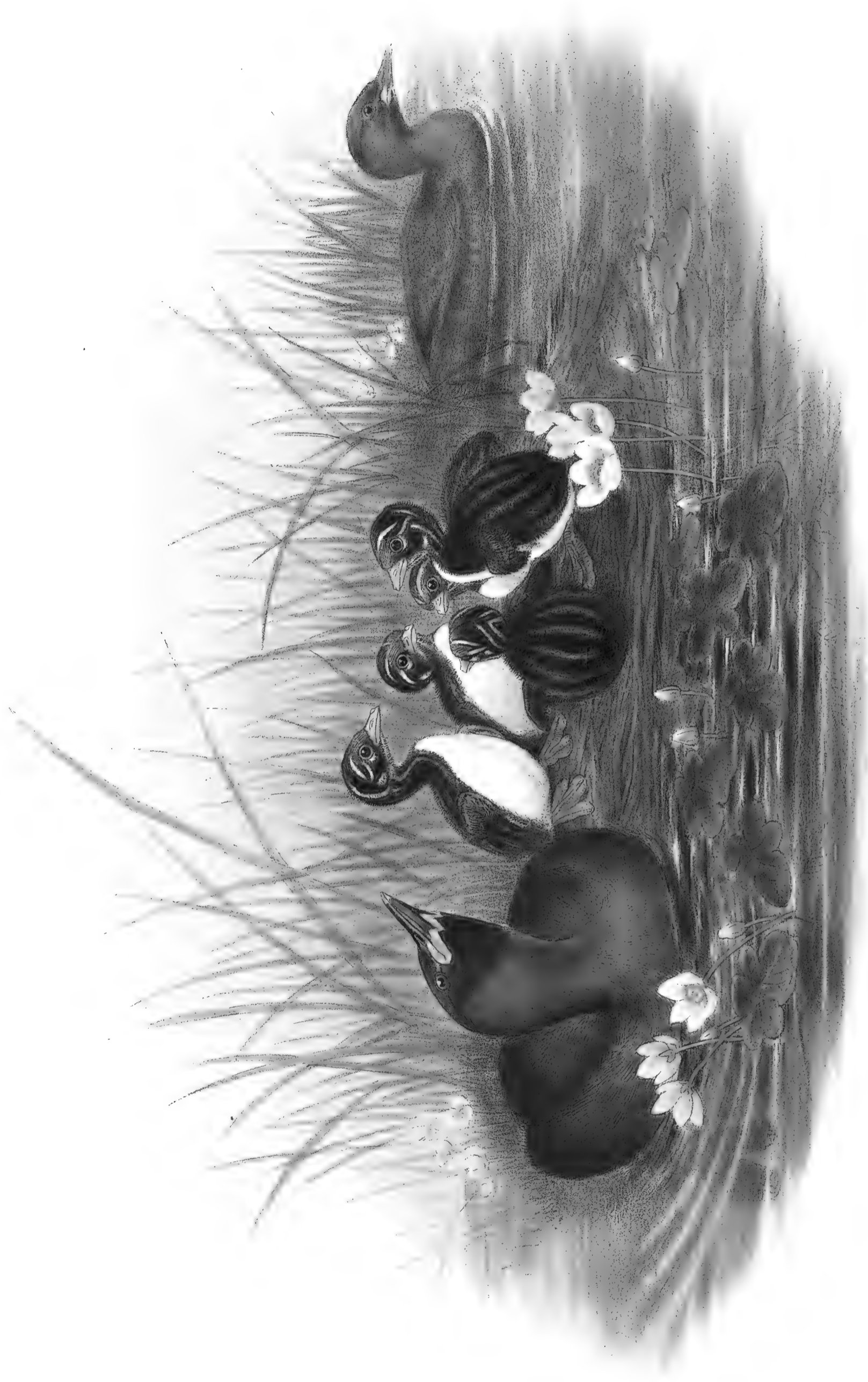
Mr. Gatcombe, of Plymouth, to whom I am indebted for many interesting notes respecting our native birds, informs me that he has killed immature birds near that town, and, many years since, an old male in full summer plumage. I find also among my MSS. a note from Mr. Robert Rising, of Yarmouth in Norfolk. This note was kindly placed at my disposal by Mr. Leadbeater. It relates to a very fine adult example in full dress which had been sent to him to be mounted, near the end of August 1863, and is as follows:—"The Grebe was killed on Horsey Mere, on the 6th of May last, with two others, and a fourth on the day following. These birds (two males and two females) had been seen continually on the mere through the winter and up to the very time they were shot, and would most likely have been killed long before, had they not been luckily mistaken for Dabchicks. I much regret I did not give instructions for the reeds and shores round the mere to be well searched after the birds were killed, as I can scarcely resist the conviction that they had already nested there, as the water had become so entirely their habitat during all this time."

Mr. Stevenson, of Norwich, states that "the habits of this species appear to be almost exactly the reverse of the Slavonian, being frequently obtained in its summer plumage during April and May, but rarely met with in its winter dress; indeed a single bird shot at Lynn, in November 1857, is the only record, in my notes for the last twelve years, of its appearance at the latter season. Messrs. Gurney and Fisher, writing in 1846, observe, 'In the month of April last no less than five specimens of the Eared Grebe were killed within a week at Wroxham and other places in the county; and it is somewhat remarkable that these have all proved, upon dissection, to be male birds.' A fine specimen, in full breeding-plumage, was shot at Sutton in April 1849; and in the 'Zoologist' for 1851 (pp. 3116, 3175) I find two notices of Eared Grebes, from the neighbourhood of Yarmouth, being purchased in the London markets. The first, killed on the 14th of April of that year, was sent up to London with some Crested Grebes; and a fine male and female, shot on the 17th, were purchased by a London dealer, who also received another pair in May 1852 from the same locality; and the females in both instances contained eggs, about the size of small marbles. In 1854, about the 18th of May, a very beautiful specimen was killed at either Burgh or Filby, which is now in the collection of the Rev. C. Lucas. In 1861 a pair, assuming summer plumage, were shot at Kimberley, the seat of Lord Wodehouse, on the 30th of March, and on the 24th of April of the same year a perfect example at Martham, and one in half change on Hickling Broad. The following summer, however, was even more remarkable for the number of these birds obtained in full summer plumage. One of these females is said to have contained a quantity of eggs; and there is little doubt, from their late appearance on our broads in summer, that this Grebe, like the Slavonian, would occasionally remain to breed if undisturbed; but unfortunately, though little observed in the sombre garb of winter, the very brilliancy of their nuptial plumage ensures instant persecution."

In summer the adult male has the head and neck black; from behind the eye, spreading over the ear-coverts, a triangular patch of silky light-chestnut-coloured feathers; all the upper surface and wings dark brown; the secondaries white, but scarcely perceptible when the wing is closed; breast and under surface shining silvery white; flanks chestnut; bill black; irides and eyelash red; legs dark green externally, lighter within.

In winter the crown of the head is dark brown, the other parts of the head and chin pure white; back of the neck and upper surface dark brown.

The Plate represents a male and a female of the size of life. The plant is the Flowering Rush (*Butomus umbellatus*).



PODICEPS MINOR.

J. Gould and H. C. Richter, del. et lith.

Walker & Coles, Imp.

PODICEPS MINOR.

Little Grebe or Dabchick.

Colymbus minor, Gmel. edit. Linn. Syst. Nat., tom. i. p. 591.

——— *Hebridicus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 594.

Podiceps minor, Penn. Brit. Zool., vol. ii. p. 137.

——— *Hebridicus*, Penn. Brit. Zool., vol. ii. p. 138.

——— *fluviatilis*, Briss. Orn., vol. vi. p. 59.

EVERY one must be familiar with the name of Dabchick ; for where is the person who has lived a country-life that has not heard it applied to the least of the British Grebes—the *Podiceps minor* ? The natural home of this well-known bird is the water ; and its whole structure is admirably adapted for obtaining its food and almost dwelling beneath the surface, its leaden body, impenetrable plumage, its apology for a tail, and flattened tarsi being all especially suited to this mode of life. With us it is a stationary bird ; for, whether it be summer or winter, it may always be found, merely changing from place to place, either from the severity of the season forcing it to leave the ice-covered waters for running rivers, or the approaching period of incubation inducing it to retire to the reedy nooks of meres and small ponds. To enumerate the portions of the British Islands in which the bird may be sought for would be superfluous, since it is universally dispersed ; but it is said to be less common in Scotland than in England ; still it is found as far north as the Orkneys ; in Ireland it is, I believe, as equally abundant as in England. In like manner the Dabchick is to be seen in all parts of the Continent ; but I suspect that its European range is limited in a northerly direction ; for although it is an inhabitant of Sweden and Norway, countries further north will not be congenial to it. Strange to say, it is stated to be less common in Holland than in Switzerland. I have but little doubt that the same species also extends its range to India, China, and Japan, at all events. I have at this moment before me Grebes from all those countries, which are so like our bird that it would be difficult to separate them ; specimens from China and Japan, carrying the red of the neck and the dark upper plumage, have, however, their breasts more silvery than our bird. In the northern parts of Africa the Dabchick is certainly found ; and it would be difficult to point out, at least from dried skins, wherein the Little Grebe from South Africa differs ; the latter has, however, been regarded as distinct by Bonaparte, who has assigned to it the specific name of *Capensis*. The Australian bird, to which I have given the name of *australis*, is undoubtedly different.

I shall now proceed to describe the states of plumage assumed by the Dabchick at different periods of the year. In winter, when it is most usually seen, its dress is light olive-grey above and silvery white beneath, quite the opposite of that with which it is clothed in summer. So remarkable is the difference, that many persons might be induced to regard them as distinct birds ; the ornithologist, however, is perfectly aware of these changes, and has no doubt of their identity. The nuptial or breeding-dress, in both sexes, is the same ; the feathers in this state are rich and silky in texture, and the colours harmonious and ornamental ; the general hue of the body is deep olive-black, except the chin, which is the colour of jet, and the sides and front of the neck, which are of the richest chestnut ; the bill is black, and the bare part of the gape is largely developed and of a beautiful greenish yellow. The bird, thus clothed, is all animation ; its loud ringing cry is often heard ; its nest is made, and the female is performing the task of incubation. The Dabchick at this particular season is extremely shy, especially if the nest be approached and intruded upon. I have frequently known the Dabchick to select small ponds, far away from the open river, for the purpose of nesting, their desire apparently being to be the sole occupants of a situation where they may find a plentiful supply of insect food for themselves and their progeny ; such ponds or mere water-holes must, however, be well supplied with aquatic plants, and their sides furnished with reeds, rushes, and similar herbage. Independently of such situations, they resort to the sedgy sides of all our rivers, meres, and large ponds. The month of April is the breeding-season ; and although the nest is frequently placed in an exposed situation, and always on the surface of the water, much artifice is displayed by the bird in this part of its economy ; so little of its floating nursery is seen above the water, and so similar is it to the surrounding vegetation, that it may and doubtless often is passed by without being discovered. The materials composing this raft or nest are weeds and aquatic plants carefully heaped together in a rounded form : it is very large at the base, and is so constantly added to, that a considerable portion of it becomes submerged, at the same time it is sufficiently buoyant to admit of its saucer-like hollow top being always above the surface ; in this wet depression five or six eggs are laid. The bird, always most alert, is still more so now, and never or scarcely ever admits of a near examination of the nest-making or of a view of the eggs. In favourable situations, however, and with the aid of a telescope, the process may be watched ; and it is not a little interesting to notice with

what remarkable quickness the Dabchick scratches the weeds over her eggs with her feet when she perceives herself observed, so as not to lead even to the suspicion that any were deposited on the ill-shapen floating mass: this work of an instant displays as much skill in deception as can well be imagined. The eggs thus covered, which were originally white, are so stained with the colouring-matter of the weeds, that they assume an unnatural appearance. One of the most interesting points in the bird's history has yet to be detailed, namely, the peculiar colouring of its infantine age, or at the age of one or two days; and as this state is very rarely seen, I have considered it advisable to illustrate it on the accompanying Plate. So active and truly aquatic is the Dabchick, even at this early period of its existence, that it is almost impossible to see it in a state of nature; for immediately after the young birds are hatched they either take to the water of their own accord, or cling, when not more than an hour old, to the backs of their parents, who dive away with them out of harm's way. To gain an intimate acquaintance with these little creatures, it would be well, if the morning of hatching could be ascertained, to take one or more of the eggs and place them in a small basket, lined with flannel or other warm material, before the fire, when the tiny occupants will soon crack their shells and emerge into the world; in an hour their downy feathers will become dry, and the birds be ready to sit for their portraits. Such was the mode I adopted for procuring the subjects of the accompanying illustration. In another instance, when out fishing, a friend, Mr. Elliot of Chesham, shot a Dabchick whilst diving across a shallow stream; on emerging, wounded, at the surface, two young ones, clinging to her back, were caught in my landing-net. The delicate rose-coloured bills, harlequin-like markings, and rosy-white aprons of these infant Dabchicks render them extremely interesting. As they advance in age, these markings gradually give place to a uniform olive-grey plumage on the upper surface and silvery-grey on the abdomen—a style of dress characteristic of the adults in winter.

The food of the Dabchick consists of insects of various kinds and their larvæ, the fry of fishes, and doubtless their ova. That fish are taken we have positive evidence from examples having been repeatedly picked up dead by the fishermen of the Thames, with a Bull-head or Miller's Thumb (*Cottus gobio*) in their throats, and by which they had evidently been choked in the act of swallowing them. That it is especially fond of insects is shown by the great activity it displays, when in captivity, in capturing house-flies and other Diptera. Those who have visited Paris will probably have seen the Grebes in the window of the restaurateur in the Rue de Rivoli. For years have a pair of these birds been living, apparently in the greatest enjoyment, within the glass window, attracting the admiration of all the passers-by. The extreme agility with which they sailed round their little prison, or scrambled over the half-submerged piece of rock for a fly, was very remarkable. That no bird can be more easily kept in a state of confinement is certain; and it is to be regretted that neither the directors of the Crystal Palace Company at Sydenham, nor the Zoological Society in the Regent's Park, have succeeded in procuring them for their ponds: for a more attractive object for the basins within the Crystal Palace could scarcely be found.

The plumage of the adults in summer may be briefly described. The male has the crown of the head, all the upper surface, chest, and flanks olivaceous black; abdomen silvery black; chin and bill jet-black; sides of the neck and throat rich chestnut; irides dark brown; feet greenish black, nails white; gape greenish yellow; inside of the mouth fleshy white, tinged with green: weight 7 ounces.

The female is very similar in colour, but somewhat smaller in size.

In winter both sexes have the crown of the head and all the upper surface of the body silvery grey; the upper mandible olive-brown; under mandible fleshy white; legs as in summer.

The colouring of the young, from a day to a week old, is as follows: bill rosy flesh-colour; crown, neck, and upper surface downy black, with harlequin-like stripes of white about the sides of the head and face, and broad stripes of rich light chestnut-brown down the front part of the neck and the whole of the upper surface; the belly white.

The Plate represents a male, a female, and a nest with a brood of young, a day old, all of the natural size. The plant is the *Ranunculus fluiatilis*.



COLYMBUS GLACIALIS, Linn.

Walter Inup

J. Gould and H.C. Richter, eds. of *ibid.*

COLYMBUS GLACIALIS, Linn.

Great Northern Diver.

Colymbus glacialis, Linn. Syst. Nat., tom. i. p. 221.

——— *Immer*, Linn. ibid., p. 222.

——— *torquatus*, Brinn., no. 134.

——— *glacialis, maximus et hiemalis*, Brehm, Handb. der Naturg. Vög. Deutschl., pp. 970, 971, 972.

Mergus major, Briss. Orn., tom. vi. p. 105, pl. 10. fig. 1.

——— *navius*, Briss. ibid., p. 120, pl. 11. fig. 2 (adult).

Eudytes glacialis et *Immer*, Ill. Prod. Syst. Mamm. et Av., p. 283.

Cephus Imber et *Lomvia*, Pall. Zoog. Ross.-Asiat., tom. ii. pp. 344, 345.

THE *Colymbus glacialis* stands at the head of a genus, the members of which are so strictly confined to the northern hemisphere that none are found south of the line, neither do any of them proceed nearer the equatorial region than the latitudes of Madeira or Teneriffe; but to the northward of these they abound. In all the seas surrounding the British Islands, and especially in the firths and salt-water lochs of the eastern and western parts of Scotland, they may be seen, courageously breasting the waves, or making lengthened dives in search of the fish, crustaceans, and mollusks upon which they principally live; and there seems little reason to doubt that the bottom of the seas round our coasts and the beds of our tidal rivers are as closely searched for these kinds of food as the fields or furzy commons are by the Harrier for small quadruped and birds, or the ploughed lands by the Peewit for worms and insects.

The bony structure and the dense adpressed plumage of the Great Northern Diver especially adapting it for an aquatic life, it seldom resorts to the land except at the season of reproduction, when it becomes necessary for it to seek the shore for the purpose of depositing and hatching its eggs. This duty performed, the parents conduct their little brood, as soon as they have acquired sufficient strength to battle with the waves and resist the dashing of the breakers, to that element on which they are destined to dwell, and where they remain until, like their progenitors, they are prompted to reproduce their kind, for which purpose they retire to countries further north, such as Iceland, Greenland, Newfoundland, Nova Scotia, the inland waters of Davis's Straits and Baffin's Bay, and the fur-countries of America. In all these localities it is known to breed in greater or smaller numbers. From Mr. Alfred Newton's Notes on the Ornithology of Iceland we learn that a pair or two breed on nearly every lake in that country; they arrive about the first week in May, and towards the end of August begin to show themselves on the sea, where, it appears, they remain all the winter. When the shores of the boreal regions become ice-bound, and the straits entirely frozen over, the Great Northern Diver is of necessity obliged to migrate to more genial latitudes, where a supply of its natural food is still procurable; and hence it is that such numbers are seen around our islands in the seasons of autumn and winter. That the birds here found do come from the far north, I think we have convincing evidence in the circumstance of an example killed on the Irish coast having an Esquimaux's arrow sticking through its neck.

There is, probably, no genus of birds which has so puzzled the ornithologist with regard to the changes in their plumage as the Divers, and of them none more than the present species. We are all aware that the Grebes are subject to a seasonal change, and that their fine tippets and ear-plumes are characteristic of the birds in summer. Ducks and Cormorants undergo the like decorations and changes; and I am certain that the Divers are similarly influenced, and that those parts of the birds which are adorned with markings of black and white are thrown off and replaced by a totally different dress in winter; but we frequently find, at that season, individuals which are as beautifully decorated as in spring and summer. Can these be birds which have not yet bred, and have anticipated the time in which the nuptial dress is ordinarily assumed? I think it likely this is the case; and I believe that Mr. Gatcombe, of Plymouth, who has paid considerable attention to the subject, is of the same opinion as myself; it would be well, however, if those who may be favourably situated for observation would endeavour to throw some additional light upon it. That the bird never attains its fine spotted plumage during the first autumn of its existence, and that it carries its grey dress until at least the second year, is, in my opinion, more than probable; and hence it is that so large a number occur in a costume characteristic both of winter and of immaturity.

The food of this voracious feeder appears to be of a varied character; for while it is said to feed upon herrings, sprats, and all the other kinds of fish of a similar size the sea affords, it also eats crustaceans and shelled mollusks. When it visits the fresh waters, few birds, I presume, are more destructive: Mr. Bond informs me that one, procured on the reservoir at Naseby in Northamptonshire, vomited thirty-one roach when taken into the boat. Its diving-powers are wonderful, and it is with the greatest difficulty the bird can be

shot or hunted down. When it does so far leave its natural home as to proceed up one of our inland rivers on a fishing-excursion, it will dive to an enormous distance, and does not hesitate to turn back under the boat containing its pursuers, reappearing in a part of the river where least expected. Lord Falmouth's keeper assured me that he was for days in pursuit of one in the Tresillian river; ultimately, however, he was successful in obtaining it; and the bird is now in the Museum at Tregothnan House.

As there are few collections in the country, from the National Museum to that of the most humble admirer of nature, which is not graced by a mounted specimen of the Great Northern Diver, it would be useless to particularize where this or that individual was killed. But it may be as well to mention one or two, the state of whose plumage may tend to confirm what I have said about the changes the bird undergoes. Mr. C. Monfort, of Worthing, showed me two fine examples which he had procured in Orkney in the beginning of August, and which were evidently undergoing a change from the full-spotted plumage to the plain dress of winter, their throats and faces being interspersed with newly assumed perfectly white feathers, which were doubtless the forerunners of the others that would ultimately cover the whole of the neck and under surface. In opposition to this, Mr. Monfort saw a Great Northern Diver in its full spotted plumage, off the coast at Brighton, on the 5th of November. Other instances might be given, but the above will be sufficient.

"The Great Northern Diver," says Macgillivray, "is among the most beautiful of those birds which seek the waters of the great deep. A wanderer on the ocean, it not only frequents the margins of the sea, fishing in the bays and estuaries, but may often be met with many miles from land, although seldom at such distances as the Gulls and other hovering birds. There it floats lightly, it may be, but apparently deep in the water, its body being so much depressed that little of it seems exposed, compared with what we see of the Black-backed Gull—the one like a deeply laden ship scudding steadily along, the other in ballast, with scarcely a hold on the water, as it mounts the heavily rolling waves and again descends into the trough. But though the Gull floats thus lightly, the Diver soon overtakes and shoots far ahead of it. In turning, the Gull has the advantage, moving round with ease as on a pivot, the Diver steadily and majestically. The Loon makes but little use of his wings, and his great bulk and robust frame are ill-adapted for the hovering flight of the Gulls and Petrels. There he comes, followed by his mate, and advancing with marvellous speed. Now they stop for a moment to survey the shore. Forward again they start, the smooth water rippling gently along their sides. Small effort they seem to make; yet powerful must be the stroke of the oars that impel masses so large at so rapid a rate. Now and again they dip their bills into the water, then the head and neck; one glides gently into the water, without plunge or flutter, and in a few seconds appears with a fish in his bill, which, with upstretched head and neck, he swallows. The other, having dived, appears with a fish larger and less easily managed. She beats it about in her bill, splashing the water, and seems unable to adapt it to the capacity of her gullet, but at length, after much striving, masters it. I have several times seen this bird shot by lying in wait for it in a place it frequents; but it is very seldom that in a boat one has a chance of procuring it; for it is generally shy, and always extremely vigilant. If shot at and not wounded, it never flies off, but dips into the water and rises at a great distance; and unless shot dead, there is very little chance of procuring it, its tenacity of life being great, and its speed exceeding that of a four-oared boat. On ordinary occasions it is quite silent, but often, even at night, its loud, clear, melancholy cry may be heard from the sea, and in calm weather at the distance of half a mile or more. It is very seldom seen on wing; but in the estuaries and channels, at the turn of the tide, or early in the morning and again in the evening, it may be seen flying at a great height, with a direct rapid flight, performed by quick beats of its expanded wings, which even then seem too small for its body, and contrast strangely with those of the Gulls. In a direct course, it rapidly overtakes and passes a Gull flying at its utmost speed."

"The situation and form of the nest," says Audubon, "differ according to circumstances. Some are placed on the hillocks of weeds and mud prepared by the musk-rat on the edges of the lakes, or at some distance from them among the rushes; others on the mud, amid the rank weeds, more than ten yards from the water. The eggs are mostly three in number, $3\frac{1}{4}$ inches in length, by $2\frac{1}{4}$ inches in breadth. They are of a dull greenish-ochrey tint, indistinctly marked with spots of dark umber. The young are covered at birth with a kind of black stiff down, and in a day or two after are led to the water by their mother."

The Plate represents the bird in its full summer plumage, about two-thirds of the natural size.



COLUMBUS ARCTICUS, Linn.

COLYMBUS ARCTICUS, *Linn.*

Black-throated Diver.

Colymbus arcticus, Linn. Syst. Nat., tom. i. p. 221.

Mergus gutture nigro, Briss. Orn., tom. vi. p. 115.

—— *arcticus*, Klein, Av., p. 142, no. 2.

—— *macrorhynchos*, Brehm, Handb. der Naturg. aller Vög. Deutschl., p. 974.

—— *Balthicus*, Hornsch., Brehm, *ibid.*, p. 975?

—— *megarhynchos*, Brehm (Bonap.).

Cepphus arcticus, Pall. Zoog. Ross.-Asiat., tom. ii. p. 341.

Eudytes arcticus, Ill. Prod. Syst. Mamm. et Av., p. 282.

THE Black-throated Diver is smaller than the previously described species, *Colymbus glacialis*; still it is not less beautiful in its plumage, and is more interesting as one of the water-birds which breed in this country. Unlike its larger relative, which never breeds in our lochs and bays, a few pairs of this species annually resort to the inland waters of the northern parts of Scotland for this purpose; yet I fear it will inevitably be lost to us as a nidifier, if the great landed proprietors do not speedily afford it protection and allow its progeny to depart in peace to the waters of the great deep, on which it dwells in the season of winter. How much will it be to be regretted if such noblemen as the Duke of Sutherland and others, to whose vast domains the bird still resorts to breed, do not exercise their authority to prevent its extirpation, which must, ere long, be the result of the persecution to which it is at present subjected! With what inconsistency those people are acting who establish societies for the introduction and acclimatization of birds from different countries, and yet totally neglect the many fine species worthy of preservation at home! I beg that what I have here said may have some influence, and that my remark may be received in the spirit in which it is made.

Until very lately, the Black-throated Diver annually bred on the borders, and on the islands of Loch Awe, Loch Assynt, Loch Shin, Loch Craggie, and many others; and in some of them it still spends the summer months, or endeavours so to do. In Orkney, Shetland, and the Hebrides or Western Islands it is more or less abundant, but is not known to breed there. The seas surrounding England and Scotland, from Mount's Bay in Cornwall to Cape Wrath in Sutherlandshire, and those which wash the shores of the sister kingdom of Ireland are never without examples of the Black-throated Diver, either in its full summer dress or the grey garb of winter; it is in the latter state, however, that it is mostly seen, and in which numerous specimens are from time to time sent to the London markets. Mr. Bond, I may mention, informs me that young birds are occasionally taken on the reservoir at Kingsbury, near London, and even on the Serpentine in Hyde Park; and Mr. Stevens, of Norwich, writes that most of the specimens killed in Norfolk are shot on the streams and fenny waters very far inland, as at Colney and Faversham, more than twenty miles from the sea. It does not occur in Iceland, and has not been met with in Greenland. In Norway, Sweden, Finland, and Russia the bird is still very abundant, and breeds on all the interior waters of those countries, as it used formerly to do on our own. It is to these nurseries that we must look for the preservation of the bird.

The same difference occurs in the summer and winter plumages of this species that are seen in the Great Northern Diver; but individuals are frequently found carrying their fine barred plumage at the period when the greater number are clothed with grey. In this latter state (the true winter livery) the bird is known by the name of the Lesser Imber. I have many notes of the occurrence of examples in the mature dress at what one might call the opposite season—a circumstance which strengthens the opinion I have advanced in my description of the former species, that such birds are probably only two or three years old, and have assumed their finery or breeding-plumage for the first time, and at an earlier period than those who have reproduced their kind. I am indebted to Mr. Swaysland, of Brighton, for a photograph of a splendid example in this dress, which was killed on the 11th of December, 1862, at the Duke of Norfolk's, in Sussex, and which is now in his Grace's collection at Arundel Castle.

About thirty years ago, Sir William Jardine and Mr. Selby made a journey into Sutherland- and Ross shires for the purpose of observing the birds which frequent those counties; and I think it only fair to give their remarks on this species.

“Its equatorial or winter migration in Europe extends as far as Switzerland, where it is sometimes seen upon the larger lakes. It breeds upon the brink of the water, and, like the Northern Diver, lays but two eggs. It dives with the same ease and as perseveringly as the other species, and can remain long submerged,

making very great progress during its submarine flight, as we experienced when in chase of this bird in a light and handy boat upon Loch Awe. Our utmost exertion could never bring us within range; and we were often foiled by its returning on its former track and reappearing in a direction contrary to that in which it seemed to have dived; its progress, we should think, could not have been much under the rate of eight miles an hour. It lives upon fish, aquatic insects, and such other food as it procures under water. Its skin is highly prized by the Esquimaux and Indians for its warmth and beauty, and numbers of them are dressed and made into garments.

“When in Sutherlandshire, we found this species upon most of the lochs of the interior. The first we noticed was at the foot of Loch Shin, where we were so fortunate as to find the nest, or rather the two eggs, upon the bare ground of a small islet removed about ten or twelve feet from the water’s edge. The female was in the act of incubation, sitting horizontally, and not in an upright position, upon the eggs. In plumage she precisely resembled the male, and when fired at immediately swam or rather dived off to him at a short distance. Our pursuit after them was, however, ineffectual, though persevered in for a long time, as it was impossible to calculate where they were likely to rise after diving. Submersion frequently continued for nearly two minutes at a time, and they generally reappeared at a quarter of a mile’s distance from the spot where they had gone down. In no instance have I ever seen them attempt to escape by taking wing. I may mention that a visible track from the water to the eggs was made by the female, whose progress upon land is effected by shuffling along upon her belly, propelled by her legs behind. On the day following (Saturday, the 31st of May), Mr. J. Wilson was fortunate enough to find two newly hatched young ones in a small creek at Loch Craggie, about two miles and a half from Lairg. After handling and examining them, during which the old birds approached very near to him, he left them in the same spot, knowing that we were anxious to obtain the old birds. Accordingly on the Monday morning we had the boat conveyed to the loch, and on our arrival soon descried the two old birds attended by their young, and apparently moving to a different part of the loch. Contrary to their usual habit at other times, they did not attempt to dive upon our approach, but kept swimming around their young, which, from their tender age, were unable to make much way in the water; and we got sufficiently near to shoot both of them through the neck and head, the only parts accessible to shot, as they swim with the whole body nearly submerged. The female could only be distinguished from the male by a slight inferiority of size, and both were in the finest adult or summer plumage. We afterwards saw several pairs upon various lochs, and upon Loch Kay a pair, attended by two young ones nearly half grown. When swimming, they are in the constant habit of dipping the bill in the water, with a graceful motion of the head and neck.”

The eggs, according to Mr. Yarrell, measure two inches and three-quarters in length by one inch and ten lines in breadth, and are of a dark olive-brown, thinly spotted with dark umber-brown.

During a visit to Norway in the early part of the month of July 1856, I saw several Black-throated Divers sporting about in the Bay of Drontheim, and I could not help admiring the pretty markings of their necks, and their quiet demeanour as they circled round each other on the then glassy surface of the water. These birds, which were within a quarter of a mile of the town, appeared happy and contented, no molestation being offered them. The Norwegians have an idea that the bird is a most excellent weather-prophet. The Swedes dress its skin, which, like those of all the other members of the genus, is exceedingly tough, and use it for gun-cases, facings for winter caps, &c. Richard Dann, Esq., informed Mr. Yarrell that “this beautiful Diver is widely and numerously dispersed over the whole of Scandinavia during the summer months, but is most abundant in the northern parts. It breeds in the interior of the country, on small islands in the most secluded and retired lakes. In Lapland and the Dofre Fiell mountains it is found as high as the birch-tree grows. It makes its first appearance in the spring, with the breaking-up of the ice on the lakes. Within twelve hours of open water being seen, this bird never fails to show itself. The eggs, two in number, have a rank fishy taste, but are much sought after by the Laps. After the young are hatched, both male and female are very assiduous in bringing them food, and at that period are much on the wing, and may be seen flying at a vast height, with fish in their beaks, from one lake to another; on arriving over the lake where they intend to alight, they descend very suddenly in an oblique direction. The cries of the Diver are very peculiar during the breeding-season, and may be heard at a great distance. The bird is very quick-sighted, and very difficult of approach; it takes wing with great reluctance, but dives incessantly, taking care to come up far out of shot.”

The Plate represents the bird in its nuptial dress, about one-fifth less than its natural size, and reduced figures, in the same state, in the distance.



COLOSIBUS SEIPHENICUS, Linn.

J. Gould. del. C. Richter. sculp.

Walter. Imp.

COLYMBUS SEPTENTRIONALIS, *Linn.*

Red-throated Diver.

- Colymbus septentrionalis*, Linn. Syst. Nat., tom. i. p. 220.
——— *striatus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 586.
——— *stellatus, borealis*, et Lumme, Brünn. Orn. Bor., nos. 130, 131, 132.
——— *septentrionalis, Lumme, et borealis*, Brehm, Handb. der Naturg. aller Vög. Deutsch., pp. 976, 978, 979.
——— *rufogularis*, Meyer, Taschenb. Deutschl., tom. ii. p. 453.
Mergus minor, Briss. Orn., tom. vi. p. 108, pl. 10. fig. 2.
——— *guttare rubro*, Briss. *ibid.*, p. 111, pl. 11. fig. 1.
Plotus claudicans, Scop. Ann. Hist.-Nat., tom. i. no. 93.
Eudytes septentrionalis, Ill. Prod. Syst. Mamm. et Av., p. 283.
Cephus septentrionalis, Pall. Zoogr. Ross.-Asiat., tom. ii. p. 342.
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IF a census of the *Colymbi* could be taken, it would probably be found that the individuals of this species far exceed in number those of the other members of this truly northern form, since the bird is distributed far and wide, from the most northern regions that have been explored to the latitude of the Mediterranean, south of which its appearance must be regarded as accidental. On our own seas and in all the inlets and bays of our coasts it is to be found at one season or the other; in like manner it frequents the inland tarns and deep fjords of Norway, Lapland, Sweden, and Iceland, goes as far north as Spitzbergen and Nova Zembla, and also inhabits Davis's Straits, Baffin's Bay, and Greenland. In the inland lochs of these countries, as well as in many of our own, it breeds and spends the summer months, feeding as readily upon trouts and other fish of the fresh water as it does when at sea upon those of the ocean. At this season the bird is in its finest dress; the sun is now at the zenith, and all nature smilingly bows to his benign influence. Soon after this period the feathers become worn and abraded; and although the faded plumage is carried until the end of July or the beginning of August, a moult gradually takes place, and, by the time the birds which have bred have conducted their young to the salt waters, many new white feathers have appeared on the throat and neck, and in an incredibly short time the winter garb is assumed. With the assumption of its new livery, the bird commences its usual mode of life in its winter quarters: instead of among lacustrine plants, it now fishes over beds of kelp and beautiful corallines (where they occur); while the young betake themselves to sand-banks, bays, and the sheltered inlets which indent the coast, and gradually accustom themselves to the sea; for at first they are, of course, more feeble than the adults, and less capable of resisting the turbulence of the waves. At this period they are carrying their speckled plumage above, with a snow-white under surface, their general appearance being very similar to, but prettier or more spangled with white than that of the adult. In all probability, when these youthful birds assume the red throat and grey neck for the first time, they put on these hues earlier in the year than those which have bred. If this view be the correct one, it may account for our finding individuals thus coloured at a period when we do not expect it; indeed I cannot assign any other reason for this seeming precocity. At all seasons, whether it be that of spring, when the fully adult birds have red throats, grey cheeks, and striated manes, or that of winter, when they are brown and white, the sexes are alike. The young at first are clothed with a thick, nearly black, hairy down; in the next state the feathers of the upper surface are brown-spangled, and streaked with white. In some instances the specimens bearing these spangled feathers are also adorned with red throats; but I have skins in which this red mark is clear and well defined, while the stellations of the back are entirely absent: these latter are doubtless very old birds.

Of the occurrence of this bird in the British Islands it will be quite unnecessary for me to say a word for the information of professed ornithologists; but I may state to those who do not pay such close attention to the subject, that it breeds on many of the inland waters of Scotland and Ireland, and the Hebrides or Western Islands.

“In the end of spring,” says Macgillivray, “the Red-throated Divers, having paired, retire northward, the greater number probably betaking themselves to the Arctic Regions, although very many remain to breed by the inland lakes of the Highlands, Hebrides, Orkney and Shetland Islands. In Lewis, Uist, and Benbecula, which are singularly intersected by arms of the sea, and covered with pools and lakes, great numbers are seen during the breeding-season. The sea being at hand, they usually fish there, returning at intervals to the lakes until incubation has commenced. The nest is placed on an island or tuft, or among the herbage near the margin, or even on the stony beach of a lake or pool, and is composed of grass, sedge, and heath, or other easily procured plants, generally in small quantity, and neatly put together. The eggs, in so far as I am aware, are always two; but it is stated that three frequently occur. They are of an elongated-oval form, the two

of the same nest very unequal in size; the larger generally three inches in length and an inch and eleven-twelfths in breadth. They are of a deep or pale olive-brown, or dull greenish-brown, or pale brownish-green colour, spotted and dotted with umber, mostly at the larger end. The male continues with the female, and is said to take his place on the eggs occasionally. The female continues to sit crouching over her eggs until you come very near, when she starts forward, plunges into the water, and, on emerging, usually takes to wing, but sometimes swims about with great anxiety, as does the male also, should he happen to be present. On being deprived of their eggs, they may be heard for several evenings lamenting their loss with loud melancholy cries. The usual notes are harsh, and somewhat resemble those of the Gannet. The young betake themselves to the water soon after birth, and continue there, under the guidance of their parents, until they are able to fly, when they all wing their way to the sea. The eggs are laid in the beginning of June, and the young fledged by the middle of August.

“This bird is less addicted than the Great Northern Diver to fishing close to the margin of the sea, by far the greater number keeping well out in the firths and lochs, and many frequenting the open sea at a great distance from land. In the breeding-season, when on freshwater lakes, it is extremely vigilant and suspicious, swims off to the opposite side, with elevated head, when any one appears even at a distance, and cannot be shot without much trouble. I have seen it caught on one of the hooks of a fishing-line, baited with a sand-eel, and it is sometimes entangled in the herring- and salmon-nets. It is very tenacious of life, and, although severely wounded, commonly escapes, as it can easily outstrip a boat.”

To this I may append the following note, obligingly communicated to me by Mr. H. Stevenson, of Norwich, on the occurrence of the bird in Norfolk—a county which, being washed by the sea, has many localities suited to its habits, though not for breeding-places.

“The Red-throated Diver is both an annual and, in some seasons, a pretty numerous visitant in autumn and winter, following the shoals of herrings along our coast with great pertinacity. Both young and old birds are obtained on the coast, as well as on the Broads, between the first week of October and the end of February, but, judging from my own notes of some thirty specimens, much less frequently on fresh inland waters than the Black-throated species. From frequent opportunities of examining examples of this bird, I cannot help concluding that its summer dress is both retained and reassumed later than in either of the other species, and that the specimens mentioned by Audubon as having *red throats* in February had *not* then lost the plumage of the previous summer. Whenever these birds appear very early in autumn, say from the first to the third week of October, some few birds are sure to exhibit the red throat as perfect as it is during the breeding-season, and others in every state of change occur at the same time; but I have never observed any traces of red in specimens shot in November or any later period.

“It is only occasionally, however, that these birds appear early enough to present their full summer dress; and this was particularly the case in the autumn of 1862, when a most unusual number of these birds appeared off our coast, occasioned by the extraordinary shoals of herring at the time. Several very beautiful specimens were sent to a bird-stuffer in the City, from whom I purchased one, now in my collection, as perfect an example of this species in nuptial dress as I ever saw in collections from high northern localities. More than a dozen were shot at this time, in the course of a week or two, off the Sherringham beach, one of which, being held up by the legs, disgorged sixteen young herrings from its capacious throat.”

The Plate represents an adult and two newly hatched young, of the size of life. The plant is the common Juniper (*Juniperus communis*, Linn.).



ALCA IMPENNIS.

Illustrated by W. H. Wood, del. et sculp.

Water-ink.

ALCA IMPENNIS.

Great Auk.

Alca impennis, Linn. Faun. Suec., p. 49.

Garefowl, Newton, Ibis, 1861, p. 374.

IN giving a figure of the Great Auk in a work upon our native birds which closes its pages in 1873, I trust it will not be supposed that I for a moment entertain the opinion of the bird being still living in any part of our country, or that it even exists in any other portion of the globe. With the Dodo and Solitaire it must, indeed, be looked upon as a bird of the past, which, with many others, has lived its allotted time and then disappeared, leaving its skeleton as an evidence of its having existed. To attempt a history of the Great Auk would ill become me, were I inclined to do so. It has in fact already been done by very able hands; and additional memoirs are still being prepared for publication by such men as Professors Newton and Steenstrup. Mr. George Dawson Rowley is also engaged in gathering further information to render the history of the Garefowl still more complete; I therefore do not intend to interfere with such great authorities, but shall content myself with briefly stating that formerly this bird was plentiful in all the northern parts of the British Islands, particularly the Orkneys and the Hebrides. At the commencement of the present century, however, its fate appears to have been sealed; for although it doubtless existed, and probably bred, up to the year 1830, its numbers annually diminished until they became so few that the species could not hold its own.

Besides the British Islands the Great Auk formerly frequented the opposite countries of Denmark and Sweden, and probably the sea-shores of many other parts of Scandinavia; from these countries it was doubtless extirpated by the hand of man much earlier than with us. Further westward it was common and very abundant on the rocky shores of Newfoundland. Northward of these localities it does not appear to have been found, and probably was never known to breed within the Arctic circle; neither has any evidence been given that it existed further southward than the latitude of the Bay of Biscay. In size it almost equalled the Penguin, *Aptenodytes patagonica*; while its wings were still more diminutive, and perfectly useless as organs of flight. In its native element it swam deeply, and probably lived much on mollusca and other lower marine animals as well as fishes. In colouring there was no difference of sexes of the same age; but like the Razorbill the Great Auk was subject to seasonal changes of plumage, those parts of the throat and cheeks which were dark-coloured in summer being white in winter. Nidification was carried on by the deposit of a single egg on the sea-washed slanting rocks of the smaller islands, and probably upon the shingly ridges of the mainlands at a very early period.

Those who wish to know more of the Great Auk will do well to consult the writings of Professor Newton and Mr. Wolley in 'The Ibis' for 1860 and some of the following volumes; nor will they be disappointed by reading the account published by Mr. Robert Gray in his 'Birds of the West of Scotland,' of which I have only given a short extract.

So highly are the skins and eggs of this extinct bird prized that one hundred guineas would readily be given for any one of the specimens of the former now existing in the collections in Europe, and an egg would realize at a public auction at least half that sum; a perfect skeleton, or any portion of it, would bear a relative value.

Of perfect skins, there exist in Germany twenty, Denmark two, France seven or eight, Holland two, Italy five, Norway one, Sweden two, United Kingdom twenty-two, Russia one, Switzerland three, Belgium two, Portugal one, United States three; total, seventy-one.

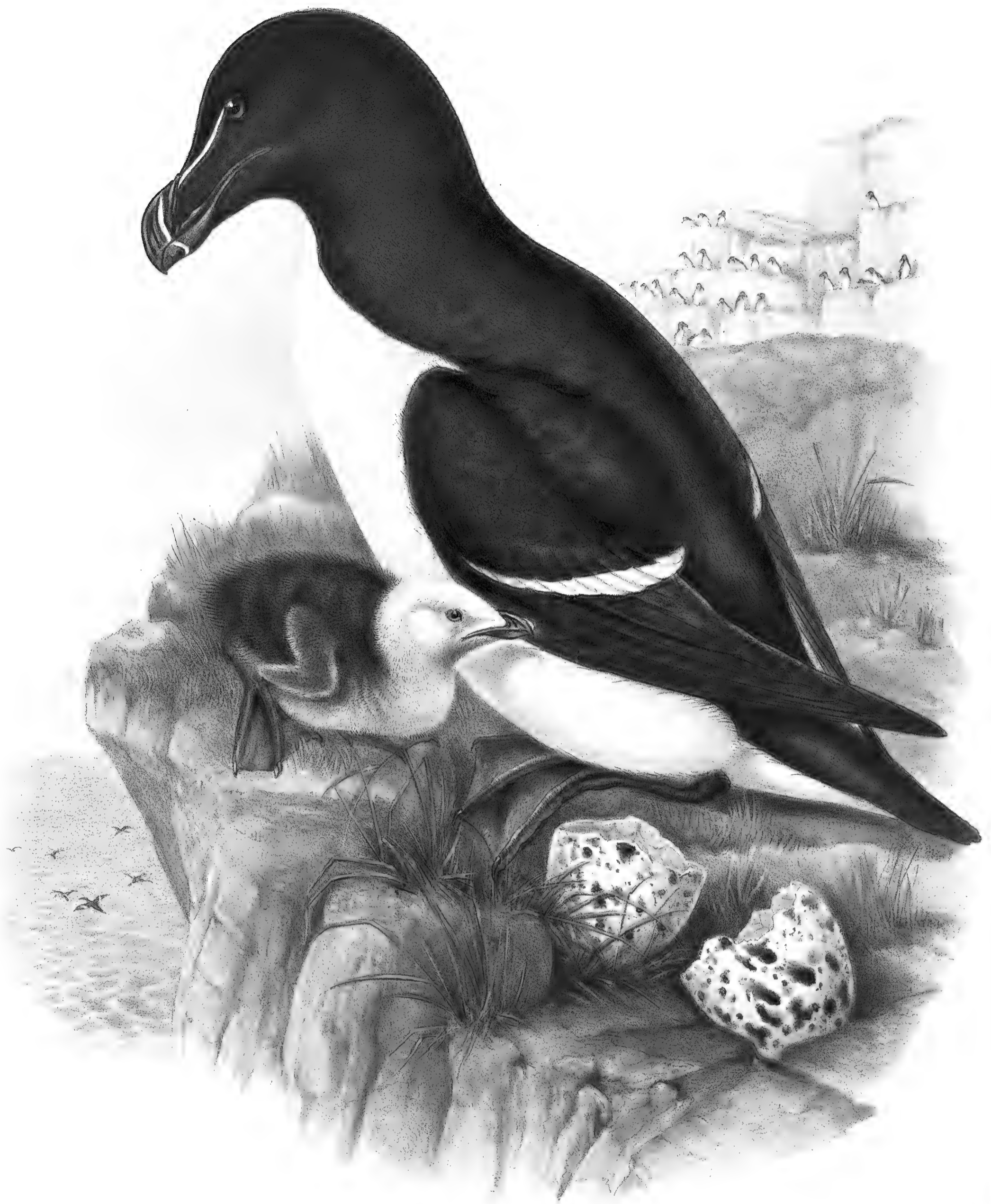
Of skeletons, in Germany one, France one, Italy one, United Kingdom four, United States two; total, nine.

Of eggs, Germany eight, Belgium two, Denmark one, France seven, Holland two, United Kingdom forty-one, Switzerland one, United States two; total, sixty-four.

The following is from the pen of the late Mr. Wolley, and extracted from Mr. Gray's 'Birds of the West of Scotland,' p. 453:—"Whether, however, the species be extinct or not, the fate of the Garefowl has still much interest. If it still exists, its doom will probably be sealed by its rediscovery. For all practical purposes, therefore, we may speak of it as a thing of the past; and regarded in this light, the subject becomes even more than interesting, because, owing to the recent date of the bird's extirpation (whether completed or not), we possess much more information respecting the exterminating process than we do in the case of any other extinct species. Without drawing any over-strained inferences, we see how the merciless hand of man, armed, perhaps, only with the rudest weapons, has driven the Garefowl first from the shores of

Denmark, and then from those of Scotland. At a later period it has been successfully banished from the Orkneys, the Faroës, and St. Kilda. Then, too, a casual but natural event accelerated its fate. The eruption of a submarine volcano on the coast of Iceland, by laying low one of its chief abodes, has contributed effectually to its destruction. But worse than all this has been the blow which, on the discovery of America, came upon the portion of the race inhabiting the Newfoundland islets, when it was brought suddenly face to face with a powerful and hitherto unknown enemy, and where the result has been what invariably happens when a simple tribe of savages, used only to the primeval customs of its forefathers, is all at once confronted with invaders of the highest type of civilization: 'the place thereof knoweth it no more.'

The figure in the accompanying Plate is about two thirds of the natural size.



ALCA TORDA, *Linn.*

Razorbill.

Alca torda, Linn. Faun. Suec., p. 49.

— *pica*, Linn. Syst. Nat., tom. i. p. 210.

— *Balthica et unisulcata*, Brünn. Orn. Bor., pp. 101, 102.

— *glacialis*, Brehm, Vög. Deutsch., p. 1004.

— *Islandica*, Brehm, ib., p. 1005, tab. 46. fig. 2.

Utamania torda et pica, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 42.

Now that the Great Auk (*Alca impennis*) is gone, and will no more cleave the waters of the great deep, the Razorbill is the sole representative of a genus forming a part of a great family of sea-birds peculiar to the northern hemisphere. Unlike its celebrated ally, it is still very numerous, and will doubtless for a long time remain to gladden the waters with its presence, as it does the sea-girt rocks along our shores at the season of reproduction. Still its numbers must be yearly diminishing; for hundreds are wantonly killed by persons living in the neighbourhood of its breeding-places, or by excursionists who visit its rookeries during the months of spring and summer. The wild and savage scenery of these romantic places doubtless have many charms for pleasure-seekers; but I wish they were more friendly to this and the other rock-resorting birds that come to our coast during the season of reproduction. To enumerate all the places in the British Islands where this bird may be found from May until August would be superfluous. The Londoner who flies to our southern coasts to invigorate his frame must have seen it at the Foreland, or on the cliffs of the famed Beachy Head; and the visitor to the Isle of Wight, at the Needles; while Weymouth and every rocky promontory thence to the Scilly Islands will afford the same gratification to those who may wish for it; far round to the westward too, along the shores of Cornwall, Wales, Scotland, and Ireland, it is everywhere to be met with. Besides the British Islands, the Razor-bill frequents the rocky shores of Norway and Iceland, but, according to Mr. Alfred Newton, does not proceed so far north as Spitzbergen, or at least no authenticated specimens have been procured in that high northern locality. It has been seen in Davis's Straits, and it is one of the commonest of the rock-birds of Nova Scotia and other parts of North America as far south as New York; that it also extends its range to the north-west of America is likely; for we learn from the 'Fauna Japonica' that an individual was procured by the Dutch voyagers on the coast of Japan. Southward of Britain it proceeds as far as the Mediterranean; but I question if it be met with any further in this direction.

The graphic description of the habits of this species given by Macgillivray is by far the best that has yet appeared; and as I believe it is comparatively unknown, I shall offer no excuse for transferring it to my pages.

"In autumn great numbers of Razorbills make their appearance on the bays and estuaries of most parts of Scotland and England. As the season advances they become more numerous to the southward, and in winter the northern coasts are almost deserted by them. In the firths and other inlets, when frequented by shoals of young herrings or other fishes, they are often seen in great abundance, and in fine weather are often met with in the open seas. Toward the end of spring they collect into parties and proceed to certain breeding-places, which are always abrupt cliffs along the shores, or precipitous islands, where they nestle along with the Guillemots and Kittiwakes. Of this kind are St. Abb's Head in Berwickshire, the Bass Rock, and Fowlsbeugh near Stonehaven. The Hebrides afford many such retreats, one of the most interesting of which is the little island of Berneray, called by mariners Barray Head, about ninety miles from the coast of Ireland on the one hand, and St. Kilda on the other, and one of a group of islets named the South Isles of Barray. The Island of Berneray is of an elliptical form, about a mile in length, and upwards of half a mile in breadth. It presents the appearance of a mass of rock, considerably inclined, the northern side dipping into the water, and the southern exhibiting an abrupt section rising to the height of several hundred feet. Viewed from the sea the rock presents an imposing spectacle, exhibiting masses of inclined, perpendicular, and projecting cliffs, smooth, largely cleft, or minutely fissured. When I visited it the whole face of the precipice, to the extent of half a mile, was covered with birds, which had assembled there for the purpose of breeding. Only four species were seen by me—the Guillemot, the Razorbill Auk, the Puffin, and the Kittiwake. These birds inhabit the cliffs not promiscuously, but with a degree of regularity and distinction which seems not a little wonderful. On the grassy summits breed the Puffins, burrowing in the turf. From thence to halfway down is the space selected by the Auks, while in the remaining division are stationed the Guillemots and Kittiwakes, the latter coming almost to high-water mark. The Auks and Guillemots lay each a single egg, which is placed on the bare rock. On a shelf about three yards in length,

and as many feet in breadth, one may often see fifty or sixty crowded into a solid mass, and each sitting on its own egg. Such masses are of frequent occurrence, the shelves being larger or smaller; but in general two, or three, or four are seen together; and sometimes an individual is seen sitting solitarily, if one may say so when it is surrounded by others at no greater distance than three or four feet at furthest. When a shot was fired, most of the birds in the neighbourhood left their nests and flew about, while some, in their hurry, fell into the sea, and, on emerging, raised with their wings an uninterrupted splashing of the water some hundred yards from the base of the rocks. After a succession of shots almost the whole body seemed to be on wing, presenting the appearance of a kind of cloud, which occupied a quarter of a mile square, and through which one could scarcely distinguish the blue sky from the flakes of white vapour. In their flight the birds did not cross much, but generally moved in the same direction, wheeling in a circle. This disposition probably arose from their number being so great that they could not conveniently fly at random. Their mingling screams produce a general mass of harsh sound, in which the cries of individuals cannot be distinguished.

“The noise and bustle of these winged inhabitants of the rocky isle reminded me of the stir of some great city, and their prodigious numbers I could compare to nothing but the shoals of some species of fish. Many were fishing on the smooth sea around the island, many flying from the rocks, many returning to their eggs, many resting on shelves and crags along the edge of the water; but by far the greater number were seated on their eggs. Such was the appearance of the place when the birds were not disturbed: and they were not very excitable; for, unless after a shot, none stirred on our account, however close the boat came. It was not uncommon to see them arranged in a line extending several yards along a fissure; and this formed a very pretty sight, especially when their white breasts appeared; for they stand nearly erect.

“It is pleasant, at a distance from their breeding-places, to see these birds flying over the sea in small troops, generally in single file, with a direct and rapid flight, beating their short wings without intermission, but frequently turning a little to either side, so as at one time to present the breast, at another the back, to the spectator. In flying, the head, body, and tail are direct, the wings extended, and never brought close to the sides, but acting in alternate movements in a nearly vertical direction. In alighting, they settle abruptly; but as they never alight from above, they sustain no injury from the slight shock. On the rocks they have an awkward and hobbling motion, and can scarcely be said to be capable of walking. I have never seen them alight on a sandy beach or on pasture-grounds.

“It is usually on the open sea, around their breeding-places, but often at the distance of many miles from them, that they search for their food, which consists chiefly of small fishes—young herrings for example—and crustacea, which they procure by diving. In swimming, they keep the body nearly horizontal, the neck retracted, and, as they proceed, frequently immerse their head, as if exploring the deep. In diving, they suddenly elevate the hind part of the body, spread out their wings a little, plunge with great force, and thus fly off, using their wings under water much in the same manner as when flying in the air. They can remain a considerable time under, and are often seen to rise at a great distance. In general it is not difficult to approach them on the water, as they allow a boat to come within shooting-distance; but, as they dive very suddenly, it is not always easy to shoot them. I have never heard them emit any other cry than a low croaking sound. If a wounded bird be seized, it bites severely, and is with difficulty disengaged.

“The egg, which is laid in the beginning of May, is excessively large, of an oblong shape, somewhat pyriform, but more rounded at the small end than that of the Guillemot, its average length 3 inches, or rather less, its greatest breadth 2 inches. The ground-colour is white, greyish white, or brownish white, largely blotched or clouded, and spotted and sprinkled, with deep brown or black, with spots of paler brown and light purplish blue interspersed.”

The chick is covered with down, which is white on the head and neck, and of a dark brown on the upper surface, and has the bill slaty black, with a small knob of white near the tip.

The sexes are alike in plumage when adult, and in summer have a narrow line from the bill to the eye, the under surface, and the tips of the greater wing-coverts white, the chin and the remainder of the plumage being black; bill black, crossed about the middle by a nearly vertical narrow band of white; legs and feet dark leaden grey, becoming lighter on the toes; and the nails black.

The throat, which is black in summer, becomes pure white in winter, and the white hair-like line between the bill and the eye less distinct, if not altogether absent. Dr. Saxby states, in his ‘Ornithological Notes from Shetland,’ that he shot a female at Balta Sound on the 17th of December, the entire plumage of which was precisely similar to that described as “peculiar to this species in winter, with the single exception of there being no white line between the base of the bill and the eye,” and remarks, “I am unable to account for its absence; for, so far as I am able to ascertain, such a mark becomes apparent even in young birds soon after they leave the rocks, and is distinct during the first winter.” (‘Zoologist,’ 1865, p. 9520.)

The Plate represents an adult of the size of life, and a young bird about two days old.



URIA TROILE.

URIA TROILE.

Common Guillemot.

- Colymbus troile*, Linn. Faun. Suec., p. 52.
Uria troile, Lath. Ind. Orn., vol. ii. p. 796.
— *leucophthalmos*, Fabr. Prodr., p. 42.
— *ringvia*, Brünn. Orn. Bor., p. 27.
— *hringvia*, Keys. & Blas. Wirbelth. Eur., p. 93.
— *lacrymans*, Valenc. Voy. de la Chloris, pl. 23.
— *troile leucophthalmos*, Schleg. Rev. Crit. des Ois. d'Eur., p. 107.
— *minor*, Steph. Cont. Shaw's Gen. Zool., vol. xii. p. 246, pl. 63.
— *norwegica*, Brehm, Vög. Deutschl., p. 933.
— *leucopsis*, Brehm, ibid., p. 982.
— *alga*, Brünn. Orn. Bor., p. 28.
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A MOMENT'S reflection only is necessary to convince the lover of nature that the creatures inhabiting the great waters are as numerous and as varied in their forms as those dwelling on the land, and that, were the mighty deep to unfold to us the whole of its treasures, we should find that they comprise objects of beauty and colouring as numerous, if not more so, as those of the air. Among aquatic birds, two very extensive families are found to exist preeminently fitted to frequent the face of the ocean, namely the Petrels and the Auks. The greater number of the former inhabit the seas south of the equator, as the latter do almost exclusively those north of it. The members of the *Procellariidæ*, or Petrels, feed principally on the lower *Physaliæ*, and the *Alcidæ* or Auks on the smaller fishes; by which means the balance of animal life is maintained, and probably ever will be so, as long as Nature's laws are not interfered with by man. To ruthlessly kill the oceanic birds when they seek our rock-bound islands for the purpose of reproduction is surely a mistake; for the result would be an excess of such fishes as the herring, the mackerel, and the pilchard, upon the fry of which most of our sea-birds feed; and such an excess would probably be accompanied by diseases such as sometimes occur among our birds and quadrupeds when redundant in number.

These observations may appear trivial; but I have penned them as they occurred to me when sitting down to write the history of the Common Guillemot, numerically perhaps the most abundant member of its family, if not of the whole of our sea-birds.

In a broad sense, I may say that this well-known bird is strictly confined to the northern hemisphere, where its range extends from the borders of the Arctic circle to the latitude of Madeira and the Azores. Always at sea during the months of autumn and winter, it dwells day and night on the face of the water, seldom flying unless from one part of its fishing-bank to another. On the commencement of spring the promptings of nature induce it to approach the land and resort to those coasts whose rocky precipices afford a resting-place for its large singularly formed egg. Some time after incubation has been effected, the parent takes its young down to the sea, sheltered bays and more quiet firths being then resorted to, such situations appearing to afford a certain degree of protection to the young until they have acquired sufficient power to enable them to proceed to the open waters destined for their future abiding-place. In the comparatively little-disturbed waters alluded to, the fry of the herring, the pilchard, the sprat, and other fishes are found, the whole affording an abundant supply of nutriment to the birds both old and young.

To enumerate individually the breeding-places of the Guillemot in the British Islands is quite unnecessary, since they are to be found from the Land's End, in Cornwall, to the coasts of Wales, to Yorkshire, to Ailsa Craig, the northern and other parts of Scotland, and the Hebrides. Similar situations of a favourable character in the sister kingdom of Ireland are all more or less resorted to by this bird, which, moreover, is equally numerous in all suitable localities in the northern portions of the continent of Europe and America.

I have alluded to the immense numbers of this bird in all the localities frequented by it; and in illustration of this assertion, I cannot perhaps do better than give the following paragraph from an interesting paper by Mr. Robert Gray on Ailsa Craig and its inhabitants, published in the 'Intellectual Observer,' vol. iv. p. 119 &c. :—

"The Guillemot and Razorbill breed on the narrow ledges of rock occupying the entire face of the highest precipices of Ailsa Crag, and presenting, when viewed from the sea, a very remarkable and orderly appearance. They make no nest, but lay their single egg upon the bare ledge, which is seldom more than six inches in breadth; so that each bird is compelled to sit erect when incubating. I have frequently climbed to a height

of four or five hundred feet to view the most thickly populated breeding-places ; and having hurled down a few stones to frighten the birds, they all took wing, leaving a most extraordinary collection behind them. The Guillemot's egg, which is large and of a handsome shape, is very variable in colour, and of all shades from pure white to a deep green, many being spotted with fantastic characters and intricate lines, which baffle description or portraiture. The sight of so many, therefore, lying exposed on the bare rock is one of no common interest. On such occasions many hundreds may be seen uncovered, all nearly touching one another ; and when the birds come pouring in towards the ledges, after having been disturbed, each flying directly to its own egg, the infinite variety of colouring, or *private marks*, so to speak, may be looked upon as an all-wise arrangement for keeping up the harmony of the settlement.

“Descending the grassy slopes on one occasion when all the birds were hatching, I approached the perpendicular walls of rock facing the south, on which Guillemots, Razorbills, Solan Geese, and Kittiwakes were sitting in congregations outnumbering all calculation, crept cautiously to the verge of the precipice, thrust my chin over the sharp edge of a pillar, my heels being held by a companion behind, and had a satisfactory view. Looking down four hundred and fifty feet, I observed that the Gulls and other birds floating on wing had no particular form, on account of the distance ; but there could be no doubt as to the identity of the black imps just under my nose. These were young Guillemots and Razorbills, the old birds being beside them, anxiously poking out their necks, and looking upwards with an eye of fear that fairly put me out of countenance. Under the perch of these odoriferous ‘children of the mist’ other families came into view, lower and still lower, their behaviour and unclean peculiarities being modified by distance till the eye lost sight of the species, and sea-fowl in general became responsible for the smell and uproar. The fearful discord which prevails on these ledges when the young are hatched is not easily described. The Guillemots and Razorbills unite in one deafening roar of a peculiar tone ; and when that loud groan is past, the harsh cries of the Solan Geese, bad enough of their kind, are heard as a faint echo. But the noise is only exerted when danger is at hand ; for on ordinary occasions the cry of the gentle Kittiwake is oftenest heard, especially at twilight before all becomes hushed.”

With regard to the mode in which the young Guillemots reach the water, the evidence differs considerably. Mr. Gray, in the paper above alluded to, says, “When the young of the Guillemots are half fledged, the parent birds are seen daily, by the keeper, taking them down on their backs to the sea, and unceremoniously pitching them off within a few feet of the water. They have also been observed to seize them by the hind neck, as a cat does its kittens, and, after a moment's hesitation, launch from their high perches and descend with an unsteady flutter till they could drop the young ones with safety ;” while Mr. Gurney, jun., in some notes he has kindly communicated to me, says, “on visiting in June, 1871, a spot about five miles north of the Flamborough lighthouse, where the limestone cliffs of that part of Yorkshire rise to the height of 400 feet, and where the Guillemots, or ‘scants,’ as they are there called, are as numerous as bees, I made particular inquiries as to how the old bird conveys her young to the water. Mr. T. Machin, the first witness, stated that he had been on the rocks and had actually shot parent Guillemots with their nestlings in their beaks as they came down from above ; on the other hand, a climber of thirty years' experience assured me that they had also witnessed the old ones bear their young down on their back, and in no other way.”

It will be observed that my figures represent the two birds known by the names of the Common and the Bridled or Ringed Guillemot ; this I have done in deference to the opinion which now prevails among ornithologists, and with which I coincide, that the latter is merely a variety of the former, as they are generally found breeding in company, not only on the same ledge of rock, but frequently paired with each other. Some, whose attention has been called to the subject, state that the relative numbers of the birds with the white ring are about one to five ; others, as about one in ten. On this head Mr. Gatcombe writes to me :—“The mackerel-boats bring into Plymouth hundreds of the Common Guillemot, in many instances alive ; but among the large numbers I examined, the bridled species or variety rarely occurs.” Mr. Gray, when speaking of Ailsa Craig, says he never had any difficulty in obtaining ringed birds from the keeper, who goes in search of them when wanted, cleverly snaring them with a hair noose on the end of a pole.

In summer and winter the Guillemot is differently clothed : in winter the neck and throat are white and the feathers are loose and shaggy ; in the early spring a change of plumage takes place, and the neck is covered with short, adpressed, velvety-brown feathers.

As above stated, the Plate represents the Common and the Ringed Guillemot, both figures and the egg being of the natural size.



URJA GRYLLE.

Walter, Eng.

J. Gould & H.C. Richter. Del. et lith.

URIA GRYLLE.

Black Guillemot.

- Colymbus grylle*, Linn. Faun. Suec., p. 52.
Uria grylle, Lath. Ind. Orn., vol. ii. p. 797.
Colymbus lacteolus, Gmel. edit. Linn. Syst. Nat., tom. i. p. 583.
Uria lacteola, Lath. Ind. Orn., vol. ii. p. 798.
— *balthica*, Brünn. Orn. Bor., p. 28.
— *Grilla*, Vieill. Gal. des Ois., tom. ii. pl. 294.
— *scapularis*, Steph. Cont. of Shaw's Gen. Zool., vol. xii. p. 250, pl. 64.
Cephus grylle, Boie, Isis, 1822, p. 562.
— *arcticus*, Brehm, Vög. Deutschl., p. 988.
— *Meisneri*, Brehm, *ibid.*, p. 989?
— *Færœensis*, Brehm, *ibid.*, p. 990.
Uria (Uria) grylle, Baird, Cat. of N. Amer. Birds in Mus. Smiths. Inst., p. lv.
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It will not be necessary for me to enter into the controversy respecting the specific differences observable in the Black Guillemots from various parts of the world, inasmuch as the subject has been ably investigated in Mr. Newton's "Notes on the Birds observed in Spitzbergen," which, for the information of those who are not already acquainted with them I may mention, will be found in 'The Ibis' for 1865, p. 517, and that they comprise a diagnosis of the four or five species known. Of these, the bird here figured is doubtless the one to which Linnæus assigned the specific term *grylle*, and the only one of the form which inhabits our islands, or, rather, visits, at one season or other, the seas surrounding our shores. This extremely pretty species is more plentiful in the northern than in the southern division of Britain, particularly at the season of reproduction. Montagu speaks of its breeding in his time at Tenby, in Pembrokeshire; and Pennant, at Llandudno, in Anglesea; but we must now, I believe, go as far north as the Isle of Man if we wish to see the bird thus engaged. It is much more local than most of the rock-birds, and many of the stations that are thronged in multitudes by the Common Guillemot, Razorbill, and Puffin are never visited by the present species. In Ireland it breeds in more southern spots than in Great Britain; but it has numerous stations in and around the coasts of Scotland, and is especially abundant in the Ferroses, some parts of Iceland, and along almost the entire coast of Norway. This species also occurs in America; but Mr. Cassin, in Prof. Baird's 'Birds of North America,' p. 911, does not discriminate between it and *Uria Mandti*, which is certainly found in the high northern parts of that continent, and of which I have a specimen, killed on Beechey Island in June 1854, and presented to me by Dr. Lyall. The younger Mr. Whitely states that it is also found in Japan; but this, I think, requires confirmation, since the only specimen he collected has passed out of his hands, he knows not whither, and it is very likely to have been an example of the common species of the Pacific Ocean, *Uria columba*.

The *Uria grylle* is perhaps the most distinctly marked, and, except the *U. carbo*, is the blackest of all the Guillemots; its trivial name of black, however, is scarcely appropriate, and *pie'd* or *varied* would also be equally inapplicable. In summer only would the former term be at all suitable, and the others for the short space of time in winter during which a varied garb exists; but even then it is so continually changing that no two specimens are precisely alike. Mr. Gatcombe believes there is yet much to be learned concerning the time the change of plumage takes place in this and many other sea-birds. For example, on the 26th of December, 1863, he killed an old Black Guillemot which had already assumed more than half of its spring plumage, the entire neck being prettily mottled with sooty and white feathers; and a Little Auk, killed in the middle of the same month was in the *most perfect* summer dress. Such birds are believed by some persons to be either barren females or youthful males that have not yet mated. How frequently in autumn do we observe Great Northern Divers, in their full summer costume, associating with others, evidently adult, but carrying the usual grey dress of that season. When handled in the flesh, the Black Guillemot is found to be such a short, round, and heavy mass, that one at first wonders how its small wings can sustain it during its flights from one part of the ocean to another, or enable it to perform its ascents to its lofty breeding-places amid high rocks; but a very slight examination shows that, owing to its powerful pectoral muscles, it is a bird of very strong and rapid flight.

Macgillivray, who considered the Black Guillemot one of the most beautiful of our sea-birds, states that in Britain all its breeding-places are to the north of the Tweed and Solway, and that the most southern localities with which he was acquainted are the Bass Rock and the Isle of May, at the mouth of the Firth of

Forth ; and Mr. Selby, writing in 1833, says it is a numerous species in the northern parts of Scotland and its isles, but becomes of rarer occurrence as we approach the English coast, where, indeed, it is but occasionally met with ; “and,” he adds, “although Montagu has mentioned it as resorting to the Farn Islands, I can safely assert that this has not been the case for the last twenty-five or thirty years.” Sir William Jardine gives the coasts of the north of Scotland as being near to its southern range in Britain ; but he mentions having met with the species in the Isle of Man, and that it occasionally occurs on the southern coast of England. “It is interesting, therefore,” says Thompson, “to find that this bird is not only equally common in the south and in the north of Ireland, but that it nidifies as frequently on the rocky coasts of the former, as on those of the latter portion of the island.”

Macgillivray has given us such a graphic description of the situations frequented by this bird, and of its habits, that it would be an act of injustice to this elegant writer not to transcribe it :—

“Suppose yourself floating on the heavy swell of the Atlantic, along the base of a cliff decorated with luxuriant tufts of *Rhodiola rosea*, *Silene maritima*, and *Statice armeria*, and inhabited by Guillemots, Auks, and Starlings. Here and there are narrow cracks, perpendicular and inclined. In most of them, after a shot has been fired, you will see one, two, or more black Guillemots looking down upon you, half afraid to remain, and loth to leave their eggs or young. Another shot is fired, and you see them bounce away on rapidly moving wings. There, on a shelf, a dozen of them have alighted in a row ; their black plumage, enlivened by the two white wing-spots, and their singular-looking red feet, contrast with the brown rock. You may approach and shoot half of them if you will, for they are by no means shy. Such are their usual breeding-places ; for they never, like the other Auks and Guillemots, deposit their eggs on the exposed ledges of the cliffs. They differ from them also in laying two eggs. I have never, however, obtained them from such places, although I know those who, clinging to the face of the rifted crag, have done so, foolishly, I thought, and at the peril of life ; but I have many times taken them from under the large blocks of stone near high-water mark. Nests they have none, unless a little gravel or some pebbles may be so called. The eggs are about the same size and shape as those of a domestic fowl, being regularly ovate, from two inches and a quarter to two inches and a half in length, and from an inch and six to an inch and seven twelfths in breadth, sometimes smooth, often rough, with little flattened prominences, and of a greyish white, yellowish white, bluish white, or sometimes pale greenish blue, and marked with blotches, spots, and dots of dark brown, varying in tint from brownish black to umber, together with faint purplish-grey spots, the markings larger and more numerous near the larger end. The eggs are deposited in the beginning of June, and early in August the young are abroad.

“Their food consists of small fishes and crustacea, in search of which they frequent the sounds and bays less than the open sea. On all the coasts of Scotland, the fry of the Coalfish is a very common article of food with them, as with many other sea-birds. About most of their breeding-places I have not observed them to proceed daily to any great distance ; but, on leaving the rocks with their young, they disperse over the ocean until the next spring. Yet they do not migrate far southward, most of them remaining all the winter in the north.

“This species sits lightly on the water, on which it paddles about in a very lively manner. It dives with rapidity, like a shot as it were ; and, under water, it actually flies, as I have often seen. If shot at on the water, it will often dive—but also frequently rise on wing, and in so doing strikes the water with its wings and feet for some distance. Its flight is quick, direct, and performed by a perpetual rapid beating of the wings. In proceeding to a distance, they often fly in small strings, low over the water, now inclining a little to one side, then to the other. When their nests or roosting-places are high on the rocks, they gradually curve upward as they approach them, and alight abruptly. On the ground they move about but little, although, on occasion, they walk moderately well and prettily, with short steps, and nearly erect. They repose either standing or lying flat on the rock.

“The eggs, when hard-boiled, are remarkably good ; but the flesh of the bird, being dark-coloured and rank, is not agreeable, though better than that of the Auk or other Guillemots.”

The late Mr. Salmon states that the principal breeding-place in the Orkneys is a small holm, lying to the eastward of Papa Westra, where it is very numerous, and will scarcely move off the rocks when approached. He invariably found two eggs together, deposited upon the bare ground, principally under the large fragments of rocks scattered about upon the island, without any appearance of nest. The young are at first covered with a greyish-black down, through which mottled feathers of black and white soon protrude. Both adults and young exhibit a considerable amount of white during the winter, and in this state form the “Marbled Guillemot” of older authors.

The Plate represents the bird in summer and in winter plumage, of the size of life. I trust my readers will excuse the incongruity of placing birds in the dress of opposite seasons on the same plate.



MERGULUS ALLE.

MERGULUS ALLE.

Little Auk.

Alca alle, Linn. Faun. Suec., p. 50.

Uria alle, Temm. Man. d'Orn., 1815, p. 611.

Mergulus melanoleucos, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 42.

Alca candida, Brünn. Orn. Bor., p. 26.

Mergulus alle, Vieill. Gal. des Ois., tom. ii. p. 237, pl. 295.

——— *arcticus*, Brehm, Vög. Deutschl., p. 994.

Arctica alle, G. R. Gray, List of Gen. of Birds, 1841, p. 98.

IN the British Islands, the Little Auk mostly occurs during the seasons of autumn and winter, while its principal summer haunts are Spitzbergen, Iceland, Greenland, Baffin's Bay, and Davis's Straits. As far as our intrepid voyagers have proceeded, even to the eighty-first degree of north latitude, numbers beyond computation were observed enlivening the scene with their presence. "So numerous were they," says Captain Beechey, "that we have often seen an uninterrupted line extending full halfway over Magdalen Bay, or to a distance of more than three miles. This column, on the average, might have been about six yards broad and as many deep. There must have been nearly four millions of birds on the wing at one time." "The incredible numbers of these species," says Meyer, "that have been seen by voyagers on the surface of the northern seas are very remarkable; it is said that they cover the surface of the water and the floating masses of ice as far as the eye can discern, and, when they take flight, actually darken the sky. This species is so entirely a sea-bird that it is only seen on land or in the immediate vicinity of the coast during the breeding-season, and at other times hardly ever within fifteen or twenty miles from the shore."

Col. Sabine, in his 'Memoir on the Birds of Greenland,' observes that "the Little Auk was abundant in Baffin's Bay and Davis's Straits, and in latitude 76° was so numerous in the channels of water separating fields of ice, that many hundreds were killed daily, and the ship's company supplied with them."

"This pretty little bird," says Mr. Alfred Newton in his 'Notes on the Birds of Spitsbergen,' "is numerous almost beyond belief on the greater part of the coast. Parry's Expedition met with it as far to the north as the party travelled, and in August found it in great numbers between lat. 81° and 82° N. Its breeding-places, though at a less height than those of its allies, are still far from being easily accessible; but I found one to within a few feet of which I could climb and superintend the capture of the young. Mr. Lamont, in his entertaining work 'Seasons with the Sea-horses,' states his opinion that it is the mutings of this bird which produce the well-known 'red snow.' I do not at all agree to this; for, setting aside that the cause of that singular appearance has been fully determined, and that it occurs in regions where there are no birds of the kind, the mutings of the Roche or Little Auk are like anchovy-paste, while the red snow, or such of it as I saw, is of an entirely different colour, being a dull crimson."—*Ibis*, 1865, p. 521.

The same author states, in his note to Sabine Baring Gould's 'Iceland, its Scenes and Sagas,' that according to Faber it occurs in that country all the year round, but only breeds on Grimsey, where Faber found it in 1820, and Proctor in 1837. This is probably one of the most southern of its breeding-quarters; for although it has been said to breed at St. Abb's Head and other parts of Scotland, I believe we have no reliable evidence of the fact. "Although periodically driven upon our shores," says Mr. Hewitson, "and sometimes in considerable numbers during the winter months, this beautiful little bird has its home much further north. It is abundant on some part of the shores of Greenland, where it breeds, and whence both the birds and eggs have been brought to this country by the sailors employed in the Greenland fishery. Mr. Proctor, who met with it in Iceland, says that it is very local there, and makes no nest, but deposits its single egg upon the bare ground, amongst and under the large stones which have fallen from the cliffs above. The birds allowed him to turn over the stones and take them off their eggs; he found twelve or fourteen eggs on the 2nd of July, far advanced in incubation. Most of these were slightly spotted with rust-colour, but only a few of them very distinctly." In 'McClintock's Voyage' it is stated that the "Rotche or Little Auk, lays its single egg upon the bare rock far within the crevices, and beyond the reach of Fox, Owl, or Burgomaster Gull." The egg figured by Mr. Hewitson measures one inch and seven-eighths in length, by one inch and three-eighths in breadth, and is of a pale bluish white, with a few speckles of rusty yellow principally at the larger end. The egg is very large for the size of the bird—so large, in fact, that it would seem impossible that it should be laid by so tiny a creature; for it fully equals that of a Bantam, a bird nearly six times the weight of the Little Auk.

The above account forms the pith of the information that has been recorded respecting the bird in its

summer quarters. After the breeding-season is over and the rigours of winter have set in, the myriads of lower animals upon which it feeds disappear from the surface, and seek shelter in the depths of the ocean; the Little Auk then betakes itself to warmer seas, gradually proceeding southward until it reaches the latitude of Gibraltar, and occasionally even still further in the same direction; for Mr. Frederick Du Cane Godman found a specimen in the collection of a gentleman in Terceira, one of the Azores, which had been killed in the island four or five years before the date of his visit, 1865. The British Islands lying in the course of the bird's southern passage, they are often visited by the Little Auk during the autumn; and many instances of its occurrence therein either singly or in large and small flocks, are on record. During furious gales they sometimes wander far inland, and are either shot on our rivers or die from exhaustion. To give a list of the various instances of its having visited us would be useless; for they occur more or less numerous every year, according to circumstances, and perhaps more frequently in Scotland and in our northern counties than elsewhere; but specimens have been obtained in the midland, and even in the southern ones. R. Gray, Esq., of Southcroft, Govan, Glasgow, informed the Rev. F. O. Morris that "a large flock of these birds visited the Dunbar shore during a severe storm in November and December 1846. Many of them were in a disabled state, and were found in fields and gardens in the neighbourhood. Small flocks were also observed along the shore, and some were met with in the harbour and other smooth waters to which they could get access. I had at one time eight or nine individuals in custody."

Mr. Stevenson writes to me:—"From my notes of the occurrence of this bird during the last eighteen years, I can no longer term it only an occasional visitant, although the greater number have been driven to our shores by severe gales. Year after year one or two, and even as many as eight specimens have been brought to the Norwich bird-stuffers during the winter months; most of these have been picked up in a dead or dying state. With singular regularity the bird appears between the first week of November and the end of December; few are met with in January and February; but a chance straggler has been obtained as late as the 18th of March. When caught by heavy gales they are sometimes carried between thirty and forty miles inland; and I have known them to fall in an exhausted state in the streets of our towns and cities. They were particularly plentiful in 1846 and again in 1862. A specimen in my collection, with the rich-black throat of the breeding-season, was killed at Wells on the 25th of May 1857. It is difficult to account for the appearance of the bird so late in the season; it was shot while flying over the waves close inshore, and may have been prevented from migrating by some previous injury. It is stated in the 'Zoologist' for 1846, that an example in an extremely emaciated condition was killed at Downham, in Norfolk, in the July of that year."

Audubon tells us that in America the Little Auk sometimes makes its appearance on the eastern coasts during very cold and stormy weather, but does not proceed further southward than the shores of New Jersey, where it is of very rare occurrence. "In the course of my voyages across the Atlantic, I have often observed the Little Auk in small groups rising and flying to short distances on the approach of the ship, or diving close to the bow and reappearing a little way behind. Now with expanded wings they would flutter, and run, as it were, on the surface of the deep; again they would seem to be busily engaged in procuring food, which consisted apparently of shrimps, other crustacea, and particles of sea-weed, all of which I have found in their stomachs. I have often thought how easy it would be to catch these tiny wanderers of the ocean with nets thrown expertly from the bow of a boat; for they manifest very little apprehension of danger from the proximity of one, insomuch that I have seen several killed with the oars. Those which were caught alive and placed on the deck would rest a few minutes with their bodies flat, then run about briskly or attempt to fly off, which they sometimes accomplished when they happened to go in a straight course the whole length of the ship, so as to rise easily over the bulwarks. On effecting their escape they would alight on the water and immediately disappear."—*Orn. Biog.*, vol. iv. p. 304.

"The whole of the birds in the breeding-season," says Col. Sabine, "the sexes being alike, have the under part of the neck of a uniform sooty black, terminating abruptly and in an even line against the white of the belly; the young birds as soon as feathered were marked exactly like the mature birds, but in the third week of September every specimen, whether old or young, was observed to be in change; and in the course of a few days the entire feathers of the throat and cheeks had become white." It is in this latter or winter dress that most of the specimens killed or captured in this country are clothed.

I am indebted to Mr. Alfred Newton for the loan of the very fine example, in summer plumage, from which my foremost figure was taken.

The Plate represents two birds, of the natural size—one in its summer, and the other in its winter plumage.



PRATERCULA ARCTICA.

Walter Bull

FRATERCULA ARCTICA.

Puffin.

Anas arctica, Ray, Syn., p. 120, A 5.

Alca arctica, Linn. Syst. Nat., tom. i. p. 211.

— *labradora*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 550.

— *deleta*, Brünn., Orn., no. 104 (young).

Fratercula, Briss. Orn., tom. vi. p. 81, pl. 6. fig. 2.

———— *arctica*, Flem. Brit. Anim., p. 130.

Plautus arcticus, Klein, Av., 146. 3.

Mormon arctica, Ill. Prod. Syst. Mamm. et Av., p. 284.

———— *Fratercula*, Temm. Man. d'Orn., p. 614.

———— *arcticus*, Bonap. Geogr. and Comp. List of Birds of Eur. and N. Amer., p. 66.

WHEN the naturalist contemplates the infinite variety existing in nature, whether in the complicated structures of inert minerals, the singular formation of the flowers of the Orchids, the grotesque forms and colouring of fishes, or the vast diversity among birds, he cannot fail to be impressed with feelings of admiration and delight, and must necessarily perceive that all these variations are intended to answer some special end and purpose. Thoughts such as these crossed my mind when I took up my pen to commence a history of the Puffin.

What a singular bird it is, this Parrot of the sea! as it has been called—one of the few members of a genus forming part of a large family of aquatic birds, comprising the Puffins, the Auks, and the Guillemots, the denizens of the northern hemisphere, as the Penguins are of the southern—two groups strictly antipodal, and frequenters of the icy regions of the opposite portions of the globe. The further that intrepid navigator, Sir James Ross, went south, the more numerous did he find the Penguins; and the further he proceeded north, the more abundant were the Auks, the Puffins, and the Guillemots. But let us turn to the species which makes our islands its home during the summer months. At this period the Puffin visits all parts of the kingdom that afford suitable situations for the performance of the task of incubation—rocky promontories and high chalky cliffs. Here, among Willocks and Razorbills, Gulls and Cormorants, and their usual attendant the Peregrine Falcon, it deposits its single large white egg in a natural fissure of the rock, in a hole scratched for the purpose in the shelving and crumbly part of the cliff, or in the burrow of a rabbit, who often disputes with him the right of occupation. When I wrote my 'Birds of Europe,' some thirty years ago, the Puffin was plentiful at the Needles in the Isle of Wight, Beachey Head, Lulworth Cove, and all similar localities along our southern coast; I fear, however, that few now come there to breed; but on the shores of the other parts of our islands, from Scilly to Wales, from Flamborough to the Orkneys, on those of Ireland, the Isle of Man, and the outermost Hebrides, it is still abundant. On the coasts of the European continent it is, of course, far less numerous, for the simple reason that they afford few situations favourable to it; still it does inhabit the seas which wash the shores of our neighbours, from Hammerfest to Gibraltar; and occasionally penetrates into the Mediterranean. The precise limits of its southward range, however, are unknown.

I have mentioned that the Puffin comes to land for the purpose of breeding, and that it is only here in summer; and I must now state that in winter it generally keeps to the salt water, but may occasionally mount some rocky promontory; the ocean, however, is its proper element, over which it is scattered either singly or in small companies, and constantly engaged in fishing for its daily food over the sunken sand-banks or in the bays and inlets. Its diving-being much greater than its flying-powers, it is as much under as above water, and rarely flies more than is just sufficient to transport it from one part of the sea to another. How admirably adapted for such a life is its wedge-shaped bill, its close, glossy, and adpressed plumage, its long and broadly webbed feet, and its small and feeble wings, which appear barely sufficient to enable it to scale the perpendicular cliffs at the breeding-season!

Speaking of the breeding of the Puffin, Mr. Selby says, "Many resort to the Fern Islands, selecting such as are covered with vegetable mould; and here they dig their own burrows, from there not being any rabbits to dispossess on the particular islets they frequent. They commence this operation about the first week in May; and the hole is generally excavated to the depth of three feet, often in a curving direction, and occasionally with two entrances. When engaged in digging, which is principally performed by the males, they are sometimes so intent upon their work as to admit of being taken by hand, as they also may be during incubation: at this period I have frequently obtained specimens by thrusting my arm into the burrow, though at the risk of receiving a severe bite from the powerful and sharp-edged bill of the old

bird. At the further end of the hole the single egg is deposited: in size it nearly equals that of a pullet, but varies much in form, some being acute at one end, while in others both ends are equally obtuse. Its colour, when first laid, is white; but it soon becomes soiled from its immediate contact with the earth, no materials being collected for a nest at the end of the burrow. The young are hatched after a month's incubation, and are then covered with a long blackish down above, which soon gives place to the feathered plumage; so that at the end of a month or five weeks they are able to quit the burrow and follow their parents to the open sea. Soon after this time, or about the second week in August, the whole leave our coasts on their equatorial migration. On the water the Puffin is more wary than the Guillemot, generally taking wing or diving before a boat can approach within gun-shot. It flies rapidly, but not to any great distance at once, being obliged to employ its short and narrow wings to their utmost power for the support of its body, which is heavy in proportion to its dimensions."

"By far the most abundant species in St. Kilda," says Macgillivray, "is the Puffin, which breeds in the crevices of the rocks as well as in artificial burrows in almost every situation, sometimes at a considerable distance from the water's edge. It is taken by the fowlers in two ways,—when on the nest, by introducing the hand and dragging out the bird, at the risk of a severe bite; and when sitting on the rocks, by a noose of horsehair attached to a slender rod, generally formed of bamboo-cane. The latter mode is most successful in wet weather, as the Puffins then sit best upon the rocks, allowing a person to approach within a few yards; and as many as three hundred may be taken in the course of the day by an expert bird-catcher. . . . The Puffin forms the chief article of food with the St. Kildians during the summer months, and is usually cooked by roasting among the ashes."

It has not been very clearly ascertained how far the Puffin proceeds in a northerly direction, or whether its range extends beyond the neighbourhood of the North Cape in Europe or the southern part of Greenland. I suspect that a nearly allied species, the *Fratercula glacialis*, takes its place in those regions; for Mr. Alfred Newton, during his recent visit to Spitsbergen, found the bird so called, and not the present one, in that inhospitable country. On the authority of Professor Baird, I give the northern portion of America as one of the habitats of our bird. It appears to be the commonest species of the two in Iceland; and in the Faeroes it is exceedingly abundant.

The Puffin is subject to precisely the same kind of seasonal changes in its plumage as those which take place in the Auks and the Guillemots. The black throat-mark being peculiar to summer, the whole of the throat at the opposite season is either white or greyish white; the colour of the bill, which is clear and vivid in the spring, becomes more clouded, and the yellow at the angle of the mouth less prominent or dilated. The bill of very young birds, while dressed in the first costume of black down, differs but little from that of the young Guillemot; but it soon begins to resemble that of the adult; it is not, however, until the second year that it attains the full normal form. For what particular purpose can the strong hooked claws of this bird have been given to it? Is it for clinging to the branches of seaweed and corallines during its search for crustaceans and other aquatic creatures at the bottom of the deep, or to enable the bird to excavate the hole for the deposit of its egg? I think the former is the more likely reason, because the bird does not, I believe, confine itself to fish, although it is upon that kind of food that its newly hatched young are mostly fed. How often have I seen a lengthened row of silver sprats hanging from the beak of an old bird, when flying in a straight line just above the surface of the water towards the rocks, upon which the young were patiently waiting! How evenly were they arranged along the bill, from the gap to the tip! How beautifully they glittered in the sun!

The Plate represents an adult, and a young bird of a week old, of the natural size. The distant scenery is intended to represent one of the "rookeries" of Guillemots and Razorbills, which, with Puffins, make up the general mass. The bird in the air is the Peregrine Falcon.



PHALACROCORAX CARBO.

J. Gould & H.C. Richter, del. et lith.

Walter, Imp.

PHALACROCORAX CARBO.

Cormorant.

- Pelecanus carbo*, Linn. Faun. Suec., p. 51.
——— *phalacrocorax*, Brünn. Orn. Bor., p. 31.
Carbo cormoranus, Meyer, Taschenb. Deutschl. Vög., tom. ii. p. 576.
——— *glacialis*, Brehm, Vög. Deutschl., p. 817.
Halieus carbo, Illig. Prodr., p. 279.
——— *cormoranus*, Naum. Vög. Deutschl., 1842, tom. i. p. 52.
Graculus carbo, Gray & Mitch. Gen. of Birds, vol. iii. p. 667.
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THERE is perhaps no group of birds so generally dispersed over the rocky sea-shores of the globe as the Cormorants; for one or other species may be seen everywhere. The extreme southern parts of Africa, Australia, New Zealand, and Patagonia abound with them; and they are equally numerous in America, Europe, Japan, and other parts of the north. They are also found in most intermediate countries. Generally speaking, each country is tenanted by its own peculiar kind; but in some few cases certain species may be regarded as almost cosmopolitan, being found in many different localities, of which the present bird is an instance; for, besides Europe, the Common Cormorant is also found over a great part of North America, India, China, and Africa; and I now believe that the bird inhabiting Australia, which has been named *Phalacrocorax Novæ Hollandiæ*, can scarcely be separated from it. That it frequents all the rocky sides of the coasts of England, Ireland, and Scotland is certain. In winter it ascends the inlets of the sea, and sometimes resorts to the lakes of the interior in summer, when it may be often seen fishing their waters; and great indeed must be the destruction it effects among our freshwater fishes during such visits. On this head Mr. Robert Gray states, in his 'Birds of the West of Scotland:—' "There is a large breeding colony every year on Loch Moan, in Ayrshire, a place but little visited, and distinguished for nothing but these Cormorants and the sterile scenery by which it is surrounded. In the breeding-season of 1867 the place was visited by a fishing-party, who, finding nothing in the loch (every fish having been devoured by the birds), launched a boat they had brought across the hills, and proceeded to the island, where they built a pyramid of Cormorants' eggs, which they had no difficulty in gathering, to the height of two or three feet, and smashed the entire lot with large stones. One of the party informed me, though the eggs were not counted, more than a thousand were destroyed, and that a similar colony existed a few years ago on the lochs of Mochrum and Dumwall, in Wigtonshire." I commend this passage to the notice of those who are framing laws for the protection of our native birds.

From time immemorial, Cormorants have been more or less subject to domestication, at least so far as to conduce to the pleasures of sport. On this head I take the liberty of transcribing the following passage from the pen of Mr. F. H. Salvin, published in 'Land and Water:—'

"Since the publication of my work entitled 'Falconry, its Claims, History, and Practice,' to which I added a few chapters upon Cormorant-fishing, I have picked up a good deal of its early history; and having improved in the management of these birds, I now venture to offer an article or two upon the subject, hoping they may be acceptable to the readers of 'Land and Water.' Before I commence, I must express the hope that the most ardent lovers of the rod will be liberal and not begrudge a little Cormorant-fishing during the summer, when it is too bright and hot for them to pursue their 'gentle art.' Of course the owner of Cormorants should likewise be the possessor of streams; for then he can fish them as he likes, and thus he can keep his birds in good practice, and be ready to accept any invitation to fish distant streams, &c. Here I may remark that it is a delightful summer amusement, which has its advantages. For instance, 'meets' may be got up, and will be found an excellent means of assembling large parties of friends for a picnic or a 'swell luncheon.' It comes in so nicely; for at that time of the year most other rural sports are at a standstill; and to the admirers of scenery it must have additional charms, as the prettiest parts of the country are always to be found by our brooks and rivers. Many and many are the 'meets' I have enjoyed and have to thank my kind friends for.

"The Cormorant is too well known to require its natural history; and so I will proceed to the ancient history of this curious and ingenious method of fishing. Its origin is Chinese; and I think the first Jesuit missionaries were the earliest to mention it in their writings. In the reign of James I., Ogleby was sent on an embassy to China, and in the two large volumes he afterwards published he gives a description of the Chinese method of using these birds for taking fish; and no doubt it is a much older invention, as I have seen it represented

upon ancient china at Leagram Hall, Lancashire. It can easily be understood that James I., who was so passionately fond of sport, would not be long in taking up Cormorant-fishing; and hence we find many interesting documents confirming this in the Record Office. From these papers it appears that he built an extensive establishment for his Cormorants about the spot where the new Houses of Parliament have been erected; and here he had ponds made and stored with suitable fish, and filled with water from the Thames by means of sluices. John Wood seems to have been the first Master of the Royal Cormorants, which, like the Master of the Horse, and the Master of the Royal Buckhounds, was an office of importance. Luke, Robert, and Richard Wood, George Hutchinson, and John Harris, gentlemen, are mentioned; but they appear to have been only Cormorant-keepers."

"Cormorants, when at their breeding-stations," remarks Yarrell, "seem to prefer the higher parts of the rocks or cliffs; and many birds congregate harmoniously together. They make a large nest, composed of sticks, with a mass of seaweed and long coarse grass; they lay four, five, and sometimes six eggs, which are small compared with the size of the bird. The eggs are oblong, similar in shape at both ends, rough in texture externally, of a chalky white colour, varied with pale blue, the length two inches nine lines, by one inch and seven lines in breadth. Mr. Selby says, 'The young, when first excluded, are blind, and covered with a bluish-black skin; in the course of a few days they acquire a thick covering of black down, and are sufficiently fledged to take to the water, though still unable to fly, in the space of three weeks or a month.' The old birds fly well, generally low over the surface of the water; they swim rapidly, and dive in perfection; their food is fish, which they appear to catch with great ease and hold with certainty by the sharp, hooked, horny point of the upper mandible, their dilatable throat enabling them to swallow a large prey. When fishing, they are frequently observed to carry their heads under water, perhaps that vision may not be interfered with by the ripple on the surface. They are frequently seen sitting on posts, rails, or leafless trees by the water-side, when, if a fish should move on the surface within their sight, it is pounced upon and caught to a certainty. An eel is a favourite morsel with him; and a Cormorant has been seen to pick up an eel from the mud, return to the rail he was previously sitting upon, strike the eel three or four hard blows against the rail, toss it up in the air, and, catching it by the head in its fall, swallow it in an instant."

Perhaps the most interesting feature connected with the various members of this somewhat large family of water-birds is the degree of ornamentation by which they are characterized during the periods of spring and summer, in which respect no two species are precisely alike. Several of the foreign kinds are more highly decorated than our own, some having double crests, others the cheek-feathers greatly developed; and others, again, are distinguished by peculiar marks on the thighs. That these extraordinary appendages are perfectly useless as regards the economy of the birds is certain; and they cannot be regarded as sexual distinctions, both sexes being clothed alike, and the female being in some instances more beautifully marked than the male; neither can it be for the purpose of attracting the fishes or the lower animals upon which the bird feeds, inasmuch as they are only carried at one season and not at others, and are not assumed under any circumstances until the birds are fully adult, say at least two years old; it therefore appears to me that they are for ornamentation only. A similar nuptial dress is to be found among other groups of water-birds, particularly the Grebes, the Auks, and the Penguins.

The principal figure in the accompanying Plate is about two thirds of the natural size, in the plumage of spring.



PHALACROCORAX GRACULUS.

PHALACROCORAX GRACULUS.

Crested Cormorant, or Shag.

Pelecanus graculus, Linn. Syst. Nat., tom. i. p. 217.

——— *cristatus*, Fab. Faun. Grœnl., p. 90.

Carbo cristatus, Temm. Man. d'Orn., 2nd edit., tom. ii. p. 900, tom. iv. p. 565.

Haliæus graculus, Licht. Verz. der Doubl. des zool. Mus. zu Berlin, p. 86.

Phalacrocorax graculus, Leach, Syst. Cat. of Indig. Mamm. and Birds in Brit. Mus., p. 34.

Hydrocorax graculus, Vieill. Nouv. Dict. d'Hist. Nat., tom. viii. p. 87.

Carbo graculus, Meyer, Taschenb. deutsch. Vög., tom. ii. p. 578.

Phalacrocorax cristatus, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 83.

Pelecanus leucogaster, Vieill. Nouv. Dict. d'Hist. Nat., 2nd edit., tom. viii. p. 90.

Carbo brachyurus, Brehm, Vög. Deutschl., p. 822.

Graculus Linnæi, Gray and Mitch. Gen. of Birds, vol. iii. p. 667, *Graculus*, sp. 6.

It is not solely amongst the feathered denizens of the calm and beautiful tropical forests that nature has scattered her gifts of ornamentation with unsparing hand; but in an impartial spirit has she also profusely adorned such groups as the Grebes, the Auks, the Penguins, and the Cormorants—birds inhabiting the watery wastes and surge-washed rocks of either hemisphere. What would this world be without ornament and variety? Would it not be tame and wearisome? Would even the two Cormorants which inhabit this island be half so interesting were their distinctive characteristics less conspicuous? Some species of this genus have an extensive tuft of feathers springing from the forehead, of which the bird here figured may be cited as an example; others, again, have numerous white striæ down the sides of the neck and chest, as seen in our well-known common Cormorant (*Phalacrocorax carbo*); while some of the foreign kinds have lengthened floating hair-like plumes springing from various parts of the body, as in the New-Zealand *P. punctatus*. I have long been of opinion that such ornaments are not given only for the purpose of attraction between the sexes, but that their presence is due, and consecutive, to certain physiological conditions connected with the pairing-season—inasmuch as it is during that period that such adornments are present in their finest colours, and often (as, indeed, in the present instance) not confined to one sex.

It is time, however, to turn to the bird here represented, and to state in what part of the British Islands it resides: I say resides; for it is really a resident, scarcely ever removing from the district or rock upon which it has taken up its abode, either in winter or summer. At one time (even so recently as when I was collecting specimens for the due illustration of my 'Birds of Europe') the bird was common at the Needles, in the Isle of Wight; but in that most southern and charming part of our south coast it does not now exist; or if it does, it is but sparingly; nor is it more plentiful along our southern and south-western coasts. On the other hand, it is as numerous as it has ever been in the northern parts of Scotland, in the Hebrides, and in Ireland, as will be seen by the accounts furnished by those excellent observers and elegant writers, Macgillivray and Thompson, the former of whom says:—

“The Crested Cormorant, which is generally distributed along our coasts and very abundant in many parts of Scotland, especially the western and northern islands, is a constant inhabitant, frequenting the caves and fissures of the rocky headlands and unfrequented islands. It reposes at night in these caverns or on shelves of the rocks, often in great numbers, being of a social disposition, but keeping apart from other birds. Its roosting-places are always rendered conspicuous by the great quantity of white dung with which they are crusted. It is pleasant to see them emerge from their abodes on some wild coast before sunrise, and silently wing their way in files towards their fishing-grounds. They fly with uninterrupted beats of their wings, keeping at an inconsiderable height, and scarcely ever crossing an isthmus however narrow. On arriving at some sandy bay or shallow strait, they alight in succession, coming heavily upon the water, shake themselves, and commence their search by immersing their heads. On perceiving an object, the Shag darts forward in a curve, rising out of the water, and then plunging headlong. Its agility in this element is astonishing; and it often remains submerged from one to two minutes. Its food consists of small fishes, such as the young of the coal-fish (*Gadus carbonarius*), which are extremely abundant on all our northern coasts, and among which it commits great havoc; the time of fishing is chiefly at the ebb. It is not nearly so shy as the Cormorant; and I have seen it pursuing its prey almost in the immediate neighbourhood of many persons who were fishing with small nets for the fry above mentioned; but even in such cases it keeps deep in the water, and is easily frightened away. It resorts in great numbers to the maritime

caves of the Hebrides. In the morning they may be seen at South Town, in Harris, covering the sea to a considerable extent on their passage from the caves of Liuir and Toe-head to their fishing-stations in the sound. I have counted a hundred and five in one flock; and the number exceeded this considerably, as many were under water at the time. When commencing the act of diving, they rise with a spring entirely out of the water. The nest is generally bulky, but sometimes very scanty, formed of fuci, twigs, heath, and grass rudely put together, nearly flat or with a shallow cavity containing two, frequently three, and sometimes four eggs, never more, bluish white in colour, subelliptical, and very narrow in proportion to their length, but varying greatly in size as well as form, some being extremely narrow, others of considerable breadth; their general form is oval, one end being always decidedly smaller and sometimes even pointed. Their length varies from two inches and seven twelfths to two inches and three twelfths, the breadth from an inch and seven twelfths to an inch and five twelfths. They are generally soiled by the feet of the birds, like those of the Gannet and Grebes. At first the young are bare all over, and of a purplish black colour; presently, however, they are covered with a brownish black down, soft but not close, and leaving the head, part of the neck, and the abdomen bare; then the feathers gradually sprout, the birds rapidly increase in size, and in seven or eight weeks are fledged. They are at first fed with half-digested fish, disgorged by their mother, and at length, becoming very plump, are esteemed delicate food by the Hebridians.

“There is a large cave on the west coast of Harris, celebrated for the number of Shags which reside in it, and so lofty that a boat can enter to a considerable distance without having the masts taken down. I have several times visited it in the breeding-season, when the birds had numerous nests on the sides. On approaching the mouth of the cave, we see a considerable number of Shags conspicuously perched on the little shelves and projections, their dusky figures strongly relieved by the whitened surface of the rock. Some fly overhead as we approach; but more drop into the water, like a stone. On looking down we see them rapidly wending their way under the boat, flying with outspread wings. The Shags being now alarmed, are seen writhing their long necks as they gaze upon us. Presently a shot is fired! another! The dead birds drop on the water; the living plunge headlong into it; many advance on wing, but being frightened by the upraised oars dart into the water. After all the uproar several remain standing near their nests, as loth to quit them. I have often crept into one of these caves, which has a narrow passage from the land, and, advancing stealthily, have seen eight or ten Shags below, at the distance of a few yards. On the arrival of the mother, the young open their bills wide, stretching up their necks with a wriggling motion, and receive their food from her mouth. The nest, as well as the rocks around, is covered with white dung; and a disagreeable stench, as of putrid fish, emanates from them. It does not appear that this species often visits lakes or rivers; nor is it ever met with far out at sea, its favourite fishing-stations being the eddies of channels, bays, and estuaries. Great numbers frequent low rocks or insular crags for the purpose of resting at some period of the day, generally between ebb and high water. There they preen themselves, spread out their wings in the sun or wind, and repose in a standing posture with contracted neck. In dry weather I have often seen individuals, while swimming, erect themselves in the water, and, spreading out their wings, remain in that posture for a long time.

“It is equally abundant in Orkney, where Mr. Low says he has ‘observed sometimes five hundred in a flock, especially when they had fallen in with a shoal of small fish.’”

Thompson says that this species is resident in Ireland, inhabiting all quarters of the coast, and gives a similar account of its habits and manners.

It is surely unnecessary to give a detailed description of so well-known a bird; but it may be well to mention that the young, during their first autumn, have the greater part of the under surface white, and are destitute of the decorative crest.

The figure represents an adult in summer plumage, about three fourths of the natural size.



SULA BASSANA, Linn.

SULA BASSANA.

Gannet, or Solan Goose.

Pelecanus bassanus, Linn. Faun. Suec., p. 52.

———— *maculatus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 579.

Sula bassana, Briss.; Boie, Isis, 1822, p. 563.

—— *major*, Brehm, Vög. Deutschl., p. 812.

Moris bassanus, Vieill.

Dysporus bassanus, Illig. Prodr., p. 279.

It must be of interest to every lover of nature to observe the varied forms of birds, and to dwell upon their especial adaptation to certain modes of life; and among the different groups none are more worthy of such notice than those included in the order Natatores. Although the Gannets, Auks, and Gulls are seen together inhabiting and breeding on the same rock, they are all structurally different, and are each admirably suited for its own particular acts and economies. The Gannet differs much from all other birds, even from the species constituting the other genera of its own family (the Pelecanidæ). Of the great family to which this bird belongs, comprising the genera *Phalacrocorax*, *Plotus*, *Pelecanus*, *Atagen*, and *Sula*, there are above fifty species spread over the rocky shores of the globe. Of these, about five are true Gannets, the one under consideration being the largest of the genus and the most widely dispersed, on which head there could be no question if the Australian species (which by some authors is regarded as distinct) were identical; certain it is, however, that our bird is found all over the seas of Europe and North America, and is nowhere so common as in Britain, where its distribution is so general that to specify any particular locality in which it may be found is unnecessary. In winter it may be seen fishing on every part of our shores; as spring advances it resorts to particular rocks, such as the Bass, Ailsa, and St. Kilda, where it lays its single egg and tends its solitary young one during the greater part of the summer. That so large a bird as the Gannet should lay only one egg would warrant the conclusion that to feed a greater number of young would tend to the undue destruction of our edible fishes, and the balance of nature would thereby be greatly interfered with.

The sexes of the Gannet, when fully adult, are alike in colour, and similar to the front bird figured on the accompanying Plate; but during the first autumn and a great part of the second year they are dark brown, speckled with white, in which state of plumage they are mostly killed and eaten by the inhabitants of St. Kilda and some of our Scottish brethren on the east coast, their supplies being generally furnished by the Bass rock, situated at the mouth of the Firth of Forth.

The following details respecting the habits and economy of this bird will prove of interest:—

Macgillivray states:—“The Gannets arrive [at the Bass] about the middle of February or the beginning of March, and depart in October; some years a few individuals remain during the winter. The nests are composed of grass and sea-weeds, generally placed on the bare rock or earth, elevated in the form of a truncated cone, of which the base is about twenty inches in diameter, with a shallow terminal cavity. On the summit of the island are numerous holes in the turf, formed by the Gannets in pulling away grass and turf for their nests. They are placed in all parts of the rocks where a convenient spot occurs, but are much more numerous towards the summit. Some of them, on the face of the rock or in a shallow fissure and having been occupied for years, are piled up to the height of from three to five feet; but in this case they always lean against the rock. The egg, which is solitary and presents nothing remarkable in its position, is of an elongated oval form, white, dull, with a chalky surface, usually sullied or patched with yellowish-brown dirt. It is subjected to what might appear rough usage; for the bird in alighting, flying off, or when disturbed by the intrusion of human visitors, tosses it about and often stands upon it. All the movements of the Gannet on land are very awkward: it hobbles and waddles when it tries to walk, stares at you with its goggle white eyes, opens its ugly black throat, and emits a torrent of crackling sounds.”

“During the summer months,” says Mr. R. Gray, “this well-known bird is an abundant species over the whole coast-line of the west of Scotland. From Ailsa Craig vast numbers distribute themselves in the day-time from the south of Wigtonshire to the northern shores of Argyle; while from St. Kilda even larger flocks become dispersed throughout the Hebridean Sounds, extending even to the lochs of Skye and the still more distant shores of western Ross-shire. Again, the coasts of Lewis, the North Minch, and the shores of Sutherland and Caithness are frequented by wandering Gannets from Suleskeir, or North Barra, as it is sometimes called, a small island lying about ten miles west of Rona, the

most north-westerly land in Europe. This island of Suleskeir has been apparently confused with another rock of a similar name (the Suliskerry of British authors), as no reference has been made to it as a breeding-place of the Gannet in any of the numerous works on British ornithology. Mr. Elwes (*Ibis*, 1869) states that though now uninhabited, it is still visited annually by a boat from Ness, which goes in September for the sake of the down and feathers of the young Gannets, several thousands of which are usually killed. There are therefore five different breeding-stations for the Gannet in Scotland, viz. Ailsa Craig, St. Kilda, Suleskeir (marked in most maps as North Barra), Stack of Suleskerry, about forty miles west of Stromness in Orkney, and the Bass Rock in the Firth of Forth. From these localities, as has been shown, the birds make long excursions in search of prey. The flight performed by the St.-Kilda Gannets, indeed, cannot be much short of 200 miles in one day, without taking into account the distance gone over while they were engaged in fishing. I have observed them regularly returning across the Minch from the shores of Skye, and passing through the sound of Harris on their way home about an hour before sunset; and in the height of the breeding-season I have also seen Gannets from Suleskeir winging their way back to their distant nursery as we passed Cape Wrath."

The following interesting note by Mr. Robert Gray is extracted from the 'Intellectual Observer.'

"The Solan Goose (*Sula galba*) is not so numerous upon Ailsa as the Puffin; but as the number of this species on the Bass Rock has been computed by qualified judges to be from ten to twenty thousand, it is not too much to say that there are at least as many on the Craig; when two or three thousand are seen fishing together there could not be a more extraordinary ornithological spectacle. Early in February many thousands have been observed in one flock off the village of Ballantrae, assembling over a shoal of fishes and precipitating themselves from a height with a loud splash into the sea in pursuit of their prey; while on the east coast I have seen them in prodigious numbers plunging for herrings in Belhaven Bay within sight of the Bass Rock, their favouring nesting-place. Small straggling parties are often seen at some distance from land diving for mackerel and other fish, on which occasions they sometimes mistake their object and forfeit their lives. In several instances they have been observed returning to Ailsa Craig with a gurnard sticking in their throat, the fish in each case having been caught in the usual manner and hastily swallowed head foremost; but a glimpse of the interior had probably been too much for even a fish's nerves, and had set its *hair on end*. I have examined several dead birds found at the foot of the cliffs, with their last mouthful so firmly wedged as to oblige the use of a knife to cut the spines before the fish could be taken out. But as it is on soft-finned fishes the bird chiefly feeds, accidents of this kind are not frequent. When a shoal is discovered they soon congregate and commence their formidable attack. Select a single bird, if that be possible: he soars but a minute; then with closed wings he poises his body and goes down like a stone, making the spray break over the spot where he entered. After a few moments' submersion he reappears with a cork-like buoyancy, throwing back his head and gobbling down his prey so hastily and with such voracity as almost to justify a suspicion that neither the bird nor the fish can benefit much by the transaction."

When Pigeon-shooting at the sea-caves south of Ballantrae, one of the boatmen informed me of his having assisted many years ago in the removal of one hundred and twenty-eight dead geese from a train of herring-nets which had been lying at a depth of one hundred and eighty feet. The accumulation of birds in the nets, though sunk with heavy weights, had brought the whole train to the surface by the buoyancy of their bodies, and attracted the notice of the people on shore; and as the nets contained a quantity of herrings, it was conjectured that the geese had been drawn to the spot by their glittering sides.

"In speaking of the destruction among fish committed by these birds during their residence on our coast, a writer in the 'Quarterly Review' makes the following calculation:—'The Solan Goose can swallow and digest at least six full-sized herrings per day. It has been calculated that in the island of St. Kilda, assuming it to be inhabited by 200,000 of these birds, feeding for seven months in the year, and with an allowance of five herrings each per day, the number of fish for the summer subsistence of a single species of birds cannot be under 214,000,000.' Compared with the enormous consumption of fish by birds and by each other, the draughts made upon the population of the sea by man with all his ingenious fishing-devices, seem to dwindle into absolute insignificance!"—R. GRAY, *Birds of the West of Scotland*, p. 463.

The principal figure in the accompanying Plate is about two thirds of the natural size.



LARUS MARINUS, Linn.

Illustr. by W. Horn del. et lith.

W. Horn del.

LARUS MARINUS, *Linn.*

Great Black-backed Gull.

Larus marinus, Linn. Faun. Suec., p. 55.

—— *maximus*, Leach, Syst. Cat. of Indig. Mamm. and Birds in Coll. Brit. Mus., p. 40.

—— *Mülleri*, Brehm, Vög. Deutschl., p. 729.

—— *Fabricii*, Brehm, *ibid.*, p. 730.

Leucus marinus, Kaup, Natürl. Syst., p. 86.

THOSE who have visited the sea-shore of almost any part of the British Islands, but more especially the northern and western coasts, must have observed a large bird following the tide, hunting up and down the beach, and scrutinizing any floating substance cast on shore by the wash of the waves or deposited among the kelp and great masses of stranded weeds. That bird is the Great Black-backed Gull, commonly known to sailors as the "Cob," and, in its young state, as the "Wagel." It matters but little what part of the British shores are visited; for it may be seen everywhere, at one season or the other, from the Scilly Islands to the Orkneys; it may, moreover, be as abundantly met with in all similar situations round Ireland and the Hebrides. When fully adult, the colourings of the two sexes of this bird are very similar; they carry the rich dark colouring of the back during summer and winter, while their heads, which are streaked or more or less spotted with brown in winter, become during the breeding-season pure white.

From its peregrinations along the sea-coast the Great Black-backed Gull is not deterred by the most tempestuous weather; nor will the hardest gale induce it to take shelter, further than to resort to the mouths of large rivers or secluded bays till the tempest is over. It may be that this noble Gull whose prowess the spectator is admiring is an old bird in its fully adult black-and-white plumage; or it may be a young bird in its speckled garb of immaturity, not having yet attained the decided livery of the adult. If curiosity should induce any one to see more of the Great Black-backed Gull at the breeding-season, and observe its majestic sweeping flight over the face of the lofty rocky cliffs, he will go to the Bass, Handa, or any other similar situation, of which there are many all round the shores of the British Islands. There the bird makes its nest on the ledges of rocks and incubates its eggs; it also sometimes breeds in the marshes. Besides Britain, the bird also frequents the whole of the rocky portion of Scandinavia, and is found in similar latitudes in America. Now, as there are persons who have paid more attention to the history of the Great Black-backed Gull than I have done, I must, in fairness to those authors, quote what some of them have written, with due acknowledgment.

Selby states, with much truth, that "this bird has a voracious appetite, and preys upon all kinds of animal substances that may happen to be cast on shore; it also keeps a close watch upon the lesser Gulls, whom it drives from any food they may have discovered, appropriating the whole to itself; and Montagu mentions it as being a great enemy to the fishermen, as it will sever and devour the largest fish from their hooks if left dry by the ebbing tide. Its flight is slow and buoyant, without much exertion of the pinions, and, like that of the other species, is always opposed to the wind. Its voice is a strong and hoarse cackle, that may be heard at a great distance when the bird is sailing in the air; and this is more frequently repeated during the spring and breeding-season than at any other time."—*Ill. Brit. Orn.* vol. ii. p. 508.

"About the estuary of the Thames," says William Yarrell, in his 'History of British Birds,' vol. iii. p. 472, "the Great Black-backed Gull is decidedly a marsh breeder, both male and female assisting in the formation of their grassy nest, and driving all other birds, friends or foes, from the vicinity of the chosen spot. The female lays three eggs of large size, measuring three inches and two lines in length by two inches and four lines in breadth; the general colour yellowish brown, tinged with green, sparingly spotted with slate-grey and dark brown. The food of this species is fish and any animal matter; it will kill and eat small birds, and has been known to destroy weak lambs. It is bold as well as strong, and, if wounded, will make a resolute defence against capture. Its flight is powerful, and sustained without much apparent effort. It is also frequently seen at the edge of the water, or, like other Gulls, swimming buoyantly on its surface, supported by the mass of feathers with which the body is invested."

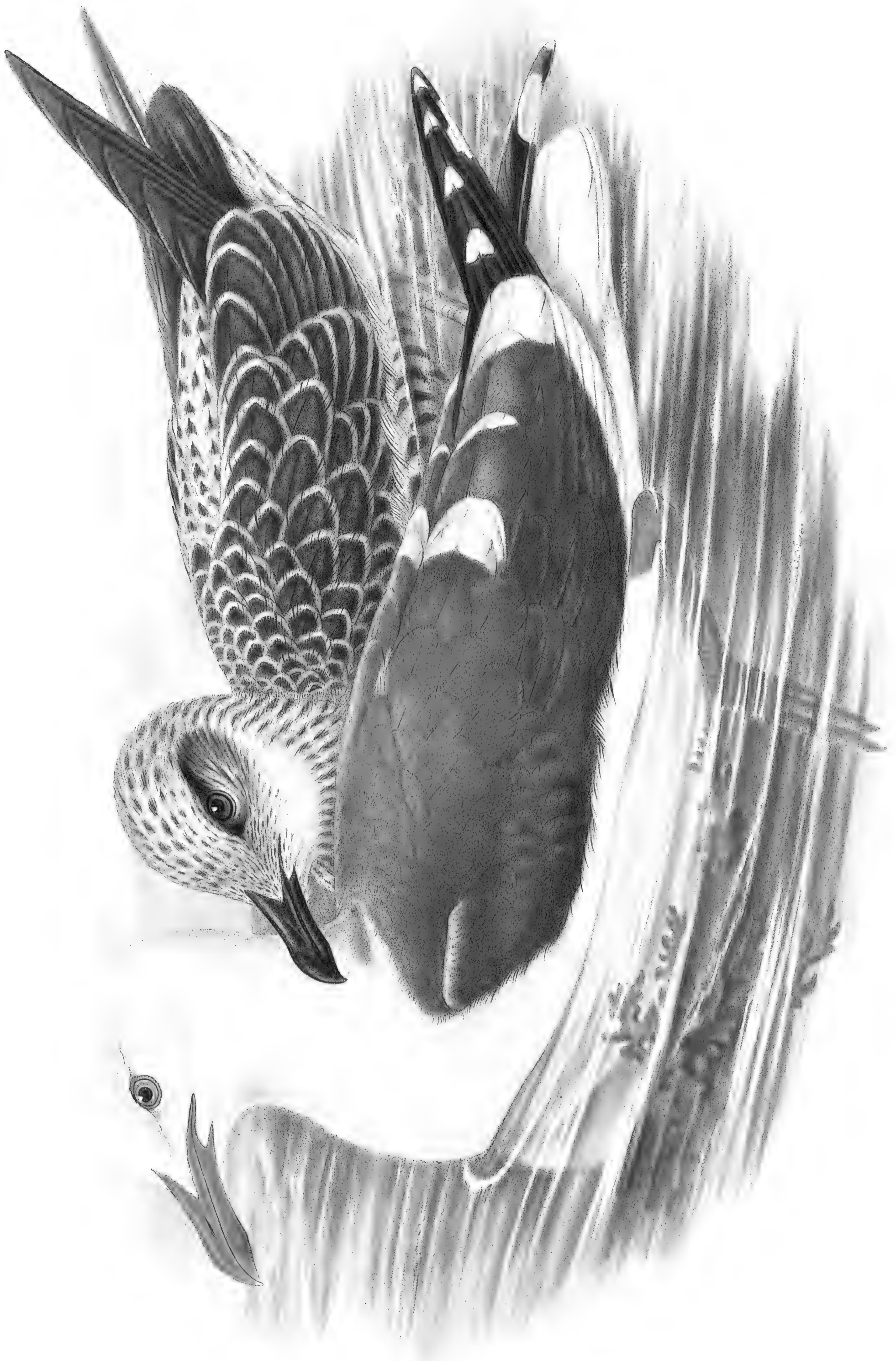
The Great Black-backed Gull, according to Mr. Thomson, "is a resident species in Ireland; it is also found in Wales, having been observed by Montagu in considerable abundance on the extensive sandy flats of the coast of Caermarthenshire, breeds on the steep holmes and Lundy Island, in the Bristol Channel, and has been shot in winter as high up the Severn as Worcester."

The latest author who has written on this large and powerful bird is Mr. Robert Gray, who observes that

it "is much more common in the remote northern districts than in the southern counties. There are several breeding-stations within a few hours' journey of Glasgow. Two of these are very dissimilar in their character—one being situated near the summit of Ailsa Craig, and the other on the island of Inchmoin, in Loch Lomond. In the former locality the nests are on the grassy slopes of the rock, and are mere hollows formed in the turf, with a very scanty lining; but in the inland nursery they are formed of materials similar to those used by the Lesser Black-backed Gull, and are generally found among coarse grass and bushes of heath. Twelve or fourteen pairs annually take up their quarters on Loch Lomond, in the island just named, but seem to keep aloof from the other species frequenting the place, repairing in the daytime to the upland glens, where they occasionally fall in with dead sheep and other animals, on which they surfeit themselves. In the evenings they may be seen returning to the loch, sailing majestically over the tree-tops, or hovering a minute or two above the banks of the brawling torrent to pick up some stranded object.

"In the Outer Hebrides there are breeding-colonies on nearly all the islands. There are several in Lewis, which occupy small grass-covered islets on the freshwater lakes there, and also one or two in North Uist. Mr. Harvie Brown found about twenty-five pairs nesting, with the eggs hard set upon, on an island in a loch near Lochmaddy, on the 14th of May, 1870. There are likewise important stations on some of the Inner Hebrides, one of these being the island of Rum, where the birds are seen occupying isolated rocks round the coast, safe from molestation. On St. Kilda, where several hundred pairs are found breeding, they are very much disliked by the natives, in consequence of the depredations which they commit among the nests of the other birds. Mr. Elwes (Ibis, 1869), while visiting the island of Dun, one of the St.-Kilda group, thus speaks of their manner of thieving:—"After searching for some time, I looked over a cliff and saw, far below me, a broad flat ledge, on which hundreds of Fulmars were sitting among the stones. I descended with a rope we had brought from the "Harpy," as none of those the natives had were long enough. Two of the young men followed me, coming down hand over hand at a tremendous pace. As soon as the Fulmars were disturbed from their eggs, the Black-backed Gulls came swooping down, and carried them off in their beaks, much to the indignation of my companions, who hate the 'Farspach' (as they call *Larus marinus*) with a deadly hatred, and practise all sorts of barbarities on them whenever they catch them, as they are terrible robbers of eggs."—*Birds of the West of Scotland*, p. 488.

The figure on the accompanying Plate is about three fourths of the size of life.



LARUS FUSCUS, Linn.

Conrad & H. Richter del. et lith.

Heller, inv.

LARUS FUSCUS, *Linn.*

Lesser Black-backed Gull.

Larus fuscus, Linn. Faun. Suec., p. 55.

— *flavipes*, Meyer, Taschenb., tom. ii. p. 469.

Laroides melanotus, harengorum, et fuscus, Brehm, Vög. Deutschl., pp. 747, 748, 749.

Leucus fuscus, Kaup, Natürl. Syst., p. 86.

Clupeilarus fuscus, Bonap. Consp. Gen. Av., tom. ii. p. 220.

Dominicanus fuscus, Bruch, Monogr. in Caban. Journ. für Orn. 1853, p. 100, sp. 6.

THE Lesser and the Greater Black-backed Gulls of the European avifauna are so precisely alike in form and colouring, that it is by the great difference in their size alone that they can be distinguished from each other. Generally speaking, these two nearly allied but really distinct species (for such, notwithstanding their similarity, every ornithologist considers them) frequent different rocks for the purpose of breeding; and though in some localities they are associated, still there are others, and even countries, where one is found while the other is entirely absent; for instance, the Lesser Black-backed Gull is not mentioned as occurring in Iceland, where the greater species is common; and the same may be said with respect to America. As regards the coasts of the British Islands, it is to be found on every part of them at one season or another. It nests on many parts of the rocky shores of Ireland, as shown by that careful observer Thompson, who mentions the Gobbins, on the north coast, the Horn in Donegal, the coast of Connaught, the largest of the Sovereign Islands, near the harbour of Kinsale, the cliffs near Howth, in the county Dublin &c. as places in which it is known to breed, and enumerates several other localities in which its nests have been found. In Scotland, according to Macgillivray, it is generally dispersed along the coasts, and permanently resident—but in some districts is of rare occurrence, and in the northern more so than in the southern, probably from their being more adapted for affording secure breeding-places. It is usually not uncommon, in the winter season, in the Firths of Tay, Forth, and Clyde, where very few, however, remain to breed. Mr. Selby mentions that himself and Sir William Jardine obtained the eggs and young of this species upon one of the islands of Loch Awe, and observed many colonies in Sutherlandshire, one upon Loch Shin, and another upon one of the islands of Loch Laighal. It breeds also in the Hebrides, Orkney, and Shetland. In England it is numerous, at all seasons, on the Northumberland coast and those of the south-eastern, southern, and western counties, and also in Wales. Professor Nilsson states that it is common about the Baltic and on the coast of Norway; and Mr. Wheelwright shot one example in Lapland. It also occurs in Holland, France, Belgium, Dalmatia, the islands of the Adriatic, and in Italy. Loche states that it is found in Algeria; Messrs. Elwes and Buckley noticed it on the Black Sea; the Rev. H. B. Tristram on the Lake of Galilee, in Palestine, and mentions that it is plentiful on the coast of Syria in winter; Dr. von Heuglin states that he saw several pairs, throughout the year, on the Red Sea and in the Gulf of Aden; Mr. Yarrell mentions that it is also found in Barbary and Egypt, and that specimens have been received from Trebizond, in Persia; and, lastly, we know that it visits India, but appears to be rare in that country, since Dr. Jerdon says he only obtained a young bird far inland, near Jaulna, in the Deccan, but did not again meet with the species, and is not aware of its having been procured by any one else.

“The flight of this bird,” says Macgillivray, “is peculiarly elegant, easy, and buoyant, with the wings considerably curved. Its ordinary cry is loud, mellow, and somewhat plaintive, and when a number join in emitting it, which they sometimes do when assembled for repose on an unfrequented beach or island, may be heard at a great distance, and is then far from being unpleasant. It also emits occasionally a cackling or laughing cry, more mellow than that of the Greater Black-backed Gull. It searches for food on the open sea, in estuaries, on the beaches, and frequently on the land, sometimes flying to a great distance from the coast. Small fishes, crustacea, echini, shell-fish, land-mollusca, and earth-worms are its habitual food; but it also eats of stranded fishes, and devours young birds. When shoals of herrings are in the bays, creeks, or estuaries, it may often be seen in great numbers, intermingled with other gulls; but when reposing, whether on the sea or on the land, it generally keeps separate, in small flocks.

“In May they betake themselves to unfrequented islands, headlands, and sometimes to inland lakes, often in considerable numbers, and there remain until their young are able to fly, although they make extensive excursions around in search of food. Their nests, composed of withered grass and other herbage, are placed in hollows formed in the turf, or in superficial chinks of the rocks. The eggs, generally three in number, differ considerably in size and much in colour, but are usually about two inches and nine twelfths in

length, and an inch and ten twelfths in breadth, their ground-colour being dull yellowish grey, light brown, or olivaceous, with spots and patches of purplish grey and dark brown. The young leave the nest at any time, if molested, but generally remain a fortnight or longer. If pursued they readily betake themselves to the water, where they swim with ease, although not with much speed."

Mr. Hewitson observes that "upon the Fern Islands, off the Northumberland coast, this species appears to prefer those which are the most bare and barren, and where there is the least herbage; and though they have their choice, very few of them deposit their eggs on the grass; and yet they rarely lay them without making a tolerably thick nest for their reception; it is of grass loosely bundled together in large pieces, and placed in some slight depression or hollow of the rock. Amongst upwards of a hundred that I examined, one or two only had small pieces of seaweed mixed with the other materials. This species will frequently leave the coast, and, winging its way far inland, make its nest upon the margin of some lake or island, surrounded by its waters. I have had the eggs from a small island in the lake of Ullswater, where I have seen the birds during the summer-season.

"No class of birds are so regular in their time of breeding as those which frequent the ocean. Whilst most of our land-birds have been for two months or more irregularly engaged, either in building their nests, in incubation, or have already reared their young, they have deferred it to a much later period, and, urged by one impulse, the numerous species which inhabit these islands resort to them at once, and all is noise and bustle. This occurs every year upon the Fern Islands within a few days of the same date of time, the first or second week of June. This late period of breeding is, no doubt, influenced by the weather, which, at an earlier season, would, in situations so exposed, be too severe for the rearing of their young ones. After these birds have begun to sit they become very bold and daring in the protection of their eggs. Whilst among them I was amused by one, near the nest of which I was sitting; it retired to a certain distance to give it full force in its attack, and then, making a stoop at my head, came within two or three yards of me, repeating its attack without ceasing, till I left the place. Mr. Darling, under whose hospitable roof at the lighthouse I have enjoyed many pleasant hours during my various visits to these islands, informs me that the bonnet of an old woman, who was in the habit of gathering the eggs of the sea-gulls, was riddled through and through, and almost torn to pieces with their bills."

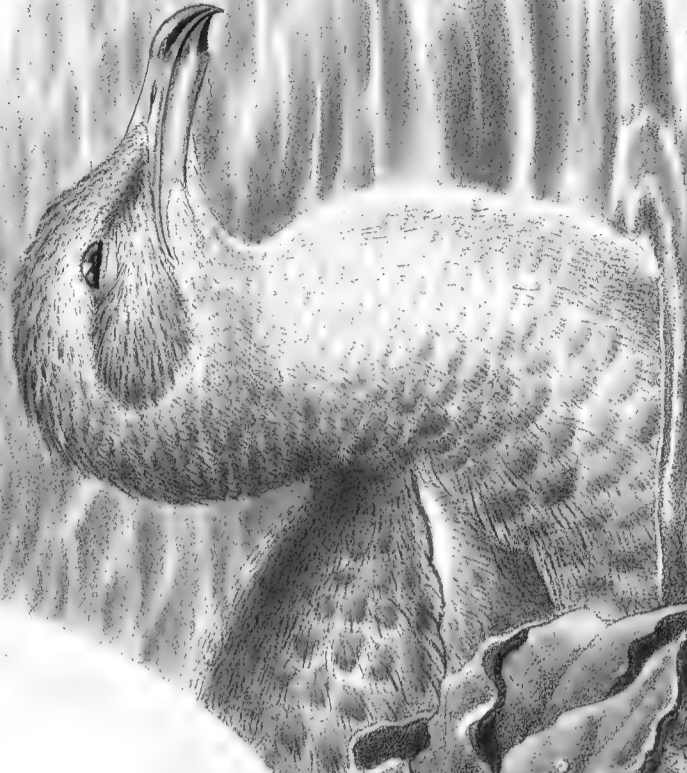
Mr. Selby states "that the young, upon exclusion from the egg, are covered with a parti-coloured down of grey and brown, which is rapidly hidden by the growth of the regular feathers, and in a month or five weeks they are able to take wing;" and Mr. Yarrell, that "the young birds of former seasons, while yet immature in plumage and incapable of breeding from want of sufficient age, are not permitted by the adult and breeding birds to inhabit the breeding-stations during their breeding-season, but are driven away to other localities."

The young birds, during the first year, are distinguished by a mottled-brown plumage and by having a black bill; after that period has elapsed the adult livery is gradually assumed during the succeeding two years, and the only change that subsequently takes place is that the head and neck are slightly streaked with brown or greyish-brown during the months of winter and spring.

Mr. Selby says, the Lesser Black-backed Gull readily submits to confinement, and may be reared from a tender age, as it thrives upon worms or any kind of offal; and he frequently kept it for the sake of witnessing the changes in its plumage in its progress to maturity, which, as in other large species, occupy three years. Its digestion is rapid and its voracity very great. An individual he kept in a garden made no difficulty of swallowing whole young Plovers of both kinds when fully half-grown.

"I have seen a good deal of rearing birds from the nest," remarks Mr. George Dawson Rowley, "and am often astonished to observe with what different dispositions and characters they are hatched, which variations they preserve through life. I find in the same brood the greedy, the quarrelsome, the timid, and the mischievous. Of some Lesser Black-backed Gulls (*Larus fuscus*) kept in my garden, the prevailing characteristic of Mr. Jack is mischief; and his tricks, if related, would fill a small book. Bob, one of his companions, on the contrary, is the most quiet, unobtrusive creature possible, presenting a most marked difference." Thus it would seem that Lesser Black-backed Gulls, like many other created beings, exhibit great diversity of disposition.

The Plate represents an adult in summer plumage and a young bird about the natural size.



LARTUS GLAUCUS, Brunn.

Illustration by W. H. Miller, del. et lith.

LARUS GLAUCUS, *Brünn.*

Glaucous Gull.

Larus glaucus, Brünn. Orn. Bor., p. 44.

— *glacialis*, Benicken.

— *giganteus*, Benicken.

— *consul*, Boie, Wiedem. Zool. Mag., tom. i. p. 757.

Leucus glaucus, Kaup, Natürl. Syst., p. 86.

THE fine bird figured on the accompanying Plate is an inhabitant of the northern regions generally. In Greenland, Arctic America, and Siberia this silvery-white Gull finds a natural home; in such countries it breeds and rears its young, feeding them on such animal substances as may come to hand. Like its European prototype the Great Black-backed Gull (*Larus marinus*), it is, to all intents, a scavenger, feeding on any garbage thrown up by the sea, to which weakly birds are often added. Like many other Arctic birds the Glaucous Gull wanders to more southern countries during the severity of winter, the young birds of the year proceeding further south and in greater numbers than the adults; hence it is that we more frequently see the former in their immature plumage in the British seas than the adults in their full livery. Although somewhat irregular in its visits, it certainly does appear in our latitudes every year, even in the adult garb; it therefore cannot be considered rare, while in its youthful dress it may be regarded as among those that are common. To instance the occurrences and to particularize where the Glaucous Gull has been procured on our coasts would be superfluous. Collectors wishing to procure examples may gratify their desire by visiting the great London markets during the autumnal months. A hundred to one, however, of the specimens then found there are but in the youthful or speckled plumage. If fully adult examples be desired, they must be sought for in the north of Scotland, the Orkneys, and Hebrides, where the bird in its most silvery garb may be seen battling with the gale, or buoyantly sailing in from the black storm-clouds of those inhospitable regions. Many of our northern brethren have given spirited descriptions of this sprite of the ocean, describing its disposition, its mode of flight, its wild voice, daring habits, &c.; and Yarrell, Selby, and other English authors have made extracts from their writings to enrich their respective works; and I shall run the risk of being considered a pirate in following in their wake; but I shall at the same time acknowledge whence my information is obtained.

The late Mr. Selby, in his history of this Gull, has embodied remarks from several other persons; and I shall commence by extracting a passage from this very accurate observer, and follow it by a more lengthy one by Mr. Robert Gray, a living author of great acumen, as shown by his recently published work the 'Birds of the West of Scotland,' in which the Glaucous Gull, for which he evidently wishes the trivial name of "Burgomaster" to be retained, is noticed very fully.

"This large and powerful species," says Selby, "was first noticed as a winter visitant in Shetland in 1809 by Laurence Edmonston, Esq., who afterwards published an interesting account of its habits and distinguishing characters in the fourth volume of the memoirs of the Wernerian Society, to which paper, from its length, I beg to refer my readers. Subsequent observation has proved it to be not uncommon in that remote district, both in the immature and perfect state, during the winter; but it regularly migrates on the advance of spring to higher northern latitudes for the purpose of reproduction. It occasionally extends its equatorial flight as far to the southward as the Northumbrian coast, where several have at different times come under my inspection in a recent state. These, with the exception of one in the adult winter plumage (now in my collection), have all been young birds, some, from their spotted and brown appearance, the young of the year, others, where the markings had become fainter, and the ground of a purer white, such as had undergone one or perhaps two autumnal moultings. The Glaucous Gull is pronounced by Temminck to be the largest of the tribe; but my own measurements of several individuals, with the testimony of Captain Sabine and other writers who have described the species, show that its average dimensions in length and extent of wing are inferior to those of the Great Black-backed Gull (*Larus marinus*). Its form is perhaps thicker and more compact; and its weight may sometimes exceed that of the other, though I possess a specimen of the latter bird which weighed two ounces more than any of the Glaucous Gulls that have come under my observation. By Dr. Richardson it is described as a common species during the summer, in Greenland, Baffin's Bay, and the Polar seas, where it breeds upon the precipitous rocks which line those coasts. Its eggs are stated to be of a pale purplish grey, with scattered spots of umber-brown and subdued

lavender-purple. It is a bird of voracious habit, and preys not only upon fish and the smaller water-fowl, but devours carrion and offal of every kind. A young bird, now in my collection, was killed upwards of a mile inland, feeding upon the carcass of a dead horse. Its swallow is also very capacious, as appears from the fact that an individual of this species, killed during Captain Ross's expedition, disgorged a little Auk when it was struck, and, on dissection, another was found in its stomach."—*Ill. Brit. Orn.* vol. ii. p. 499.

"Throughout the western counties of Scotland," says Mr. Robert Gray, "this large Sea-Gull is in general less plentiful than on the eastern shores. It is seldom, indeed, found roaming within the circle of the inner islands, but for the most part remains in the vicinity of the Outer Hebrides. Nor is it even there a regular winter visitor in flocks, some seasons passing with only a stray bird or two to represent the migratory companies—that at other times visit these islands. In the winter of 1862–63 considerable numbers were seen in North Uist, frequenting chiefly the west side of the island and the Sound of Harris. In this district, distinguished for large tracts of sand and mud at low tides, these flocks generally take up their quarters, feeding on stranded fish and other garbage left by the sea. They seldom or never go inland; but when rough northern storms are blowing the masses of foam over the sands, their usual resting-place, they get on wing and travel along the shore, visiting the sands of Benbecula and South Uist, and returning to their headquarters when the weather moderates. The Glaucous Gull is perhaps more numerous in the Shetland Islands than elsewhere in Scotland. In some seasons, indeed, it may be said to be abundant there, appearing in very large flocks. Dr. Saxby states that shortly after their arrival the greater number of the old birds entirely disappear. The species likewise occurs in Orkney; and southwards of these two groups of islands old birds are generally met with, although I have at various times seen and shot young birds on the Haddingtonshire coast. It is not uncommon as a winter visitant to the Cromarty Firth, and from that locality to the coast of Northumberland it cannot be said to be very rare.

"This bird is associated in my mind with at least one vivid picture of a wild sea. On the iron-bound coast of Berwickshire, fatal to many a gallant ship, I witnessed some years ago a terrible tempest raging, spreading destruction and death. Sea and sky were mingled in one dark, drizzling mass, and all else blotted out, save a foreground of rocks, on which the broken waves were crashing with the noise of artillery, and from which clouds of spray were rolling landwards like wreaths of smoke from a battle-field. Against the background of sea and cloud there appeared a Burgomaster Gull and a small band of kinsmen, the snow-white parts of their plumage appearing like specks on the pitch-like neutral tint, best understood by those who paint the 'war of elements.' With a free sweep the splendid birds seemed to rejoice in the tumult beneath, calling to one another in loud, hoarse shouts, as, after a moment's suspense, they dashed across the gloom. From a peaceful-looking Gull they had each become like a storm-demon, hovering at times in the dark cloud, and presiding over the troubled sea, their very presence forming an essential element in the picture. Such is their life!"

The Plate represents this bird about three fourths of the natural size.



JAARUS ISLANDICUS, Edm.

Miller, Esq.

LARUS ISLANDICUS, *Edm.*

Iceland Gull.

- Larus leucopterus*, Faber, Prodr. isl. Orn., p. 91.
—— *argentatus*, Sabine, Trans. Linn. Soc., vol. xii. p. 546.
—— *glaucoides*, Temm.
—— *islandicus*, Edmondst. Trans. Wern. Soc., vol. iv. p. 500.
—— *arcticus*, Macg. Trans. Wern. Soc., vol. v. p. 268.
—— *minor*, Brehm, Vög. Deutschl., p. 736.
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ACCORDING to the law of priority, now so generally followed by naturalists, I ought not to have adopted Edmonston's name of *islandicus* for this species, inasmuch as that of *leucopterus* had long previously been assigned to it by Faber; but this latter term being equally descriptive of the white-winged *Larus glaucus*, it appeared to me so inappropriate that I did not feel justified in employing it. The Glaucous and the Iceland Gull are in all particulars so much alike, except in size, that one description would serve for both. What the Lesser Black-backed Gull is to the Greater, such is the present bird to the Glaucous. This circumstance has not failed to call forth remarks from some of the authors who have written on the genus *Larus*, questioning the propriety of separating them; still, I imagine, there is scarcely a living ornithologist who would think of regarding the Greater and Lesser Black-backed Gulls as the same, or the Glaucous and the Iceland species as identical. In a state of nature they have never been known to mix or breed with each other, although they frequent similar latitudes and countries. The white-winged Gulls are the Arctic representatives of the more southerly Black-backed Gulls. In winter, when the severity of the weather in Baffin's Bay and other polar regions is at its height, the white-winged birds beat a retreat to the shores of the British Islands; and hence at that season all four of the birds above-mentioned may be found in our seas, and in some instances intermingle for a short time.

As regards the habits and economy of the Iceland Gull, what has been written respecting those of the preceding species (*Larus glaucus*) is equally descriptive of those of the present bird, save and except that the larger and stronger bird will prey upon living animals of a larger size than his weakly congener. From what we have been able to gather on their nidification and the number and colouring of their eggs, a great similarity exists; and in the changes of plumage between youth and maturity they are as nearly identical as possible.

“The present species,” says Selby, “in all its stages of plumage from adolescence to maturity, bears the closest resemblance to the Glaucous Gull, and can only be distinguished by its striking inferiority of size and by the greater length of its wings, which reach, when closed, upwards of an inch beyond the end of the tail, whereas in the other they scarcely reach that part. Like its prototype it is a winter visitant to the Shetland Isles and the northern part of Scotland; and a few stray as far as the Northumberland coast, where I have obtained three or four specimens, but all in the immature plumage. Its habits are stated by Edmonston to be more lively and active than those of the Glaucous Gull; and it displays more elegance of form. It is common on the Iceland coast, to which, it is probable, many of those who winter with us and in similar latitudes retire to breed. It feeds upon fish, the flesh of whales, and other carrion.”

The only remark I need make on the above passage is that, upon the authority of Professor Newton, the Iceland Gull does not appear to breed in Iceland, but is a winter visitant, only arriving, according to Faber, towards the end of September, and mostly leaving by the end of April; and I may add that it migrates much further south than the shores of Northumberland. Mr. Rodd speaks of a very fine nearly adult example which was obtained on the Scilly Islands; and there are many other recorded instances of its having been procured in various parts of England.

Mr. R. Gray thus writes respecting this bird in his ‘Birds of the West of Scotland:’—“Although the Iceland Gull is by no means a common bird on our Scottish coasts, it has been frequently met with both on the eastern and western shores. From Shetland to Berwickshire immature birds are seen or killed almost every winter; and the same may be said of its appearance from the coast of Skye to the south of Ayrshire. The late Mr. Thompson mentions, in his ‘Birds of Ireland,’ that he had procured two specimens from Ballantrae, on the borders of Wigtownshire, where they are seen every winter, and that his friend, Mr. Sinclair, had also seen six or eight of these birds in the Island of Arran. The species, indeed, appears to be a regular visitor to the Clyde and the shores of Ayrshire, as I have observed it for years in succession

near Girvan. The keeper on Ailsa Craig has seen three or four at a time frequenting that rock : they were of indolent habits, in the day-time especially ; but late in the afternoon they set out seawards, returning to their quarters unseen after dark. This was at a time before all the other sea-fowl had congregated ; consequently the keeper was attracted to them as strangers, and as having *no black tips to their wings*. Frequently, at the gloaming, I have seen what I believed to be a pair of these birds hovering over the water of Girvan, about a mile from the sea, and dipping their bills into the river as if picking up small fry.

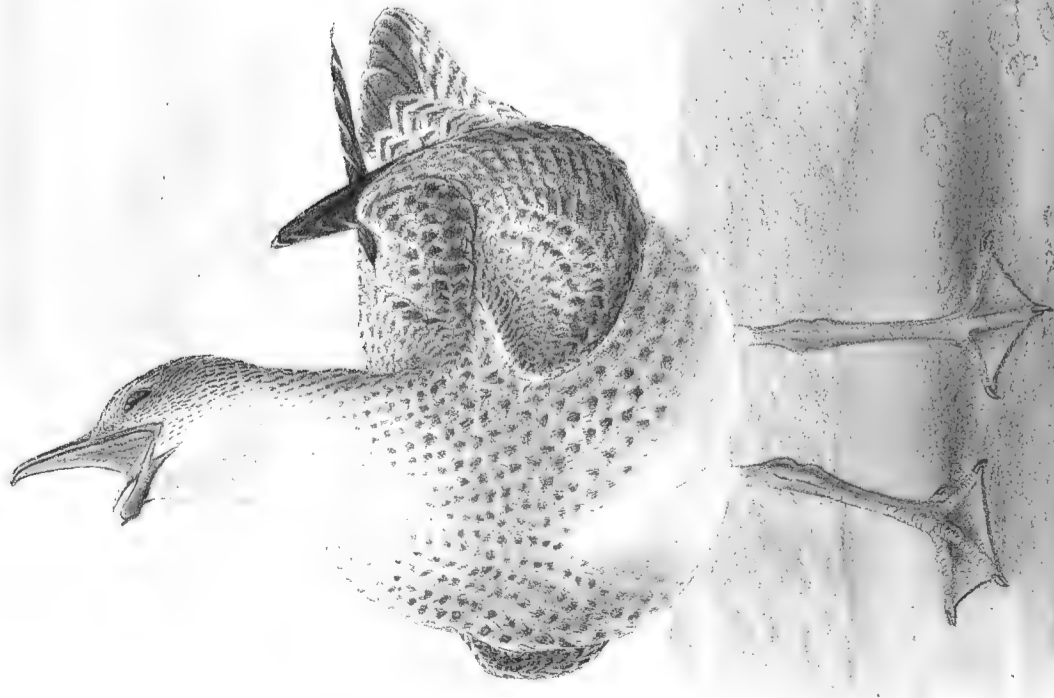
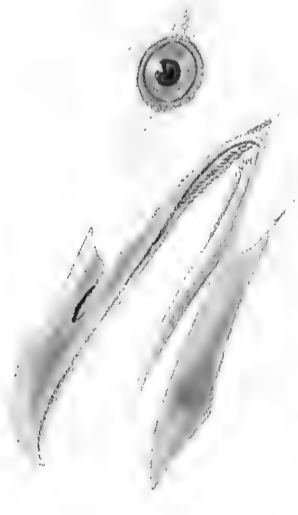
“Mr. Elwes informs me that the Iceland Gull is a rare winter visitor to Islay ; but I have not heard of its occurrence at any time on the outer islands.”

The White-winged Silvery Gull : I find the following note about this bird in ‘Ornithological Biography,’ Audubon, vol. iii. p. 553 :—“I have not met with this species further south than the Bay of New York. During the winter it is not rare about Boston and further eastward. At the approach of summer, before the pairing of the Herring-Gull (*Larus argentatus*), the White-winged Gulls collect in flocks, and set out for the distant north, where they breed.

“The flight of this species so much resembles that of the Herring-Gull, that, were it not for its smaller size and the different colour of its wings, it could not be distinguished from the other. It is less shy, however, proceeds further up the rivers and salt-water creeks, and alights oftener on the water, as well as on the salt meadows, than that species. While at Portland, in Maine, I observed a good number of these Gulls flying over the inner harbour close to the shores, descending towards the water, and picking up garbage in the manner of the Herring-Gulls, with which they associated. Their notes were not so loud, nor so often heard.

“I was surprised to find but very few on the coast of Labrador ; and these did not seem to be breeding ; for although we carefully watched them, we did not succeed in finding any nests.”

The principal figure in the accompanying Plate is about two thirds of the natural size.



LARUS ARGENTATUS. *Imms*

LARUS ARGENTATUS, *Brünn.*

Herring Gull.

Larus argentatus, Brünn. Orn. Bot., p. 44.

Laroides major, argenteus, argentatoides, argentaceus et Americanus, Brehm.

IF ornithologists are right in considering Brehm's numerous names synonyms of the present species, the Herring-Gull will hereafter be only known by the specific term *argentatus*; indeed this is the appellation by which it is generally recognized, and certainly is the one that should be retained for this familiar Gull—a Gull that is more generally dispersed around the shores of the British Isles than any other, while, numerically speaking, there is no one of the larger kinds that can be compared with it; and I question if there be one of our rock-loving birds which is held in greater favour—its graceful flight, the silvery whiteness of its head, tail, and under surface, and the delicate grey of its back, relieved by the black marks near the tips of its pinions, rendering it an object of great beauty when sailing about in the neighbourhood of the frowning cliffs, on which it lays its charmingly coloured eggs. All artists who attempt the delineation of such wild scenes as the rookeries of the Guillemot and Puffin, always depict the Herring-Gull among the foremost of the objects. It is the bird, beyond all others, that is so enchanting to the ornithologist when he looks over such precipices as the Needles, in the Isle of Wight, and those of Handa Island, lying off the west coast of Sutherland, and sees in the dark abyss below the thousands of birds that are winging their way over the waters, their various cries mingling with the sound of the wind reverberating from the rocks and the thundering roar of the waves which gradually increase in violence as they come across the wide Atlantic and are here brought to a stand. Although so numerous around the coasts of England, Ireland, and Scotland, the Herring-Gull is seldom, if ever, seen southward of the Bay of Biscay; and some ornithologists have gone so far as to assure me that it does not frequent the Mediterranean at all. This assertion I cannot, of my own experience, either refute or confirm; but I think it is probably correct, as the bird is evidently as much a northern species as many others of the larger members of the *Laridæ*. In Britain its numbers certainly increase as we proceed northward, and it is a hundred times as numerous off the coasts of Scotland as on those of England. It frequents the seas of the northern portion of Europe, and is as abundant in the Baltic as it is with us; but how much further eastwards it proceeds has not yet been clearly ascertained. Jerdon does not include it in his 'Birds of India,' thus clearly showing that it is not a southern bird. In America, Dr. Baird informs us that it frequents the Atlantic, and it is common from Texas to Newfoundland.

Before I proceed to give some extracts respecting the habits, economy, and peculiarities of the Herring-Gull as described by other writers, I give a note kindly forwarded to me by W. Oxenden Hammond, Esq., of St. Alban's Court, Kent. I consider the scene upon which he has written of interest, and one that may have been witnessed by others.

“Writing from Connemara, my brother says:—‘On September 7, 1868, we walked to the crest of the mountain-cliff that rises precipitously out of the deep waters of the Atlantic at the extreme west point of the Island of Achill. We saw a sun-fish straight down below us: having come up from the deep water, he basked for a few minutes in the sun, and then sank; in a minute or two he floated again. A Sea-gull (I should say the Common Herring-Gull, a large white Gull, with blue-grey back and wings) immediately went down to him off the cliff, when the fish, instead of taking alarm and sinking, allowed the bird to settle within two feet, and swim around him. The distance was too great for us to see the Gull's eyes or his bill open and shut; but I distinctly saw him breast the fish and occupy himself with it for some time; and I am satisfied that the fish was encumbered by parasites, and that it came up for the purpose of being relieved, and that the Gull responded and was probably in the common habit of rendering such service. The fish rose and sank several times whilst we remained on the cliff.’”

Mr. Robert Gray, writing on the birds of Western Scotland, p. 487, says:—“From Ailsa Craig northwards to the Shiant Isles and the cliffs of Cape Wrath, the Silvery Gull, as this species has been called, has many breeding-places. For the most part it prefers nesting on the turf, near the summit of its sea-beaten haunts, and is therefore found at times in colonies, not mixing with, but sitting alongside, groups of Lesser Black-backs as well as the Great Black-backs, forming a large but harmonious family of Gulls, conspicuous at a great distance when viewed from the sea, and looking like large white flowers among the grass. It is very abundant on all the shores, including those of the outward islands, where I have observed it to be very

tame. Those bred at St. Kilda and Haskeir rocks betake themselves in autumn to the western side of the islands of Harris, North Uist, Benbecula, and South Uist, and are easily approached. I have shot very interesting specimens there, showing the last remains of the immature plumage, sprinkled in brown spots over the back of the birds and the wing-coverts, giving them a marbled appearance, the rest of the plumage being complete."

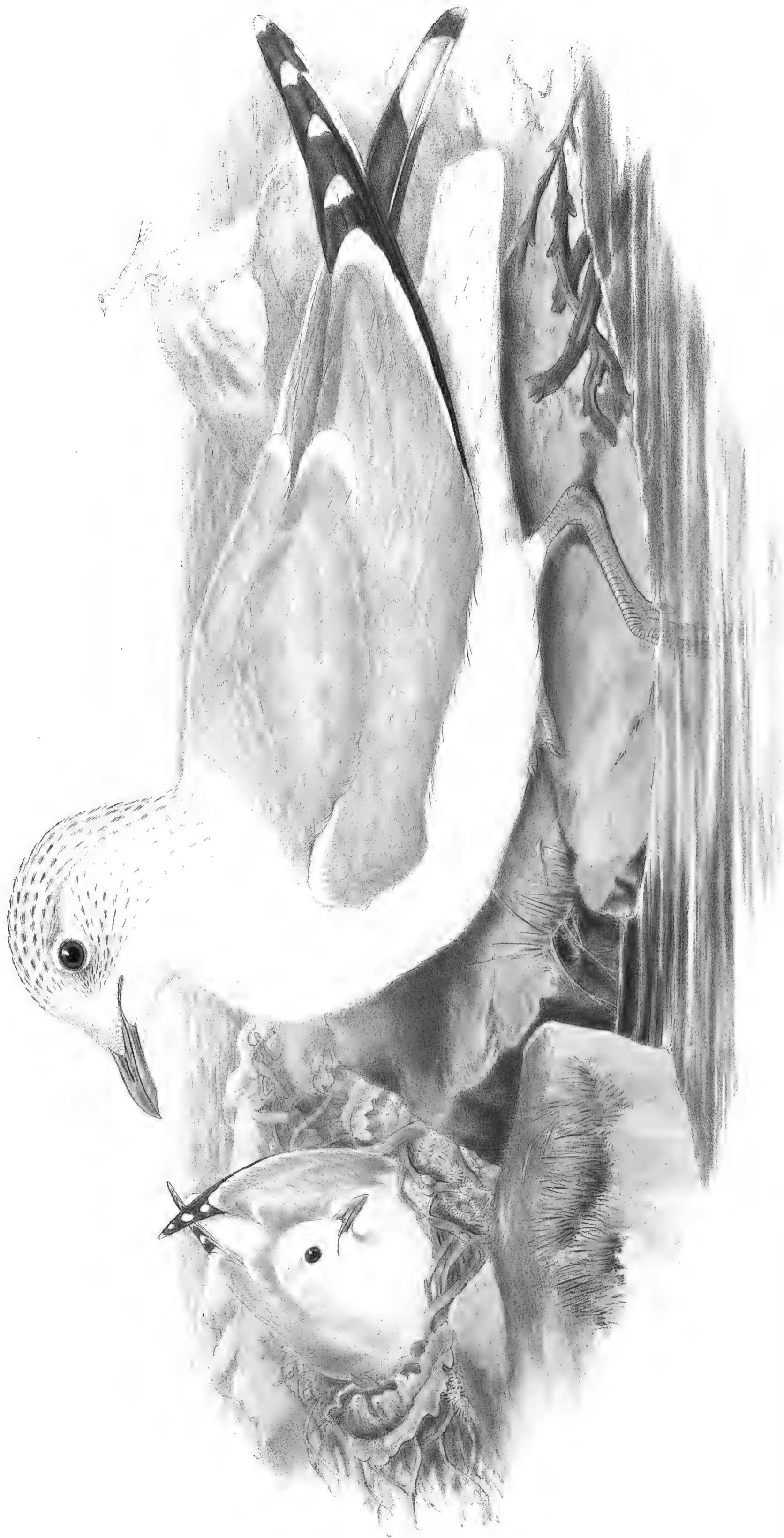
"The flight of this Gull," writes Macgillivray, in his 'History of British Birds,' "is strong, but buoyant, direct, and unwavering when the bird is proceeding towards a distant place, and then usually elevated, but on ordinary occasions somewhat devious, although from its size this species is not capable of turning and winding so dexterously as the smaller kinds. When engaged with a shoal of fry, the Herring-Gulls hover over the water, now ascending to the height of perhaps twenty feet, then skimming close over the surface; and on observing an object, stretching upward and vibrating their wings and letting down their feet so as to touch and sometimes pat the water, they pick it up without alighting. Sometimes they plunge partly into the water, and occasionally pick up their prey while swimming. All this while they emit now and then a loud and rather shrill cry. Their food consists of fishes of small size, occasionally large dead fish, crabs, echini, asteriæ, and mollusca. In winter and spring they often travel in bands over the fields, searching the pastures and, more especially, ploughed land for worms, grubs, and insects.

"At that season they may sometimes be seen on lakes, either solitary or in small flocks. They walk and even run with ease, and not ungracefully. Often, on the sands, they may be seen rapidly patting the surface with their feet; but the purpose of this action is not understood, although some have supposed it to be the causing of worms to emerge.

"In the beginning of May they resort to their various breeding-places along the coast, often in great numbers, betaking themselves to small unfrequented islands, frequently also to the faces of abrupt cliffs, but sometimes settling here and there in pairs. The nest, which is often bulky, is formed of grass and herbaceous plants of various species, according to the locality. The eggs, which are generally three, vary greatly in size and colour, the smallest being two inches and a half in length, and the largest two inches and ten twelfths, their breadth from one inch and eight twelfths to two twelfths more; the ground-colour pale yellowish grey, brownish grey, light brown, or olivaceous, sometimes dotted with dark brown and purplish grey, sometimes clouded in large patches, and sometimes dotted, spotted, and clouded or even covered with tortuous and angular markings."

"In Shetland," as Dr. Edmonston informs me, "the Herring-Gull breeds almost always in cliffs of difficult access, hardly ever in flat situations." Now, as in the Outer Hebrides it very often breeds on islands as flat as they can be in a gneiss country, and very seldom in cliffs, the difference in habits must depend upon circumstances, perhaps not easily appreciable. On an island in the Bay of Fundy, Mr. Audubon found it nesting on fir trees, and was informed that, some time before, it had bred on the flat ground in the neighbourhood. "It is," Dr. Edmonston continues, "the most elegant and most sagacious of all our birds. Of all birds this is the most indefatigable persecutor of the sportsman. At all seasons it is the watchful guardian of wild animals. This habit, however, so generous and interesting, is often fatal to itself, by exciting the vindictive feelings of man. Its carriage is stately and dignified. The young are generally three in number; and long after they have left the nest the parents continue to watch and feed them. Altogether it is a most interesting and delightful bird. Those who have made the name of Gull synonymous with stupidity have known little of the Herring-Gull, or they have meant the contrary to what they have said. In spring it is found in flocks on the corn-fields, picking up whatever seed the harrow may have left uncovered; and at this season it is excellent eating."

The principal figure in the Plate is about two thirds of the natural size.



LARUS CANUS. Linn.

LARUS CANUS, *Linn.*

Common Gull.

Larus canus, Linn. Faun. Suec., p. 54.

— *hybernus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 596.

— *cyanorhynchus*, Meyer, Taschenb., p. 480.

— *procellosus*, pt., Bechst. Naturg. Deutschl., tom. iv. p. 647.

Laroides procellosus, canus, et canescens, Brehm, Vög. Deutschl., pp. 750, 751, 753.

Gavia cinerea, Briss. Orn., tom. vi. p. 175, tab. xvi. fig. i.

— *hyberna*, Briss. Orn., tom. vi. p. 189.

If any one of the sea-birds which enliven our shores with their presence be deserving of the term Common it is undoubtedly the one here depicted, and of which during the last few years, as we learn from the daily papers, many thousands have been destroyed, in mere wantonness, or for the sake of their skins for what have been considered decorative purposes. It is sickening to think of the amount of destruction which has been dealt out to these fairy-like creatures for such trivial ends. To kill them off to the last bird when they visit Flamborough and other headlands of our coasts for the purpose of breeding, as has been repeatedly done, is in my opinion most disgraceful. So wholesale has been the destruction of this species and of the beautiful Grebe, that the latter has been almost extirpated,—a result which must meet with the most decided disapprobation of every rightly constituted mind; and I do hope that the ladies, for whom most of these acts of Vandalism are committed, will at once abandon a fashion which must call forth the maledictions of every true lover of nature—no inconsiderable portion of the community. Having said this much with the view of protecting an indigenous species whose buoyant flight and elegant evolutions in the air must have been witnessed and admired by thousands, I now proceed to give an account of its habits and economy. In the British Islands it is so generally dispersed that to particularize localities wherein it may be found is unnecessary. Every writer, whether it be Mr. Rodd, of Cornwall, Macgillivray, of Scotland, or Thompson, of Ireland, testifies to its general distribution over the country to which their observations refer. In winter it may be seen either singly or in small companies on most of our low flat shores, sometimes by the sea, at others in the estuaries, not unfrequently far up our tidal rivers, and occasionally still further in the interior of the country. It often settles and feeds on pastures near the sea, and may be seen following the plough for the sake of the worms and grubs exposed on the newly turned soil. In such situations the snowy whiteness of the plumage contrasts strongly with the surrounding objects; and the birds look truly beautiful when a flock rise suddenly in the air, and when opposed to a black cloud resemble sprites floating in buoyant curves and performing many varied and graceful evolutions.

Each species of Gull usually resorts to some particular group of rocks or islands for the purpose of breeding; and the present one offers no exception to the rule. Among the sites chosen by it in England are Flamborough Head on the coast of Northumberland, and St. Abb's Head in Berwickshire, where, according to Selby, it occupies the whole face of the cliff. In Scotland the craggy cliffs of many parts of the mainland, and similar situations in the Orkney and Shetland Islands, are equally resorted to. It is also said to breed on Lochs Shin and Laighal and a few smaller ones, sometimes making its nest on their turfy shores. In Ireland, Thompson states, on the authority of Dr. J. D. Marshall, that in June 1834 it occupied one of the large natural amphitheatres formed on the north-western side of Rathlin Island, that Mr. J. V. Stewart knew it to breed on the lofty cliffs of the peninsula of the Horn to the westward of Horn Head, and Mr. Neligan informed him that it bred in numbers on a low grassy islet off the Kerry coast. The nest, which is of large size, is generally composed of masses of seaweed, grasses, and other vegetable substances. The eggs are usually three in number, of a dark olive-brown, spotted with darker brown and black, two inches and a quarter in length by one inch and a half in breadth.

“This species,” says Macgillivray, “has a light and buoyant flight, during which it often inclines to either side. It walks and runs prettily, with short steps, pats the sands at the edge of the water with its feet, emits a shrill and somewhat harsh cry, and is apt to give the alarm to other birds at the approach of the sportsman. It is not, however, nearly so timid or so sensible of danger as the larger Gulls, and frequently allows a person to come within shot. Often also, when one has been killed or wounded, its companions, after flying off, collect again, hover around, or even alight, when some of them may frequently be obtained. When feeding along with Rooks in pasture-grounds they are generally less wary than those birds, especially in places where they are not much liable to be molested. They never, I think, molest any other bird, nor are they addicted to quarrelling among themselves. Their food consists of small fishes, such as

sand-eels and young herrings, which they pick from the water, first hovering with extended and elevated wings, then descending, spreading their tail and letting down their feet, with which I have often seen them pat the water, as if they were running on land. They never plunge so as to be immersed, but merely seize on what comes close to the surface. They also feed upon stranded fishes of large size, asteriæ, mollusca, shrimps, and other small crustacea. Sometimes also they pick up grain in the fields; and in a state of domestication may be partly fed on bread. They are easily tamed, but, unless in a garden or where they are not liable to be teased, are seldom found to live long in this condition."

What has been said of the habits and economy of the bird in this country is equally descriptive of them when seen on the European continent, whether it be on the warm shores of the Mediterranean, the cold ones of the Baltic, or the rugged coasts of Norway. I believe Richardson was in error when he stated, in the 'Fauna Boreali-Americana,' that it breeds in Arctic America; for it does not appear that the bird has ever been found so far to the westward. Mr. Alfred Newton would even have considered Brünnich's statement, that it is found in Iceland, problematical, had he not procured in 1858 the skin of an immature bird, which had been shot near Reykjavick the preceding winter. Mr. Baring-Gould saw the bird near the Iceland coast on his voyage thither from the Færoes; but it is certainly not a usual inhabitant of the last-named islands.

In summer the head, neck, under surface, rump, and tail are white; with streaks of brownish grey on the upper part of the head, the hinder portion, the sides, and the lower part of the neck; back and wings light greyish blue; on the external five primaries a band of greyish black, broadest on the outer one, and diminishing until on the fifth it is reduced to a narrow band near the tip; the first primary is white for nearly three inches from the end, with a spot of black at the tip of the inner web; the second has a white space of an inch and a half in extent, then a black band, and the tip white; the third has a white spot near the end; the shafts of the primaries of the same colour as the webs, the outer ones black for nearly their entire length; bill greyish green; the tip ochre-yellow, and its basal margins and the mouth orange; irides brown; edges of the eyelids dull red.

In winter the plumage is pure white, with the exception of the back and upper surface of the wings, which are delicate grey. In spring a slight change takes place; the head becomes spotted with brown, and the entire under-surface frequently suffused with a rosy hue, which adds greatly to the beauty of the bird's appearance. Considerable variety occurs in the colouring of the legs; in some individuals they are yellow, in others green and greyish green: there appears to be no general law for the regulation of the tints of the soft parts of this species—a circumstance unusual among Gulls, the colouring of whose feet is generally constant.

"The variation of colour in the legs and toes of different individuals of *Larus canus*," says Mr. Harting, "is very remarkable. Not only do the old birds differ in this respect from the young, which is the case with many birds, but the former also differ *inter se* in summer and winter. An old bird killed in June had the tarsi and toes bright yellow, while another adult bird shot in February had the same parts greyish green. Two old birds procured in October exhibited the yellow colour only around the tarsal joint, the rest of the leg and foot being pale greenish-grey. An immature bird of this species, which I shot on the Thames, at Barking, on the 11th of October, had the legs and toes dull flesh-colour."

The young, when first fledged, have the upper surface greyish brown, variegated with brownish white; the primaries are blackish brown, with paler tips; the secondaries light grey at the base, brown towards the end; tail white for two-thirds of its length, the remainder brownish black, tips narrowly edged with white; tail-coverts white, with a spot of brown towards the end of each; forehead white; before the eyes a semicircular band of black; cheeks streaked with brown; neck and breast marked with roundish or transverse small spots of light brownish grey; lower tail-coverts with a brown spot near the end; bill black, except at the base, where it is livid flesh-colour; irides dusky; eyelids brown; feet yellowish flesh-colour.

After the first moult, which is completed in November, the head and hinder part of the neck are streaked with brownish grey, the back is greyish blue, with a mixture of brown, a large portion of the inner primaries has become grey, the secondary coverts are dull bluish grey, the rump and upper tail-coverts are nearly white, the spots being very small, the bill is not so dark, and the feet are yellower.

In the second winter the brown markings are much less apparent, the dark band on the tail is much reduced in breadth, the bill is yellowish, the feet are livid yellowish green.

In the summer of the third year the full plumage of maturity is attained.

For the above description of the change from the youthful age to that of the adult we are indebted to the researches and observations of Macgillivray, from which they are condensed.

The principal figure in the Plate is of the natural size.



RISSA TRIDACTYLA.

M Gould & II Chisholm, del et lith

Waller, Imp.

RISSA TRIDACTYLA.

Kittiwake.

Larus Rissia, Brünn. Orn. Bor., p. 140.

—— *tridactylus*, Linn. Faun. Suec., p. 55.

—— *torquatus, gavia, et canus*, Pall. Zoog. Rosso-Asiat., tom. ii. pp. 328, 329, 330.

Gavia tridactyla, Boie, Isis, 1822, p. 563.

Rissa Brünnichii, Leach, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 181, pl. 21.

Cheimonea tridactyla, Kaup, Natürl. Syst., p. 84.

Rissa cinerea, Eyt. Hist. of Rarer Brit. Birds, p. 52.

—— *tridactyla*, Bonap. Geog. and Comp. List of Birds of Eur. and N. Amer., p. 62.

Laroides tridactylus, rissa, et minor, Brehm, Vög. Deutschl., pp. 754, 755, 756, pl. 37. fig. 3.

THE Kittiwake is at once the most beautiful and the most interesting of our indigenous Gulls. Its plumage is so perfect and unsullied that, in this respect, no other species can surpass it; neither has any of its congeners so buoyant and graceful a flight. On the blue waters of the ocean it sports like a fairy, and when seen flying round the rocks and dark chasms wherein it breeds, one might almost imagine that they are spirits and not birds which are floating in the air. Those who are acquainted with the breeding-places of this bird, and have heard its wild cries amidst the spray and the loud monotonous booming of the waves of the ocean, will readily comprehend the feelings which fill my breast while thus feebly writing on the Kittiwake. Not for a moment must it be supposed that it is the only species to be found in such situations; for there also is to be seen a vast number of rock-loving birds of different genera, and even different families—Willocks, Puffins, Cormorants, other kinds of Gulls, Pigeons, the ubiquitous Starling, the Sea-Eagle, and the sharp-eyed Peregrine Falcon often forming part of the assemblage. Intermingled with such birds, the Kittiwake floats about to and fro, performing the most graceful curves and elegant evolutions. To those lovers of nature who have seen such scenes these lines will afford no information; to others, and particularly to those who have not had an opportunity of visiting these cradles of the birds of the ocean, they may be of interest, and induce a desire to view in reality that of which I am only depicting the shadow. Let them visit Flamborough Head, Ailsa Craig, Horn Head, in Ireland, and above all the Island of Handa, off the western coast of Sutherland, in the month of June or July, and I venture to say they will, in the first place, be awe-struck by the scene, and, secondly, highly interested in the sight which will be before them. In whatever aspect the Island of Handa be viewed, whether it be rounded by boat, or the green carpet of turf on its summit be traversed on foot, each will have special claims to his admiration: to look down from these giddy heights into the dark channels and chasms from above excites terror in many beholders; while the roaring waves which, after spanning the Atlantic, dash against the base of the rocks, have dismayed many a bold heart when the boatmen, with fearless temerity, have taken the traveller close beneath some of the most majestic of Albion's cliffs. In such places the Kittiwakes build their nests and rear their young; these are their summer homes—the *ultima Thule* of their happiness; a narrow ledge of rock, from one to two hundred feet high, forms a base for their seaweed nest. At other seasons, the Kittiwake is sailing round our coasts, scanning the ocean for its natural food, the surface-swimming fry of fishes, and other marine creatures of a lower order, for procuring which it is more especially adapted than those Gulls which principally haunt the shores and inlets; I say adapted, because its whole structure and the density of its plumage are better fitted for a sea life, and clearly point out, if not an affinity to, a mimicry, if I may so term it, of the Petrels, a tribe of birds more truly oceanic than the Gulls. Ornithologists will also see a divergence from one group to the other in its short feet, nearly obsolete hind toe, in its more lengthened wing, in its dense plumage, and its more buoyant flight.

Beyond the British Islands, and apart from our own seas, the Kittiwake has many other, and far distant, homes: southward it has been observed in Madeira and on the Mediterranean; while northward it has been found in Norway, Iceland, the Faroe Islands, Nova Zembla, Greenland, Spitzbergen, Davis's Straits, and all along the northern parts of America in summer, and its southern coasts in winter. Professor Newton says, "this very common bird appears to frequent the whole of the Spitzbergen coast." In Parry's Expedition it was observed as far to the northward as they reached—lat. 82° 45' N. "It is extremely numerous," says Capt. James C. Ross, "during the summer season, along the west coast of Prince Regent's Inlet, where, in several places that are peculiarly well fitted for breeding-stations, they congregate in inconceivable numbers. We killed enough to supply our party with several excellent meals, and found them delicious food, perfectly free from any unpleasant flavour."

“The Kittiwakes,” says Macgillivray, “arrive along our coasts in the end of March, and betake themselves to high maritime cliffs, selecting those most inaccessible and generally such as are frequented by Auks, Guillemots, and other sea-birds. To these favourite places of resort they return year after year; nor am I aware that with us new stations are ever occupied, or colonies formed. In Scotland their principal breeding-places are St. Kilda, Berneray of Barra, the Shiant Isles, on the east side of Lewis, the Flannan Isles, on the west side, some of the Shetland Islands, the Bullers of Buchan, near Peterhead, Fowlsheugh, near Stonehaven, the Red Rock, near Montrose, the Isle of May, and the Bass Rock, in the mouth of the Firth of Forth, and St. Abb’s Head, to the southward of it. England, however, is less plentifully supplied with Kittiwakes, the Fern Islands and Flamborough Head being, I believe, the only breeding-places there. On the coasts of Ireland it breeds in great numbers.

“The Kittiwakes generally select the lower part of the cliffs, from almost the edge of the water to the height of about one hundred feet, the space above being occupied by Auks and Guillemots. When these birds are not present, they occupy a more extended space, and are not apt to descend so far. The nests, bulky and formed of grass and seaweeds, are placed on the shelves and small projections, as well as in crevices and on the walls of caverns—sometimes, also, on grassy spots. Frequently they are deposited on so narrow a space as to seem stuck against the face of the rock, like those of the Swallows. Rowing along the bases of the cliffs, one cannot fail to view with delight these beautiful birds perched here and there, sometimes in groups, often singly, at short intervals, each in a horizontal position, singly seated on its comfortable-looking nest. The individuals not thus occupied fly about incessantly, uttering their loud and clear cries, and often approaching so near as to be easily shot. . . . The noise of guns does not always frighten the sitting birds from their nests; and those which have left them, presently return when the boat has advanced a short way.

“The Kittiwake feeds on small fishes (which it picks from the water, hovering with elevated wings), as well as crustacea, small shell-fish, and other marine animals (which it procures along the shores). It walks little (and not with ease, owing to the shortness of its legs), rests either standing or lying, associates occasionally with Gulls and Terns, is of a gentle disposition, social and amiable.

“With us it is scarcely ever seen inland. It flies with a rapid and constant beat of its curved wings, glides and wheels, and hovers over the smooth sea, or skims lightly over the high waves, descending into the furrows, and rising buoyantly to surmount the advancing ridge. Its cry is clear and rather sharp, but mellow, and resembles the syllables *kitteaa* or *kitteweeea*, whence its common name of Kittiwake, or, on the eastern coast of the middle division of Scotland, ‘Kittiweeak.’

“The eggs, two or three in number, are of a broadly oval form, two inches to two-twelfths more in length, and an inch and a-half in breadth; of a pale yellowish grey, greenish white, or light olive-green; spotted and dotted all over with dark brown and pale purplish grey. The young continue in the nest, or in the vicinity, until they are able to fly,” and, Mr. Selby says, “seem instinctively to be aware of their perilous situation, where sometimes the least movement would precipitate them into the waves beneath, and are observed seldom to change their attitude in the nest till sufficiently fledged to be enabled to provide for their own safety. During incubation the females are very tame and will sit upon their eggs or callow young though closely approached; at the same time the males continue to fly round in circles, uttering the frequently repeated cry which has obtained for them the common English name of *Kittiwake*.”

With reference to this bird as seen in Ireland, Dr. J. D. Marshall informed Thompson that “on nearly all the precipitous headlands north of the Bull, in Rathlin, these birds take up their summer residence, and, during my visit in June, were in such countless multitudes as to darken the air above our heads. Along the headlands of Raghery every pinnacle and ledge of rock was tenanted by the Razor-Bill, Puffin, or Kittiwake; and numerous as the others were, the last far outstripped them in numbers.”

I cannot close this page without recording my obligations to Mr. Gatcombe, of Plymouth, for his obliging attention in procuring me fine examples of this bird at different seasons for the purpose of this publication, whereby its interest has been greatly enhanced.

The summer and winter plumage of the adult Kittiwake are precisely alike, except in the colouring of the head, which at the former season is pure white, and at the latter is streaked and blotched with greyish brown.

The young, as will be seen on reference to the accompanying Plate, where it occupies the foremost place, is very different in colour from the old birds, particularly in the tail, the upper part of the back, and shoulders, which, during the first autumn, are marked with black on the usual snow-white ground of the fully adult. The sexes are similarly clothed.

The Plate represents an adult, in summer plumage, and a young bird, in that of autumn, of the size of life.



PAGOPHULA EBURNEA.

J. Gould & H.C. Richter, del. et lith.

Walter, Imp.

PAGOPHILA EBURNEA.

Ivory Gull.

Larus eburneus, Phipps, Voy. towards the North Pole, App., p. 187.

—— *niveus*, Mart. Hist. de Spitzb., t. 4. f. A.

—— *candidus*, Fabr. Faun. Grœnl., p. 67.

Cetosparactes eburneus, Macg. Man. of Nat. Hist., vol. ii. p. 252.

Pagophila eburnea, Kaup, Natürl. Syst., p. 69.

Gavia eburnea, Boie, Isis, 1822, p. 563.

—— *nivea*, Brehm, Vög. Deutschl., p. 766, tab. 38. fig. 1.

Pagophila brachytarsa, Holb. ?

It will be seen in the sequel that this beautiful Gull has occurred in our seas several times, and hence it is necessarily included in the avifauna of Britain; but the glacial seas of the extreme north are its natural home, for in those inhospitable regions it breeds and rears its young. If the North Pole be ever reached, and salt water be found to exist there, I predict that the Ivory Gull will be one of the birds enlivening the scene. Among the specimens that have come under my notice I have observed much difference in the size of the individuals, and it is a question whether there is not more than a single species of this particular form; still our acquaintance with these Gulls and the localities in which they were procured is not sufficiently perfect to enable us to arrive at a satisfactory conclusion. Mr. Newton believes there is only one. As regards the sexes, but little difference occurs in size, and none in the colouring of adults; the young, on the other hand, accord with the young of some other Gulls in having their plumage spotted and barred with brown, a state represented by the hinder figure in my Plate, which will give a more accurate idea of its appearance than pages of writing.

The Ivory Gulls obtained in the British Islands are but few in number (seven or eight in England, three or four in Scotland and its islands, and one or two in Ireland). Captain Sabine states that it is abundant in Baffin's Bay, and Dr. Richardson that it also frequents Davis's Straits and various parts of the shores of the American continent, and he observed it breeding in great numbers in the high perforated cliffs which form the extremity of Cape Parry, in latitude 70°. It is generally met with out at sea in company with the Fulmar, and, like that species, is a constant attendant upon the whale-fishery, greedily feeding upon the blubber, which with other animal matter constitutes its food.

“The Ivory Gull, first scientifically described by Lord Mulgrave,” says Mr. Newton, “is of all others the bird of which any visitor to Spitzbergen will carry away the keenest recollection. One can only wish that a creature so fair to look upon was not so foul a feeder. Contrary to the experience of almost all other observers, I once saw an Ivory Gull of its own accord deliberately settle on the water and swim. This was in the Stor Fjord. There is a very great variation in the size of different specimens of this bird, which is not at all to be attributed to sex or, as I think, to age; but I do not for a moment countenance the belief in a second species, which some ornithologists have endeavoured to establish under the name of *P. brachytarsa*. Some years ago I had the pleasure of announcing, at a meeting of the Zoological Society, that the Swedish expedition to Spitzbergen in 1861 had obtained some eggs of this bird, the first well-authenticated specimens brought to Europe. I here transcribe what Dr. Malmgren, the fortunate finder, says about them:—“On the 7th of July, 1861, I found, on the north shore of Murchison Bay, lat. 80° N., a number of Ivory Gulls established on the side of a steep limestone precipice some hundred feet high, in company with *Larus tridactylus* and *L. glaucus*. The last-mentioned occupied the higher zones of the precipice. *Larus eburneus*, on the other hand, occupied the niches and clefts lower down, at a height of from fifty to a hundred feet. I could plainly see that the hen birds were sitting on their nests; but these to me were altogether inaccessible. Circumstances did not permit me, before the 30th of July, to make the attempt, with the help of a long rope and some necessary assistance, to get at the eggs. On the day just named I succeeded, with the help of three men, in reaching two of the lowest in situation, of which each contained one egg. The nest was artless and without connexion, and consisted of a shallow depression eight or nine inches broad, in loose clay and mould on a sublayer of limestone. Inside it was carelessly lined with dry plants, grass, moss, and the like, and also a few feathers. The eggs were much incubated, and already contained down-clad young. Both the hen birds were shot upon their nests, and are now in the National Museum. The cocks were at first observable, but they vanished when we began the work of reaching their nests.’ The locality just mentioned will

not be found marked on any English chart. It lies at the north-eastern entrance of Hinlopen Strait, in about long. 18° 30' E., and was first accurately surveyed by the Swedish expedition. I am inclined to believe, however, that the Ivory Gull breeds sporadically on many other parts of Spitsbergen proper. Several of the examples we shot in Ice Sound and the Stor Fjord had their bellies bared of feathers, as usual in sitting birds; but I could not learn from any of the Walrus-hunters we met that they had ever discovered a breeding-place, except that our pilot told me that a ship's boat, which in 1859 succeeded in reaching Giles's Land, found many Ivory-Gull's nests on its lonely shore. This species, like other Gulls, does not always breed in colonies; and as it is sure to select the most inaccessible places for that purpose, an occasional nest here and there on the mountains or crags might well escape notice."—*The Ibis*, 1865, p. 507.

It will have been seen that Mr. Newton assigns to Dr. Malmgren the merit of bringing the first well-authenticated eggs of the Ivory Gull to Europe; but in a communication made to 'The Ibis' in 1866 by Dr. E. Perceval Wright, of Trinity College Dublin, it is stated that there is a much earlier record of its discovery by our celebrated countryman, Sir Leopold M'Clintock, from whose diary we learn that, as he was rounding Cape Krabbé, lat. 77° 25' N., long. 116° W., he saw an Ivory Gull seated upon her nest on a bare patch of gravel, near the beach. There was one egg in the nest, which was chiefly formed of moss, a little white down, and a few feathers. "This egg is now in the Museum of the Royal Dublin Society.

"I may add that an account of the nidification of this Gull, by Dr. Carte, will be found in the 'Journal of the Royal Dublin Society' for July 1866, vol. i. pp. 57–60, pls. 1 and 2, and the egg was exhibited at the meeting of the Dublin University Zoological and Botanical Association in February 1855."

Upon this communication the editor remarks:—"We are extremely indebted to Professor Wright for calling our attention to this interesting fact, of which we and probably many of our readers have hitherto been entirely ignorant. Dr. Carte's paper, referred to above, is accompanied by a very well executed figure of the egg of the Ivory Gull brought home by Sir Leopold M'Clintock, to whom our friend Dr. Malmgren must certainly yield the honour of the discovery."

Temminck mentions having killed an individual of this species on the coast of Holland; Vieillot says it sometimes occurs on the coast of France; and Necker and Schinz have recorded one killed at Lausanne; Nilsson states that in winter it occasionally appears in Sweden and the northern parts of Scandinavia. Captain (afterwards the Rev. Dr.) Scoresby says, "though so delicate in appearance, it is almost as ravenous as the Fulmar, and as little nice in its food. It is a constant attendant on the flensing operations of the whale-fishers, where it generally seizes its portion on the wing. It rarely alights on the water, but often sits on the ice, preferring the most elevated situations. Its voice is a loud and disagreeable scream."

Respecting one of the British-killed specimens, Mr. Rodd says:—"It was shot from Penzance Pier-head on the 15th of February 1847, after having been seen for a day or two previously in company with common Sea-Mews and Herring-Gulls. It alighted several times on the New Pier, Battery Rocks, &c., adjacent to the town, without betraying any apparent shyness. Its note was described to me as being the reverse of harsh and grating, as described by authors, more resembling the warbling chirping whistle of the Oyster-catcher, but deeper and louder; the peculiarity of tone attracted the notice of men and boys at the quay, who are accustomed to the screaming and clamorous cries of the Common Gulls." "I know of but two instances," says Mr. Stevenson, "of the occurrence of this species on the Norfolk coast, one having been killed at Yarmouth many years back, and an immature bird shot at Wrenningham in January 1862. Four others were said to have been seen at the same time."

I am greatly indebted to Mr. Newton for a sketch of the head of this species, which has enabled me to give a far more correct representation than I could otherwise have done. In the note accompanying the sketch, Mr. Newton says:—"You may rely on its accuracy as regards *colour*; for it was drawn from a very fine bird before it was cold. I never saw one with brighter tints. The legs, toes, and claws are always of a very intense black; but, the roughness of the surface of the skin causing much light and shade, it appears much less *dead* than would have been the case had the skin been smooth."

The Plate represents an old and a young bird, nearly of the natural size.



RHODOSTETHIA ROSSII.

Ross's Gull.

Larus roseus, Jard. & Selby, Ill. Orn., vol. i. pl. 14.

——— *Rossii*, Rich. Parry's Second Voy., App., p. 359.

Rossia rosea, Bonap. Geog. and Comp. List of Birds of Eur. and N. Amer., p. 62.

Rhodostethia Rossii, Macgill. Man. of Nat. Hist. Orn., vol. ii. p. 252.

——— *rosea*, Baird, Cat. of N.-Amer. Birds in Mus. Smithsonian Inst., no. 678.

THIS small and beautifully coloured Gull has a just claim to a place in the avifauna of Britain, from the circumstance of an individual having been killed in Yorkshire—and in that of continental Europe, from another example having been shot in Heligoland. The native home of the species is, doubtless, the high northern regions of the Old World, Commander James Clark Ross having killed it on the coast of Melville Peninsula, and several more having been seen as far towards the poles as our intrepid navigators have yet penetrated, beyond which little is known respecting this the rarest species of the *Larinæ*. To these few brief sentences I subjoin the scanty information that has been recorded, and would recommend any one who may hereafter voyage towards the north pole to distinguish himself by observing and communicating to the world all he can respecting its habits and economy.

Sir John Richardson says (in the 'Fauna Boreali-Americana,' Part ii. The Birds):—"Two specimens of this Gull were killed on the coast of Melville Peninsula, on Sir Edward Parry's voyage, one of which is preserved in the Museum of the University of Edinburgh, and the other was presented to Joseph Sabine, Esq. No other examples are known to exist in collections; but Commander Ross, in his Zoological Appendix to Sir Edward Parry's Narrative of his most adventurous boat-voyage towards the pole, relates that several were seen during their journey over the ice north of Spitzbergen, and that Lieutenant Forster also found the species in Waygate Straits, which is probably one of its breeding-places. It is to Commander Ross, who killed the first specimen which was obtained, that the species is dedicated, as a tribute for his unwearied exertions in the promotion of natural history on the late Arctic voyages, in all of which he bore a part. Of the peculiar habits or winter retreat of the species nothing is known." Of the two specimens above mentioned, the one presented to the Museum of the Edinburgh University is still extant; and I have to record my obligations to Professor Archer and the other authorities of that Museum, for their kindness in permitting their valuable specimen to be forwarded to London for my use in the present work; the whereabouts of the other, presented to Mr. Sabine, cannot, after a diligent investigation, be ascertained; it is just possible that it may be the example in the Derby Museum, at Liverpool, which was also kindly sent up for my use.

"For the knowledge of the occurrence of this very rare Gull in Yorkshire," says Yarrell, "and its consequent title to be included in a history of British birds, we are indebted to Mr. Charlesworth, who, in a paper published in the first volume of the 'Proceedings of the Yorkshire Philosophical Society,' gave all that was known respecting it. The capture is authenticated by the following memorandum, supplied by Sir William Milner, of Nun Appleton:—"Ross's Gull was killed by Horner, Lord Howden's head gamekeeper, in February 1847, in a ploughed field, near the hamlet of Milford-cum-Kirby, in the parish of Kirby. Its flight resembled, according to Horner's account, the flight of any other Gull; and it did not seem at all shy." Mr. William Macgillivray includes this bird in his 'Manual of British Birds,' vol. ii. p. 254, published in 1842, with the remark that 'this species has once occurred in Ireland.' I remember to have seen, some years ago, a notice in print that this bird had been once taken in Ireland; but, from the countries visited or known to the writer of that article, and from the circumstance that this species had only been seen in high northern latitudes, I came to the conclusion that the printer had made a mistake of *one* letter, and for *Ireland* we ought to read *Iceland*. Add to this that the birds of Ireland have been carefully worked out by Mr. Thompson, of Belfast, one of the best authorities for Irish birds, and this species is not included by him in his fauna of that country. I may also add that Ross's Gull has no place in Mr. Watter's useful 'Manual of the Birds of Ireland,' published in Dublin in 1853."

Sir John Richardson's description "of a specimen killed, June 1823, at Alagnak, Melville Peninsula, 69½° N.," is as follows:—

"COLOUR.—Scapulars, interscapulars, and both surfaces of the wings clear pearl-grey; outer web of the first quill blackish brown to its tip, which is grey; tips of the scapulars and lesser quills whitish. Some

small feathers near the eye, and a collar round the middle of the neck pitch-black. Rest of the plumage white; the neck above, and the whole *under plumage* deeply tinged with peach-blossom-red in recent specimens. *Bill* black; its rictus and the edges of the eyelids reddish orange. *Legs* and *feet* vermilion red; nails blackish.

“FORM.—*Bill* slender, weak, with a scarcely perceptible salient angle beneath; the upper mandible slightly arched, and compressed towards the point; the commissure slightly curved at the tip. *Wings* an inch longer than the decidedly cuneiform tail, of which the central feathers are an inch longer than the outer ones. *Tarsi* rather stout; the thumb very distinct, armed with a nail as large as that of the outer toe.

“The other specimen, killed by Mr. Sherer a few days later, differs only in the first primary coverts having the same dark colour with the outer web of the first primary itself.”

The Yorkshire specimen, which is now in Sir William Milner's collection, is similar in colouring to the above, but is destitute of the black colour around the neck, whence we may infer that it is in the winter plumage.

Yarrell gives the following measurements:—“The whole length of the bird is about fourteen inches; wing, from the anterior bend to the end of the first primary, which is the longest, an inch and a half; bill, from the point to the feathers on the top, three fourths of an inch; length of the tarsus one inch and a quarter.”

The figures, which are of the natural size, represent two birds in summer dress and one in that of winter, drawn from the example at Nun Appleton.

CHROICOCEPHALUS RIDIBUNDUS.

Black-headed Gull.

Larus ridibundus, Linn. Syst. Nat., tom. i. p. 225.

— *cinerarius*, Linn. *ibid.*, p. 224.

— *canescens*, Bechst. Naturg. Deutschl., tom. iv. p. 649.

— *erythropus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 597.

— *capistratus*, Temm. Man. d'Orn., tom. ii. p. 785?

— *nævus*, Pall. Zoogr. Rosso-Asiat., tom. ii. p. 321.

Chroicocephalus ridibundus, Eyton, Cat. Brit. Birds, p. 53.

THIS very elegant and interesting species is so abundantly dispersed along the shores of every part of the British Islands that it would be superfluous to name any particular locality in which it may be found; it is equally plentiful in Holland, Scandinavia, and all other countries of the Continent, wherever the shores are of a similar character to our own. During the months of autumn and winter it ascends into deep bays and the mouths of large rivers, where it paddles about with its pretty red feet over the oozy mud in search of marine worms, crustaceans, and the fry of fishes, all of which it devours with avidity. If absent from such localities at any time, it is visiting the fields of the interior for earth-worms and insect-larvæ, which are in equal request. In many parts it is often, like the Rook, the companion of the ploughman, and not unfrequently both the sable and the silvery-bodied birds may be seen with him in the same furrow. The head of the Gull is now white, which on the approach of spring gradually gives place to a well-defined hood of black or brownish black. Hitherto the bird has been only partially gregarious; now it becomes strictly so, and large masses leave, almost to a day, for various parts of the marshes and large sedgy ponds, for the purpose of breeding, just, in fact, as the Rooks leave extensive wastes and resort to their accustomed trees for the like purpose. The bird now assumes a different kind of life, and earth-worms and insect-food take the place of crustaceans and sea-worms. Neither the flying chafer nor the dragonfly is able to evade the sharp and quickly made turns; and to watch a colony when thus engaged is a very pleasing sight.

This fairy-like bird undergoes several changes of plumage between youth and maturity; they have, however been so often described that I think we may dispense with them for matters of greater moment; but I may mention (although they do not always occur) that I have seen fresh-moulted specimens with the whole of the under surface suffused with rich rose-colour, the finest I ever saw being one sent up in a fresh state by W. Thompson, Esq., of Weymouth, which, though so early in the spring as the 20th of March, had the black cowl quite perfect, and its bill and feet deep blood-red. When such individuals do occur, they form indeed most beautiful objects. In size and colouring both sexes are alike at each stage of their existence, the female, as I have often found it, as large as the male.

Respecting the Black-headed Gull, Yarrell writes as follows:—

“A breeding-station in Norfolk, at a place called Scoulton Mere, where Sir Thomas Brown says this species bred constantly in his time, three hundred years ago, is thus described by the authors of the ‘Catalogue of Norfolk and Suffolk Birds:’—‘Near the centre of the county of Norfolk, at the distance of about twenty-five miles from the sea and two from Hingham, is a large piece of water called Scoulton Mere. In the middle of this mere there is a boggy island of seventy acres extent, covered with reeds, and on which there are some birch and willow trees. There is no river communicating between the mere and the sea. This mere has from time immemorial been a favourite breeding-spot of the Brown-headed Gull. These birds begin to make their appearance at Scoulton about the middle of February; and by the end of the first week in March the great body of them have always arrived. They spread themselves over the neighbouring country to the distance of several miles in search of food, following the plough as regularly as Rooks; and, from the great quantity of worms and grubs which they devour, they render essential service to the farmer. If the spring is mild, the Gulls begin to lay about the middle of April; but the month of May is the time at which the eggs are found in the greatest abundance. At this season a man and three boys find constant employment in collecting them, and they have sometimes gathered upwards of a thousand in a day. These eggs are sold on the spot at the rate of fourpence a score, and are regularly sent in considerable quantities to the markets at Norwich and Lynn. They are eaten cold, like Lapwings’ eggs, and also used for culinary purposes; but they are rather of an inferior quality, and somewhat like Ducks’ eggs in flavour. The person who sells these eggs gives £15 a year for the privilege of collecting them. This species of Gull never lays more than three eggs the first time; but if these are taken, it will lay again. We found many of the old birds sitting in the

middle of June : most of these had only one egg in the nest ; but a few of them had two. Their nests are made of the tops of reeds and sedge, and are very flat at the surface. The eggs vary so much in size, shape, and colour, that a person not well acquainted with them would suppose some of them to belong to a different species of bird. Some are thickly covered with dusky spots ; and others are of a light blue colour, without any spots at all. The young birds leave the nest as soon as hatched, and take to the water. When they can fly well, the old ones depart with them and disperse themselves on the sea-coast, where they are found during the autumn and winter. By the middle of July, they all leave Scoulton, and are not seen there again till the following spring. We were a little surprised at seeing some of these Gulls alight and sit upon some low bushy willows which grow on the island. No other than the Brown-headed Gull breeds at this mere ; a few of them also breed in many of the marshes contiguous to the sea-coast of Norfolk.'

"The Rev. Richard Lubbock, who sent me some particulars of this species from Norfolk, mentions that he saw several of these birds in June 1841, dashing round some lofty elms catching cockchafers. The eggs are yellowish olive-brown, spotted with two shades of darker brown ; the length two inches one line and a half, by one inch and six lines in breadth. When their nests are robbed, the birds are induced to lay two or three times ; and Mr. Hewitson mentions that the eggs produced at these second and third layings are sometimes one third less than the natural size. Mr. Thompson says this species is a constant resident in Ireland. Mr. J. Macgillivray noticed that it was abundant in summer on the marshes of some of the islands of the Outer Hebrides. It was observed to be plentiful on some of the reedy lochs of Sutherland ; and a few breed on the boggy parts of some of the islands of Orkney and Shetland ; but Dr. Fleming mentions that these birds leave Scotland in winter.

"This species breeds in Sweden, in Russia, and in Siberia. It is included by several naturalists among the birds of Germany. M. Temminck says it is abundant in Holland at all seasons. It is common on the French coast in winter ; and a few of them breed near the lakes and rivers of the interior. It visits Switzerland in summer, is not uncommon at Genoa, is included by M. Savi in his 'Birds of Italy ;' and the Zoological Society have received specimens sent by Keith Abbott, Esq., from Erzeroom."

Mr. R. Gray, speaking of this bird as seen by him, says, "This beautiful Gull is very abundant in the West of Scotland, extending to all the outer islands. Its breeding-haunts are also numerous throughout those districts in which it meets with encouragement. I have visited many of these on the mainland, and on both groups of islands, and find a great similarity in choice of situation, construction of nests, time of breeding, and general habits of the birds in localities widely apart. The two best-known to myself are both within easy reach of Glasgow. One of these interesting nurseries is on a small marshy islet in Hairlaw Loch, a patch of water, partly artificial, situated near Neildon Pad, which is within full view of the city. There are, perhaps, from 500 to 800 pairs to be found breeding there every year.

"Another numerous colony of Black-headed Gulls has for many years frequented the island of Inchmoin, on Loch Lomond. This island, which is about two miles in circumference, is quite flat, and stands but little above the level of the water. In wet seasons, therefore, it is to a great extent converted into a wet marsh. About the centre, where the ground is firmer, the Gulls construct their nests, which in some cases measure about eight inches in height ; so that the contents are always safe against damp. Here, as well as at Hairlaw, many of the nests contain four eggs, though three is the usual number. Great variety also exists in the markings, some being pale blue and slightly spotted, others entirely of a dark colour, like some varieties of the egg of Richardson's Skua. In one nest on Inchmoin I found two eggs, one of which was much elongated, pale green in colour, and spotless, while the other was much shorter, nearly twice the thickness, and almost as black as a piece of bog-oak."

The principal figure in the accompanying Plate is of the size of life, and young four or five days old.



CERYLE ALCYON PHILADELPHIA.

CHROICOCEPHALUS PHILADELPHIA.

Bonaparte's Gull.

Sterna philadelphia, Ord, Guthrie's Geog. two Am. edit., vol. ii. p. 319.

Larus Bonapartei, Richards and Swains. Faun. Bor.-Amer., vol. ii. p. 425.

Xema Bonaparteii, Bonap. Geog. and Comp. List of Birds of Eur. and N. Amer., p. 62.

Chroicocephalus Bonapartei, Bruch.

————— *philadelphia*, Baird.

THROUGHOUT the entire course of the present work I have found it difficult to determine where the line should be drawn with regard to the admission of the few American birds that have from time to time been killed in our islands into the 'Birds of Great Britain. Generally speaking, I have included those which inhabit the extreme northern part of America and omitted those that find a natural home in its more southern division, such as the two species of Cuckoos (*Coccyzus*), the belted Kingfisher, Red-winged Starling, and a few others. With regard to Bonaparte's Gull, I find it has been admitted into the lists of British birds published by the late Mr. Yarrell and all subsequent writers; I feel bound therefore to follow in their wake; and hence it is that a figure of it appears here.

Mr. Harting, in his 'Handbook of British Birds,' gives the following instances of the occurrence of this Gull on this side of the Atlantic.

One, on the Lagan, near Belfast, 1st of February 1848.

One, on Loch Lomond, April 1850.

One, on an English lake: Yarrell, Hist. Brit. Birds, vol. iii. p. 555.

One, Dublin Bay, July 1864.

One, Falmouth Harbour, autumn 1864.

"This species," says Yarrell, in the second Supplement to his British Birds, p. 53, "was first characterized in the 'Fauna Boreali-Americana,' by Richardson and Swainson, in 1831. It is there stated that this handsome small Gull is common in all parts of the fur-countries, where it associates with the Terns, and is distinguished by its peculiar shrill and plaintive cry. It has since been received from Greenland." Mr. Thompson, in his 'Birds of Ireland,' mentions that a specimen of this little Gull, the first of the species known to have visited Europe, was killed at the tidal portion of the river Lagan, between Ormeau bridge and the Botanic Garden, about a mile above the lowest bridge, at the town of Belfast, on the 1st of February, 1848; it was flying singly. The person who shot the bird, attracted by its pretty appearance, merely left it to be preserved by a taxidermist, who, on the receipt of any birds, either rare or unknown to him, was in the habit of taking them to Mr. Thompson for his inspection; the bird was therefore examined previously to its being skinned, and exact measurements were made. Another example was shot in Ireland on the coast near the Skerries. A specimen was obtained on Loch Lomond in 1851, another on one of the lakes of England; and one more besides those here enumerated has been procured since the publication of the first occurrence of the species.

The following passage occurs in the account of this species, published by Audubon in the fourth volume of his 'Ornithological Biography:—

"No sooner do the shads and old-wives enter the bays and rivers of our midland districts, than this Gull begins to show itself on the coast, following these fishes as if dependent upon them for support—which, however, is not the case; for at the time when these inhabitants of the deep deposit their spawn in our waters, the Gull has advanced beyond the eastern limits of the United States. However, after the first of April, thousands of Bonapartian Gulls are seen gambolling over the waters of Chesapeake Bay, and proceeding eastward, keeping pace with the shoals of fishes.

"During my stay at Eastport, in Maine, in May 1833, these Gulls were to be seen in vast numbers in the harbour of Passamaquoddy at high water, and in equal abundance at low water on all the sand and mud bars in the neighbourhood. They were extremely gentle, scarcely heeded us, and flew around our boats so close that any number might have been procured. Their stomachs were filled with coleopterous insects, which they caught on the wing, or picked up from the water, into which they fell in great numbers when overtaken by a cold fog, while attempting to cross the bay. On the 24th of August 1831, when at Eastport, I shot ten of these Gulls. The adult birds had already lost their dark hood; and the young were in fine plumage. In the stomachs of all were shrimps, very small fishes, and fat substances. The old birds were still in pairs."

The Plate represents a fully adult male in summer plumage, and a bird in change, both of the size of life.





HYDROCOLCEUS MINUTUS.

Wood & Peckham del et lith

Walker imp

HYDROCOLÆUS MINUTUS.

Little Gull.

- Larus minutus*, Pall. Reise, tom. iii. p. 702.
— *atricilloides*, Falk. Reise, tom. iii. p. 355, tab. 24.
Xema minutum, Boie, Isis, 1822, p. 365.
Hydrocolæus minutus, Kaup, Natürl. Syst., p. 113.
Chroicocephalus minutus, Eyton, Hist. of Rarer Brit. Birds, p. 54.
Gavia minuta, Macgill. Man. Nat. Hist. Orn., vol. ii. p. 242.
Larus pygmæus, Bory (Bonap.).
— *nigrotis*, Less. (Bonap.).
— *D'Orbigny*, Audouin (Bonap.).
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It would appear that this elegant little Gull is annually becoming more and more abundant in the seas immediately surrounding our islands; for so numerous of late years have been the occurrences of examples in summer and winter plumage, and of young birds of the year, that it would be almost impossible to enumerate them. For our first acquaintance with it as a British species we are indebted to the celebrated Col. Montagu, who, in the Appendix to the Supplement of his 'Ornithological Dictionary,' gave the description of a young bird that had been shot on the Thames, near Chelsea. Since that date many others have occurred at different seasons. Mr. Yarrell mentions examples obtained in Cornwall, Devonshire, Essex, Suffolk, Norfolk, Yorkshire, and Northumberland; and, more recently, Mr. W. Oxenden Hammond, of St. Alban's Court, has informed me of two having been brought to him, which had been killed on the Kentish Coast. In the 'Zoologist' for January 1867, Mr. W. W. Boulton records that no less than six were received by him during the previous summer, two of which were mature, the others immature; they had all been shot off Flamborough Head and Bridlington Quay, between the 1st of September and the 5th of October. Mr. Gatcombe, in a letter dated Jan. 20th, 1869, says, "An immature specimen of the Little Gull was killed in Plymouth Sound on the 31st of December last, exceedingly late for such a bird on our coast; but I think its remaining so long must be attributed to the continued severe gales we have experienced during the last two months." In a subsequent letter he says:—"Did I tell you that another Little Gull was killed in Cornwall, in the middle of February? If not, I think it worth recording, as they were never known to be so plentiful as they have been during the past year, some being procured every month." I may mention also that Mr. J. H. Gurney, Jun., has informed me that during the autumn of 1868 he had, "in the flesh, ten Little Gulls, all shot on the Yorkshire Coast, at Flamborough Head, Speeton Cliffs, Filey, and Bridlington Quay." Of these, several were kindly sent to me before they were skinned; one of them was especially beautiful, and more than usually interesting from the fact of its being in full summer plumage, with its head as black as jet, its under surface of a most delicate rose-colour, and the underside of the wings of a dark smoky grey; some were in the winter dress, the head being white; and others, again, were in the plumage of the first year, having the barred tail and other characteristics seen in the young of the nearly allied form, the Common Black-headed Gull. Much variety appears to occur in the colouring of the bill; for, although it is mostly red, in some mature individuals it is black, or black suffused with red; and I may mention that I have observed a similar colouring of the bill, but to a less extent, in some full-summer-plumaged specimens of the Black-headed Gull.

In Scotland, Dr. Neill presented to the Edinburgh Museum a Little Gull which had been obtained on the Solway in 1824; Selby records a young bird as having been killed upon the Frith of Clyde; and a female was shot by Mr. Robert Dunn, in Shetland, on the 7th of April, 1853. It has also occurred in Ireland, although very sparingly; for Thompson only mentions two as having been procured, although two others were seen. Of the former, one, in the Museum of the Dublin Natural-History Society, a beautiful adult specimen, and the first in that plumage known to have occurred in the British Islands, was shot by Walter Boyd, Esq., of the 97th Regiment, in the month of May 1840, between Shannon Harbour and Shannon Bridge, on the river of the same name; the other, an equally beautiful and adult specimen, was shot in the estuary, about three miles distant from Belfast, on the 23rd of December 1847, and came under Mr. Thompson's examination within an hour after being killed. From the paucity of examples obtained in Ireland compared with the number killed in England, it is evident that the seas washing our eastern coast are more often visited than St. George's Channel; but this might naturally be expected, since the former localities are much nearer to the natural home of the species. During the summer it resorts to the marshes in the vicinity of the Baltic and Gothland, where, on the authority of Professor Nilsson, it is said to breed;

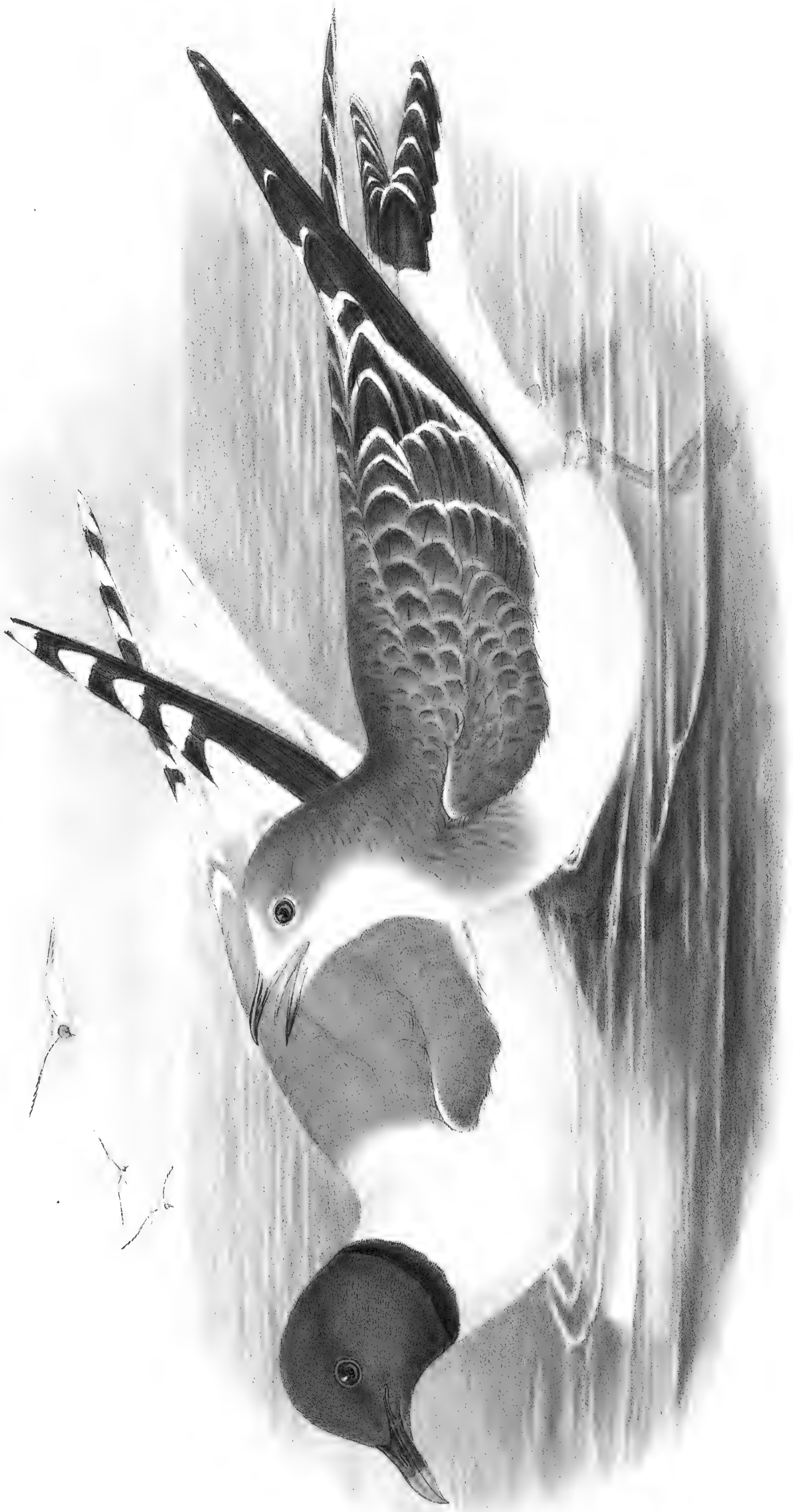
but he had never seen its eggs. At this season, we know that it also visits Russia, and even Siberia. Temminck states that it frequents the rivers, lakes, and seas of the eastern portion of Europe, occurs accidentally in Holland and Germany, and sometimes, but very rarely, on the lakes of Switzerland, but is most abundant in Russia, Livonia, and Finland. In winter, like the more delicate Terns, it proceeds further south, and is then to be found on the Mediterranean, Adriatic, and Black Seas, where, indeed, according to Temminck, a few are to be met with at all seasons. Savi includes it in the birds of Italy; and M. Cantraine has killed it in winter at Cagliari, during May in the Straits of Bonifacio, and at the end of June in the Port of Zara.

Lord Lilford states that it is tolerably common in the Ionian Islands during winter, particularly in the Yacht-harbour of Mandrachio, at Corfu, and that it arrives near the end of October and departs about the beginning of March. According to Mr. Wright, the Little Gull "is pretty plentiful some years in the harbours of Malta, and not unfrequently arrives in September. Its great tameness and fearlessness of danger are a remarkable feature in its disposition. I have shot as many as nine or ten in the course of a few hours, and might have shot more. It may be easily recognized on the wing by its small size, peculiar, light, butterfly manner of flight, and dark under wing-coverts. I have never seen it here in the breeding-plumage. Besides the general name of *Gauja*, or Gull, the Maltese call it *Cerleua*, or Tern, from its somewhat similar mode of flight."

To these brief notices of the Little Gull I have much pleasure in adding the very interesting notes respecting it, included in Mr. W. H. Simpson's 'Fortnight in the Dobrudscha,' published in 'The Ibis' for 1861, p. 362:—"The first object that greeted my arrival in port was a flock of Little Gulls (*Larus minutus*) flying about in the harbour. This I considered a good omen, and even indulged in hopes of finding their breeding-quarters, as many were already in good plumage. This species was subsequently noticed in immense numbers, between the 20th and 24th of April, especially on the first of those dates. At that time the bulk of the flocks were frequenting a lake of fresh water, called 'Sud Geul,' which extends for several miles in a northerly direction parallel to the sea, from which it is separated by a narrow isthmus. On this occasion the flocks of *Larus minutus*, associated with a few individuals of *Sterna cantiaca*, were literally swarming in the air a few feet above the surface of the water, like Swallows over a river on a summer's evening. Far as the eye could reach, looking northwards down the lake, these elegant little birds were to be seen on the feed, dashing to and fro most actively. In most of them the head and upper part of the neck were of a brilliant jet-black, producing a singular effect in the mass when contrasted with the white of the rest of the plumage. Upon those which were nearest, a faint rosy tinge, confined to the upper part of the breast, was also noticeable. This, I think, is more marked in the living bird than in preserved specimens. In the distance they looked like mosquitoes over the water, the flocks probably extending to the furthest end of the lake, which cannot be less than eight or ten miles off. Here, then, it seemed, was the home of the birds, for which the late John Wolley and myself, misled by a false description, had vainly sought in Oland during the spring of 1856. The isthmus between the lake and the sea, uneven with swampy hollows and dry hillocks that support a coarse and scanty vegetation, might surely be their appropriate breeding-places, where, in company with Terns, Pratincoles, Stilts, *et hoc genus omne*, they might be expected towards the end of May to deposit their eggs. Never was there a greater mistake. A few days later and the thousands have become hundreds; yet a few days more and these will have dwindled down to tens, so that by the middle of May it is possible that not a pair will remain behind. Doubtless they continue their northward journey along this coast of the Black Sea; but it is in the marshes and lakes of Central Russia, in the great plains of the Volga, and possibly also those of the Bug, the Dneiper, and the Don, that oologists must look for the eggs of *Larus minutus*."

Notwithstanding the numbers of this bird that have occasionally visited our coasts, it has never been known to breed in any of the British Islands, and it must therefore be placed in the list of our accidental visitors.

The figures in the accompanying Plate represent an adult male in its summer dress, another, in that of winter, and a young bird of the year, all of the natural size; and as these are correct portraiture, they will convey a more vivid idea of the appearance of the bird at the different periods than any description, however minute; I must, however, remark that, while the under surface of the wing of the youthful bird is silvery white, the same part in the adult is dark smoky grey, and that, while the colouring of the head changes at opposite seasons, that of the under surface of the wing, when once assumed, does not alter in summer or winter.



XEMA SABINI .

XEMA SABINI.

Sabine's Gull.

Larus Sabini, Sab. Linn. Trans., vol. xii. p. 520, pl. 29.

Xema Sabini, Leach, in Ross's Voy., App., p. lvii, with fig.

— *collaris*, Leach.

Gavia Sabini, Macgill. Man. Nat. Hist., Orn., vol. ii. p. 241.

SEVERAL instances of the occurrence of this species in the British Islands are on record. The late Mr. Thompson exhibited to the Linnean Society, on the 15th of April, 1834, a specimen which had been killed in Belfast Bay on the 18th of September, 1822; the collection of Mr. Rodd of Penzance has been enriched by at least two examples; another was shot in Belfast Bay in September 1834; a fifth in Dublin Bay in October 1837; a sixth at Milford Haven in 1839; a seventh at Newhaven, in Sussex, in December 1853; and Mr. Murray A. Mathews has seen two at Weston-super-Mare, in Somersetshire, which had been killed on Weston Sands a year or two previously. All these specimens are immature, affording additional evidence that young birds wander much further from their homes than adults.

This beautiful species of Gull was described for the first time in the twelfth volume of the 'Transactions of the Linnean Society' by the late Joseph Sabine, Esq., from specimens sent to this country by his brother, Captain (now General) Sabine, President of the Royal Society, who accompanied the expedition of 1818 in search of a north-west passage. "They were met with by Captain Sabine and killed by him on the 25th of July 1818, on a group of three rocky islands, each about a mile across, off the west coast of Greenland, twenty miles distant from the mainland, in latitude $75^{\circ} 29'$ N., and longitude $60^{\circ} 9'$ W. They were associated in considerable numbers with arctic Terns, breeding on those islands, the nests of both birds being intermingled. This Gull lays two eggs, on the bare ground; these are hatched in the last week in July: the young are mottled at first with brown and dull yellow. The eggs are an inch and a half in length and of regular shape, not much pointed; the colour is olive blotched with brown. The parent birds flew with impetuosity towards those who approached their nest and young; and when one bird of a pair was killed, its mate, though frequently fired at, continued on wing close to the spot where it lay. They get their food on the sea-beach, standing near the water's edge and picking up the marine insects which are cast on shore." "A solitary individual," says Swainson, "was seen in Prince Regent's Inlet, on Sir Edward Parry's first voyage; and many specimens were procured in the course of the second voyage, on Melville Peninsula; so that it is a pretty general summer visitor to the arctic seas, and is entitled to be enumerated amongst the European as well as American birds. It arrives in the high northern latitudes in June, and retires to the southward in August. When newly killed, they have a delicate pink blush on the under surface" (Fauna Boreali-Americana, vol. ii. p. 428). Specimens are also said to have been obtained at Spitzbergen, Igloolik, Behring's Straits, Cape Garry, and Felix Harbour; and some Esquimaux told Captain James C. Ross that it breeds in great numbers on the lowland west of Neityelle. It seems likely that there is some mistake with respect to the statement that this bird has been procured at Spitzbergen; for Mr. Newton, in his notes on the birds of that country, remarks that Dr. Malmgren, who has thoroughly explored a very large extent of it, and especially the locality in which the bird was said to have been found, did not meet with any trace of it.

Little has been recorded respecting the breeding-places of the *Xema Sabini*; but that the coasts of Greenland, Hudson's Bay, and the fur-countries of America are the places principally resorted to for this purpose, there can be little doubt.

The collectors employed by the Smithsonian Institution at Washington are understood to have lately met with this bird breeding in considerable numbers; but it is to the intrepid Siberian explorer, Von Middendorff, that naturalists as yet owe their only specimens of its eggs which have yet reached European collections. One of these was exhibited by Mr. Alfred Newton to the Zoological Society at their meeting on the 10th of December, 1861, accompanied by the following remarks:—"The ruins of an egg of this rare Gull were sent to me by Dr. Baldamus. He obtained them from Von Middendorff, who found the species on the lakes of the *Tundras* and the little islets at the mouth of the Taimyr, breeding abundantly in company with the Arctic Tern (*Sterna macrura*, Naum.), as General Sabine had done twenty years previously on the islands in Melville Bay. . . . Whether any specimens were brought home by the first discoverer of this species I do not know; if so, it is probable they are no longer in existence, though it is clear, from the accounts given in the 'Transactions of the Linnean Society' (vol. xii. p. 520), that many might have been

procured. I am not aware that any of the late Arctic voyagers obtained others; nor has greater success attended the Greenland correspondents of the Danish naturalists."

"The occurrence of the same species of Gull on the internal waters of both the Old and New Worlds," remarks Mr. Newton, "is unique; and it is still very desirable that examples from Siberia should be carefully compared with others from North America, so that we could feel assured of their specific identity."

On the continent of Europe, one has been killed on the coast of Holland, a second on the Rhine, and a third near Rouen; and Temminck notices that there is one in the museum at Vienna. In temperate America, Audubon states that he saw one flying over the harbour of Halifax in Nova Scotia, and that on one occasion great numbers were seen about one hundred miles off Newfoundland.

The immature plumage of this Gull, and the forked form of its tail, remind us of the Terns; in the latter character it differs conspicuously from the square-tailed *Chroicocephalus ridibundus*; but sufficient is not yet known of its habits and actions to enable one to say if there be anything peculiar in its flight, if it be more swift on the wing or more buoyant in the air than those Gulls which have the tail square; in all probability it differs in these as in other respects.

"Although the *Larus Sabini*" says Mr. Thompson, "approximates to the *Larus minutus* in general appearance, the plumage of the first year as well as that of maturity being very similar in both species, the superior size of the *L. Sabini*, its tail being forked to the depth of an inch, and the comparatively greater length of its tibia and tarsus may always (even in a preserved state) be sufficient specific distinction. In the form of the tail, the *L. Sabini* approaches the typical species of *Sterna* more nearly than its congener the *L. minutus*. The latter, however, resembles that genus more in the form of the bill and in the dimensions of the tarsus and tibia."

In the adult, the entire head and throat are deep slate-grey, bounded posteriorly by a narrow band of deep black; back of the neck, all the under surface of the body, the underside of the wings, the greater wing-coverts, the secondaries, the upper tail-coverts, and the tail are white; back, scapularies, and lesser wing-coverts grey, primaries black, broadly margined for nearly the whole of their length and tipped with white; base of the bill black, the tip of both mandibles yellow; inside of the mouth and edges of the eyelids vermilion-red; legs and feet black.

The following is Mr. Thompson's description of the autumnal plumage of the young bird in its first year:—"The forehead, space immediately above the eye, and between it and the bill (with the exception of the narrow line of greyish black closely encircling the front and lower part of the eye), upper part of the throat, and sides of the neck are white; crown, nape, and back of the neck blackish grey; back, scapularies, greater and lesser wing-coverts blackish grey tinged with yellowish brown, the extremity of every feather varying from greyish white to white as it approaches the tail; under part of the throat and upper part of the breast pale ash-colour; lower breast and all the under plumage white; shafts of the first six primaries brownish black at the base, becoming gradually darker towards the extremity, where they are black in the first three, but in the fourth, fifth, and sixth assimilate in colour to the feathers at that part, which is white; the entire of the outer webs of the first five are black; the inner webs with a broad edging of white to within one to two inches of the end, which part is black in the first three, but tipped with white in the fourth and fifth; in the sixth the inner web is white, the outer black, except for three or four lines from the tip (where it is white), and again at about an inch from the end (where a white spot of an oval form appears); feathers of the tail white, with black tips."

The Plate represents an adult and a young bird, of the size of life. The figure of the latter was taken from an English-killed specimen kindly lent to me for the purpose by E. H. Rodd, Esq.



HYDROPROGNE CASPIA.

Stoullé & W. Tharr. del. et lith.

Water-brood.

HYDROPROGNE CASPIA.

Caspian Tern.

- Sterna caspia*, Pall. Nov. Comm. Petrop., tom. xiv. p. 528.
—— *tschegrava*, Lepechin, Nov. Comm. Petrop., tom. xiv. p. 500.
—— *megarhynchos*, Meyer, Taschenb. Deutschl. Vög., tom. ii. p. 457
Thalasseus caspius, Boie, Isis, 1822, p. 563.
Hydroprogne caspia, Kaup, Natürl. Syst., p. 91.
Sylochelidon caspia, Brehm, Vög. Deutschl., p. 770.
—— *baltica*, Brehm, ib., p. 769.
—— *Schillingii*, Brehm, ib., p. 770.
—— *strenuus*, Gould, Handb. Birds of Australia, vol. ii. p. 392.
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FOUR or five instances are on record of this large and magnificent Tern having been killed in Norfolk and Suffolk; there cannot, therefore, be any doubt as to the propriety of admitting it into the avifauna of Great Britain. It is tolerably common in many parts of the continent of Europe; in Africa and India it is still more abundant. Mr. Swinhoe states it is found all over China; and both Dr. Baird and Mr. Coues include it in the birds of North America. When I wrote my work on the birds of Australia, I considered the Great Tern of Tasmania, from its somewhat larger size, to be distinct; but Jerdon and others are of opinion that I was in error in so doing. Yielding to their judgment I now place the name *strenuus* I had assigned to the Antipodean bird as a synonym with those given to the bird found in Asia. Presuming this view of the case to be correct, the range of the species is wide, indeed far wider than I at that time supposed, since Tasmania must now be included in its habitats.

The following extract from Yarrell will furnish all the information respecting the occurrence of the Caspian Tern in England up to the date at which he wrote (since then, however, Mr. Stevenson has recorded another example, of an adult male killed on Breydon Broad in 1862; *vide* Zoologist, 1862, p. 8093):—

“Several specimens of this fine large Tern, called the Caspian Tern, have been killed within the last few years on our eastern coast, particularly in the counties of Suffolk and Norfolk. Two early examples are those mentioned by the Messrs. Paget in their ‘Sketch of the Natural History of Yarmouth and its neighbourhood,’ one of which was killed in October 1825; another was presented to the Norwich Museum by the Rev. G. Steward, of Caistor, near which place it was shot. Three or four were seen at Aldborough, in Suffolk, and one of them shot, which is now preserved in the Museum of the Philosophical Society of Cambridge, as mentioned by the Rev. L. Jenyns in his ‘Manual of British Vertebrate Animals.’ Mr. Heysham sent me notice of a Caspian Tern shot in Norfolk in 1839; and I have received other communications on this subject, which might possibly refer to some of those instances already mentioned; but enough has been said to entitle this species to a place in our catalogues of British birds.

“The Caspian Tern is reported to breed annually at Sylt, an island of Denmark, on the west coast of Jutland. M. Nilsson says it visits also the mouth of the Baltic, and is seen in the vicinity of the Elbe. It is included by several naturalists in their birds of Germany; M. Temminck mentions that he has himself killed it, though rarely, on the coast of Holland; and it visits the coasts of France. M. Necker and Professor Schinz include this species among the birds of Switzerland, the former quoting four instances of its capture in the vicinity of Geneva; the latter calls it the king of the Sea-swallows, in reference to its very large size. M. Temminck says it has been met with and killed on the extensive rocks near Bonifacio, a seaport of Corsica. M. Savi includes it in his work on the birds of Italy; it inhabits the Grecian archipelago; and the Russian naturalists who have lately visited the Caucasus found it in the vicinity of the Caspian Sea, where it was originally found, and whence it received its first name from Pallas. The Caspian Tern has been found at Senegal and at the Cape of Good Hope.”

That the Caspian Tern breeds freely in many parts of Northern Europe we have abundant evidence from the writings of continental authors: but it would appear to be not so numerous in others; for in a note written for this work by Mr. H. E. Dresser, kindly forwarded to me some years since, he says:—“I observed this bird to be breeding sparingly on the small islands in the Gulf of Bothnia. On one of them, outside Uleåborg, called Krassili, I found a nest on the 12th of June, 1861, and shot the bird. The nest was merely a hole scratched in the sand, with a few straws arranged round the inside, and contained only one egg. The mate of the bird I shot continued flying close over our heads the whole time we remained on the island, crying in the hoarse manner from which its Swedish name ‘*Skräutärna*’ is derived. I have several times had the

eggs from that locality, and have invariably found from my own observations, and also heard from the peasants, that one pair of birds never suffer another to breed near them. The number of eggs, so far as my experience goes, is more frequently two than three."

Jerdon, in his 'Birds of India,' says:—"This fine Tern is by no means uncommon in most parts of the country, frequenting rivers, jheels, and tanks. It is generally seen alone or in pairs, rarely a few together; and it feeds chiefly on fish and prawns. It does not appear to breed in India, and probably retires to Central Asia for that purpose." Pallas states that it "only lays two eggs, pale livid in colour, with dusky spots. *Sylochelidon strenuus* of Gould is apparently very closely allied to this bird, if not identical with it."

Having seen much of this bird in a state of nature during my visit to Australia, and, moreover, taken many of its eggs, it may be as well to give a short extract from what I have written on the subject in my 'Hand-book' to the birds of that country. "The Caspian Tern frequents Southern Europe, India, Africa, and all the shores of Australia, but is, perhaps, more numerous on the islands in Bass's Straits and Tasmania than elsewhere. Its favourite breeding-places are the promontories of small islands, spits of land running out from the shores of the mainland, extensive flats at the entrances of large rivers, and all similar situations. I never observed it breeding in company, and seldom met with more than a pair on an island, unless it was one of considerable extent. It lays two eggs, on the bare ground, often within a very short distance of the water's edge. No bird watches its eggs with greater assiduity, or defends them with greater courage; and woe betides the unlucky Gull or other natural enemy that may wander within the precincts of its breeding-place. I could always discover its eggs by the clamorous, cackling, screeching note which it constantly uttered while flying over the place where they were deposited. The breeding-season comprises the months of August, September, and October, during which period the crown of the head is of a deep black hue, which gives place to a spotted appearance at other seasons. Both sexes are subject to precisely the same changes; and so much are they alike, that it is only by the somewhat smaller size of the female that they can be distinguished. The extensive development of the wings gives this fine species immense powers of flight; it also plunges into the water with the greatest impetuosity, and brings from beneath the surface fishes of a very considerable size. The eggs are of a stone-colour, marked all over with large and small blotches of umber-brown, a great portion of which appears as if beneath the surface of the shell; they are about two inches and five eighths long by one inch and three quarters broad."

The Plate represents an adult male, and a young bird in a state of change, of the size of life.



ACTOCHELIDON CANTIACA.

J. Gould & H. Chroder, del. et lith.

Walter, imp.

ACTOCHELIDON CANTIACA.

Sandwich Tern.

- Sterna cantiaca*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 606.
——— *Boysii*, Lath. Ind. Orn., vol. ii. p. 806.
——— *nævia*, Bew. Brit. Birds, 1804, vol. ii. p. 207.
——— *stuberica*, Bechst. Naturg. Deutschl., tom. iv. p. 679.
——— *canescens*, Meyer, Taschenb. deutsch. Vög., tom. ii. p. 458.
——— *africana*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 605.
——— *striata*, Gmel. *ibid.*, p. 609.
——— *nebulosa*, Sparrm. Mus. Carls., tab. 63.
Columba columbina, Schrank, Faun. Boica, p. 252.
Actochelidon cantiaca, Kaup, Natürl. Syst., p. 31.
Thalasseus canescens, Brehm, Vög. Deutschl., p. 776.
——— *candicans*, Brehm, *ibid.*, p. 777, tab. 38. fig. 4.
——— *cantiacus*, Bonap. Geog. and Comp. List of Birds of Eur. and N. Amer., p. 61.
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THIS very fine species of Tern is a summer resident with us, as it also is in Ireland and Scotland, but is less abundant there than it is in England. In Holland, France, Spain, and the countries adjoining the shores of the Mediterranean generally, it is equally plentiful in the seasons of summer and autumn. In India and China it does not occur; but it is present in Africa from north to south. Bonaparte, in his 'Geographical and Comparative List of the Birds of Europe and North America,' assigns it a place in the fauna of the latter continent; but it is not now included in the enumeration of American birds by more recent writers. It is clear, then, that Western and Southern Europe, and Africa generally, comprise the extent of its range. From the country last mentioned I have seen numerous specimens, most of which proved to be in the plumage of winter, at which season the forehead and crown are pure white, instead of the black which is characteristic of the nuptial and summer dress.

On most of the sandy parts of our sea-shores, from the coast of Kent to the Fern Islands, the Sandwich Tern either did or does now breed, in some places sparingly, in others in large assemblages; it is alike numerous on our western shores, particularly the coast of Lancashire. Mr. A. G. More, in his paper "On the Distribution of Birds in Great Britain during the Nesting-season," published in 'The Ibis' for 1865, gives the following as some of the breeding-places of this species in our islands:—"Cornwall (*Mr. E. H. Rodd*); at the mouth of the Thames (*Mr. F. Bond*); in Lancashire (*Rev. H. B. Tristram*); on the Fern Islands and the Isle of Coquet, off Northumberland, and on the coast of Cumberland. Mr. Robert Gray writes that a small colony has lately established itself on an island in Loch Lomond; and Sir W. Jardine tells us that it breeds on the Isle of May and off North Berwick. Further north the birds have been seen in summer on the Firths of Tongue and Erribol; but the nest was not discovered." In the second edition of Mr. Rodd's 'List of British Birds' he says:—"Cornish: a few pairs observed in the summer months on some of the islands of Scilly, where they annually breed; found sparingly on the Land's-end coast." In Ireland according to Thompson, it "is of occasional occurrence on the coast during summer and autumn, both in immature and adult plumage. More recent information has led to the belief that it may breed on the Dublin coast; but, from the limited number of birds seen at any period, but few, I presume, have ever bred on the island."

"The Sandwich Tern," says Yarrell, "was first observed and obtained in this country at Sandwich, in 1784, by Mr. Boys, who sent specimens to Dr. Latham, by whom the particulars respecting it were published in the sixth volume of his 'General Synopsis,' p. 356. Attention being thus drawn to this species, it has since been ascertained to be a regular summer visitor, appearing in spring and departing in autumn, after having reared the yearly brood."

Mr. Selby, who had the best opportunities of observing this species from one of its principal places of resort being contiguous to his estate in Northumberland, says:—"It annually resorts to the Fern Islands, as well as the Isle of Coquet, a few miles to the southward. Here a station is selected apart from the other species, generally on a higher site; and the nests are so close to each other as to render it difficult to cross the ground without breaking the eggs or injuring the unfledged young. Upon this coast it is called *par excellence* 'the Tern,' all the other species passing under the general name of 'Sea-Swallows.' Its habits strongly resemble those of its congeners; and it subsists upon similar kinds of fish, the sand-launce

and young gar-fish forming the principal supply, upon which it precipitates itself as they rise near to the surface of the ocean. Its flight is strong and rapid, making a great advance at each stroke of the pinions; and, except when engaged in incubation, it is almost constantly on the wing, uttering at intervals a hoarse and grating cry, which can be heard at a very great distance, and gives notice of its approach long before it is discoverable to the eye. If much disturbed by being fired at, or if the eggs be repeatedly taken at the commencement of the season, it deserts the station first selected and retires to some other place less liable to molestation. . . . As soon as the young birds become tolerably fledged, but before they are altogether able to fly, they frequently take to the water, swimming off to the smaller rocks, where they continue to be fed by the parents until they are capable of joining them in their fishing-excursions. The time of their arrival is about the middle of May; incubation commences the first week in June; and nearly the whole have taken their departure for more southern latitudes by the end of September. The eggs are three or four in number, for the reception of which a shallow hole is scratched amongst the sea-campion (*Silene maritima*) or other plants that may happen to grow on the selected place. In size they are about equal to those of the Golden Plover, and are usually of a cream or wood-brown colour, blotched with dark brown and black, and with other spots of a lighter shade, appearing as if they were beneath the shell. The common varieties of them are either with fewer spots and blotches upon a white ground, or of a deep oil-green, with spots of a darker shade."

Mr. Harting, in his notes on 'The Birds of Watney Island' (situate on the north-west coast of Lancashire, to the west of Low Furness, and which is about nine miles long by a mile broad at its greatest breadth), says:—"Long before we reached the eyry of the Sandwich Terns we could point to the exact situation of the nests; for the birds were continually hovering above and around them. As we approached they rose perpendicularly to a great height, keeping up a succession of harsh screams, not unlike the sound produced by running a sharp stick across a comb. The nests were composed entirely of grass, and placed quite close to each other on the ground, on the side of a sand-hill, among long thin grass. Standing still for a few minutes, I counted seventeen nests, all close to each other, and all containing eggs, the majority having three."

I may add a few words respecting the other countries in which this bird has been observed. Nilsson says it is seen occasionally in the southern parts of Sweden, and is included among the birds of Germany. Temminck states it to be abundant in North Holland. It frequents the coast of France, and is said to breed on some small islets off Ushant; it visits some of the lakes of Switzerland, has been seen at Genoa and in Italy, and is well known in Portugal. Mr. Howard Saunders says it is "tolerably abundant on the coast of Southern Spain, breeding at the mouth of the Ebro and along the shores of Mar Menor, near Cartagena." Mr. Simpson noted it in the Dobrudscha. Lord Lilford states that it occasionally occurs at Butrinto, in the Ionian Islands. Mr. Salvin shot one flying over the Lagoon of El Baheira, and saw others in the Eastern Atlas. It was seen near Damietta by Mr. E. C. Taylor, and on the coast of Tangier and Morocco in winter by Mr. C. F. Tyrwhitt Drake. Mr. Wright says a few are sometimes seen in autumn and winter at Malta. Messrs. Elwes and Buckley note that it is common on the Black Sea in summer, and breeds near Kustendji. And, lastly, Mr. Gurney includes it among the birds of South Africa.

The Plate represents a male and a female in full summer dress, of the natural size. The plant is the sea-pea (*Pisum maritimum*).



STERNA MACRURUS, Linn.

J. Gould and H. Chichester del. et lith.

Walter. Imp.

STERNA HIRUNDO, *Linn.*?

Common Tern.

Hirundo marina, Ray, Syn., p. 131.

Sterna major, Briss. Orn., tom. vi. p. 203, pl. 19. fig. 1.

—— *hirundo*, Linn. Syst. Nat., tom. i. p. 227?

—— *fluviatilis*, Naum. Isis, 1820 (Temm.).

—— *marina*, Eyton, Rare Brit. Birds, p. 55.

Hydrocecropis hirundo, Boie, Isis, 1844, p. 179.

WHETHER Linnæus did, or did not, take his description of *Sterna hirundo* from an example of the present species is a question which, in my opinion, can never be satisfactorily determined; under these circumstances, then, it will surely be better to keep the term for our well-known bird, the more so as it is known by that appellation to every British ornithologist, and the name has been retained for this species by Mr. Elliott Coues in his recently published and elaborate 'Review of the Terns of North America.' I make this remark because I am aware that, in retaining the name of *hirundo* for our Common Tern, I am running counter to the opinion of some living ornithologists, who are inclined to believe that this appellation should be assigned to the *Sterna macrura* of Naumann, the Arctic Tern of British authors.

Both the Common and the Arctic Terns are abundant on our coasts; still they seldom intermingle: at one season of the year they may be observed fishing some distance out at sea, at others breeding on the great beds of shingle and sand bordering our coasts at the mouths of rivers and inland waters. The Common Tern quits the open ocean in the month of May, for the purpose of reproducing and nurturing its young, and then resorts to shingly beaches such as those at Dungeness, Pevensey, Selsey, and Weymouth, on our southern coasts, and all similar situations on the west, from the Bristol Channel to the Solway Frith, and occasionally high up the larger rivers. It also breeds here and there all round the coasts of Ireland. I might mention hundreds of other localities, from the mouth of the Thames to Penzance and the Scilly Islands, and thence to Holyhead, and onward again by the flat shores of Lancashire to the Isle of Skye; but it has always been an object with me in the present work to generalize rather than to enter into the minute details that may be found in the numerous works which have been written on our native birds.

When the breeding-season is over, the Common Tern returns again to all parts of the open sea that are within soundings, and when the cold weather sets in proceeds to the warmer countries of Portugal, Spain, the neighbourhood of the Mediterranean, and the coasts of Africa generally. It is believed that under no circumstances does it go so far north as the Arctic Tern; it is, in fact, a more southern species, and consequently loves warmth, whether it be found on the shores of Europe or those of Asia: for it is an inhabitant of both quarters of the globe; but it seems to be less numerous in the latter. Dr. Jerdon informs us that it appears to be rare in Southern and Central India, but, according to Dr. Adams, is common on the Indus and the rivers of the Punjab, and also on the lakes of Cashmere, and that it does not breed, so far as is known, in India. He procured it, on one occasion only, on the Lake of Ootacamund, on the Neilgherries.

Easy and graceful in all its actions does the Common Tern appear as it comes in from the sea towards the intruder who has strolled out upon the heated shingle, where its two or three eggs are deposited. Its lovely grey back and wings so closely harmonize with the clear blue of the heavens, that, were it not for its silvery under surface, it would scarcely be noticed: if the weather be lowery, and black clouds form a background to the scene, the bird becomes a more conspicuous object; but be the weather what it may, down it comes, uttering its loud, harsh, craking scream. If the eggs be approached, it manifests much uneasiness, and with repeated flaps of its great wings makes many singular and different turns—at one moment near at hand, at another at a distance, as if inviting you to follow. If it be so fortunate as to hatch its young, it manifests still greater anxiety, and even becomes bold in their defence. Still, with all these actions, its appearance is more that of a fairy spirit than a bird, and those who have never visited its breeding-ground on the sea-shore can form no idea of the strange feelings called up by the assemblages of these birds, and the monotonous rolling of the breakers, and the other adjuncts of the scene. To and from the sea do these old birds constantly go forth in search of food for their little progeny, sometimes far out in the bay, at other times they meet the shoal of fry nearer at hand; the shallows also afford them a supply of sand-eels and crustaceans, all of which are acceptable to the growing young. At first, or in the downy state, these little chicks are very beautifully marbled with moss-like brown and buff; but this costume is very soon thrown off; white feathers, barred with brown, take its place; and the birds now present an appearance almost as attractive as some of the flowering plants which frequently grow around and even upon the shingle on which they are lying. That great nursery of Terns and Ring-Dotterels, Dungeness in Romney

Marsh, is a beautiful marine garden of this kind: here the stonecrop is in perfection, interspersed among acres of purple thrift and foxglove, growing on beds of stone, sand, and shells many miles in extent. This interesting part of our coast, with the prominent lighthouse at the apex, and the town of Lydd at the base of the triangle, and numerous freshwater pools, frequented in summer by thousands of Black-headed Gulls, in the centre, will be duly appreciated by every naturalist who has an opportunity of visiting it.

As is the case with the other Terns, the sexes of the Common species are alike in colour; but they differ considerably in size, the female being much smaller than her mate. Both have jet-black crowns in summer—a colour which is confined to the nape in winter. At all seasons the beautiful orange tint of their bills, feet, and legs affords a conspicuous contrast to the delicate hues of their plumage.

I have more than once spent a pleasant hour watching this species fishing in the canals of Holland, where they are evidently regarded as friends, since they are never molested by any one. I have even seen them in the very streets of Leyden performing their usual elegant turns and actions within a few feet of the houses, or dropping like a stone into the dirty water, whence they generally rose with a glittering fish, which they bore away to their young on the beach at Scheveling, the sand-hills on the coast, or the margin of some of the inland waters of that flat marshy country. That it does breed inland as well as on the coast is proved by the following passage from Thompson's 'Natural History of Ireland':—"When at Fort Lough, a small lake or tarn on the north-west of Donegal, on the 29th of June 1832, I was conveyed in a 'corragh' to its two islands, where this species, with several of its nests containing eggs, was observed. The nests were placed among loose stones, and all composed of the common reed (*Arundo phragmitis*) and *Equiseta*, both of which grow on the islet. On visiting Ram's Island, in Lough Neagh, on the 15th of June 1833, for the purpose of ascertaining what species of Gulls and Terns breed on the narrow strip of land adjoining it, I found the Tern to be the Common one, of which there were considerable numbers; but having killed three, required as specimens, they were no further disturbed. Several of their nests were seen, none of which contained more than three eggs—the usual number. I looked particularly to these with reference to the determination of the species from the eggs alone, as we can frequently find them when the birds will not come sufficiently near for identification. Some consider the egg to be rather larger and more round in form than those of the Arctic Tern, and these were certainly about the roundest Tern's eggs I had ever seen. This character may therefore be generally correct, though the difference between the eggs of the two species is by no means well defined. Sir William Jardine has remarked that the Common Tern seems to prefer, for a breeding-place, a shingly beach or low-lying ground to rocky islands. My observation agrees with this as a general remark; but it is far from being of universal application. The Common Tern is more cosmopolite than any of the others, breeding in localities of various kinds, both about fresh water and the sea."

The eggs are yellowish stone-colour, spotted and blotched with dark grey and reddish brown; they are one inch and eight lines in length by one inch and two lines in breadth.

The Plate represents a female in the breeding-plumage, with two young birds about three days old, all of the natural size. The principal plants are the Stonecrop (*Sedum Anglicum*) and reduced masses of the Common Thrift (*Armeria maritima*) of our garden-borders.



STERNA PARADISEA, Brinn.

J. Gould & H.C. Richter, del et lith.

Walter, Imp.

STERNA PARADISEA, *Brünn.*

Roseate Tern.

Sterna paradisea, Brünn. Orn. Bor., p. 46.

—— *Dougallii*, Mont. Orn. Dict., Suppl.

—— *Macdougalli*, Macgill. Man. Brit. Orn., vol. ii. p. 233.

Thalassea Dougalli, Kaup, Natürl. Syst., p. 97.

Hydrocecropis Dougalli, Boie, Isis, 1844, p. 179.

WIDESPREAD indeed are the Terns or Sea-Swallows; for the sandy shores of every country are frequented by them. In many instances the species are strictly local—so much so as to be confined to a single group of islands; while others are very widely spread, some inhabiting not only the higher regions of both hemispheres, but dwelling in more temperate zones.

Of all the family, numerous as are its members, the Roseate Tern is probably the most elegant in form and beautiful in colouring that has yet been discovered; and it was doubtless these peculiar features in the bird which procured it the name of *paradisea*. If we examine its structure, we find that its bill is more slender than that of most of its allies, and that the rich orange-colour of its feet offers a strong contrast to the hue of its breast, which has obtained for it the trivial name of “roseate.”

Although nowhere very numerous, this species appears to enjoy an unusually wide range; for it is said to frequent the whole of the sea-shores of Africa, from the Cape of Good Hope to the Mediterranean; and we know that it is also found on all those of Northern Europe. In America Prof. Baird states, in his list of the birds of that country, that it extends from Florida to New York; and it occasionally occurs in India. Formerly there was scarcely a large sand-spit or rocky promontory in the British Islands suited for the reproduction of the *Sterninæ* that had not its little colony of Roseate Terns. The Scilly, Lundy, Walney, and Fern Islands, the Firth of Clyde, and most of the islands of the Irish coast were but the other day constantly and annually resorted to for this purpose. Now it is to be feared that they have either been killed off from many of these hitherto favourite localities, or have deserted them for others where they are less subject to molestation. I have reason to believe, however, that a few pairs still resort to breed on Scilly and the Fern Islands, and many more to some parts of the Irish coast; and if allowed to remain undisturbed, they would doubtless continue their visits and increase their numbers. If we wish to preserve this interesting species as a member of our avifauna, we must cease to destroy it, and seek a supply for our museums and private collections from more distant countries where the bird is not held in such estimation. The Roseate Tern must be regarded as a southern species; for it seems not to breed so far north as the Arctic or Common Terns; and in all probability the British Islands are nearly its limit in this direction. It is a question not easily answered, Where do the vast hordes of Terns go during the winter (I mean the Roseate, the Common, the Arctic, and Little Terns)?—for we seldom meet with any of them during that inclement season. That they have migrated in a southerly direction is almost certain; and as they are seldom found out of soundings, the probability is that they then resort to the coasts, the estuaries, and embouchures of the great tidal rivers of Africa and America, and there, like the Land-Swallows, await the return of the sun before again visiting their breeding-places in the north, which they do with the utmost regularity; for as certain as the month of May comes round, these birds reappear to enliven the beach and the great shingle-beds of our sea-shores with their elegant movements and thousand voices. The present species, like all the other Terns, is subject to a seasonal change in the colouring of the head; but I am unable to say whether the roseate tint of the breast is worn during the nuptial season alone, or is retained throughout the year. In all probability, when the forehead becomes white in lieu of black, as represented in my Plate, the breast is also destitute of the rosy blush: one thing is certain, it is very evanescent after death.

As many of my contemporaries have written the history of this bird, and I have had but little opportunity of seeing it myself, I shall give such extracts from their writings as appear to me to be of interest; particularly from the ‘Birds of Ireland,’ by the late Mr. Thompson, and an additional note kindly sent to me by that careful observer of nature, the author of the ‘Birds of Middlesex,’ Mr. J. E. Harting.

The occurrence of this elegant Tern in Britain was first made known by Montagu, and named *Dougallii* in honour of Dr. Macdougall of Glasgow, who obtained an example, in July 1812, on the Cumbrays, two small flat rocky islands in Milford Bay, in the Firth of Forth; and as *Sterna Dougallii* the bird is very generally known; but modern research has shown that it had been described by Brünnich, in 1764, as *S. paradisea*, by which name it must in future be designated. “It was dis-

cerned," says Dr. Macdougall, "by the comparative shortness of wing, whiteness of plumage, and by the elegance and comparative slowness of motion, sweeping along, or resting in the air almost immovable, like some species of hawks, and from the size being considerably less than that of *Sterna hirundo*." Mr. Selby remarks that "it is easily to be distinguished when on wing from all the other species, its flight being peculiarly buoyant, and sustained by a slower stroke of the pinions. The length of the tail is also characteristic; and its cry is different in expression, resembling the word *crake* in a key not unlike that of the landrail."

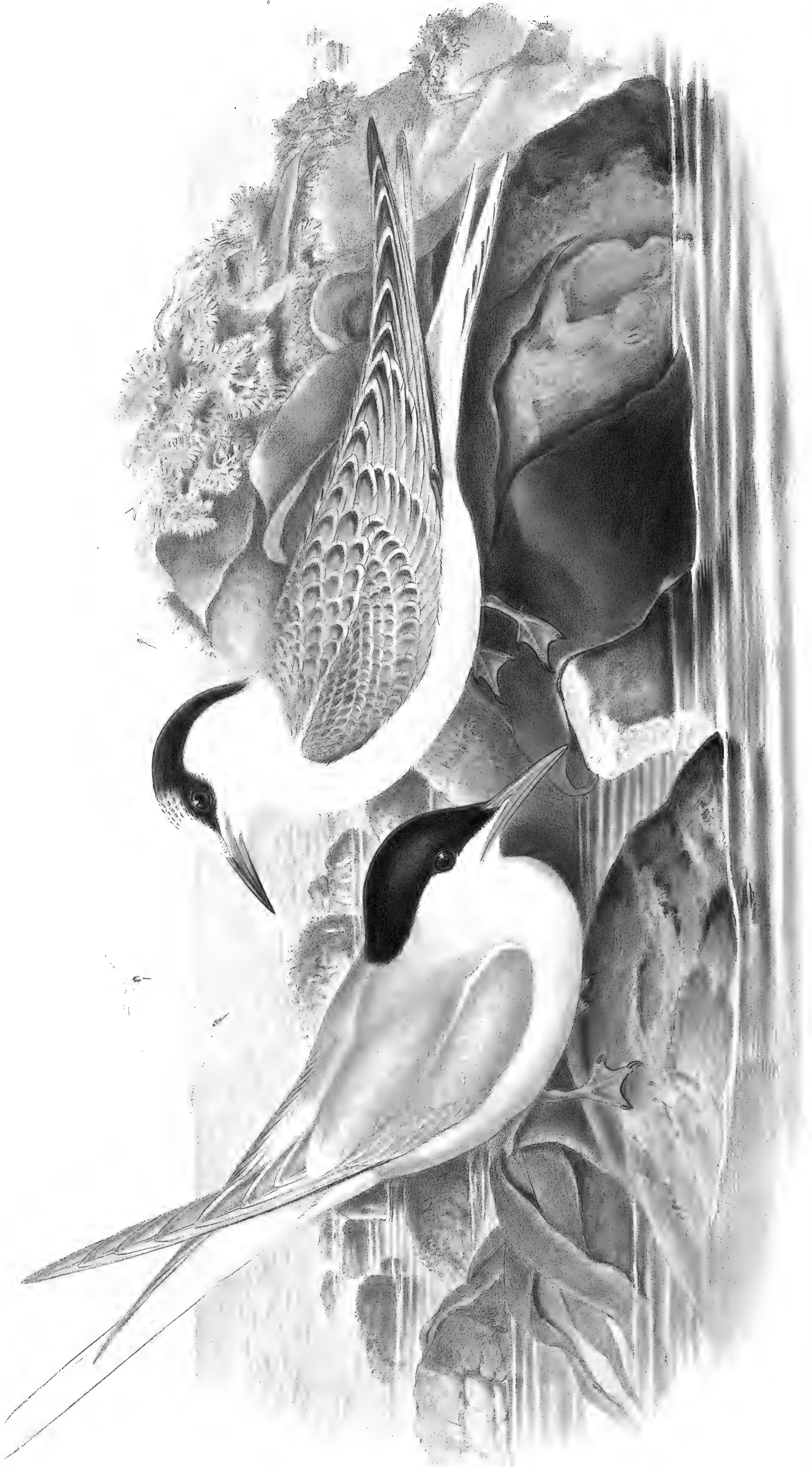
On the 11th of June, 1827, Mr. Thompson and a friend visited one of the three Copeland Islands, outside the southern entrance of Belfast Lough,—a low flat rocky islet with short pasture affording food to cattle, a chosen breeding-place of the Terns, and which, from these birds or gulls having formerly frequented it, is called Mew Island. "Immense numbers of Terns," says he, "were flying around us, uttering their wild cry as we passed between the Mew and Lighthouse Islands, and it was extremely interesting to observe their evolutions. Poised in the air, with their wings merely wafting or beating to maintain their position, they looked out keenly for their finny prey, which being perceived their wings were drawn quick as thought close to the body, and, like an arrow from a bow, they shot from such a height into the water, within a few yards of us, as to be wholly immersed—or more rarely obtained their prey at the expense of a partial ducking. Landing on the Mew Island, we found a number of their nests, containing generally three eggs, deposited either on the surface of the dried *Zostera marina*, which had been drifted on the island, or on the bare sand between the ledges of the rocks. One or both of each pair seemed to keep fishing within sight of their nest; for although we did not see any birds sitting on the eggs, they instantly and hurriedly made their appearance overhead on our near approach to their treasures, uttering their hoarse jarring cry, and continuing to fly about with great anxiety and consternation. After firing for some time at all the birds that came within shot, and having killed thirteen, we ceased, and found that, of these, two were Roseate, three Common, and eight Arctic Terns. On the 13th of June, 1832, the Mew Island was again visited; and by shooting a few indiscriminately, we procured one Roseate, one Common, and eight Arctic species. I could distinguish the Roseate when on the wing from the other two by its colour and by its note, which, as observed by Mr. Selby, resembles the word *crake* uttered in a hoarse grating key. Its flight is still more graceful and buoyant than that of the other species. When 'it sails upon the bosom of the air,' the tail is borne so as to appear pointed; but it is generally widely spread when the nest is approached and the bird swoops towards the intruder in anger." On the 24th of June, 1833, the Mew Island was visited for the third time; and Mr. Thompson remarks, "Of Terns generally I perceived a great diminution in numbers since 1827; but the Roseate, compared with the others, was much more common than in that year and 1832. Aware of Mr. Yarrell's opinion that the egg of the Roseate Tern is longer, narrower, and more pointed than that of the Arctic or the Common species, I examined all the eggs I saw in nests on the island, if nests they should be called, as all the eggs seen to-day were laid on the short pasture; and, out of about fifty, only one would be called by Mr. Yarrell the egg of the Roseate; yet, from the number of that Tern seen, I cannot but think that many more of the eggs examined must have been those of the Roseate. On seeing a boat's crew landing to collect eggs, we remarked to our boatman that the season was now so far advanced that many of them might be found incubated; but he replied that, on the contrary, they were all fresh-laid that morning, the islands being not only visited by egg-gatherers, but that boys sometimes remain all night, sleeping under the shelter of a rock, that they may be the first at the following gathering. So incessantly are the poor birds robbed of their eggs that our boatman stated they can never hatch their young until the time of hay-harvest, when the people are too much occupied to molest them.

"The birds themselves, too, suffered much this year. In one forenoon, at the end of May, a party butchered not less than fifty, of which about a dozen were the Roseate; and all were afterwards flung away as useless. Our boatman stated that they remembered when these birds were ten times as numerous as at present. Their diminution is owing to their eggs being more than ever sought after, and to the increasing wanton persecution to which the birds themselves are subjected in being killed by heartless shooters who have no object in view but their destruction."

The other localities in Ireland in which this bird has been seen are the barren Rockabill (four and a half statute miles from the Skerries), on the Dublin coast, Lambay Island, and the bays of Drogheda and Dublin, the coast of Wexford, and Roundstone on the coast of Galway.

Mr. Harting informs me that as late as the year 1864 he shot a Roseate Tern on Walney Island, off the coast of Lancashire, and that two naturalist friends of his (Dr. Embleton, of Beadnell, Northumberland, and Mr. H. Burnett, of Newcastle-on-Tyne), who visit the Fern Islands several times annually during the nesting-season, have each obtained eggs of this bird on those islands within the last five years.

The figures are of the natural size.



STERNA MACRURA, Naum.

Arctic Tern.

- Sterna hirundo*, Faber, Prod. der isländ. Orn., p. 88.
—— *macrura*, Naum. Isis, 1819, p. 1847.
—— *arctica*, Temm. Man. d'Orn., 2nd edit. tom. ii. p. 742, et tom. iv. p. 458.
—— *Nitzschii*, Kaup, Isis, 1824, p. 153.
—— *macroura*, Coues, Proc. Acad. Sci. Philad., 1862, p. 549.
—— *brachytarsa*, Graba?
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THIS bird has hitherto been known to all British ornithologists under Temminck's specific appellation of *arctica*; but that of *macrura*, having been previously assigned to it by Naumann, must, in fairness to that author, be the one adopted. As to the present bird being the *Sterna hirundo* of Linnæus, as some modern ornithologists are inclined to believe, sufficient has been said in my account of the Common Tern. Both birds are summer visitors to the shores of various parts of our islands for the purpose of breeding, after which they leave for the surrounding seas, particularly those which wash our southern and western coasts. In the winter season the two species often intermingle, especially the young birds of the year. The Tern or Sea Swallow now under consideration is the more northern bird of the two, its summer range extending to within the arctic circle, where it inhabits the polar portions of the Old and New World, being as plentiful in Iceland and the boreal regions of America as it is in those of Europe and Asia. Our voyagers found it breeding on Melville Peninsula, and on the islands and beaches of the Arctic Sea, Greenland, Iceland, and the Faroe Islands. It also breeds in Norway, Lapland, Sweden, and Denmark, and penetrates to the dismal solitudes of Spitzbergen. Britain affords it many great nurseries, of which one of the most southern is the Farn Islands, off the coast of Northumberland. Northward of this, it breeds all round the northern and eastern coasts of Scotland, the Outer Hebrides, Orkney and Shetland, and on those of Ireland, wherever suitable localities occur. Its actions are more aerial than those of the Common Tern, its body and its wings are proportionally longer, and it has a more lengthened tail—features which indicate that it possesses great powers of flight; its tarsi are shorter, its feet much smaller, and its bill more slender and pointed. Other differences also exist by which this bird may be distinguished from its near ally: thus the bill in the adult is of a beautiful carmine-red to the very tip; and the body is of a darker or more uniform blue-grey tint, both on the upper and under surface. I mention these various points of difference, because many persons may not be acquainted with the distinguishing characters of two of our commonest Terns. Some people think that the Arctic Tern breeds on the shingle at Eastbourne, Pevensey, and Dungeness; but I believe this to be a mistake, and that the Common and the Little Terns are the only species that breed there. The eggs of *S. macrura* and *S. hirundo* are subject to considerable variation in colour, but are so similar that I think it is quite impossible to say to which species any single set of eggs belong, unless the bird be shot while rising from them.

Whatever has been written respecting the habits, actions, and incubation of the Common Tern is equally descriptive of those of the present species, except that it keeps more constantly to the salt water, and rarely goes to the borders of lakes and other interior waters for the purpose of breeding. According to Macgillivray, there is a marked difference in their flight: he describes it as more bounding, and adds that its cries are shriller.

Mr. Selby, speaking of the bird as observed by him on the Farn Islands, remarks that "It is the most numerous of the Terns which resort to them, and the colony occupies a considerable portion of Brown's Main. The eggs are placed so near each other that it is almost impossible to walk upon the part they inhabit without crushing several in making the attempt. They are laid upon the bare ground or gravel, and differ very much in colour and marking. The young, when excluded, are covered with a particoloured down, usually of a fulvous or brown shade, with darker variegations. They fledge very rapidly, and within a month from the time of hatching are able to fly. Their food is the fry of the *Ammodytes Tavianus* (Land- or Sand-Eel), which is brought to them in great abundance by their parents. They arrive towards the middle of May, and desert their breeding-station early in August. The female lays two or three eggs, the prevailing tint of which is oil-green, with darker spots and blotches."

"The swiftest little creature in the whole sea is the sand-eel; and yet the Terns catch thousands of these fish, in the same way as the Osprey catches the Trout, excepting that the Tern uses its sharp-pointed bill instead of its feet. I have often taken up sand-eels which the Terns have dropped on being alarmed, and have invariably found that the little fish had but one small wound, immediately behind the head. That a bird should catch such a little slippery, active fish as the sand-eel, in the

manner in which a Tern catches it, seems almost inconceivable; and yet every dweller on the sea-coast sees it done every hour during the period that these birds frequent our shores. In Nature nothing is impossible; and when we are talking of habits and instincts, no such a word as impossibility should be used."—*St. John's 'Tour in Sutherland,'* vol. ii. p. 170.

"Light as a sylph, the Arctic Tern dances through the air above and around you. The Graces, one might imagine, had taught it to perform those beautiful gambols which you see it display the moment you approach the spot which it has chosen for its nest. Over many a league of ocean has it passed, regardless of the dangers and difficulties that might deter a more considerate traveller. Now over some solitary green isle, a creek, or an extensive bay it sweeps, now over the expanse of the boundless sea; at length it has reached the distant regions of the north, and amidst the floating icebergs stoops to pick up a shrimp. It betakes itself to the borders of the lonely sandbank or a low rocky island; there, side by side, the males and females alight and congratulate each other on the happy termination of their journey. Little care is required to form a cradle for their progeny: in a short time the variegated eggs are deposited; the little Terns soon burst the shell, and in a few days hobble towards the edge of the water, as if to save their fond parents trouble; feathers now sprout on their wings, and gradually invest their whole body; at length the young birds rise on wing, and follow their friends to sea. But now the brief summer of the north is ended; dark clouds obscure the sun; a snow-storm advances from the polar lands, and before it skim the buoyant Terns, rejoicing at the prospect of returning to the southern regions."—*Audubon, 'Birds of America,'* vol. iii. p. 366.

The sexes of the Arctic Tern, although very similar in colour, differ in the male being larger, and having a longer tail, than the female.

The Plate represents the bird, of the size of life, in the plumage of summer; and a young bird of the first autumn, in the state in which numerous examples are frequently to be seen, during the months of August and September, at Bognor in Sussex, the Isle of Wight, and similar places on our southern coasts.



STERNULA MINUTA.

J. Gould, and H.C. Richter, del et lith.

Walter, imp.

STERNULA MINUTA.

Little Tern.

Sterna minuta, Linn. Syst. Nat., tom. i. p. 228.

—— *minor*, Briss. Orn., tom. vi. p. 206, pl. 19. fig. 2.

—— *bicolor*, Scop. Ann. Hist. Nat., tom. i. no. 110.

—— *metopoleucos*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 608.

Sternula fessipes, *pomarina*, et *Danica*, Brehm, Handb. Naturg. aller Vög. Deutschl., pp. 790, 791.

—— *danubialis* et *meridionalis*, Brehm (Bonap.).

—— *minuta*, Bonap. Rev. Crit. sur Degl. Orn. Europ., p. 199.

How joyous are the emotions of the sailor when, towards the end of a long voyage, he sees the Little Tern flapping its long wings over the surface, or descending headlong into the ocean. Light-hearted is he now; for he knows that this aerial sprite is a never-failing indication that the shore is near at hand, and that in a few hours he may get a short relief from his monotonous sea-life. Not only to the sailor, however, but to every one who loves the salt breeze, and seeks a change by resorting to the sea-shore, is this little bird an object of interest, its buoyant flight, actions, and whole economy being totally different from those of land-birds: the delicacy of its colouring also, harmonizing as it does with the blue vault of heaven under which it flies, the orange-red of its feet, and its structure beautifully adapted to the end for which it was formed, all excite feelings of pleasure and admiration.

This lovely Tern is one of the smallest species of a family the members of which are so universally distributed that there is no portion of the world, except perhaps its extreme northern and southern regions, where one or other of them is not to be found. This maritime and fluviatile family of birds comprises so many different forms that they must of necessity be divided into many genera. Some are remarkable for their wing-powers, others for their great size; others, again, are as diminutive as the present species; and some offer a seeming alliance to the Petrels, as the members of the genus *Anous*. All the members of each of these various subdivisions assimilate most closely in their mode of life and general economy; and thus the habits of the little *Sternula Nereis* of Australia are precisely similar to those of its antipodal representative, the *S. minuta*, whose history I now proceed with.

The Little Tern, which is a summer visitant to our islands, is dispersed at that season along the whole of our coasts from Sussex to the Orkneys, from Suffolk to the most western part of Ireland, and, moreover, breeds in every suitable situation—that is, wherever the bed of shingle, the strand, or the sandy sea-shore is not overrun by its greatest enemy, the thoughtless boy with his fowling-piece, who so frequently shoots these little mariners from sheer wantonness and mischief. Thoughtless beyond measure, cruel in the extreme, are those who destroy this lovely bird with no other object—cruel, because the pain does not end with the death of the victim; the young, deprived of their parents, are left to starve and die on the shingle. The collector of eggs, when he exercises proper discretion, has, to a certain extent, an excuse; for a little grief on the part of the birds is the only suffering; but the wanton destruction which I have seen dealt out to these pretty objects, I, for one, heartily deprecate.

The Little Tern comes to us in May, and after spending here the three or four following months, departs with its brood to the neighbouring seas, fishing all round our coasts, sometimes in the sheltered bays, at others out in the open seas, but always within soundings. In all the temperate parts of Europe it does the same, the seas also which wash the shores of Africa, those of India, Malaya, and China; everywhere within these limits at least, the bird is found at one season or the other. Sensitive to cold, it seeks warm and congenial climes in winter, and retires to more northern latitudes as the spring-time approaches. Its food consists of the fry of fishes and crustaceans, all which are obtained by immersion. A visit to the breeding-place of this species, with the opportunity it affords of watching its actions, forms one of the most pleasant times spent by the ornithologist. The birds unite in little colonies, and, like the Common Tern, incubate near each other. Their two eggs are placed in the midst of the shingle, being deposited in a little depression, without a nest other than a few bits of shells arranged neatly around. During the period of incubation the old birds may be seen dotted about over the surface of the shore, while others are passing overhead uttering their peculiar wailing cry. Sometimes these places, like that of the great shingle bed at Dungeness, are interspersed with the flowering stonecrop and foxglove, while others are bare and level sands, where, from the similarity in colour, it is difficult to detect the eggs or the newly fledged young.

As is the case with the other Terns, this species undergoes a seasonal change, which is principally apparent in the black which covers the crown in summer becoming restricted to the hinder part of the head, and the white on the forehead more extensive, in winter.

During a visit to Dungeness on the 12th of June, 1864, I saw many sitting on their two eggs: none were then hatched; but two young birds were sent to me thence on the 22nd. These downy nestlings were very beautiful: all their upper surfaces were of a delicate buff, obscurely marbled with brown; the ends of the wings uniform buff; lower part of the throat stained with buff; bill flesh-colour, clouded here and there with brown; tarsi and webs flesh-colour. Mr. Selby states that the Little Tern is not, like its congeners, an inhabitant of the Fern Islands, but annually breeds in a small colony, about eight or nine miles distant, upon the beach of the mainland, near to Holy Island; Mr. A. Newton, however, informs me that he believes it has now abandoned this spot. It is plentiful in the Frith of Forth, where it occupies stations on both sides of the arm of the sea, and is met with in various parts of the island, and also on the Lincolnshire coast, where it is said to be very abundant.

The eggs are of a buffy stone-colour, sparsely spotted with dark brown and light ashy purple; they are about an inch and three-eighths long by fifteen-sixteenths of an inch in breadth.

“Dr. Farran,” says Thompson, “gives an interesting account of this species as seen by him and Mr. Nimmo, at the Hards Islands, off the coast of Galway, in the summer of 1838:—‘On turning into a small ravine, there appeared within twenty yards a cloud of the Lesser Terns, plunging incessantly into a pool which the receding tide had left filled with water. A flock of Swallows preparing for migration gives but a faint idea of their numbers; but what surprised me more was their permitting my near approach without exhibiting the slightest fear or mistrust, still continuing, although now not a yard from me, plunging and screaming as if I were but a shadow. My curiosity was greatly excited; and, stooping down to examine the pool, I found it to be almost a living mass of herring-fry, each about an inch and a half in length: this fully explained the cause of such a congregation. I was determined not to give my unsuspecting friends any cause of regret for the unlimited confidence placed in me, and endeavoured to assist in their pursuit by putting my hands together and commencing to bale out the water and fry; but in this I lost both time and labour, for not a single fry would they take when thrown out and exposed on the rock; but if by a chance it fell into a crevice containing a little water, it was instantly seized and swallowed.’”

Speaking of the bird as seen in India, Mr. Jerdon says, “This minute Tern is most abundant at the mouths of tidal rivers and backwaters on the Malabar coast, and appears to be more rare on the east coast; indeed I have only found it on the Ganges in small parties. It nidificates in this country on sand-banks, on the Ganges near Mirzapore. Swinhoe found it breeding on Formosa.”

The sexes differ very much in size, the male being a third larger than the female; in plumage they are alike.

The Plate represents the bird and its two diminutive chicks, of the size of life.



GELOCHELIDON ANGLICA.

Gull-billed Tern.

Sterna anglica, Mont. Orn. Dict., Supp.

—— *stübberica*, Otto, Deutsch. Uebers. von Buff. Naturg.

—— *risoria*, Brehm, Beitr., tom. iii. p. 650.

—— *aranaea*, Wils. Am. Orn., vol. viii. p. 143.

Thalasseus anglicus, Boie, Isis, 1822, p. 563.

Viralva? anglica, Steph. Cont. of Shaw's Gen. Hist., vol. xiii. p. 174.

Gelochelidon anglica, agraria, et meridionalis, Brehm, Vög. Deutschl., pp. 772, 773, 774, tab. 38. fig. 3.

—— *palustris*, MacGill. Man. Nat. Hist., Orn., vol. ii. p. 237.

Laropsis anglica, Wagl. Isis, 1832, p. 1225.

It is to be regretted that the law of priority with regard to specific names, now so rigidly adopted by all scientific ornithologists, obliges us to retain that of *anglica* for the present species, inasmuch as almost any other term would have been more appropriate, since neither England nor, indeed, any of the British Islands is its native country, and I question if, during the last fifty years, more than twenty examples have been seen therein, while on many parts of the neighbouring continent and in Africa it is common; in India it is equally abundant; and it would also seem to be a denizen of America; for Selby, after investigating specimens from that country, felt no hesitation in considering the Marsh-Tern, of Wilson's 'American Ornithology,' to be the same bird; Audubon, "having taken six specimens of the American Marsh-Tern to the British Museum, and minutely compared them in all their details with the specimens of the Gull-billed Tern, which formed part of the collection of Colonel Montagu and were procured in the south of England, found them to agree so perfectly that no doubt remained with me of the identity of the bird described by Wilson with that first distinguished by the English ornithologist;" and Mr. Elliot Coues, in his 'Review of the Terns of North America,' says:—"I have not a sufficient number of skins before me for a perfectly satisfactory comparison of the birds of the two continents; but, so far as I can judge, I am decidedly inclined to agree with Audubon in opinion that no difference exists. I have minutely compared the specimens before me, and found them absolutely identical in every particular of size, form, and colour."

These observations tend to show the correctness of the remark I have made respecting the inappropriateness of the term *anglica* as applied to a species so widely distributed; still it must be retained until naturalists, by common consent, agree to change this and hundreds of other equally inapplicable terms: and surely this will be done some day!

Montagu was the first to distinguish this species from the other Terns he saw around him on the coasts of Sussex and Kent; and the first figure and description of it appeared in the Supplement to his 'Ornithological Dictionary,' published in 1813. The bird was at first confounded with the Sandwich Tern; but the difference in the form and length of the bill in the two birds soon led him to characterize it as distinct, and he gave it the name of *anglica*, not being at the time aware that it occurred elsewhere than in England. Of the three specimens known to him, one was shot in Sussex, and he saw two others that had been killed at Rye; and Mr. Yarrell has recorded two more, one of which was killed in Kent: the locality of the other escaped his recollection. Besides these, five have been shot in Norfolk, one in Yorkshire, one near Brighton, and one in Cornwall.

Until of late years, but little had been recorded respecting the habits and economy of this Tern; but, thanks to the energy of the English naturalists who have recently visited Eastern Europe and North Africa, we are now much better acquainted with them, as will be seen from the extracts given below from their notes recorded in 'The Ibis.'

I have stated in general terms that the Gull-billed Tern is found in Europe, Asia, Africa, and North America; it appears, however, to range still more widely, since Mr. Salvin found it common at Chiampan and on the Pacific coast of Guatemala, in Central America; and Temminck states that two specimens killed by the late Prince Maximilian of Wied, in Brazil, did not differ from examples obtained in Hungary; Dr. Leith Adams saw it in Nubia; Mr. Taylor says it is the most common of the Terns frequenting the marshy places of the interior of Egypt, and that he obtained specimens between Cairo and Sakara. Mr. Tristram states that it occurs in flocks both in the Western and Eastern Sahara, that several were shot at Bou Guizoun and near Ain el Ibel, on the El-Aghouat route, and vast flocks met with round the Zahrez, in the same country.

“At Zana,” says Mr. Salvin, “we found it breeding, a considerable number frequenting the marsh. Numerous as the bird was, we only obtained five eggs; and these were not collected by ourselves. In fact we left Zana before the birds began to sit, and consequently were never able to determine the exact locality where they breed; but it is probably on some of the small mounds on the north side of the marsh, which stand like islands out of the swampy ground. These Terns feed over the grass-fields and open land, hovering and descending as our more familiar species do on the English coast over a shallow, their food being grasshoppers and beetles, which there swarm.”

Specimens were obtained by Mr. Tristram on sand-spits and small lagoons north of Beyrout, in Palestine; Mr. Wright states that three magnificent examples were killed at Malta, in May 1864; Lord Lilford observed that the species was not uncommon at Butrinto, in the Ionian Islands, in January, February, and March; Messrs. Elwes and Buckley found it to be common on the coast of Albania, in summer; and Mr. W. H. Simpson has given the following interesting account respecting the bird in Western Greece:—

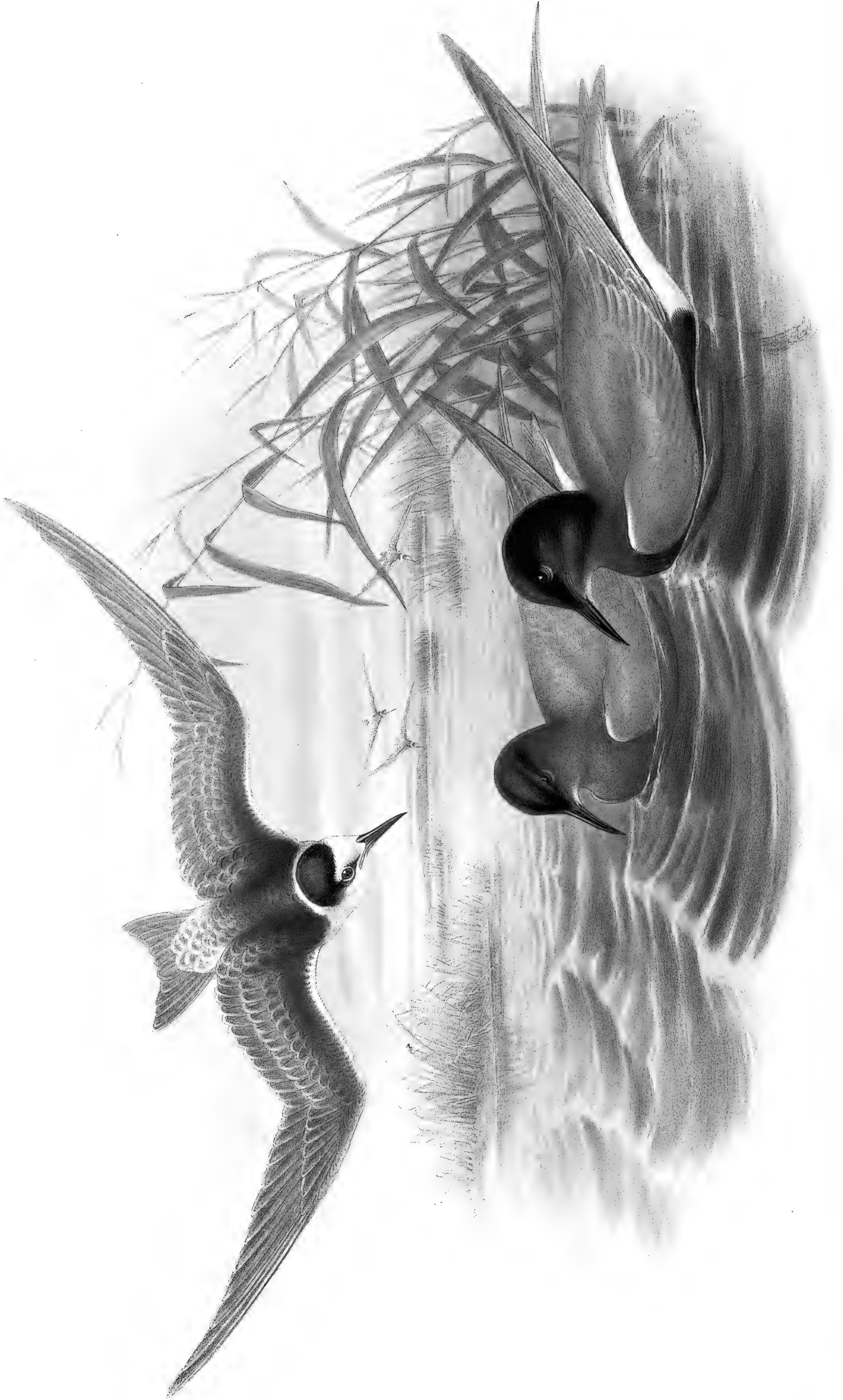
“The most numerous of all the birds, during the latter half of May, on the lagoon of Mesolonghi are the Terns, and notably *Sternæ hirundo*, *minuta*, and *anglica*. If unmolested, their numbers would be enormous, as there are probably few places in the Mediterranean more adapted by nature for these birds, if innumerable flat islets and sandy spits washed by an immense extent of very shallow salt water abounding in fish can be any inducement to their undertaking the duties of incubation. But now that the towns of Mesolonghi and Ætolico are beginning to stir, and the fisheries to be more looked after, all the birds will suffer from the increase of activity. The eggs of *Sterna anglica* especially are much eaten by the natives. It was from this circumstance that I came to discover their principal colony, as the following extract from my note-book will show:—‘On the 23rd I started in my monoxylon with Vitalis and a native to search the salt lagoon and the islets south-east of the town, my chief object being to discover the quarters of *Sterna anglica*, which was flying about in every direction. This bird had caused me many a fruitless ride across the high plains of the Atlas during the summer of 1857; and it now seemed likely that I was to have another equally wild-goose chase across the lagoon and mud-flats of Mesolonghi, under the equally powerful sun of Greece. Already several days had elapsed since we first noticed them, and still we were unable to gain any satisfactory tidings of their mysterious retreat. My associates became very mutinous in consequence of our prolonged ill-success; so I directed the boat to be landed at a fisherman’s hut, outside the main group of islets, where some fish was roasted to appease their hunger and ill-temper. While this was being prepared, the usual questions, of course, were put, and elicited the usual reply in the negative. ‘Where do these broken shells come from, then?’ ‘Oh! they come from a long way off; and the birds won’t lay any more.’ ‘Wouldn’t twenty *lefta* per egg induce the birds to alter their determination?’ ‘They couldn’t lay upon trust; part of the money must be paid down.’ So the fisherman’s boy agreed to try, and our monoxylon set off towards the outer spit, which was searched without success. On returning to the islet, I was much surprised at seeing a straw hat, filled with eggs of *Sterna anglica*, awaiting our inspection. Late as it was, I made the boy take me to the place, where I had the satisfaction of seeing the bird in great numbers, and succeeded in finding four nests, two of which, with their full complement of eggs, were taken then and there.’ The greater number of the nests were on two of the innermost islets of the group. Generally they were placed on the raised outer edge, which, in case of flood, would remain longest high and dry. The eggs were deposited upon the sand or soil, in a depression slightly lined with a few bits of dead grass—and are not easily detected, as their colours blend with surrounding objects. The birds appear to commence incubation simultaneously, or nearly so, as most of the nests contained eggs pretty fresh. They did not evince the anxiety which many Terns do about their eggs, but simply contented themselves with flying in a body at a great height over the islands. I strongly suspect that in these hot countries the Terns do not care to sit upon their eggs throughout the day; and this may be the reason why one often sees flocks of *Sterna anglica* feeding miles away from head quarters.”

Mr. Jerdon says:—“This Tern is exceedingly abundant all over India, frequenting tanks, marshes, and rivers, and occasionally hunting over the fields. It feeds alike on aquatic food and on grasshoppers, beetles, and other insects, and is a noisy bird.”

The eggs are one inch and seven eighths long, by an inch and five sixteenths in breadth; the ground-colour fine buff, spotted all over with irregularly shaped spots of dark brown, rufous, and purplish, the lighter tints appearing as if beneath the surface.

The sexes are alike in plumage at the respective seasons; that is, their heads are jet-black in summer, and almost spotless white in winter. The young, on the other hand, vary very materially from youth to maturity. The one figured is, perhaps, a month or five weeks old; and its differences from the adult will be readily perceptible on reference to the accompanying Plate.

The figures represent an adult male and a young bird, about the size of life.



HYDROCHELIDON NIGRA.

J. Gould & F. C. Richardson del et lith.

Water, Imp.

HYDROCHELIDON NIGRA.

Black Tern.

- Sterna fissipes*, et *nævia*, Linn. Syst. Nat. (1766), tom. i. p. 228.
——— *nigra*, Briss. Orn. (1760), tom. vi. p. 211.
——— *plumbea*, Wils. Am. Orn., vol. vii. 1831, pl. lx., young.
Hydrochelidon nigra, Boie, Isis, 1822, p. 563.
——— *nigricans*, Brehm, Vög. Deutschl., p. 794.
——— *obscura*, Brehm, ibid., p. 795.
——— *fissipes*, G. R. Gray, Gen. of Birds, vol. iii. p. 660, *Hydrochelidon*, sp. 5.
——— *plumbea*, Lawr. Gen. Rep. 1858, p. 864.
Viralva nigra, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 167.
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THE generic term *Hydrochelidon* was instituted by Boie for a small section of the *Sternidæ* possessing certain peculiarities of structure accompanied by an equally peculiar style of colouring, and whose habits and economy are unlike those of the other members of their family, from which they also differ in the kind of situations they frequent. The ordinary Terns or Sea-Swallows, genus *Hirundo*, are true sea-birds, which either retire to shingly beaches or ascend the larger rivers with banks of a similar character for the purpose of breeding, incubate their two eggs on the bare ground, fly with a laboured flapping motion of their wings, and descend upon their piscine food with a perpendicular stoop like that of the Kingfisher. The members of the genus *Hydrochelidon*, on the other hand, frequent the inland fresh waters (lakes and rivers) rather than the open sea, feed principally upon large winged insects, which they take in the air, and deposit three or four eggs in a nest of weeds placed in a tuft of grass in the midst of reed-beds. The true sea-Terns have short webbed feet, while the feet of the marsh-Terns, as the birds of the present form are called, are more lengthened and have the interdigital membrane but little developed. The Black Tern, which is a migrant, comes to us in the spring from a warmer climate, and, if any suitable locality be left in which it may remain unmolested, will reproduce its kind during its stay. On this point Mr. Stevenson, of Norwich, writes to me:—"Although this species formerly nested in considerable numbers, both on our eastern broads and in the fens of the western part of Norfolk, it has almost ceased to breed in the county. I know of but one or two solitary instances of a pair remaining to breed with us during the last few years; Mr. Newton informs me that in the spring of 1852, owing to the extent of land then under water from the immense floods of the previous winter, two or three pairs bred in Feltwell fen, where they had not been known to remain for some years. Draining, and the abominable system of indiscriminate egging, are the principal causes why this bird, the Black-tailed Godwit, and other species now proceed further north. The old birds regularly appear on the coast every spring during the months of April and May, and again with their young in autumn (August, September, and October). The Black Tern is said to have formerly bred at Winterton, near Yarmouth; and Lubbock, in a communication to Yarrell, says 'the great breeding-place, in a wet alder-carr at Upton, where, twenty years back, hundreds upon hundreds of nests might be found at the end of May, has been broken up some years.'"

During the numerous visits I have made to the middle portion of our beautiful Thames in the month of May, for the last forty years, I have seldom missed seeing the Black Tern hawking over the reaches in the neighbourhood of Maidenhead, Cookham, and Marlow. At that season they are apparently passing over our island from the Bristol Channel to some eastward localities, and they merely stay for a few hours, in their course down the river, one day at Henley, the next at Maidenhead or Windsor, thence proceeding to the Nore and other parts of the eastern coast. From the 10th to the 19th of May, 1866, several solitary individuals passed my boat; and a similar occurrence took place in the same locality the succeeding year.

Occasionally I have seen the Common Tern, the Arctic Tern, and the present species in the same reach at one time; an example of each of the three species, all of which fell to my own gun in 1866, may be seen at Taplow Court, Mr. C. Pascoe Grenfell having kindly accepted them as a memento of these birds occasionally occurring in his neighbourhood. In autumn the young of the Black Tern sometimes occurs; and the flying figure in my Plate was taken from an individual killed in the same locality.

Nothing can be more easy than to distinguish the Black Tern, on the wing, from the ordinary sea-Swallows; so different are they in appearance that, if seen flying together at the end of a reach half a mile distant, the fisherman will remark, "There is one of the black Terns."

As before stated, the flight of the typical or sea-Terns appears to be of a laboured character; the marsh-

Terns, on the other hand, pass through the air with a more bounding motion, turning to the right or to the left and dipping perpendicularly towards a Dragonfly or any other insect that may have attracted their attention. Their aerial actions have been compared to the hawking of the Nightjar; and I may add that they are not unlike those of the Great Bat (*Vespertilio noctula*).

“The evolutions of the Black Tern are so rapid, and its turns so short,” says Montagu, “that by this means it sometimes escapes the talons of predacious birds, as we had once an opportunity of witnessing. In a very hard gale of wind many Terns were sporting over the water, when a Peregrine Falcon passed like a shot, singled out his bird, and presently coming up with the chase, made a pounce; but the great dexterity of the Tern avoided the deadly stroke, and took a new direction. The Falcon by his superior velocity, soon regained sufficient elevation to successively repeat his pounces, but at last relinquished the pursuit.”

Scotch writers state that the Black Tern is not common in that northern country; and those who have written on the Birds of Ireland, that it is an occasional visitor only, chiefly in autumn, and in an immature state.

Mr. Rodd when speaking of its occurrence in the extreme west of England, informs us that it is “generally observed in the autumnal months, and nearly every year, in more or less numbers, both on the sea-side and inland. In its full black plumage it is rarely met with in Cornwall.”

Temminck, in his ‘Manuel d’Ornithologie,’ says:—

“*Habite*: les rivières et les bords des lacs d’eaux douces, mais particulièrement des marais; très-accidentellement sur les côtes maritimes; assez abondant dans le nord, jusques au cercle arctique; très-nombreux en Hollande et dans les grands marais de la Hongrie. Vit en grandes troupes dans les marais de Tombole et d’Ostia, mais n’y vient pas avant les premiers jours d’avril.

“*Nourriture*: insectes ailés et vers aquatiques.

“*Propagation*: niche en grandes bandes dans les marais, parmi les roseaux clair-semés et sur les grandes feuilles de nénuphar qui flottent sur les eaux; pond depuis deux jusqu’à quatre œufs, d’un olivâtre clair marqué de nombreuses taches brunes et noires, dont la réunion forme un large cercle sur le milieu de l’œuf.”

The late Captain Loche states that it frequents the three provinces of Algeria.

Besides inhabiting all the temperate parts of Europe, North Africa, Madeira, Asia Minor, and Persia (according to Mr. Jerdon), it must be added to the Indian list, Mr. Blyth having seen Indian examples collected by Dr. L. Stewart. I believe it is also found throughout the whole of North America. Dr. Elliott Coues, in his valuable review of the Terns of that country, says:—“I have critically compared quite a series of European and American specimens in all stages of plumage, but have been entirely unable to detect the slightest discrepancies between the birds of the two continents. The specimens before me are all absolutely identical in size and relative proportions of different parts; and the colours of those of the same age correspond minutely. There do not appear to exist the slightest characters upon which to base specific distinction.”

A nest of four recent eggs, that came into my possession before being blown, were of a pure olive, profusely marked with large blotches of dark rich umber, most numerous and forming a distinct though somewhat irregular zone towards the larger end; they varied a little in size, three being an eighth of an inch longer than the fourth, and two being a sixteenth wider than the others, the largest being one inch and three-eighths in length, by one inch and a sixteenth in breadth.

There is little or no difference in the size and colouring of the sexes. The adults in summer have the bill black, the inside of the mouth flesh-colour; the irides dark brown; the tarsi, toes, and webs dull red; nails black; head, neck, breast, and belly dark or blackish lead-colour; back, wings, and tail slate-grey; vent and under tail-coverts white.

The Plate represents an adult male and female, of the natural size, and a young bird in the dress of its first autumn, about a third less.



HYDROCHELIDON LEUCOPTERA.

J. Gould, & H. Richter, del et lith.

Walter, Imp.

HYDROCHELIDON LEUCOPTERA.

White-winged Tern.

Sterna nigra, Linn. Faun. Suec., p. 56.

—— *fissipes*, Pall. Zoogr. Ross.-Asiat., tom. ii. p. 398.

—— *leucoptera*, Meisner u. Schinz, Vög. der Schweiz, p. 264.

Hydrochelidon leucoptera, Boie, Isis, 1822, p. 563.

—— *nigra*, G. R. Gray, Gen. of Birds, vol. iii. p. 660, *Hydrochelidon*, sp. 3.

Viralva leucoptera, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 170.

THIS very beautiful and highly interesting Marsh-Tern occurs far less frequently in the western parts of Europe than its near ally, the *Hydrochelidon nigra*; its true habitat, in fact, lies further south than the countries resorted to by that species. All authors agree in stating that it is plentiful on the shores of the Mediterranean and the great lakes of Algeria; and Bailly informs us that it occasionally occurs during the spring on those of Switzerland, and at the same time is to met with in Savoy, along the Rhone and the Isère; and Brehm includes it in the birds of Germany. In Britain the White-winged Tern can only be regarded as an accidental visitor, for few are the occasions in which England and Ireland have been favoured with its presence.

The first notice of the occurrence of this species in Britain was recorded in the fifteenth volume of the 'Annals of Natural History,' by Frederick M'Coy, Esq., at that time resident in Ireland, but who is now Director of the National Museum at Melbourne, Victoria, in the following terms:—

"*Sterna leucoptera*, TEMM. A specimen of this beautiful bird was shot by J. Hill, Esq., on the Shannon in 1841, in company with the Black Tern, *S. nigra*, with which it was confounded; the specimen was sent, along with one of the latter species, to the Natural-History Society of Dublin, in whose Museum they are now preserved; but, from their general resemblance to each other, the present species has remained there undistinguished till the present time. As I believe this to be the first record of the occurrence of the bird in Britain, I subjoin a short description of the specimen, to assist in drawing the attention of British naturalists to it, as it will probably be found not unfrequent.

"Legs and feet in the preserved specimen pale yellow, probably red in the living bird; claws darker; bill dark blackish-brown; head, neck, breast, abdomen, under wing-coverts, and back deep glossy black; lesser wing-coverts, tail, and upper and under tail-coverts pure white; first three quill-feathers black, with a broad longitudinal band of white on the inner webs; remainder of the wings ash-grey, becoming darker towards the body.

"The form, proportions, and size of this species are very nearly those of the Black Tern, *S. nigra*; like that bird, too, it has the webs of the toes very deeply indented, being reduced to a mere rudiment between the middle and inner toes. The two species are, however, easily distinguished: the under wing-coverts of *S. nigra* are white, of the *S. leucoptera* black; the tail of the former is dark grey, of the latter pure white; in *S. nigra* the throat is white, the breast and abdomen dark grey, and the back lead-colour, while in *S. leucoptera* all those parts are black. I speak of both species in their perfect plumage."

Mr. Frederick, of Westbourne Terrace, informed me that in 1853 a beautiful specimen was killed by Mr. Rising's keeper, at Horsey, near Yarmouth.

Another scientific friend and correspondent, N. Troughton, Esq., of Coventry, has favoured me with the following communication respecting some examples killed in that neighbourhood:—"In June 1857 a pair, male and female, were shot within half a mile of the town-wall, at a pool called Quinton's. They were in beautiful plumage; I saw them in the flesh, and obtained them for my collection about two years afterwards. The person who preserved them told me that, about ten years prior to this, two females out of a flock of seven were shot close to the town on a pool called Swanswell; and five years previously a single male was killed on the Avon, near Wolston, about five miles from Coventry. You may rely on the truth of these statements. Coventry and its neighbourhood is the resting-place of many marine birds as they pass through the island—Gulls innumerable, Gannets, Petrels, Cormorants, Divers, Grebes, and Mergansers. I expect they drop from fatigue."

Through the kindness of Mr. Stevenson I am enabled to give a figure of this bird from a Norfolk-killed example in its finest dress. Respecting its acquisition this gentleman writes, under the date of July 13, 1867:—"A fine male specimen of the White-winged Black Tern has just come into my hands. It was shot on Hickling Broad on the 27th of June. The plumage is very perfect; the dark portions, however, are not pure black, as described by Yarrell, but dark greenish-black, and the shoulders beautifully white, shading off into French grey; feet orange-red."

“Temminck states that the White-winged Marsh-Tern frequents the bays and inlets of the Mediterranean and is very common about Gibraltar; it also visits the lakes, rivers, and marshes of the countries in the vicinity of the Alps, is very common about the lakes of Lucerne, Lugano, Como, Iseo, and Garda, and is occasionally seen on the Lake of Geneva. Schinz includes it in the ‘Birds of Switzerland;’ but it does not seem to occur in the northern part of France or in Holland: yet Nilsson gives a figure of it in his ‘Fauna of Scandinavia;’ Savi includes it in his ‘Birds of Italy;’ and Malherbe says it appears in Sicily in spring, and is seen from Lake Lenteni to the environs of Catania and Syracuse, but is more rare in the northern parts of the island. Mr. H. M. Drummond observed a pair on the river between the lakes at Biserta, about forty miles to the eastward of Tunis. Temminck also mentions that it is common in spring in Dalmatia, but does not breed there, and had departed in July.”—*Yarrell, Suppl. Brit. Birds*, p. 52.

If I understand Schrenk rightly this bird frequents the Black Sea, the waters of the Ural districts, and Amoor Land; if this really be the case it is a fact of some interest, since it has not been found in India, nor, really, I believe, in China. The sexes are alike in plumage, but I am unacquainted with the young, unless some skins of Marsh Terns, which I have lately received from Cape York, Australia, which I am unable to verify, should prove to be immature examples of this species.

Bailly states that the *Hydrochelidon leucoptera*, like the *H. nigra*, lives upon *Libellulæ*, other aquatic insects, worms, and small fishes, which it captures in a similar manner. It breeds in the marshes in the southern part of Savoy, and lays four or five eggs, sometimes of a brownish-olive, at others of reddish-grey, spotted irregularly with black and brownish-black over the middle, and particularly towards the larger end; “leur grand diamètre a 3 cent. 6·8 mill. sur 2 cent. 7·9 mill. de petit diamètre.”

In the summer the whole of the head, the upper and the under surface is deep black, slightly tinged with green in freshly shot specimens; upper and under tail-coverts and tail pure white; centre of the wings grey, fading into pure white on the shoulder and that portion of the feathers nearest the body; the first, second, third, and sometimes as many as the first five primaries greyish black, with white shafts, and a margin of white along their inner web, the remainder light grey; secondaries, tertiaries, and scapularies slate grey; irides blackish-brown; bill, legs, and feet coral-red; nails black.

The figure represents two birds in the plumage of summer, of the natural size.



HYDROCHELIDON LEUCOPAREIA.

J. Gould & H.C. Richter, del. et lith.

Müller, Imp.

HYDROCHELIDON LEUCOPAREIA.

Whiskered Tern.

- Sterna hybrida*, Pall. Zoog. Ross.-Asiat., tom. ii. p. 338.
—— *leucopareia*, Natt., Temm. Man. d'Orn., 1820, tom. ii. p. 746.
—— *Delamotta*, Vieill. Ency. Méth. Orn., part i. p. 350.
Viralva indica, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 171.
—— *leucopareia*, Steph. ibid., vol. xiii. p. 169.
Pelodes leucopareia, Kaup, Natürl. Syst., p. 107.
Hydrochelidon leucopareia, Boie.
—— *hybrida*, G. R. Gray, Gen. of Birds, vol. iii. p. 660, *Hydrochelidon*, sp. 1.
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WHY Pallas should have named this well-defined species *hybrida* I am at a loss to imagine; I must therefore dissent from those of my contemporaries who persist in perpetuating, on the score of priority, such a misnomer; surely the laws of nomenclature are not so rigid as to demand that an appellation so singularly inappropriate shall not give place to the better one of *leucopareia*, applied to the bird by the late John Natterer, and which, like my friend Schlegel and some other scientific writers, I adopt. It is true that the bird possesses certain characters which would seem to unite *Hydrochelidon* to *Sterna*; but these relate to colour rather than to structure; a moment's glance at its feet will show its true position; and on investigation it will be found that its entire actions and economy assimilate to those of the Marsh- rather than to those of the Sea-Terns.

The characters by which it is most nearly allied to the members of the genus *Sterna* are the possession of a black cap in summer, a portion of which disappears in winter, and the whiteness of the face; the under surface is suffused with bluish black during the summer months, a style of colouring common to all the Marsh-Terns; these peculiarities in its colouring are of much interest as proving the Whiskered Tern to be distinct from both *Hydrochelidon nigra* and *H. leucoptera*.

The *Hydrochelidon leucopareia* is justly entitled to a place in our avifauna; for it has been several times killed in our island, both in its youthful light and in its mature black livery; one in the former state was obtained at Scilly, while the specimen which, through Dr. Heysham's instrumentality, came into the possession of Mr. Yarrell, another obtained in Ireland, and a third kindly sent to me by Mr. Gatcombe, are in the latter dress. The British Islands are not, and never have been, one of the true homes of the bird; those homes lie far south and east of them, for they are the fluviatile marshes and inland waters of the countries bordering the Mediterranean, in Hungary, and in the Crimea. The bird appears in Malta in spring and autumn, but, according to Wright, is not common. The individuals that are then seen are doubtless on their passage to and from Algeria to Southern Europe. It frequents all the great lakes and swamps of North Africa, and is probably common in all parts of that country and thence eastward to the Nile, in Persia, India, and China. The Rev. Mr. Tristram, speaking of the bird as seen by him in North Africa, under the name of *Sterna hybrida*, says:—"Hundreds of lovely Terns were hovering about or dipping headlong into the dark still water of Lake Halloula. I shot several, and found most of them to be the Whiskered Tern (*Sterna hybrida*); but mingled with them were many of the Black and Lesser Terns (*S. nigra* and *S. minuta*). *Sterna hybrida* is easily distinguished by its note, which is less shrill and more rapidly repeated than that of *S. nigra*; but in general appearance it very closely resembles the *S. arctica*, so familiar on our own Northumbrian coasts, with its lake-red bill and feet and its black head. Searching for the nesting-place of the Terns, I was surprised to find the whole colony of Whiskered Terns (*S. hybrida*) breeding in the nests of Eared Grebes, and that apparently without having at all repaired the nests, which could have been only a few days evacuated by their constructors, as we saw hundreds of young Eared Grebes paddling about and living in the open air with their parents. My series of eggs of *S. hybrida* shows a decided tendency to pale green as the ground-colour, and a type clearly distinguishable from that of any other Tern, though somewhat approaching the character of *S. leucoptera*, which, however, are much smaller, and only exceptionally of a greenish ground. The markings are nearly as large as in the eggs of the Common Tern. A favourite food with these birds appeared to be a large hairy caterpillar, which covered the neighbouring marshes at this time in thousands. They were also plunging into the lake in quest of the frogs and newts with which it abounds."—*Ibis*, 1860, pp. 157, 164.

Lord Lilford informs us, in his paper "On the Birds observed in the Ionian Islands," &c., published in the same volume of the 'Ibis,' that the "Whiskered Tern (*Sterna leucopareia*) is common in winter at Butrinto, and breeds in the marshes of Durazzo" (p. 357).

Speaking of the bird under the name of *Hydrochelidon indica*, Mr. Jerdon says:—"This Tern is

exceedingly abundant in India, frequenting marshes, tanks, and rivers, usually preying on aquatic food, not unfrequently hunting over fields, beds of reeds, and marshy ground, where it captures grasshoppers, caterpillars, and other insects. In some parts of the country it roosts on thick beds of reeds, congregating in vast numbers for some time after sunset, till nearly dark; indeed it may be seen in scattered flocks flying in an excited and hurried manner over the surface of the water. This little Tern breeds in large churrs on the Ganges, and probably on most other large rivers. Mr. Brooks sent me eggs procured near Mirzapore."

Mr. Swinhoe, writing of the bird under the same appellation, says:—

"This species is not uncommon on the marshy lands of S. W. Formosa. I have not yet noted it in China, though doubtless it must occur there. A fine male brought to me on the 28th of August had the bill deep-brownish lake-red; the legs and toes Indian or madder-red, and black claws. Its stomach contained several large larvæ of a water-beetle (*Dytiscus*, sp.), and a few small fish."

Temminck informs us that it is found in Borneo; and so it may be; but I have now good reasons for altering the opinion I expressed in my 'Handbook to the Birds of Australia,' that the bird I so frequently met with on the interior waters of that continent was the *H. leucopareia*, an opinion which induced me to suppress my own name of *fluvialis* for the older one given by Natterer: since then I have received several examples from the interior of Queensland in their summer dress, which certainly differ from those killed in Hungary at the same period of the year. The Australian bird is smaller than the European, is of a lighter colour, and has a more silvery hue above, while the black of the under surface is not nearly so dark. Judging from the state of plumage of one of the Australian specimens above mentioned, it would seem that these Whiskered Terns undergo a greater seasonal change than I had previously supposed; for it is not the forehead alone that is becoming white, but the dark smoky grey and black portions of the under surface are changing to white.

The *Hydrochelidon leucopareia* was first described as new to science in the second edition of Temminck's 'Manuel d'Ornithologie,' published in 1820, from specimens discovered by Natterer in the southern part of Hungary. Subsequently other examples were found in the marshes of Capo d'Istria and on the coast of Dalmatia; and in May 1819 M. Jules de la Motte killed three out of a flock of eight, which remained for two or three days on the coast of Picardy, feeding upon the insects frequenting aquatic plants. Degland has since ascertained that it breeds annually in the south of France. The late Mr. Yarrell was the first to give it a place in the British fauna. "At the end of August 1836," says he, "a party of two or three persons went out in a boat to amuse themselves with shooting sea-birds, and this Tern among others was part of the produce of their guns." The next example was recorded by Thompson in the 20th vol. of the 'Annals and Magazine of Natural History' as having been shot in September 1839 "on the River Liffey, between Ringsend and the Pigeon-House Fort, Dublin, by John Hill, Esq., and as being deposited in the Collection of T. W. Warren, Esq., of Dublin."

From a communication to the 'Zoologist' by Messrs. J. H. Gurney and W. R. Fisher, we learn that "an example of the Whiskered Tern was shot on the 17th of June, 1847, whilst flying over Hickling broad, in Norfolk. It proved to be an adult female, and contained ova in an advanced stage, the largest being apparently almost ready to receive the shell. In the stomach were found the remains of about twenty of the larvæ of the broad-bodied dragonfly."—*Zool.* 1847, p. 1820.

Mr. Rodd states, in his 'List of British Birds,' that an immature specimen was obtained at Scilly in September 1851.

On the 11th of May, 1865, Mr. Gatcombe writes:—"I think it will interest you to hear that a specimen of that, to us, exceedingly rare Tern, *Sterna leucopareia*, has been obtained off the coast of Devon. It is a fine bird in full summer plumage, and was accidentally detected by me in the hands of a young bird-stuffer, who had just finished setting it up, but had not the slightest idea of its name or rarity. He told me that it was picked up on the water by some fishermen and brought in alive, but that it soon died."

In summer the forehead, crown, and nape are deep black; on each side, from the base of the upper mandible below the eye to the ear-coverts, a stripe of white; neck, breast, back, wing-coverts, upper tail-coverts and tail dark grey; first primary leaden grey, except the shaft and the margin of the basal part of the inner web, which are white, the remaining primaries and the secondaries grey, of a lighter hue on the outer than on the inner webs; all with white shafts; chin and throat greyish white; abdomen, flanks, and thighs leaden grey; under wing and tail-coverts white; bill red, darker towards the point; irides brownish black; feet and webs coral-red; nails black.

The Plate represents an adult in summer plumage and a young bird in the first autumn plumage, of the size of life.



STERCORARIUS CATARRACTES.

J. Gould, and H.C. Richter del. et lith.

W. Yar. imp.

STERCORARIUS CATARRHACTES.

Great Skua.

Larus Catarrhactes, Linn. Syst. Nat., tom. i. p. 226.

— *fuscus*, Briss. Orn., tom. vi. p. 165.

Lestris catharractes, Ill. Prod. Syst. Mamm. et Av., p. 273.

Catharacta Skua, Brünn. Orn. Bor., no. 125.

Cataractes vulgaris, Flem. Edinb. Phil. Journ., vol. i. p. 97.

Catarractes skua, Steph. Cont. Shaw's Gen. Zool., vol. xiii. p. 215.

Catarractes noster, Sibb. Scot. Illust., vol. ii. p. 20, pl. 14. fig. 1.

Stercorarius catarrhactes, Gray and Mitch. Gen. of Birds, vol. iii. p. 653, *Stercorarius*, sp. 5.

Lestris antarctica, Less. Traité d'Orn., p. 616.

Megalestris catarractes, Bonap. Consp. Av. 1856, p. 206.

THIS is the largest species of a group of sea-birds distinguished for many peculiarities in their habits and economy, and to which the generic terms *Stercorarius*, *Coprotheres*, and *Lestris* have been applied, either to the species collectively or to the three divisions into which they have been separated; but, for myself, I prefer to keep them under one appellation.

The Great Skua is the solitary wanderer which visits the seas on both sides of the Line—the great brown bird seen by all voyagers who round the Capes of Good Hope and Horn—the Cape-Hen of the sealers, the Port-Egmont Hen of Hawksbury's and Cook's Voyages. I have stated that this bird is found on both sides of the Equator; at the same time I am aware that the birds of this form frequenting the southern hemisphere have been considered and characterized as distinct, under the name of *Stercorarius antarcticus*; but my own opinion is, that the birds of both hemispheres are referable to one and the same species.

The Great Skua is unknown in Greenland, but, according to Mr. Alfred Newton, is pretty common along the coasts of Iceland, and occasionally breeds some distance inland. Faber says it is resident, and names four breeding-places in the south—an island in the Ælfusá, a sandy plain opposite the Vestmanneyjar, and the dunes of Skeiðarásanör and Breiðamerkr. Dr. Krüper saw it in the north in summer-time; so that it probably breeds there also. In Scandinavia it is accounted rare, and it is very doubtful if it breeds in any part of the country. Mr. Newton does not recollect seeing the bird more than once during three voyages along the coast of Norway. It is not found in Spitsbergen; and though Von Baer includes it in his list of the birds of Nova Zembla, I am disposed to think the information is erroneous. It is utterly unknown on the coast of Siberia. Strange to say, Professor Baird's 'List of American Birds' gives the western or Californian coast only as the habitat of the bird in that country. In all the situations above-mentioned, whether the bird be at sea or on the grass-covered bleak hills of the islands upon which it breeds, its presence is soon made known by its daring spirit. During the breeding-season, it is said that every animal is savagely attacked that approaches too near its nest, and that the Eagle and the Great Gull speedily scurry away out of distance, should they have ventured within its precincts.

"The Skua," says Macgillivray, "has much of the aquiline character, although it is not known to pounce on its prey and carry it off in its claws. On the other hand, it bears a great resemblance to the Gulls both in form and habits, keeping its body horizontal when standing, walking, and running with quick steps, and having a light and buoyant flight, more rapid and direct, however, than that of the Gulls. Its voice is sharp and shrill, and it is from the resemblance of its cry to that of the word *skua* or *skui* that it obtains its popular name. Dr. Edmonston informs me that 'the Skua has now become rare in Shetland, in consequence of proprietors permitting rapacious bird-collectors to shoot them indiscriminately during the breeding-season. In Unst there is only one locality frequented by them, and in all the country there are not more than four or five. In the one alluded to, the colony had been reduced to a single pair some years ago; since then it has been efficiently protected, and now it reckons more than ten pairs. This is, I suppose, the most northern preserve in Great Britain, and as such, perhaps, deserves to be recorded. The Skua is hardy and easily tamed. In captivity he is gentle and affectionate, and will feed on almost anything. When offended, he raises his wings and yelps in the manner of the Eagle; but his bearing is much more dignified and magnanimous. The bird remains with us during summer.'"

The Rev. Mr. Low gives the following account of the Skua as seen on the island of Foula, to the westward of the Shetland Isles:—"As I approached the summits of the high mountains, I came near the Skua's quarters, which are affixed on the very peaks. I no sooner drew near than I was attacked with such great fury, that every one who was with me, as well as myself, were obliged to do him obeisance at every

stroke. He beat my dog entirely out of the pit, insomuch that he was obliged to run among our legs for shelter, and could not be forced out again; for although Bonxie, as the bird is called, had some respect for us while we kept together, on him he had no mercy; every whip he fetched him made his own wings crack, and the dog crouch into the hollows of the moor, until we came up and relieved him. I followed one of them to some distance from the rest of my party, and received some rude salutes for my imprudence from three of these birds, which made at me with the utmost rage. I defended myself the best way I could with my gun, fired several times at them; but, as none dropped, the report did not startle them in the least, but rather seemed to enrage them the more. When the inhabitants are looking after their sheep on the hills, the Skua often attacks them in such a manner that they are obliged to defend themselves with their cudgels held above their heads, on which it often kills itself." It has a hoarse and strong cry, and lives much in the manner of the Parasitic Gull, attacking the larger kinds of Gulls as the other does the smaller, but never meddles with birds to destroy them, nor attacks the lambs on the island, but, in its opposition to all formidable intruders, protects them from the Eagle, who does not venture to prey there during the breeding-season. In gratitude for its services, it was protected by a penalty of sixteen shillings and eight-pence for every individual shot; and when met with at sea by the fishermen, it always had a share of whatever fish might be in the boat.

Captain Vetch, in his account of this species, published in the fourth volume of the 'Memoirs of the Wernerian Society,' says, "The Bonxie or Skua-Gull breeds, I believe, in the British Islands only in Shetland, and there only on the three highest hills—Snuke in Foula, Ronas, and Saxafjord. On Foula it seems to have taken exclusive possession of the Snuke, where it generally breeds at a height of 1300 feet, and nowhere else. It is easily tamed, and, I understand, is a very docile bird. I often observed it walking about within a few yards of the tent, and without any apparent fear; when, however, its nest is approached, it shows a determination to defend its possession with its life. Ravens, Eagles, Hawks, or other birds are soon driven from the territory it inhabits. On nearing the nest, an attack instantly commences; male and female in rapid succession descend from a considerable height, with a velocity and noise truly startling; horses, cattle, and sheep are immediately put to flight, and receive no intermission of attack till driven far from the nest; and if man, bent on sinister purposes, continues to brave the Bonxie's fury, he seldom accomplishes his aim without carrying away marks of war. The nest is a mere concavity in the ground; the number of eggs, two; the month of breeding, July. The young bird is a nimble, gallant little animal, and almost as soon as hatched leaves the nest. On the approach of danger, he secretes himself in holes or behind stones with great art, and, when captured, makes a show of defence that is quite amusing. The number of these birds that annually breed at Foula probably does not exceed thirty pairs."

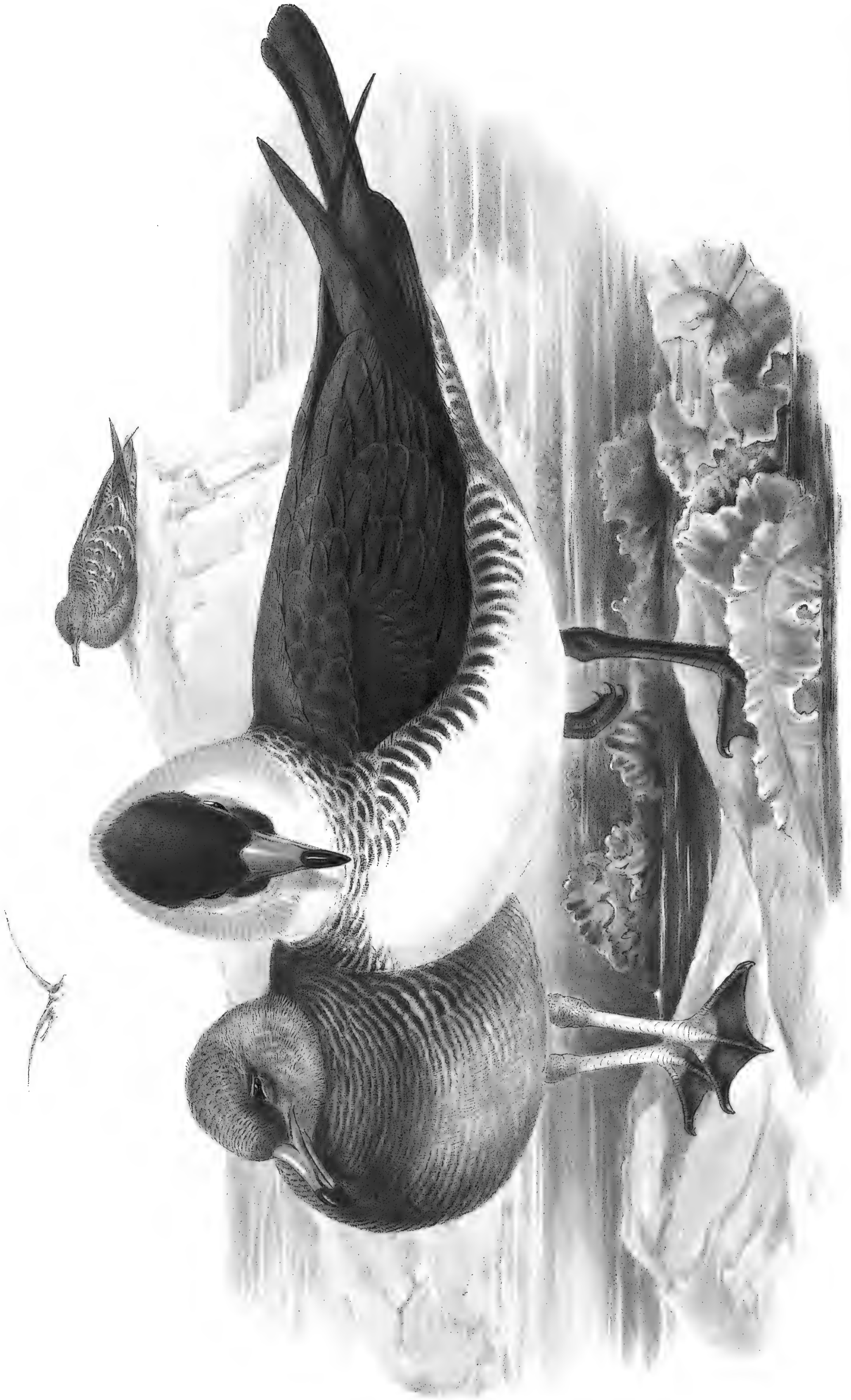
In 'Some Observations on the Birds of the Faroe Islands,' by the late John Wolley, Esq., that gentleman says, "In the only two spots where the Great Skua now breeds in the British Islands, it is preserved only by the utmost vigilance of the proprietors, one of whom, Mr. Edmonston, has succeeded in recovering the stock, after it had been reduced to a single pair, in Unst. But in Faroe its breeding-places are numerous, though its preservation demands great self-control on the part of the people, for its attacks upon anyone approaching its nest are most irritating. Its blows are aimed at the head, with the full momentum of the bird's body; and it returns again with the most steady intrepidity imaginable. The protection afforded to it lasts only during good behaviour; when a colony is becoming too large some of them are apt to begin to attack lambs; they are then doomed to the infliction of a battue, which is supposed to act as a warning to the survivors for some years to come. It is said that only a few individuals acquire this bad habit—just as in the Scottish Highlands it is a single fox or eagle which gets into the way of carrying off lambs, but which evil-disposed one gives a bad name to, and is the death of, many of its innocent brethren.

"The Skua is one of the birds of which a certain number of heads is required to be given in by every inhabitant annually, which reminds one of the mode in which Egbert endeavoured to extirpate wolves in Britain. I do not know if this is now strictly enforced; but I have seen the people collect heads, when they had an opportunity, either of this bird or the Raven, or the Great Black-backed Gull—that is, when they were ready killed for them. I heard that several heads of the Hooded Crow or Richardson's Skua might be substituted for one of the larger birds. Skua is the Faroese name of the bird."

Mr. Dunn, who visited the Shetland Islands in 1831 and 1833, says "the nest is usually constructed amongst the heather or moss, the female mostly laying two eggs, but sometimes three." They are of an olive-brown, blotched with darker brown; and are two inches and nine lines long by two inches in breadth.

There is little difference in the external appearance of the two sexes; neither do the young differ from the adult, except in having the feathers more broadly margined with reddish brown.

The Plate represents the bird in its breeding-dress, somewhat smaller than the natural size.



STERCORARIUS POMATORHINUS.

Pomatorhine Skua.

- ? *Stercorarius striatus*, Briss. Orn., tom. vi. p. 152, pl. 13. fig. 2.
Lestris pomarinus, Temm. Man. d'Orn., 1st edition, p. 514.
Catarractes parasita, var. *camischatica*, Pall. Zoogr. Ross.-Asiat., tom. ii. p. 312.
Catarractes pomarina, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 216, pl. 24.
——— *Pomarinus*, Selby, Ill. Brit. Orn., vol. ii. p. 517.
Lestris striatus, Eyton, Rare Brit. Birds, p. 53.
——— *sphæriuros*, Brehm, Handb. der Naturg. Vög. Deutschl., p. 718.
Stercorarius pomarinus, Gray and Mitch. Gen. of Birds, vol. iii. p. 653, *Stercorarius*, sp. 3.
Coprotheres pomarinus, Reich. Syst. Av., tab. 32. figs. 328, 329.
Lestris pomatorhinus, Sclater, Ibis, 1862, p. 297.
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THE species of Skua above named, and represented on the opposite Plate; was first clearly distinguished from others of the group by the late Professor Temminck, who described it unequivocally in the original edition of his 'Manuel d'Ornithologie'—a work which, with all its imperfections, was then far in advance of any other of the kind, and which gave an enormous impetus to our knowledge of the birds of this quarter of the globe. Temminck called his new species *Lestris pomarinus*, the derivation of which appellation was long a matter of uncertainty. Some naturalists conceived it was intended to refer to the country of Pomerania; but the truth of the matter remained unsuspected until, in 1860, M. Preyer, in the narrative of his travels in Iceland, set it at rest by suggesting that Temminck intended to refer to the peculiar lid-like formation of the nostrils, and coined his name from two well-known Greek terms having that signification. That distinguished naturalist, however, being better acquainted with birds than with the classics, made a mistake in the composition of his new word, and it thus became necessary, as Dr. Sclater subsequently showed, to modify the spelling from *pomarinus* into *pomatorhinus*, the form which I accordingly here adopt.

Like all the other species of the genus, the Pomatorhine Skua is an inhabitant of the colder parts of the world. Its limits northward may be said to extend as far as our geographical knowledge goes. Speaking of the regions on the other side of the Atlantic, Sir John Richardson says, "It is not uncommon in the Arctic Seas and northern outlets of Hudson's Bay, where it subsists on putrid fish and other animal substances thrown up by the sea, and also on the matters which the Gulls disgorge when pursued by it. It retires from the north in the winter, and makes its first appearance at Hudson's Bay in May, coming in from seaward. The Indians abhor it, considering it to be a companion of the Esquimaux, and to partake of their evil qualities."

Captain Holbøll, who was for many years Governor of the Danish possessions in Greenland, states that it is the commonest species of Skua found in the northern part of that country, which it visits from May to September, breeding always in society. He adds that it can fish well enough for itself when it likes, but prefers living by plunder, pursuing the Sea-Gulls, and compelling them to drop their booty, which it at once appropriates.

Dr. von Middendorff, the intrepid traveller who has added so largely to our knowledge of the natural history of the most northern portions of Asia, says that this bird breeds in especial abundance on the barren grounds or "*tundras*" adjoining the River Taimyr; but thence to the Boganida only a single example was procured. He first saw the bird on the 6th of June, and on the 7th July found (in lat. N. 74°) the first eggs lying on the moor without any nest. Northward of 74½° he did not meet with it.

Mr. Alfred Newton, writing in the 'Proceedings of the Zoological Society' for 1861 (p. 401), says, "In June 1855, Mr. Simpson and myself observed off Berlevaag, a promontory east of North Cape, large flocks of this species. On our return a few weeks afterwards with Mr. Wolley, we again saw them. In 1857 that gentleman sought diligently, but unsuccessfully, for their breeding-places in this district. He was led to believe that in the years when the Lemmings swarm in the mountains they usually breed far in the interior of the country; for this, as well as the allied species of *Stercorarius*, preys much on these little rodents. It is perhaps worthy of remark, that in the full-plumaged Pomatorhine Skua the middle tail-feathers have a kind of twist in their shafts, which brings the lower surfaces to meet together towards their extremities in a vertical direction; and this peculiarity gives the bird, when on the wing, a very singular appearance." At the same meeting of the Zoological Society at which Mr. Alfred Newton made the above remarks respecting this species, he exhibited an egg of the bird, for which he stated he was indebted to Dr. Baldamus, to whom it had been sent by Dr. von Middendorff. This egg is figured in the 'Proceedings of the Zoological Society' for 1861. It is represented as of rich brownish olive, largely

blotched with brown of two tints, the paler having the appearance of being beneath the surface of the shell. The same gentleman has likewise communicated to me the following note:—"Since I was in Lapland in 1855, I have three or four times renewed my acquaintance with the Pomatorhine Skua. In Iceland, although it has been observed by several travellers, I believe it is not common, and I only saw the species once. In October 1862, while lying weather-bound in Torbay, a party of about thirty of these birds were for two days in close attendance on our ship, and about as many more round each of two other vessels anchored near us. They were very tame, coming close alongside the quarter-deck in quest of food; and dire was the strife and loud the contention as one lucky bird after another seized on some choice morsel and conveyed it far astern to devour it at leisure. Scarcely any two of these birds were alike in plumage. There was every gradation, from the sombre whole-coloured suit of sooty-brown to the varied dress with an under surface of pure white, adults in the extreme of each habit appearing, as their long disk-bearing tails testified. On my return from Spitsbergen in August 1864, about midway between Bear Island and the coast of Norway, we saw many of these birds, generally in waiting on the flocks of Kittiwakes which we encountered. In Spitsbergen itself, only one was recognized by our party."

The Pastor Sommerfelt, in his account of the birds of East Finmark, mentions its yearly occurrence, in spring and autumn, in the Varanger Fjord, and states that he has obtained its eggs from Gamvik, where it has been observed all through the summer. From this and the information given by Mr. Newton, I should conclude that it breeds on the high fells east of the North Cape, which look forth towards the Arctic Ocean.

In the British Islands it only occurs as a straggler, but in that character it is certainly not rare. It sometimes is met with in large bands, and occasionally wanders far from the sea into the inland counties. The first record of its occurrence as a British bird is, I believe, to be found in the sale Catalogue of Bullock's celebrated Museum, in 1819. Two specimens are therein mentioned, one of which is stated to have been killed at Brighton. This was secured by Dr. Leach for the National Collection, where it may now be seen; but Mr. G. R. Gray, in his 'Catalogue of Birds in the British Museum,' attaches to it the locality "North Britain," which is probably an error.

In proof that it is frequently met with on our coasts, I may mention that on the 19th of October, 1857, I saw in Leadenhall Market five Great Skuas, seven Pomatorhine Skuas (one adult and six young of the year), and one young Arctic Skua, all of which were from Yarmouth, and, it was believed, had been killed near the Light-ship after a gale.

The weight of the old Pomatorhine Skua was 1 lb. 6 oz., that of the young 1 lb. 8 oz. The colouring of the legs of the latter was very beautiful,—the thighs, knees, and half an inch of the tarsus beneath, and the joint immediately above the interdigital membranes, being beautiful cobalt-blue; the front of the middle part of the tarsi pale greenish blue; the interdigital membranes dark chocolate-black, resembling india-rubber in appearance; under surface of the foot reddish flesh-colour; irides brownish black; bill brownish slate-colour, tips black. The feet and tarsi of the old bird were uniform dark chocolate-brown; under mandible fleshy, becoming black at the tip; basal portion of the upper mandible sickly yellow, the tip black; irides very dark.

The changes of plumage to which this species is subject are most perplexing, and I feel assured that much yet remains to be learnt respecting them. See what I have said on this subject in my account of *Stercorarius longicaudus*.

A most perfect and singularly coloured British-killed specimen is contained in the collection of our native birds belonging to Viscount Hill, at Hawkstone. This individual is remarkable for its large size, for the length of its middle tail-feathers, and for the uniformity in the colouring of its entire plumage, which may be characterized as of the deepest chocolate, inclining to black; the tarsi appear to have been black, and the beak also, with the exception of the culmen, which is olive. This specimen has no appearance of immaturity; the two middle tail-feathers are of uniform breadth from the base to the tip, and are much longer than usual. Total length 22 inches; bill 2; wing $13\frac{3}{4}$; tarsi $2\frac{1}{4}$; middle toe and nail 2.

The Plate represents an adult and young bird, rather less than the natural size.



J. Gould, and H.C. Richter, del et lith.

STERCORARIUS PARASITICUS.

Walter Inp

STERCORARIUS PARASITICUS.

Arctic Skua.

Larus parasiticus, Linn. Syst. Nat., ed. 12, tom. i. p. 226.

Cattaractes parasita, Pall. Zoogr. Ross.-Asiat., tom. ii. p. 310.

Lestris parasiticus, Ill. Prod. Syst. Mamm. et Av., p. 273.

Stercorarius parasiticus, Gray and Mitch. Gen. of Birds, vol. iii. p. 653, *Stercorarius*, sp. 1.

Lestris Richardsonii, Swains. Faun. Bor.-Amer., vol. ii. p. 433.

Stercorarius richardsonii, Coues, Proc. Acad. Sci. Philad. 1863, pp. 121, 135.

Lestris thuliaca, Preyer, Reise nach Island, p. 418.

Richardson's Skua of British Ornithologists.

No species of the genus is subject to greater changes of plumage than the present bird, and none exhibits a greater diversity in its colouring. The uniformly-coloured figure in the 'Fauna Boreali-Americana' represents the bird in a somewhat abnormal dress; for, although dark varieties occasionally occur among the specimens shot in the British Islands, few are so uniform in their colouring. Swainson, not being aware of the variations to which the bird is subject, regarded the specimens under his notice as pertaining to a distinct species, and under this impression named them *Lestris Richardsonii*, in honour of Dr. Richardson; but, as we now know he was in error in so doing, we are compelled by the law of priority to deprive the bird of the honour of bearing the name of that distinguished traveller and scientific naturalist.

Although the seas of the northern hemisphere are inhabited by every species of this form, I have but little doubt of the present bird being the one most generally distributed, the regions of the Arctic circle in both the Old and the New World being tenanted by it. From these parts of the northern hemisphere its range extends over Europe and America, the British islands being perhaps the most southern country in which it breeds. It is abundant in Baffin's Bay, Greenland, Iceland, and Norway, and a few years ago was scarcely less numerous in the Shetland, the Orkney, and Faroe Islands; in the former they annually bred, but they are now far less numerous than formerly. During tempestuous weather and seasons of extreme cold, it proceeds to the southward; and the young, wandering further than the adults, occasionally resort to the coasts of Portugal, Spain, and the Mediterranean. Still it is strictly a bird of the north, the greater number remaining in those countries during the months of summer, ever chasing the Gull and the Sea-Swallow, and tyrannizing over all the other birds they can master.

"In autumn," says Macgillivray, "when the fry of the coal-fish swarm along the shores, and shoals of the sand-eel sport in the waters, vast numbers of Gulls, Sea-Mews, and Terns frequent the sandy coast. Here on this beach let us seat ourselves, and take note of the occurrences, the time being the end of August. The wavelets chase each other in undulating lines, the sunbeams glitter on the smooth surface of the sea, and the gentle breeze tempers the heat of noontide. The sea-birds are on wing, wheeling and hovering all around, vociferous in their enjoyment,—their screams mingling into one harsh noise. Every now and then a Tern dips into the water, and emerges with a little fish in its bill, which it swallows without alighting. In the midst of all this bustle and merriment, there comes gliding from afar, with swift and steady motion, a dark and resolute-looking bird, which, as it cleaves a path for itself among the White Terns, seems a messenger of death. A few minutes ago he was but a dim speck on the horizon, or at least some miles away; and now he is in the very midst of them, has singled out his victim, and is pursuing it. The latter, light and agile, attempts to evade the aggressor, mounts, descends, sweeps aside, glides off in a curve, turns, doubles, and shoots away, screaming incessantly the while. The Sea-Hawk follows the frightened bird in all its motions, which its superior agility enables it to do with apparent ease. At length the Tern, finding escape hopeless, and perhaps terrified by the imminence of its danger, disgorges part of the contents of its gullet, probably with a view of lightening itself. The pursuer, with all his seeming ferocity, had no designs upon the life of the poor Tern; and now his object is evident, for he plunges after the falling fish, catches it in its descent, and presently flies off to attack another bird. In this way the marauder makes his rounds, exacting tribute from all who he thinks are capable of paying it, and not sturdy enough to resist oppression. The teaser never fishes for himself on such occasions, although his organization seems to fit him for aquatic rapine even more than that of the Tern or Gull. When satisfied with food, he retires to the distant bosom of the deep, or to some inlet or unfrequented part of the sand; but his awakening appetite soon forces him to return, and, for hours together, he may be seen on wing, singling out a bird here and there, and pursuing it, or gliding swiftly, as if on urgent business, from one group to another. The pirate sweeps rapidly along on extended wings, which are considerably curved like those of the Gulls and Terns, the latter of which it resembles in its mode of flight, although it moves more directly, with

scarcely perceptible undulations. When approaching a bird at full speed, it flies directly forward with frequent flaps; in pursuit it turns, ascends, falls, and glides with the most elegant motions. The pirate can neither dive nor plunge; but it swims with ease, and sits lightly on the water. It seldom fails in catching the fish that has been dropped; yet this sometimes happens, and I have seen it pick it up after it had fallen on the water, although at other times it did not attempt to obtain it, possibly because it had sunk beyond its depth. The pirate cannot be said to live without labour; for the trouble of compelling its unwilling vassals to disgorge is apparently greater than what would abundantly supply it with honestly obtained food."

The late Mr. Dunn, speaking of the bird as seen by him in Orkney and Shetland, about 1832, states that it appears there regularly in May, and leaves in August. The place where he "found it most numerous in the former country was the Holm of Eddy; and in the latter, on the island of Noss, near Lerwick. It constructs its nest on low, wet, mossy heaths in exposed situations. The female lays two eggs, and has recourse to the same stratagem that the Plover employs to decoy you from the nest, but, when a person approaches the place where the nest is deposited, becomes bold and fierce, and strikes severely with the feet and bill. A dog I had with me on my first visit had been so repeatedly and severely struck by this bird, that when he heard one cry he would instantly come behind me for protection; and all my efforts to make him hunt again were ineffectual until we had got some distance from the place. Another dog, possessing more courage than the former, after feeling the effects of their bills once or twice, and appearing much astonished at such a foe, would watch the bird pouncing at him, and spring from the ground to meet the attack, and by this means escaped many severe blows."

In some notes recently transmitted to me by Mr. J. H. Dunn, he says, "There is only one place in Orkney where the bird now breeds; and that is the island of Hoy. The proprietor allows no one to land with a gun. I have been there myself; but I found only a small number, and in a few years there will probably be none on any of our other islands. The hills on Pomona, or the mainland of Orkney, are now all divided; so that every man knows his own, and where he can make improvements and bring the ground under cultivation—a process which is gradually proceeding, and which, of course, tends to diminish the numbers of such birds as the Arctic Skua."

Mr. Newton informs us that in Iceland this bird is "common enough throughout the island; for it occasionally occurs, and even breeds, on the moors far inland. According to Faber, it arrives about the 25th of April, and remains until the middle of September."

We learn from Mr. Hewitson, that in Norway the Arctic Skuas breed mostly apart from each other, each pair taking possession of a separate island, upon the highest point of nearly all of which they are constantly to be seen perched, and upon it they usually lay their eggs, sometimes, however, choosing the lower grounds. Here also they are the persecutors of the other species of sea-birds, even sucking the eggs of those who may have left them uncovered.

The nest is usually made of dry grasses and mosses, and placed upon a slight but dry eminence. The eggs are commonly two in number, of an olive-brown, spotted with dark brown, and are about two inches and eight lines in length by one inch and eight lines in breadth. But Macgillivray states that they "differ greatly in size, form, and colours, the ground-colour being brownish green, olivaceous, umber-brown, light yellowish brown, pale yellowish grey, or light greyish green, spotted and patched with umber or blackish brown and purplish grey.

The normal plumage of the Arctic Skua is doubtless that represented by the hinder figure in the accompanying Plate, in which, as will be seen, the under surface is white. The common variety is that shown by the figure in which the plumage is of uniform tint, except the ear-coverts and the lengthened feathers on the sides of the neck, which are buff. In the young state, or the plumage of the first autumn, the under part of the body is rayed with markings of white and brown, and on the upper the feathers are margined with buff. At this age the tarsi are bluish, and the toes are dark. The nestling-plumage, again, differs; for the chick is clothed in a hairy down of a uniform sooty black, and has the bill very light bluish horn-colour, darkest on the culmen from the nostril to the point; irides bluish black; legs and toes light slaty blue, tinged with purple, which is darkest at the joints; web slight stone-colour, with a tinge of blue near the toes.

The figures are of the natural size.



SYLVESTRICUS LONGICAUDUS.

Alcock and H. B. Nichol, et al.

Walter, imp.

STERCORARIUS LONGICAUDUS.

Long-tailed Skua.

? *Larus crepidatus*, Gmel. edit. Linn. Syst. Nat., tom. i. p. 602.

Stercorarius longicaudus, Vieill. Cuv. Dict. d'Hist. Nat., tom. xxxii. p. 157.—Briss. Orn., tom. vi. pp. 150, 155.

Lestris parasiticus, Temm. Man. d'Orn., 2ndé edit. tom. ii. p. 796.

——— *Buffoni*, Boie, Isis, 1822, p. 562.

Stercorarius cephus, Leach, Swains. Faun. Bor.-Amer., vol. ii. p. 432.

Catharacta cephus, Keys. und Blas. Wirb. Eur., p. 95.

Cataractes longicaudatus, Macgill. Man. Nat. Hist. Orn., vol. ii. p. 258.

Stercorarius cephus, Gray and Mitch. Gen. of Birds, vol. iii. p. 653, *Stercorarius*, sp. 2.

——— *Buffoni*, Coues, Proc. Acad. Sci. Philad., 1863, p. 136.

The Arctic Bird, Edw. Nat. Hist. of Birds, part iii. pl. 148.

Buffon's Skua of British Ornithologists.

I ADOPT the specific term *longicaudus* for this elegant bird because it is a very appropriate appellation, and there is little doubt of its being the oldest that has been applied to it, the bird being sufficiently well described as *Stercorarius longicaudus* by Brisson in 1760 (see his 'Ornithologie,' vol. vi. p. 155). It is, undoubtedly, the "Arctic Bird" of Edwards, although his figure represents the bird with yellow tarsi and black toes in lieu of the normal colouring. Adult birds with yellow tarsi are now before me, and particularly a Cornish-killed example, sent for my inspection by Mr. Rodd, an examination of which seems to prove that the part of the legs which is grey in the living birds changes to dull yellow after being mounted and exposed to light. It will be recollected that in Richardson's Skua the tarsi and toes are uniform in colour.

It will be seen, on reference, that the foregoing species (*S. parasiticus*) is strictly an inhabitant of and breeds in the British Islands. The present bird, on the other hand, has never been known to incubate on any of them, although it has been frequently shot in spring off our coasts. Five splendid adult examples were sent to Mr. Leadbeater to be preserved, early in June 1860; they had been shot out of a large flight which appeared a few days previously off the coast of Ireland, and which was probably performing its annual northward migration. The period was remarkable for violent gales of wind and rough weather, which, by compelling the birds to adopt an unusual route, may account for the occurrence of so many individuals of a rare bird at one time. They were in the finest state of plumage; and dissection proved that three were females and one at least a male. The latter was considerably smaller than the former; and it will be interesting if ornithologists, in their future investigation of this group, can give any proof that the males of the members of this genus are constantly less than the females. Besides these five birds, I have been favoured by E. H. Rodd, Esq., with a specimen which was killed in Falmouth Harbour; I have also seen a young individual in the collection of Mr. Fox at Falmouth; and Mr. Gatcombe informs me that immature examples are not uncommonly seen near Plymouth in autumn. From the foregoing remarks it will be perceived that the British Islands are beyond the limits of the area usually frequented by this species—a circumstance illustrative of the old adage that two of a trade can never agree; the Arctic and Long-tailed Skuas, having habits in common, were not, indeed, likely to breed near each other: yet their nurseries are not very far apart; for if we take a journey to the countries of Norway and Lapland, we shall find the bird breeding in abundance on many of their wild fell-lands: here, then, as well as in the extreme northern portions of America, Iceland, and Greenland, the bird finds a summer home. I take the liberty of quoting some interesting notes on this bird by Mr. Wheelwright, as seen by him in the Quickiock district of Lapland.

"Owing, as it was supposed, to the numbers of Lemmings which swarmed on these fells this summer, the Buffon's Skua was unusually numerous in this neighbourhood, and I obtained more than thirty specimens of old birds, many eggs, and a few young. But, from all I could hear, this was a very unusual occurrence, and years may elapse before they will appear again in such numbers on these fells, though a year never passes without some being seen. It appears therefore that the northern stretch of this large fell-range is the summer home of this Skua, which in winter is occasionally met with as far south as the British Channel. I cannot hear of its breeding, however, further south than 'Peleeekaism,' perhaps 100 miles south of Quickiock. The Laps appear to be well acquainted with this bird. We got our first nest on the 3rd of June, and continued to take fresh eggs until the end of the month. Except in one instance, I never saw more than two eggs in a nest. Once I found three; and as I have taken a single egg from a nest which had been sat on, it seems that they do not always lay two, though we may take that to be the general number. The nest

is nothing more than a few pieces of dried hay, laid in a hole scratched in the ground, always in the vicinity of water. I never saw one on a real snow-fell. Although the bird lives in colonies, you do not find the nests close together. None breed close to Quickiock; but on the fells about thirty miles westward they do in great numbers. No birds are more tame or fearless during the time they have eggs; for they come sailing close over your head when searching for the nest, performing the most beautiful aerial gyrations, during which their long sharp wings and pointed tail give them a singular and pretty appearance. Their cry is a loud dismal shriek, 'i-i-i-ah, je-ah, je-oh, je-oh,' and may be heard day and night over their breeding-place. As soon as the young are hatched off, their nature seems to be entirely changed; they never approach within gunshot, and wisely do not betray the proximity of the young (who always manage to hide themselves very cleverly) by any gestures of anxiety. Of all the specimens I have examined, in one alone did I ever find the remains of a Fell Lemming, and in only one other the remains of a mouse. Their principal food appears to be the common crowberry (*Empetrum nigrum*), a large beetle, and small crustacea. I never found anything, except crowberries, in the stomachs of the young ones. The Laps have an idea that they will kill and eat the young Ptarmigan. I have certainly seen this Skua chase an old Ptarmigan; but this seemed to be from mere wantonness rather than anything else. I could scarcely distinguish the male from the female by the plumage. In one example the long middle tail-feathers measured 13 inches, and extended 9 inches beyond the rest. Much confusion has existed respecting the different members of this genus. Few birds are subject to so many changes of plumage, owing to age and the different shades which appear at the same season of the year.

"The young much resemble the young of the Common Skua (*Stercorarius parasiticus*); the tail is perfectly even, no one feather being longer than the others. On carefully comparing the eggs of Buffon's Skua with those of Richardson's Skua, I could see no very apparent difference in the size. The former may perhaps be a trifle smaller than the latter, but they vary in this respect; for I have seen them quite as large, while from one nest I took two eggs which were at least one-third smaller than any I had before seen. I noticed also that the egg of Buffon's Skua is thicker and blunter at the larger end than the other. The colour is much the same in both, and is subject to the same variations."

It is not to be supposed that the inland wastes, above referred to, are frequented at any other time than the breeding-season. The important duty of incubation accomplished, the bird in a few hours, if so disposed, can fly to the neighbouring seas in search of victims, from whose labours it may obtain its chief if not its only subsistence: not always industrious enough to fish for itself, the Long-tailed Skua gives chase to Gulls, Terns, or any other bird that may have been successful in fishing; these it buffets and persecutes until, in order to lighten themselves, and by flying faster gain the chance of escaping, they disgorge the contents of their stomach, which is immediately and adroitly seized before it reaches the water or land as the case may be; this end attained, the parasite ceases the persecution until the craving of hunger again prompts him to single out another victim and do the like. Scenes like these may frequently be witnessed in all the seas from Iceland to the Mediterranean; for wherever Gulls and Terns abound, there also will their tormentor be found.

The young of the year are blackish brown, each feather of the back being bordered with yellowish, more or less tinged with brown; abdomen brown, streaked with dull white; lower tail-coverts streaked with brown and ochre; wings and tail blackish brown; base of the bill ochreous; tarsi, hind toes and claws, and the base of the interdigital membranes dull yellowish; feathers of the tail rounded, the middle ones not projecting.

The figures in the accompanying Plate were taken from two specimens killed, on the 10th and 12th of June respectively, on their breeding-fells at Quickiock in Norway. I, for one, and most other ornithologists have believed that the style of plumage there represented, when once assumed, is retained ever after; but I have now some reason to think otherwise—that, as is the case with the Divers and other water-birds, it is merely a summer dress, and that after the birds have done breeding they are rayed with brown and white after the manner of, but more conspicuously than in the immature state. Besides other examples I have seen, Mr. Bond has a Cornish-killed specimen bearing out these remarks. It remains to be proved whether or not my opinion be correct; if so, the same law will govern other species of the genus. I may further remark that I have reason to believe that our islands are occasionally visited by another bird of this form, rather larger than the *S. parasiticus*, which has not yet been described, although perhaps it is the one noticed by Mr. Coues in his investigation of the genus in the 'Proceedings of the Academy of Natural Sciences of Philadelphia' for 1863.



PROCELLARIA GLACIALIS, Linn.

J. Gould & H. Richter, del et lith.

Walter, imp.

PROCELLARIA GLACIALIS, *Linn.*

Fulmar.

Procellaria glacialis, Linn. Faun. Suec., p. 51.

Fulmaris glacialis, Steph. Cont. of Shaw's Gen. Zool., vol. xiii. p. 234, pl. 27.

Procellaria hiemalis, Brehm, Vög. Deutschl., p. 800.

Rhantistes glacialis, Kaup, Natürl. Syst., p. 105.

PENNANT remarks that no bird is of so much use to the islanders of St. Kilda as the Fulmar Petrel; for it supplies oil for their lamps, down for their beds, a delicacy for their tables, a balm for their wounds, and a medicine for their distempers. Besides being abundant in this great nursery, the Fulmar occasionally occurs all round the coasts of England, Scotland, and Ireland, as well as the seas of the Arctic regions generally, especially those of Hudson's Bay, Davis's Straits, and Baffin's Bay. It is also to be found in Iceland, the Faroe Islands, Spitsbergen, Greenland, and Norway, and occasionally on the coasts of Holland and France; and Audubon states that it extends along the eastern side of America as far south as Long Island. To me, the most interesting account of the bird and its habits, the manner of its capture, and the uses to which it is applied by the St.-Kildians is that furnished by Mr. John Macgillivray to his father, from actual inspection, in 1840, a part of which I take the liberty of transcribing.

“St. Kilda has long been noted as the only breeding-place in Britain of the Fulmar Petrel. It exists there in almost incredible numbers, and to the natives is by far the most important of the productions of the island. It forms one of the principal means of support to the inhabitants, who daily risk their lives in its pursuit. The Fulmar breeds on the face of the highest precipices, and only on such as are furnished with small grassy shelves, every spot on which, above a few inches in extent, is occupied by one or more of its nests. The nest is formed of herbage, seldom bulky, generally a mere shallow excavation in the turf, lined with dried grass and the withered tufts of the sea-pink, in which the bird deposits a single egg, of a pure white when clean, which is seldom the case, and varying in size from 2 inches 7 lines to 3 inches $1\frac{1}{2}$ line in length, and 1 inch 11 lines to 2 inches in breadth. On the 30th of June (having partially descended a nearly perpendicular precipice 600 feet in height, the whole face of which was covered with the nests of the Fulmar) I enjoyed an opportunity of observing the habits of this bird, which has fallen to the lot of few of those who have described them as if from personal observation. The nests had all been robbed about a month before by the natives, who esteem the egg of this species above all others—those of the Auk, Guillemot, Kittiwake, and Puffin ranking next, and the Gannet, Scart, and Cormorant last of all. Many of the nests contained each a young bird, a day or two old at furthest, thickly covered with long white down. They were very clamorous on being handled, and vomited a quantity of clear oil, with which I sometimes observed the parent birds feeding them by disgorging it. The Fulmar is stated, in most works of ornithology, to possess the power of ejecting oil with much force through its tubular nostrils, as a means of defence; but although I surprised several upon the nest, I never observed them to do so. On being seized they instantly vomit a quantity of clear amber-coloured oil, which imparts to the whole bird, its nest and young, and even the very rock it frequents, a peculiar and very disagreeable odour. Fulmar oil is amongst the most valuable productions of St. Kilda, and is procured of two kinds by different processes. The best is obtained from the old bird by surprising it at night upon the rock, and tightly closing the bill until the fowler has secured the bird between his knees with the head downwards. By opening the bill the Fulmar is allowed to disgorge about a table-spoonfull of the oil into the dried gullet and stomach of the Solan Goose, used as a reservoir for that purpose. These, when filled, are secured with a string, and hung on cords across the interior of the huts until required for use. The oil thus procured and preserved, besides supplying their lamps, is used by the inhabitants as a medicine, being sometimes of considerable efficacy in chronic rheumatism, and acting as a cathartic; while, from its nauseous taste and smell, it would doubtless prove an effectual emetic also to any but a St.-Kildian. In the beginning of August the natives descend the rocks for the young Fulmars, which are then nearly fledged, and, by boiling with water, in proper vessels, are made to furnish a large quantity of fat, which is skimmed off, and preserved in casks in the solid form. The old Fulmar is much esteemed as food by the St.-Kildians, principally on account of its subcutaneous covering of fat, a substance of which they are immoderately fond.

“The Fulmar flies with great buoyancy and considerable rapidity, and when at sea is generally seen skimming along the surface of the waves at a slight elevation, though I never observed one to alight on or pick up any thing from the water. Several which I dissected had the stomach filled with pure oil, mixed up with the indigestible horny mandibles of some of the Sepiadæ, which, we may conclude, form their principal food. It is partially a nocturnal bird; for I seldom observed it at any distance from St. Kilda,

except during the evening and about daybreak, at the latter time always flying in the direction of the island as if hastening homewards. I have also, when at sea, engaged in cod-fishing to the westward of the Harris Islands, in very gloomy and rainy weather observed a few Fulmars flying about the boat, probably attracted by the fish we had caught. At its breeding-places, however, the Fulmar is always in motion, comparatively few being to be seen upon the rocks, the great mass being engaged flying in circles along the face of the precipice and always in the same direction, none crossing, probably on account of the confusion this would cause among such an immense multitude. I never heard them utter any cry when thus engaged, not even when their nests were being robbed. The Fulmar does not allow itself to be handled with impunity, but defends itself with its powerful bill, which it can use with as much effect as good will."

"Considering the vast number that resort to St. Kilda," says the elder Macgillivray, "it is surprising that so few are to be seen along the west coast of Scotland; on the eastern side, however, where there is no breeding-place, individuals often appear in stormy weather in the Moray Frith; and along the coast from St. George to Fraserburgh many continue all the winter, arriving toward the end of autumn and departing in spring."

From the various statements made by observers it appears that the Fulmar feeds on fishes, cephalopodous mollusca, cirripedia, and most other kinds of animal substance, especially such as are oily or fatty. The Rev. Mr. Scoresby, in his 'Arctic Regions,' states that it is the constant companion of the whale-fisher, joining his ship immediately on passing the Shetland Islands, and accompanying it to the highest accessible latitudes, keeping an eager watch for any thing thrown overboard. "Fulmars are extremely greedy of the fat of the whale. Though few should be seen when a whale is about to be captured, yet, as soon as the flensing process commences they rush in from all quarters, and, frequently accumulate to many thousands in number. They then occupy the greasy track of the ship, and, being audaciously greedy, fearlessly advance within a few yards of the men employed in cutting up the whale. If, indeed, the fragments of fat do not float sufficiently away, they approach so near the scene of operations that they are knocked down with boat-hooks in great numbers, and sometimes taken up by the hand. The sea immediately about the ship's stern is occasionally so completely covered with them that a stone can scarcely be thrown overboard without striking one. When any thing is thus cast among them, those nearest the spot where it falls take the alarm; and these, exciting fear in others more remote, sometimes put a thousand of them in motion; but as in rising into the air they assist their wings for the first few yards by striking the water with their feet, there is produced by such a number of them a loud and most singular splashing. It is highly amusing to observe the voracity with which they seize the pieces of fat that fall in in their way; the size and number of pieces they take at a meal; the curious chuckling noise which in their anxiety for despatch they always make, and the jealousy with which they view, and the boldness with which they attack, any of their species engaged in devouring the finest morsels. They frequently glut themselves so completely that they are unable to fly; in which case, when they are not relieved by a quantity being disgorged, they endeavour to get on the nearest piece of ice, where they rest until the advancement of digestion restores their wonted powers. Then, if opportunity permit, they return with the same gust to the banquet as before; and though numbers of the species may be killed, and allowed to float about among them, they appear unconscious of any danger to themselves."

We learn from Mr. Newton's "Notes on the Birds of Spitsbergen" that Dr. Malmgren found the Fulmar breeding in thousands on the north side of Brandywine Bay, lat. 80° 24' N., and in smaller numbers on the Alkenhorn and also on Bear Island. "The very limited number of the breeding-places of the Fulmar," remarks Mr. Newton, "forms a curious contrast to the extraordinary abundance of the species." A very interesting account of this bird by Capt. Elwes will be found in 'The Ibis' for 1869; but as the details are similar to those already given from the pen of John Macgillivray, I have not considered it necessary to make any extracts from it.

I have observed a considerable variation in the size of the Fulmars that have come under my notice, particularly in two which had been captured on the coast of Yorkshire, and were kindly sent me by Mr. J. H. Gurney, Jun. One of these was so much darker than the other in colouring that it might almost be described as of a uniform deep grey, while the other, a large old male, had the upper surface of a light silvery grey and the under surface pure white.

The figures represent a bird in the usual plumage, and the dark-coloured specimen above mentioned, both of the natural size.



PUFFINUS MAJOR, Fab.

J. Gould & H.C. Richter, del. et lith.

Walter, Imp.

PUFFINUS MAJOR, *Fabr.*

Great Shearwater.

Puffinus major, Faber, Prod. der isländ. Orn., p. 56.

——— *arcticus*, Macgill. Man. of Nat. Hist. Orn., vol. ii. p. 262.

Cymotomus arcticus, Macgill. Man. of Nat. Hist. Orn., vol. ii. p. 13.

Puffinus fuliginosus, A. Strickl. Proc. of Comm. of Sci. and Corr. of Zool. Soc., part ii. 1832, p. 129?

Procellaria fuliginosa, Jenyns, Man. of Brit. Vert. Anim., p. 285?

——— *major* (part.), Temm. Man. d'Orn. 2nd edit., tom. iv. p. 509.

Ardenna major, Reich. Syst. Av., tab. xiv. fig. 770.

LEAVING the American monographist of the Procellariidæ, Mr. Elliott Coues, and others to determine among themselves the true synonymy of this species, I shall very briefly state where the bird most frequently occurs in our islands, where it is most numerous, and add a few remarks respecting the dark-coloured individuals which are sometimes met with. Although it is probable that it never breeds within the limits of Britain, or, if so, only in the southernmost of the Scilly Islands, it certainly occurs in great numbers along the shores of Devonshire and Cornwall, the fishermen who pursue their calling off the coasts of those counties frequently bringing in living or dead examples which have become entangled in their nets or caught by the baited hooks intended for the capture of fish. On other parts of our coasts and on those of Ireland its occurrence is only accidental. The seas which wash the base of the dreary Eddystone, the Lizard, and the rocky promontory of the Land's End, those surrounding the Scilly Islands, the Bay of Biscay, the Mediterranean, and the seas around Madeira constitute the true home of the species; beyond this, or on the other side of the equator, its existence, in my opinion, is very doubtful; and its occurrence in the arctic circle, which has been affirmed, is, I believe, equally dubious. That birds of this form and having a very general resemblance to the one here figured are to be found in other countries besides those mentioned I do not deny; but I think that on examination they will be found to be referable to other species. As regards the colouring of this large Petrel, I may remark that out of fifty or eighty specimens which have come under my notice, not more than three or four have been of a fuliginous or chocolate hue similar to one of the two figured in my 'Birds of Europe.' Now, as these dark-coloured individuals are usually in company with others of a lighter plumage like the one here represented, and moreover are of the same size, I am inclined to believe them to be merely melanic varieties; in which opinion I am strengthened by being aware that dark-tinted examples occur not only in this extensive family, but also in other allied groups of birds—for instance, in some of the members of the genus *Stercorarius*, more particularly in *S. parasiticus* and *S. pomatorhinus*. I have been sadly puzzled when a specimen of the latter species, sooty-black to a feather, has come under my notice. We cannot for a moment consider such birds distinct; it is likely, therefore, that I am right in regarding the dark-coloured examples of the Great Shearwater as mere varieties.

To show how abundant the bird is off the Devonshire coast, I may here insert a few extracts from notes on the subject kindly communicated to me by Mr. Gatcombe. In November 1860 he says:—"A friend of mine has four specimens of the Great Shearwater, two of which have the whole of the plumage greyish brown, and two with white breasts, all taken at the same time by fishermen off Plymouth Sound and brought in alive. A few years since large flocks made their appearance off Plymouth in both the dark and light states of plumage, when this bird and many others were caught with baited hooks; indeed almost every autumn large numbers of these birds may be seen off the coasts of Devon and Cornwall. Many of the Manx Shearwaters are occasionally obtained, and I remember being told that one year Torbay literally swarmed with them; but I think that on the whole the Greater Shearwater is the commonest species on our coasts. I suspect there can be little doubt that the dark-coloured examples are merely the young of the year, as birds with dark and others with white breasts are found together in the same flock;" in which opinion I do not coincide, although the young of the year are clouded of a darker hue than the adults. In another note, dated October 8th, 1865, he says, "Yesterday several specimens of the Greater Shearwater were brought in alive by some fishermen, who took them with a line and bait near the Eddystone. Large flocks occasionally occur in the Channel during the autumn; and this appears to be the case now; for the fishermen told me that fifty or sixty were flying close to the boat at the same time."

Mr. Rodd, who has also favoured me with some notes on the occurrence of the bird off the Cornish coasts, says, "All the specimens obtained have been procured in the autumn, and they have all appeared in the same kind of plumage: the caps of some specimens have been darker than others; but none have come under my notice of a chocolate-colour or approaching to that tint in the more subdued tone of broccoli-brown.

I have closely questioned Vingoe on the subject; and he is quite certain that he has scarcely observed any variation in these large autumnal Petrels." "Penzance, October 23rd, 1867. The *Puffinus major* (Greater Shearwater) has turned up again in our bay this week. It is in the same state of plumage, the tips of the dorsal feathers being broadly edged, like those I have before seen and obtained; the upper tail-coverts are white; the under portion of the belly, thighs, and vent broccoli-brown."

Lord Lilford informs me that he has occasionally seen the Great Shearwater in the Mediterranean, but never obtained a specimen, and adds:—"I found the bird evidently breeding on some of the more westerly islands of the Scilly group in July 1852; and Mr. Vingoe and I found a fine specimen dead on the beach near Marazion in that month."

The two birds figured by Mr. Yarrell were transmitted to him by the late D. W. Mitchell, Esq., accompanied by the following account of the appearance of the species on the same coast:—"In November 1839 a man brought me a *Puffinus major* alive, which he said he had found asleep in his boat when he went to unmoor her preparatory to a fishing-expedition. I suppose this happened about three in the afternoon; and the bird had probably taken up its quarters at daylight. The moorings at Newlyn are from one hundred to two hundred yards from the shore. There were great numbers of this species off Mount's Bay at that time; and I soon after had two more brought to me which had been taken by hooks. One of them is the light-coloured specimen in your collection; the dark-coloured bird you have figured was, I believe, obtained in a similar manner about the same period in 1838. It is the only example in that state which I met with during my residence in Cornwall. The adult bird appears pretty regularly every autumn, though not always in equal numbers. It has long been in several collections at Plymouth, though it does not appear to have been distinguished there from *Puffinus anglorum* until Dr. Moore published his 'Catalogue of the Birds of Devon.' The latter is not a very common bird there, which may have been the cause of such a mistake.

"*P. major* is very well known to the Scillonians, by whom it is called *Hackbolt*. They inform me it is a constant visitant in the latter part of autumn, and represent its manners on the water as resembling those of *P. anglorum*. I recollect seeing four last year through a telescope in Mount's Bay. It was late in the afternoon, the wind blowing hard from S.S.W., which accounted for their being so far inshore; they are generally deep-sea-goers. They had exactly the flight of *P. anglorum*, and kept so close to the water as almost to skim the tops of the waves. Mr. Clement Jackson told me last spring that some autumns they appear off Looe and Polperro in thousands."

To this account of the bird as seen on our shores, the notes by Mr. Thompson on those which have occurred in Ireland will form an appropriate pendant. "Our observation of this species as Irish is chiefly due to Mr. Robert Davis, of Clonmel, who kindly furnished me with the particulars of two examples, which he procured in different years. Mr. Davis remarked of the first specimen:—"This was taken near Dungarvan, county of Waterford, and sent to me alive. It was apparently in good health, but would not eat any thing, and died after being in my possession for about ten days or a fortnight. It had an extremely rank, fishy, or oily smell at all times; but I never saw any appearance of oil being discharged from its mouth or nostrils. It seemed unable to walk, but scrambled along with its breast about an inch from the ground. Although its wings were perfect and uninjured, it made no attempt to fly, but, if let fall from a height, dropped heavily to the ground. It showed an inclination to climb, having several times mounted up the handle of a long spade that rested against the wall of a yard in which it was kept. It did not ramble about, nor care much for water, but, when put in a large tub, very dexterously pulled itself up by the hooked bill until the claw got on the edge. When handled, it bit severely. The second specimen was captured one or two miles outside Dungarvan, by a person fishing for hake (*Merluccius vulgaris*), with a hook and line, it having taken his bait. I kept it alive for about a week; it was more lively than the former one, and ran along with the breast about an inch from the ground. Having on one occasion placed it on a roof, it seemed to be more at ease on the inclined plane afforded by that situation than on a flat surface, and mounted rapidly to the top, though on reaching the edge no attempt was made to fly, and it fell heavily to the ground. It rarely stirred at all during the day, but kept itself as much out of view as possible, and, if the body could not be concealed, would endeavour to hide its head. This species is never seen near the shore, but only far out. The fishermen sometimes keep them for weeks about their houses; and in some instances they have become tame: they never attempt to fly. I cannot hear of this species ever being shot or otherwise taken than on a hook. It is commonly known by the name of *hagdown*."

The egg of this species figured by Mr. Hewitson in the third edition of his 'Coloured Illustrations of the Eggs of British Birds' was brought from the Desertas, a group of four sterile rocky islands which lie about twenty miles south-east of the town of Funchal, in Madeira; it is represented of a creamy white, and nearly two inches and three quarters in length by two inches in breadth.

The figure is as near the size of life as may be.



PUFFINUS ANGLORUM.

J. Gould & H.C. Richter, del. et lith.

Walter, Imp.

PUFFINUS ANGLORUM.

Manx Shearwater.

Procellaria Anglorum, Raii Syn., p. 134.

Puffinus Anglorum, Briss. Orn., tom. vi. p. 131.

Procellaria puffinus, Brünn. Orn. Bor., p. 20.

Nectris Anglorum, Kuhl, Mon. Proc. Beit. Zool., p. 146.

Puffinus arcticus, Fab. Prod. Isl. Orn., p. 56.

Cymotomus Anglorum, Macgill. Man. of Brit. Orn., vol. ii. p. 13.

Nectris puffinus, Keys. & Blas. Wirb. Eur., p. 94.

THERE are but few situations in the British Islands which are of a rocky nature and facing the sea, nor any little inlets around our coasts, that are not visited by the Shearwater; and in many of them it breeds: the Isles of Scilly on the south, the Farn Islands on the east, Lundy and the Isle of Man on the west, the Orkneys, Shetlands, and Hebrides and St. Kilda in the North Atlantic are only a few of the localities frequented. It is also found in Iceland, in the Faroe Islands, Spitzbergen, on the coast of Norway, in the Baltic Seas, in Heligoland, on the coasts of France and Spain, and throughout the whole of the Mediterranean, in Madeira, the Azores, and on many parts of the eastern shores of North America. During some periods of its existence it lives far out at sea, at others within soundings. At the period of incubation it makes a cradle for its young in the deserted rabbit-holes on the low islands and shores in which those creatures abound, the lee sides of great stones near the beach, the crevices in upright basaltic rocks, and all similar situations. Its powers of flight are considerable, and, being very restless, it spends much of its time in flying to and fro in a direct line over the surface of the water.

The late D. W. Mitchell's account of the bird as seen by him on the coast of Cornwall is given with all the freshness of his wonted style, and with the faithfulness and geniality of a true lover of nature. This account I shall repeat here, believing that it will not be the less interesting because it has previously appeared in my late friend Yarrell's 'History of British Birds.'

"To the westward of St. Agnes, in the Scilly group, lies a barren island called Annet. Its northern slope is abrupt and craggy; it gradually slopes towards the south, and narrows into a sort of peninsula, where the sandy soil is rich enough to produce a dense growth of short ferns. Here is the stronghold of the Shearwater. Sit down on a rock which commands the little territory, and you will see nothing but the Terns, who have a station on the higher and central part of the island, and are making a flight of inquiry. Yes, you will see a hundred or two of Oystercatchers, who do not like your landing so near their nests, and make short journeys, hither and thither, whistling all the while like birds possessed. You will see two or three pairs of Turnstones and a few Ring-Dotterels, perhaps a Curlew. You may wait all a sunny day in June, but not a Shearwater will you see on land or water. There are plenty near you all the time, however, as you may ascertain by the odour which issues from the first burrow you look into among the ferns. As soon as the sun is down, you will see a little party of five or six flitting silently across the sound, or steering out to sea. The latest fishers from the colony of Terns are coming home from the sandy shallows, five or six miles away, with their throats and beaks crammed with Lance-fish, when the Shearwaters begin to wake. You will not see them come out of their holes: you first catch sight of them skimming round the corner of a rock close to the water. Perhaps they will have a great gathering, such as I observed one evening in 'Smith's Sound.' There was a congregation of at least three hundred in the middle of the tideway, washing, dipping, preening feathers, and stretching wings, evidently just awake, and making ready for a night's diversion. As I wanted a few specimens more than I had dug out of the burrows, I ran my boat well up to them, and, when they rose, got as many as I wished, besides a few unfortunate cripples who were only winged, and proved by their agility in swimming and diving, a good deal too much for my boatmen. I think a good dog would have no chance with them; they allowed me to come quite close. They sit low in the water, and make no noise when disturbed, though in their holes they are eloquent enough, the Scillonian synonyms of *Crew* and *Cocka thodon* being derived from the guttural melodies they pour forth when the spade approaches the end in which the egg is deposited. I once caught a pair in a burrow who were crooning a duet of this kind before we commenced operations. I presume they were in the honeymoon, as there was no egg. They produce but one egg, which, when fresh-laid, is of the most dazzling whiteness, and of a peculiarly beautiful texture. It measures two inches and five lines in length, by one inch and nine lines in breadth, is very large for the size of the bird, and is frequently deposited on the fine sandy soil without any preparation, though generally there is a slight accumulation of fern-leaves and old stems. When you kill a Shearwater

by pressure, as I generally did with the view of obtaining an uninjured skin: it vomits a most abominable oil, in which float so many particles of brilliant green that it appears of that colour, though the stain it leaves is yellow. The quantity ejected is sometimes enormous.

“When the young bird leaves the egg it is covered with a greyish-black down, except a stripe along the breast and belly, which is white. I found a chick very lively in an egg which had been taken from the burrow two days previously to my examining it. My notice was attracted by hearing a little voice in the basket as I sat preparing a skin about midnight. I thought of Asmodeus in the bottle immediately.”

The above account is equally descriptive of the habits of the bird in other localities. When I visited Malta and Gozo some years since, not a bird was to be seen during the day; but the fishermen assured me that they were ensconced among the rocks, and that at nightfall they would set their nets and procure me as many as I wished; this they did, and brought me half a sackful of living birds the next morning.

With reference to the Shearwater as seen in Shetland, Dr. Edmonston informed MacGillivray, “The bird is not seen unless on the ocean during the day; for it remains concealed in its hole; and only in the twilight can it be detected by the vigilant and hardy fowlers, who, from their great partiality to the young, regard the discovery of their nests as a sort of treasure, which they bequeath as an heirloom to their sons. Its single young one, though excessively fat, it must be confessed, justifies the epicurean taste of the fowlers. It is rather strange that the young of sea-birds, although uniformly fed on fish, should be totally free from a fishy taste, while the flesh of adults is almost always harsh, and often nauseous.”

“This bird,” says Mr. Low, “is the chief acquisition our rock-men get for all the danger in climbing the most dreadful precipices: for this, one sitting on the brink of the rock with a coil of rope made of hair on his arm will let his neighbour many fathoms over the steepest rocks, such as would make others shudder to look at; and yet these people think no more of it than of an airing; and though few years pass without some or other of them perishing, yet that never deters the survivors. It is really dreadful to see people let over a rock of several hundred fathoms height, with the deep below them, supported only by the single arm of their comrades, who have nothing to rest themselves against, but must depend on their strength for the preservation of both; sometimes, indeed, both slip together. The birds come to the rocks of Orkney in February or March, and sometimes after their arrival deposit their single white egg in holes of the little earth that is to be found in the interstices of the rocks.”

“Its flight,” says Macgillivray, “is gliding, rapid on occasion, buoyant and easy. It flies low over the sea, descending into the troughs of the waves, and mounting again. When hovering over an object seen in the sea, it lets down its feet and pats the water with them. In dark or stormy weather it has an ominous aspect as it glides rapidly along and disappears in the haze. Its food consists of various animal substances; but the particular kinds have not been determined, its gullet and stomach having usually been found filled with decomposed matter and oil, which it vomits on being seized,” and which Mr. Wright thinks is due, in the case of the Maltese birds, to their feeding upon *Inula crithmoides*. Respecting their mode of feeding, Meyer says:—“When a flock of these Petrels are thus employed, the birds are seen swimming on the waves with their heads in the water, all in the same direction, and moving on very rapidly, the hindermost bird always flying up and settling in advance of the foremost, like Rooks following a plough. Fishermen when in pursuit of their calling watch carefully the movements of these birds, and when they see them thus employed lower their nets with a tolerable certainty of finding the shoals of which they are in search near the surface.”

I conclude my account of the Manx Shearwater with the following note from A. W. Crichton, Esq.:—

“In furtherance of a desire to investigate the nesting-habits of the bird, I, on the 2nd of July, 1866, descended the cliff of Altahuile, in Rathlin Island, co. Antrim, Ireland, by means of ropes to a depth of between 16 and 17 fathoms, and after capturing the old female in the nest, placed at the extremity of a fissure in the basaltic face of the cliff and as far in as my right arm could possibly reach, drew forth the young one in an early stage of the downy state, which I have much pleasure in submitting to you for your work.”

“Authors have often described,” says Thompson, “flocks of birds which keep flying all day over the Dardanelles and Bosphorus, and are never seen to alight either for rest or food; but only of late has the species been positively determined. As remarked in Walsh’s ‘Constantinople,’ ‘one reason why they have escaped the close attention of naturalists is that no person is permitted to kill any bird upon the Bosphorus without incurring the displeasure of the Turks;’ and, says the Bishop of Norwich, ‘an additional reason why they are held in respect by the Turks is that, in consequence probably of their restless life, they are supposed to be bodies animated by condemned souls, thus doomed for ever to frequent the scenes of their former existence;’ they are in fact called ‘damned souls.’”

The figures represent an adult and a young bird in the downy state, both of the natural size.



THALASSIDROMA LEACHII.

J. Gould & H. C. Richter del et lith.

Water. Imp.

THALASSIDROMA LEACHII.

Fork-tailed Storm-Petrel.

Procellaria Leachii, Temm. Man. d'Orn., 2nd edit., tom. ii. p. 812.

Hydrobates Leachii, Boie, Isis, 1822, p. 562.

Thalassidroma Leachii, Keys. und Blas. Wirbelth. Eur., p. 93.

Procellaria Bullockii, Flem. Hist. of Brit. Anim., p. 136.

Thalassidroma Bullockii, Selby, Ill. Brit. Orn., vol. ii. p. 537.

Procellaria leucorrhœa, Vieill. Nouv. Dict. d'Hist. Nat., tom. xxv. p. 422.

Cymochorea leucorrhœa, Coues, Proc. of Acad. Nat. Sci. Philad., 1864, pp. 76, 90.

LIKE the common Storm-Petrel, the *Thalassidroma Leachii* must be regarded as indigenous to Britain, inasmuch as it breeds therein, and probably in many more localities than have as yet been noticed. At one or other season of the year it has been observed on the shores of every part of our islands, from the extreme south of England to the north of Scotland and the Hebrides; almost every local list of birds enumerates it as occurring in the county to which it pertains; in Ireland, according to Thompson, it is found in all quarters of the island, but less frequently. Apart from England, it has been met with on the coast of Holland and in many parts of Scandinavia; Professor Reinhardt says it is found in Greenland; the American ornithologists include it in their avifauna; and Von Schrenck observed it in Amoorland, and states that specimens from the Kurile Island do not differ from those seen in England. It was first observed as a British species, and discriminated as distinct from the *Thalassidroma pelagica*, by the celebrated collector W. Bullock, in whose sale-catalogue it appears as "An undescribed Petrel with a forked tail, taken at St. Kilda in 1818;" and the credit of first making us aware of its breeding in our islands is due to the late Sir William M. E. Milner, Bart., whose notes on the subject, extracted from the 'Zoologist' for 1848, will be found below. From that date until 1869 many hundreds of Leach's Storm-Petrel have been shot or otherwise obtained; but by far the greater number have been picked up dead, or in such an exhausted and helpless state as to be unable to fly—some on the sea-shore, others as far inland as the middle of our island: one was obtained in the streets of Halifax, in Yorkshire; Mr. J. E. Harting states that another was caught alive, in an exhausted state, by a man at work on the highroad between Edgeware and Stanmore, on the 4th of January, 1850. The Rev. Bryan Burgess, Chaplain to Lord Chesham, tells me that on the 2nd of November, 1859, Poulter, his Lordship's gardener, brought him a Fork-tailed Petrel (*Thalassidroma Leachii*) which he had found lying on its back and flapping its wings in the deer-park at Latimer, in Buckinghamshire; it died almost as soon as it was picked up, had the stomach empty, the whole frame very thin, and was much battered about the head, as if it had been pecked by other birds or had sustained some severe blows; and Mr. G. Dawson Rowley has recorded, in 'The Field' for December 15, 1866, that another was caught in a "ham-and-beef" shop in Brighton. In all probability most of the examples alluded to have been driven to our shores by violent gales of wind, and starvation, the inevitable result, has caused them to fall down and die. The next autumn gale may bring us many more, and the succeeding morn reveal a number of exhausted birds, which are as likely to be found in an open park or on a garden-walk as on the sea-shore. Our lakes and ponds of fresh water do not seem to have any attractions for these truly ocean-loving birds.

Not having had an opportunity of observing this bird in a state of nature, I cannot do better than transcribe the short account given by Sir William Milner above alluded to, and the more full one contained in the third volume of Audubon's valuable 'Ornithological Biography.'

"Not far from the top of the cliff of the Isle of Dun, forming the western horn of the Bay of St. Kilda," says Sir William, "were a colony of the Fork-tailed Petrel, breeding, like the Stormy Petrel, under the stones and rock, about a yard deep. We were first attracted to them by a low chirping noise, which from time to time the females made while sitting upon their eggs. In one hole only did we find the male and female together. The egg is considerably larger than that of the Stormy Petrel, but resembles it in being surrounded at the larger end by a beautiful zone of red freckles. They are nearly three weeks before the Stormy Petrel in depositing their eggs; and in the localities where we found the Fork-tailed there was not a single Stormy Petrel." Sir William mentions that he also obtained specimens and eggs of the *Thalassidroma Leachii* on Borrera, another small island of the St. Kilda group.

After mentioning that towards the end of August 1831, the Storm-Petrel was so abundant off the coast of Newfoundland that from twenty-five to thirty individuals were shot in about an hour, Audubon says, "The species of this genus with which I am acquainted all ramble over the seas, both by night and by day, until the breeding-season commences; they then remain in their burrows, under rocks or in their fissures,

until sunset, when they start off in search of food, returning to their mates or young in the morning, and feeding them then.

“The Fork-tailed Petrel emits its notes night and day, and at not very long intervals. They resemble the syllables *pewr-wit, pewr-wit*. Its flight differs from that of the other two species” (the common and Wilson’s Storm-Petrels), “being performed in broader wheelings and firmer flappings. It is more shy; and when it wheels off, after having approached the stern of a ship, its wanderings are much more extended before it returns. I have never seen it fly close around a vessel, as the others are in the habit of doing, especially at the approach of night; nor do I think that it ever alights on the rigging of ships, but spends the hours of darkness either on the water or on low rocks or islands. It also less frequently alights on the water, or pats with its feet, probably on account of the shortness of its legs, although it frequently allows them to hang down. In this it resembles the *Thalassidroma pelagica*; and Wilson’s Petrel has a similar habit during calm weather. I have seen all the three species immerse their head into the water to seize their food, and sometimes keep it longer under than I had expected.

“About the 1st of June the species collect in numbers, and return to their breeding-places. They now fly in front of the high rocks, passing and repassing a thousand times in a day, enter their dark and narrow mansions or stand in the passage and emit their cries, and occasionally alight on some broad shelf, and walk as if about to fall down, but with considerable ease, and at times with rapidity. Now and then the mated birds approach each other, and, I believe, disgorge some food into each others mouths. They collect grasses and pebbles, of which they form a flat nest, on which a single white egg is deposited, which measures an inch and a quarter in length by seven-eighths in breadth, is nearly equally rounded at both ends, and looks very large for the size of the bird. When you pass close to the rocks in which the birds are, you easily hear their shrill querulous notes; but the report of a gun silences them at once, and induces those on the ledges to betake themselves to their holes.

“The Fork-tailed Petrel, like the other species, feeds chiefly on floating mollusca, small fishes, crustacea, which they pick up among the floating seaweeds, and greasy substances which they occasionally find around fishing-boats or ships out at sea. When seized in the hand, it ejects an oily fluid through the tubular nostrils, and sometimes disgorges a quantity of food. I could not prevail on any of those I caught to take food of any kind.”

In the late Dr. Henry Bryant’s “Remarks on some of the Birds that breed in the Gulf of St. Lawrence,” published in the eighth volume of the ‘Proceedings of the Boston Society of Natural History,’ it is stated that “these birds were frequently seen, but do not breed in numbers or in many places on the north shore. I found them but at two places, on Gull Island, at Romaine, and on a small island between Mecattina and Bras D’Or. As the opposite side of Newfoundland is lower, and the islands less rocky, it probably breeds there. On the Atlantic shore it is found breeding everywhere that a suitable island exists, from Mount Desert, in Maine, to the Straits of Belle Isle. At Romaine the eggs were just being laid on the 26th of June.”

The sexes differ so little, either in size or colouring, that by dissection alone can they be discriminated.

The forked tail and short tarsi are the characters by which Leach’s Storm-Petrel may be distinguished from the common species: these deviations in structure doubtless have an influence over its actions and economy; but how far they modify them can only become known when we have acquired a more intimate acquaintance with the bird and its habits in all their phases.

The Plate represents a male and a female, of the size of life.



THALASSIDROMA PELAGICA .

J. Gould & M. Lichter, del. et lith.

Waller, Imp.

THALASSIDROMA PELAGICA.

Storm-Petrel.

Procellaria pelagica, Linn. Faun. Suec., p. 50.

Hydrobates pelagica, Boie, Isis, 1822, p. 562.

————— *Færræensis*, Brehm, Vog. Deutschl., p. 803.

Thalassidroma pelagica, Vig. Zool. Journ., vol. ii. p. 405.

————— *melitensis*, Schemb. Cat. del Gruppo di Malta, p. 118.

THOSE persons, imbued with a taste for nature, who have crossed the Atlantic from England to America, or made the more extended passage, *viâ* the Cape of Good Hope, to India or Australia, or voyaged round our globe, must have been delighted with the numerous oceanic birds which came under their notice as soon as the ship had entered upon the blue water of the open sea. Petrels, in lieu of Gulls and Terns, are certain to have been met with; perchance the present species, or some other member of the genus *Thalassidroma*, a Fulmar, a Shearwater, or one of the many species of Albatros has attracted their attention out of the more than fifty species of birds constituting the family *Procellariidæ* that are now known, among which much diversity of size and structure is found to exist, the Albatros (*Diomedea exulans*) being the largest, and the little Storm-Petrel (*Thalassidroma pelagica*) the smallest. Assuming that the great Albatros usually weighs about fifteen pounds and the Storm-Petrel an ounce, the former is 240 times as heavy as the latter. Petrels, of one kind or other, frequent every portion of the great waters, except those near the poles. They are, almost without exception, truly dwellers on the surface of the mighty deep, seldom, if ever, coming to land except for the purpose of incubation, and then only resorting to the rocky islands and headlands nearest to their ocean homes. Some of the species, particularly the Albatroses, make huge nests near the summits of precipitous mountains, such as occur at Tristan d'Acunha; but by far the greater number incubate in the holes of rocks, under stones, or so deep down in the ground that without a knowledge of the nocturnal habits of these birds the inhabitants of the neighbourhood, and certainly the casual visitor, would not be aware that the ground on which they are treading conceals the sitting Petrel. In the evening, during twilight, they sally forth from their holes and go out to sea for the purpose of procuring food for themselves and their young; as morning approaches, the passing to and fro ceases, and all is quiet again for the day.

The above remarks apply to the *Procellariidæ* generally; let me now say something about our little favourite, the Storm-Petrel,—favourite, however, only with some; for superstition has induced the weak-minded mariners to regard it with awe as the presager of storms, while the pretty bird they see fluttering round the ship is simply engaged in searching for its natural food, or seeking the temporary shelter the lee side of the vessel affords. When a fierce gale occurs, or a raging storm is at its height, the wing-powers of the Petrel are strained to the utmost, and, during its flight, it performs many beautiful evolutions, which call forth our admiration: at one moment the bird is under the lee of a great wave, at the next overtopping its crest, and descending into the succeeding hollow, all the while scanning the sides of the billows for any floating mollusk or other marine animal, which it takes from the surface, at the same time patting the water with its little feet. Here, night and day, during the raging of the gale, the Petrel must keep on the wing and make the best of it until a calm sets in, when the bird again assumes its light butterfly-like actions, or rests on the placid surface until hunger prompts it to resume its search for that food best adapted to maintain the muscular power requisite for the great exertion it is so often called upon to perform.

At most seasons the Storm-Petrel, if looked for, may be found in every part of the seas surrounding our coasts. On the approach of spring, the Channel is visited by Storm-Petrels in considerable numbers; and so true are they to the time of their arrival that, Mr. C. Moufort informs me, "they always appear off Worthing about the end of April, and gradually become more abundant until the middle of May. Those that first arrive are mostly males, very few females being among them. At the end of May they begin to decrease; and although the males always preponderate, a greater number of females are now to be seen than earlier in the season. A few remain till about the middle of June."

The range of this species of Petrel extends southwards as far as Madeira; the bird is also found all over the Mediterranean, the northern parts of Europe, and in similar latitudes on the eastern coast of America. That it does not cross the line appears to be certain; for I did not meet with it in the seas to the southward of it, nor, so far as I am aware, has any observer recorded its being found there.

From the Scilly Islands to the extreme north of Scotland, Ireland, and the Hebrides, in almost every rugged promontory, numbers of Storm-Petrels breed; but, as before mentioned, the mere passer-by has no conception of their existence. To find them, the particular situations must be examined, and the evening

waited for, when their whereabouts will at once be revealed. Perhaps the most curious feature connected with the history of the bird is the singularity of some of the situations selected by it for the purpose of reproduction—incubation being sometimes performed under a large stone where the bird may be easily seen, at others in holes in the rocks and in the burrows of rabbits and rats. According to the Rev. F. O. Morris they also make runs for themselves, where the soil is soft, to the distance of three or four feet: this is confirmed by J. Ambrose, who says (Nov. Scot. Inst. Nat. Sci., 1864, p. 34) it “digs breeding-holes in the ground, using its bill as a pickaxe and throwing behind it the loose earth with its feet;” and the following remarkable statement was communicated to me by Mr. C. Monfort:—“On the 28th of June, being on a small island, opposite Kirkwall, called Thieves’ Holm, which is about half a mile in circumference, and on which a few sheep are kept, I found in the turf a hole of about two inches diameter, which descended for perhaps a yard in an oblique direction, and then proceeded horizontally for three or four yards, not direct but diagonally; at the extremity, occupying about twelve or fifteen inches of its length, were placed a series of eighteen or twenty limpet-shells close to each other, and at the end the bird was sitting. Several other excavations of the same kind, with more or less shells in each, which had been formed the preceding year, but were not yet occupied, were also found; and I was told that on Yell Island numbers of the Petrels nested in the same manner.”

“In an excursion through the Shetland Islands,” says Mr. Hewitson, “in search of rarities for the ‘British Oology,’ I had the very great satisfaction of seeing and taking many of these most interesting birds alive. They breed in great numbers on many of the islands, principally on Foula, the north of Unst, and upon Papa and Oxna, two small islands in the Bay of Scalloway.” At the last of these it had not arrived on the 31st of May; and on the 16th of June, although it had revisited the breeding-places, it had not yet begun laying. On again visiting Oxna, on the 30th of June, he found they were just beginning to lay their eggs. “In Foula they breed in holes in the cliff, at a great height above the sea; but here under stones which form the beach, at the depth of three or four feet or more, according to that of the stones, going down to the earth beneath them, on which to lay their eggs. In walking over the surface I could hear them under my feet very distinctly, singing in a sort of warbling chatter, a good deal like Swallows when fluttering above our chimney-tops, but somewhat harsher; by listening attentively I was guided to their retreat, and after throwing out stones as large as I could lift, on all sides of me, seldom failed in finding two or three of them seated on their nests, either under the lowest stone, if partly raised above the surface, or between two of them. The nests, although of much the same materials as the ground on which they were placed, seemed to have been made with care; they were composed of small bits of stalks of plants and bits of hard dry earth. Like the rest of the genus, the Stormy Petrel lays invariably one egg only. During the day-time the Petrels remain within their holes; they are then seldom heard, but towards night become extremely garrulous, and when most other birds are gone to rest issue forth, spreading themselves far over the sea. The males may possibly be abroad during the day, whilst the females are sitting; but I am inclined to think they rarely come out before night, as the fishermen never see them at any other time.”

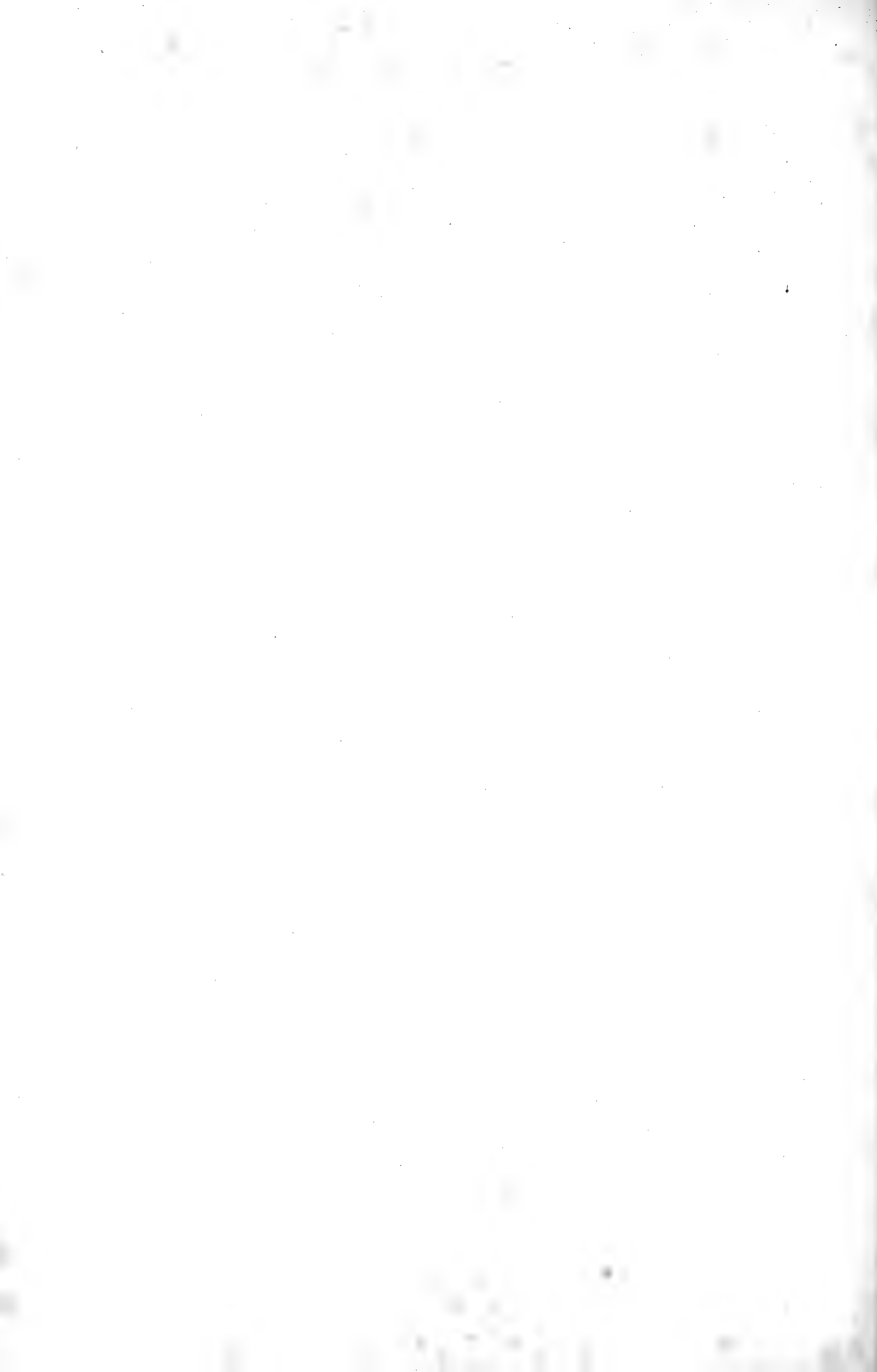
Macgillivray describes the egg as “nearly elliptical, the small end being a little narrower or less rounded than the other, with a rather thick shell, somewhat roughish, without gloss, white, with a belt of minute dark reddish dots at the large end. The average size is an inch and a twelfth and a half in length, ten twelfths in breadth. I have not seen any without some dots at the large end, although there is seldom a distinct belt there.

“From the nature of the food of this species (which is said to consist of oily and fatty substances, small crustacea and mollusca, fishes, and animal matter of any kind) it is very fat and oily, and its stomach and gullet are found to contain oily matter, which, when seized, it vomits or ejects from its nostrils like other members of the family. By the inhabitants of the Ferroe and other islands it frequents, it is sometimes converted into a lamp, by drawing a wick of cotton or some other material through its body, which continues to burn until the oil becomes exhausted.”

The young, for some considerable time after they have been hatched, are entirely clothed in a greyish-black down, through which the more perfectly formed bill protrudes as from a little round ball; and it is not until the primaries are completed, and the bird able to take wing, that it leaves its hole and proceeds to sea. In the great Albatros, the maturation of the wings is said to occupy several months; and, from their great length, I can easily imagine that such may be the case, and that some weeks must elapse before those of the Storm-Petrel are fit for use.

The sexes are alike in plumage. The Plate represents a male, a female, and a young bird of a few days old, all of the natural size.







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