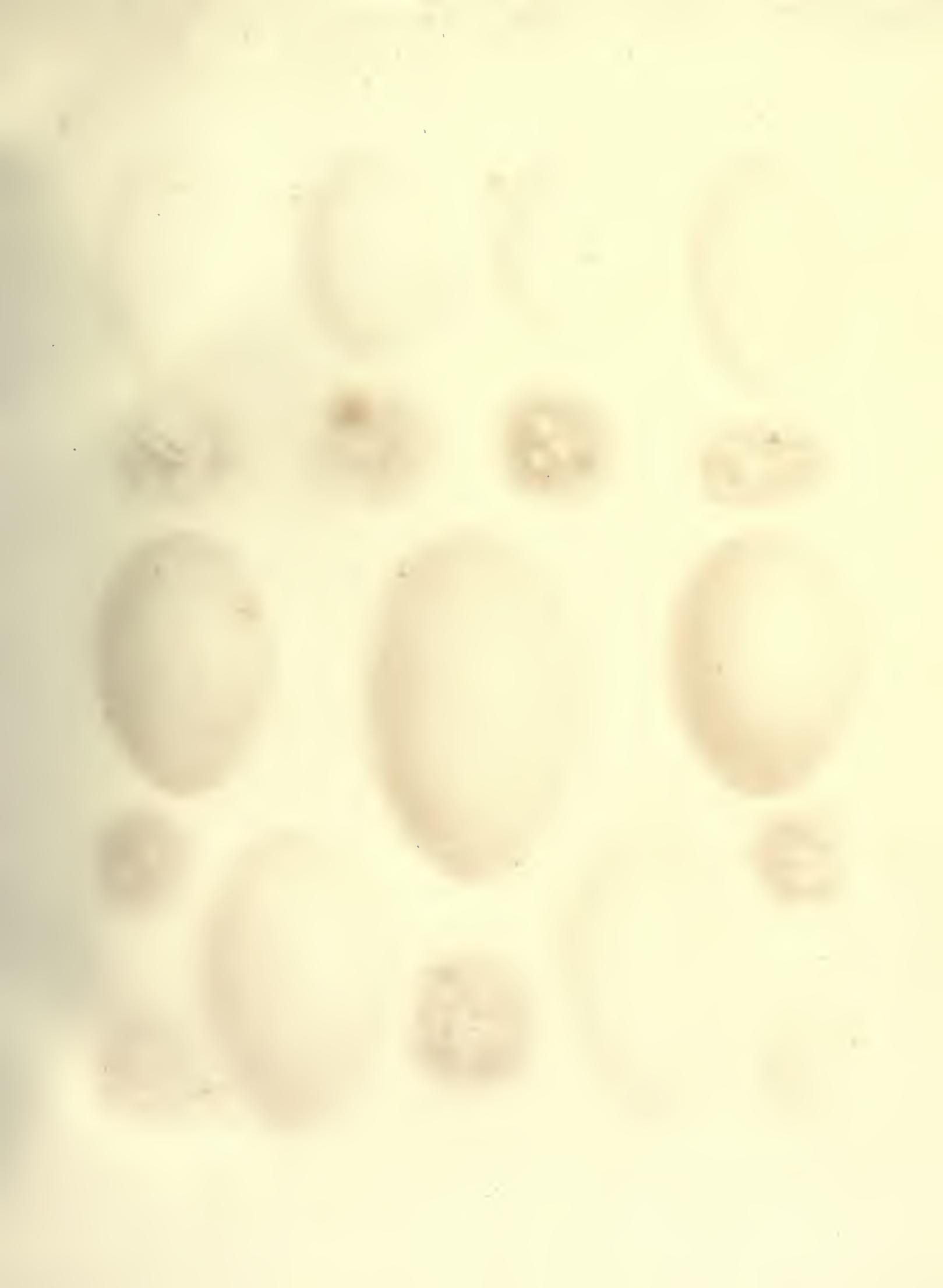


BRITISH
BIRDS
WITH THEIR
NESTS AND EGGS

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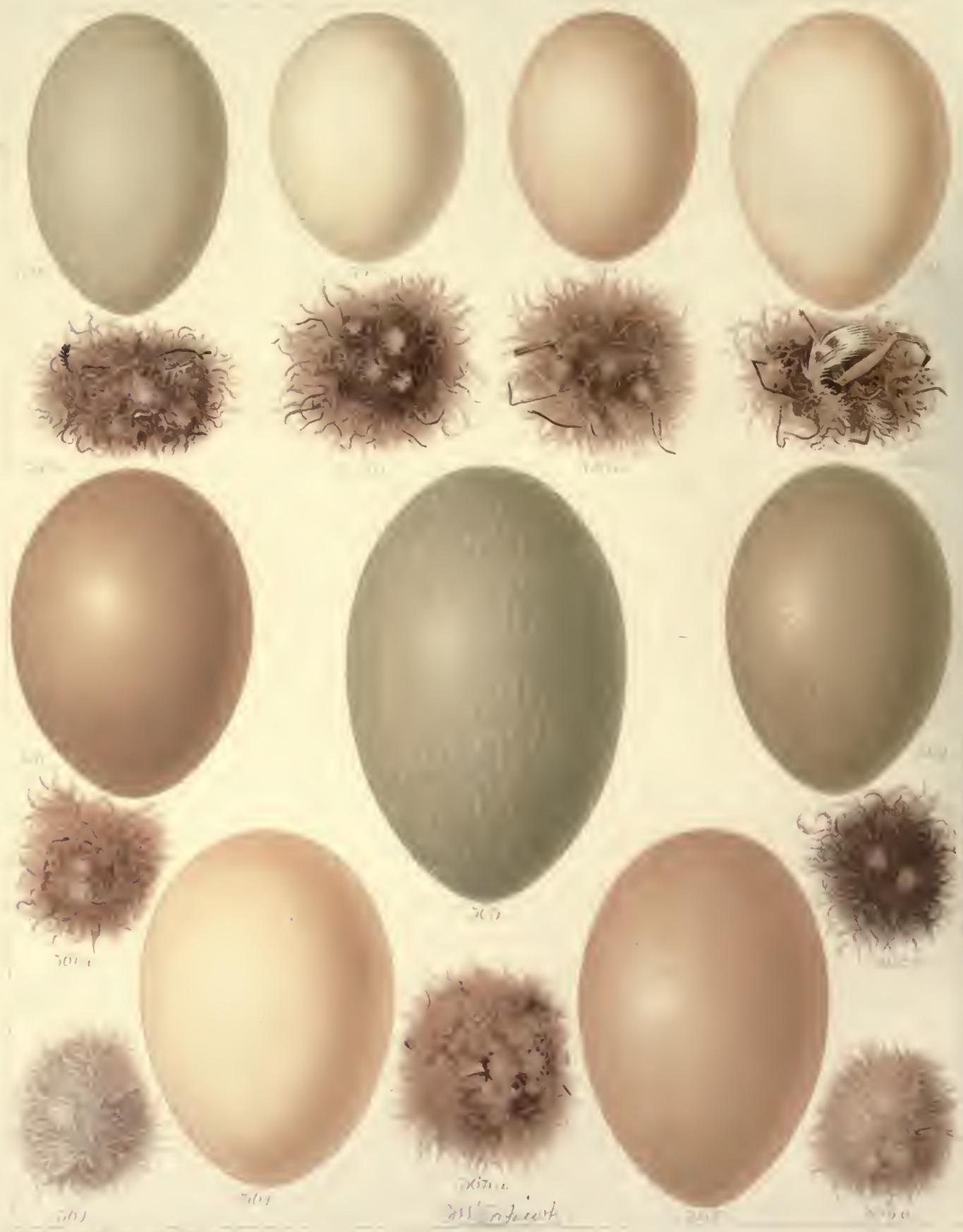


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BRITISH BIRDS

WITH THEIR

NESTS AND EGGS

IN SIX VOLUMES

ORDERS HERODIONES AND ODONTOGLOSSÆ.

By HENRY O. FORBES, LL.D., F.R.G.S., A.L.S., M.B.O.U.,

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VOLUME IV.

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BRITISH BIRDS,

WITH THEIR NESTS AND EGGS.

ORDER HERODIONES.

UNDER this Order are included the Herons, and Bitterns (*Ardeidæ*); the Storks (*Ciconiidæ*); the Ibises (*Ibididæ*); and the Spoonbills (*Plataleidæ*). As a group the Herodiones are recognized by their sharp powerful bill, generally coultter-shaped and longer than the head; their small nostrils; their long and very flexible neck; their stilt-like legs; long broad wings, and their short tail. Their toes are never fully webbed, and their feet are capable of grasping the branches of trees on which most of them are wont to perch. The Herodiones are as a rule gregarious, breeding in colonies, and nesting generally in high trees, but often also on the ground. The young are hatched with their eyes closed, but being naked and helpless have to be fed in the nest till fledged. In some species the young are pure white in both sexes, and at all ages; in other pairs of the same species the male differs from the female when young, or remains of a different colour all through life.

If one habit more than another distinguishes these birds, it is their custom of stealthily stalking along the margin of the sea, of streams or ponds, in quest of their food, which consists of fish, small reptiles, mollusca, and insects, as well as small mammals.

The Herodiones are widely distributed over the globe, but only thirteen species are European. Of these, only one now breeds in Britain, while two others have at former periods done so, although they never nest with us now. All the others are more or less frequent visitors to our shores from the Continent, while two are stragglers from across the Atlantic.

The members of this family are remarkable for having small areas, called "powder-down patches," in various parts of the body, on which there are produced curious masses of soft fluffy yellowish-white or bluish powder instead of feathers. This powder results from the continual breaking up of what should be the main shaft of the feathers proper to that region, into numerous brush-like barbs and barbules, and their disintegration. These patches, which are greasy and show yellow against the skin, feel like chalk or Fuller's earth.

The species of *Ardeidæ*, resident in, or visitors to, this country, at different seasons, have been separated into four genera by small differences. These are *Ardea*, or True Herons (some of which are known as Egrets); *Nycticorax*, the Night-Herons; *Ardetta*, the Little Bitterns; and *Botaurus*, the true Bitterns.

The True Herons (*Ardea*) have the head completely feathered, the bill serrated, straight, and longer than the head; twelve tail feathers; the leg covered in front with broad scales, and with a pectinated claw on the middle toe. They have three pairs of powder-down patches in thick masses—one on the lower part of the back, one on the lower belly, and a third on the breast along the merry-thought. Their plumage is soft and loose; but a tract on each side of the neck, and an area on the lower neck behind are nude. Some species have long plumes on the head, the base of the neck, and on the lower back, or only on some of these regions; the latter feathers, which are assumed in the breeding season, being the "aigrettes," so coveted by ladies for decorative purposes, and for which so many of the pure white Egrets are, with their young, most cruelly destroyed every year.

The Night-Herons (*Nycticorax*) differ from the *Ardeas* in having large eyes; a shorter, unserrated but notched beak; the front and back of the legs protected by broad plates, and long cylindrical plumes descending from the back of the head. The Night-Herons are nearly cosmopolitan.

The Little Bitterns (*Ardetta*), the smallest of the *Ardeidæ*, have slender serrated bills and long toes; but only two pairs of powder-down tracts. The tail contains ten feathers. The coloration of their eggs differs in character from those of the True Bitterns. The plumage is soft, and the neck feathers elongated, but there are no crests, or peculiar plumes, on the head or back. The sexes are differently coloured.

In the True Bitterns (*Botaurus*) the plumage is soft, spotted, or streaked, and

long and loose on the neck, which is nude in part behind, but there are no long plumes either on the head or back. They have ten tail feathers, and but two pairs of powder-down tracts. The legs are broadly scaled in front, with the outer toe shorter than the inner, the middle toe and claw very long; and their claws generally are long, and but slightly curved. The bill is elongated and serrated on the edge.

Bones of the Common Heron and of the Bitterns have been found in the peat of the fen country in a sub-fossil condition. Fossil forms, allied to the *Ardeidæ* have been described from strata as old as the Miocene and the London clay.

In order to give some conception of the profusion in which the nests of the various Herons and other marsh-loving birds, are met with, in such well protected impenetrable paradises as the Slavonian reed beds, and sallow brakes, or Hungarian marshes, Mr. Eagle Clarke records that he saw, in one bush, "one nest of Common Heron, two of Pigmy Cormorant, three of Night Heron, two of Little Egret, one of Squacco, and three of Glossy Ibis. Nor was this a singular instance, for most of the trees were equally laden. * * *. On every side arose a vast body of birds, the beating of their pinions and their harsh notes producing quite a deafening sound; and soon the whole colony, estimated at thirty thousand, was on the wing, their confused flight resembling the gyrations of a swarm of bees. After a short interval they grew somewhat accustomed to our presence, and perched on the surrounding bushes, so close that the red eye of the Night-Heron and the yellow patches between the toes of the Little Egret were plainly to be seen, while they swayed about uncomfortably on the topmost twigs of the sallows along with the Glossy Ibis, Pigmy Cormorant, Common Heron, and Spoonbill."

The *Ciconiidæ*, or Storks, have the bill straight, pointed, and longer than the head; the legs long and the toes short, with a web uniting the second, third, and fourth; the hind toe united to the leg above the plane of the other toes; the claw of the middle toe is not pectinated, and the tail is short and rounded. The eyes are surrounded by naked skin. The Storks have no powder-down patches.

Storks, of which there are about twenty species, are found in all the six great zoo-geographical regions of the globe; but only two species, both of the same genus, *Ciconia*, belong to the Palæarctic region, and visit Britain.

The Ibises, *Ibididæ*, claim relationship with the Storks, but more closely with the next family, the Spoonbills. The shape of the bill, which is long, narrow, and sickle shaped, soft at the base and hard at the top, at once distinguishes them from the Herons, the Storks, and the Spoonbills. Not less distinctive is the featherless condition, in most of the genera, of the head and more or less

of the elongated neck. The legs, shorter than in other Herodiones, are covered either with numerous small scales, front and back, or with large plates in front only. The toes are more or less webbed at the base, and the middle claw is not pectinate. There are no powder-down areas among their plumage. The wings are long, and the tail, generally composed of twelve feathers, is short. The full grown female resembles the male; but the young differ from the adult birds. They moult twice in the year, in spring and in autumn. They nest in trees and produce white eggs.

Although the Ibises are specially associated by name with Egypt and Northern Africa, they are widely distributed over the globe, and the family contains numerous species, which are comprised in some eighteen genera. They are not and never have been indigenous to Britain, and one genus alone—*Plegadis*—has been represented by a single species in this country; whither, by to them an ill wind, a few individuals stray from time to time. In this genus the species differ from the typical Ibises in having the throat and head feathered, while the neck is covered with very short plumage, and the thighs are bare for the greater part of their length. The posterior ends of the rami of the lower jaw extend behind the articular facet of the skull, and terminate in a recurved process.

The last family of British Herodiones, the *Plataleidae*, or Spoonbills, is distinguished from not only all the other families of the Order to which they belong, but, indeed, from all other birds, by the singular shape of the bill, which is broad, flat, and soft at the base, then narrow toward the middle, and rounded and spoon-like at its termination. With this exception, they are closely related in structure to the Ibises; indeed, they are often spoken of as Ibises with flattened and expanded beaks. The head is partly bare in some species; in others it is quite bare, while several are crested. There are only a few species of Spoonbills, included in two or three genera. The only genus represented in Britain is *Platalea*, distinguished by a bare head, except for a patch of feathers over the ears; the position of the nostrils is also peculiar; they open in an elongated oval, situated in a narrow depression "which loses itself," as Dr. Sharpe observes, "about the commencement of the narrowest part of the bill, and is continued in a narrow sub-marginal line which runs to the tip of the bill." In flight and habits they are Stork-like; but unlike the *Ciconiidae*, and agreeing with the Ibises, they probe with their beaks for food.

HENRY O. FORBES.

ANNA FORBES.



COMMON HERON. ♂²/₉

Family—*ARDEIDÆ*.

THE COMMON HERON.

Ardea cinerea, LINN.

THE Common Heron is an Eastern Hemisphere species, and has a wide distribution throughout Europe, Africa, and Asia, extending to some of the Malayan Islands and to Australia. Its breeding places are rarely found in the Eurasiatic Continent, north of the 55th to the 66th parallel of latitude; but south of that it nests in all suitable localities, and throughout Africa to the Cape. In the autumn large numbers migrate from their northern summer haunts to more southern latitudes.

The Common Heron is a resident in Britain, and is still common in most parts of the three kingdoms. It has greatly diminished in numbers through persecution on account of its depredations on trout and fish preserves, notwithstanding that it is of service in destroying large numbers of pike and other coarse fresh-water fishes, water-rats, and other vermin. It may be seen wherever there is water: by the sea-shore, near meres, and lakes, in swampy districts, marshes, and flooded fields, and Dr. Scully observed it along the road between Leh and Yarkand, at heights not below ten thousand feet. The Heron is rarely known to swim unless it has dropped into water on being wounded. In very hot weather, however, it has been seen to alight in deep water.

In the early part of February Herons begin to congregate in colonies, and to tryst in the heronries which they have probably occupied during the breeding season for many years in succession.* Heronries in Britain are now much fewer than in former times, and much smaller also. They are still, however, pretty widely scattered over England, Scotland, and Ireland. Messrs. Harvie-Brown and Buckley mention that although some of the famous heronries in the Moray Basin are deserted, there are instances of small ones which are slowly increasing their numbers, and speak of the hopeful Heron haunts in some of the woods by the banks of the Deveron, possibly the nuclei of future heronries. In the times when falconry was a pastime, the Heron was considered royal game, and its breeding

* In the Blasket Islands, however, the most westerly inhabited islands of Europe, lying 150 miles west of Killarney, a solitary pair has been known to breed all by themselves.

places were carefully protected. During the reign of Edward I., its price was higher than that of any other wild fowl. It was long esteemed as an article of food, and the nestlings are very delicate eating. Till some fifty years ago, heronries were held almost sacred, and there seems to have been a superstitious fear of disturbing them. Lord Teignmouth, in his "Reminiscences," says, "I found the ancient Castle of Darnaway, in Moray, tottering in the estimate of superstitious neighbours who prognosticated ill as a consequence of the seeming departure of the Herons."

Heronries are most frequently found on high trees; but the birds choose also low shrubs, ruins, and also, as at Ardnamurchan, the sea-cliff. Occasionally they select even a bare hill side. The old nest is repaired year after year, and birds have been known to return to the same heronry for twenty seasons in succession. The nest is a large structure, in which the eggs look very inconspicuous. It is composed of sticks, and lined with birch twigs, or turf and moss. The construction of the edifice is thus described by Mr. Barrett Hamilton. "One bird (presumably the female) stands on the nest, while the other goes away and collects sticks. These he brings in his mouth, and gives to his mate. The sticks are gathered on the ground, sometimes close to the tree in which is the nest, sometimes several hundred yards away. All sorts of sticks are collected. On approaching the nest, the male, who is evidently very proud of his home and his mate, usually utters some loud croaks, at the same time straightening himself out in the air, and on alighting he sticks his crest bolt upright, all of which is no doubt for the delectation of the hen-bird. She gets up on her legs, which have been tucked in under her on the nest, takes the stick from him, and arranges it. Then after a few minutes spent in preening his feathers, the cock goes off again, and the same routine is gone through. Apparently the male continues to bring sticks after incubation has commenced. Herons seem to make love to each other on their nesting trees, and I have seen the male caressing the female on the nest. The nests are far from conspicuous for such large structures, even when the hen-bird is sitting, unless she shows the white part of her head. During incubation I have seen the birds change places on the eggs very neatly. One bird approached the nest, and just before it arrived, the other who was sitting on the eggs, glided off and left; the whole thing was done so quietly that it was almost as inconspicuous as if one bird had merely flown over the nest."

The common Heron lays three to five eggs, chalky in texture, varying in size between 2 and $2\frac{1}{2}$ inches long, by $1\frac{1}{2}$ to $1\frac{3}{4}$ inches in breadth. They are of a greenish-blue colour, and some are slightly paler than others. They are generally laid in March in England, but in very mild seasons eggs have been found in

January. In Scotland, April is the chief season of laying, while in some parts of Europe the birds delay till May or June. Incubation lasts from twenty-five to twenty-eight days. The young nestlings, rarely more than two in number, though born with their eyes open, are helpless little creatures, covered with soft greyish down, longer on the back and head, with the underparts white, and are fed by the parents till they are able to leave the nest, when they begin life on their own account, clambering among the branches of their home, and, like the Parrot and the Hoatzin fledgling, using their bill to aid their feet. The Heron tends its young with assiduous care, often going long distances to fetch food for the hungry and clamorous creatures, who never seem to have enough, and whose needs are such a tax upon the neighbouring preserves, that the keepers are the sworn enemies of the parent birds. Human foes are, however, not the only enemies that check their increase, for instances are known of heronries which had been frequented for a score of years being deserted, owing to the persistent robbery of the eggs by Jackdaws or Hoody-Crows. The young birds begin to moult in November, and when they have acquired their first plumage, early in the spring, the crown and upper surface is dusky ash, very dark on the nape, with broad blackish stripes on the sides and breast, but the elongated feathers on the head, neck, and back have not yet appeared. It is only when the birds are nearly two years old, and have gone through their second moult, that the grey back, the richly marked throat, and the fine plumes are assumed.

“The heronry is a most interesting place to visit,” observes Mr. W. H. Hudson, “when the young birds are nearly old enough to fly, and are most hungry and vociferous, and stand erect on the nests or neighbouring branches, looking very strange and tall and conspicuous on the tree tops. * * *. At this period the parent birds are extremely active, and if the colony be a large one, they are seen arriving singly, or in twos and threes, at intervals of a few minutes throughout the day. Each time a great blue bird with well filled gullet is seen sweeping downwards, the young birds in all the nests are thrown into a great state of excitement, and greet the food bearer with a storm of extraordinary sounds. The cries are powerful and harsh, but vary greatly, and resemble grunts and squeals and prolonged screams, mingled with strange quacking or barking notes. When the parent bird has settled on its own nest, and fed its young, the sounds die away; but when several birds arrive in quick succession, the vocal tempest rages continuously among the trees, for every young bird appears to regard any old bird, on arrival, as its own parent bringing food to satisfy its raging hunger.”

In the male in adult plumage the crown of the head has a pure white crest,

with the sides and hinder part of the head on each side deep black, ending on the occiput in two long plumes of the same colour. The throat, neck, and sides of the head, as likewise the under surface of the body, under tail-coverts, and thighs are white, with a creamy pink shade on the sides of the neck and chest. The fore neck is marked with prominent lines of black; on the lower neck are displayed elongated drooping plumes of narrow pointed white feathers. The area over the chest, and a line along each side of the abdomen are purplish black. The general colour of the back and sides of the body is light ashy grey; the primaries are black, the edge of the wings white, and the secondaries ashy grey. The tail is pearl grey; the bill and legs yellow; and the space round the eyes green, which is the colour also of the feet.

The female resembles the male, but is slightly smaller, the black plumes on the head are shorter, and the black streaks on the neck less pronounced.

The note of the Heron is short and harsh, but, according to Seebohm, it deepens to a hoarse croak when the bird is alarmed. It is, however, generally a silent bird; and even when the nest is approached, the old birds rise in the air and hover anxiously round, but make little or no outcry.

The Heron is a very wary bird, and one by no means easy to approach; and it frequents, as a rule, for stalking and feeding, places whence a clear outlook can be obtained free from surprises. It is ever keenly on the alert for danger, and its safety is due to its own sagacity.

It may be seen standing immoveable, for hours, in a pond or by a stream, often at a considerable distance from the shore, watching for its food, "with its neck bent," as Mr. Seebohm describes, "and its head almost between its shoulders ready at a moment's notice to dart its bill into the water to secure a fish or a frog." It feeds also at night, especially in bright moonlight. The Heron is a voracious eater, and few things come amiss to it. One was recently brought to one of us dead, with the head and shoulders of a large rat tightly fixed in its gullet. The rodent, being fat and its stomach enormously distended with grain, had proved too large to pass down or apparently to be ejected, and each was fatal to the other. Many young birds fall a prey to the voracity of the Heron.

It is said by some to attract fish to the surface of deep pools by the device of scattering shreds of fibres, small leaves, and bits of vegetation as a bait, or even to shake its body scales over the water.

Mr. De V. Kane has recently given an interesting account of an experiment he made on a Heron, in order to test the statement frequently made that this bird when fishing for eels or frogs, becomes paralysed if surprised by a person suddenly appearing on the bank above it and shouting violently. On noise-

lessly reaching the edge of a bank beneath which a Heron was standing, and "flapping my cloak and shouting," he says, "to my surprise, it sat down and waited till I rushed down the bank. Shielding my face from its dangerous beak, I took it up and carried it to the field above. When put down it remained crouching in a sitting attitude on the ground watching me, and uttering occasionally a low croaking sound. When I went about ten yards off, it rose to its legs and walked deliberately to a furze bush and sat down under it. I then took it into the open field and threw it into the air as high as I could; it merely expanded its wings and pitched again and sat down. Taking it to the shore I retired, and then it waded out till the waves lifted it off its feet, when to my surprise it paddled manfully against them for awhile, but the wind drove it back. After some fifteen or twenty minutes of my rather cruel experiments, I left it where I found it, apparently paralysed with terror, but unhurt. It could spread its wings and the wing-bones were sound, and it was apparently uninjured in any way. Judging from the top-knot it was a young bird, but not of that year."

"The flight of the Heron," as pictured by Seebohm, "is slow and steady, with deliberate and regular beats of the long wings, and in the evening several birds may sometimes be seen flying home to roost, steadily and at a considerable height, like Rooks. Although the flight appears to be laboured, it is really very rapid, and the bird frequently wanders great distances to feed. When flying its long legs are carried straight out behind, and serve to balance and guide it in its course, whilst the head is drawn up almost to the shoulders."

Except at the breeding season, when as many as eighty pairs have been known to nest in one great oak tree, Herons are not truly gregarious, but they occur usually in small companies of four or six birds, and in severe winters the writers have seen in Rubislaw Den, in the outskirts of the city of Aberdeen, a solitary Heron—sure sign of a hard winter—watching, for a week at a time, for fish by the trout burn that flows through the Den, close to the house.

Towards the end of the year trout make their way, as is well known, from the larger streams into even the smallest upland burns. "Of this fact," as Mr. Abel Chapman remarks, "the solitary Heron is well aware, and his great grey form is a characteristic feature at this season, solemnly flapping across the moors to some little burn that he wots of as a favourite resort of the trout; or perhaps he startles a nervous shooter by suddenly flapping out, under his very feet, from some deep-sided hidden little burnlet, where the sportsman would as soon expect to find a Dodo, as either Heron or trout."

Family—*ARDEIDÆ*.

THE PURPLE HERON.

Ardea purpurea, LINN.

THE Purple Heron is not distributed so widely, nor does it ever range so far to the north as the Common Heron; but still it breeds in most parts of Europe, south of the latitude of about 45° to 50° N., where such situations as it can make its home are to be found; and probably it extends into central Asia as well. It is known to nest also in Northern Africa, and also in the Cape Colony. It is not a resident, however, in Europe; it only arrives in March, and, after breeding, it migrates in September to warmer climes again. It never breeds in the British Isles, but it is a not infrequent autumn visitor to the eastern counties of England and Scotland. There is, however, only one record of its occurrence in Ireland, namely near Carrickmacross, in county Monaghan.

The Purple Heron in habits more resembles the Bittern than the *Ardea cinerea*. It keeps more out of sight even in districts which it frequents than its congener. The following account of its habits, given by Mr. Dresser, is so excellent that we make no apology for quoting it.

“The Purple Heron * * * affects localities where the water is still, not flowing, and where the banks and shallow parts are covered with a tolerably dense growth of flags and reeds, in which, by concealing itself, it trusts to escape the notice of its enemies. It does not, however, inhabit the dense, almost inaccessible reed-forests where the Bittern feels itself so much at home, but is usually met with in places where there are open spaces between the water plants, where the water is not too deep, and in marshy places where there is a mixed growth of willow bushes and high grass or reeds. I never recollect to have seen one standing boldly out on the edge of the water as the Common Heron so frequently does, but have flushed them when making my way quietly through the reeds. * * *. It is a lighter, smaller, and rather more graceful bird than the Common Heron; but in its usual mode of progression, both on foot and on the wing, it much resembles that species.”

The Purple Heron dozes during the brighter hours of the day, and feeds early in the morning and especially in the evening. Its food consists largely of



PURPLE HERON ♀ ♂

fish, eels, frogs, mice, and water-loving insects which it rarely comes out of cover to hunt for. Mr. Eagle Clarke, during an excursion to the great marshes in the Delta of the Rhone, found in a small open space, among the reeds, what he supposed to be a larder of this bird. This consisted of a floating circular mass containing about one hundred eggs, three snakes, and several cyprinoid fishes, all of which showed distinctly the stab of the Heron's bill.

During the daylight hours, when the bird is resting, it assumes a very peculiar attitude, which is doubtless one which renders it as inconspicuous as possible, and is a protection to it when it is least on the alert. Its neck is slightly bent on the body, or both are set bolt upright, parallel with the vegetation, the bird not standing on its feet, but sitting on the ground upon its long leg bones. If its head and neck do show above the reeds, the protruding portion, as has been observed, looks just like the brown stump of some weather-worn stick, or a tuft of withered grass. In India the brown head of a closely allied species has been taken for a snake. The bird will trust greatly to this deception to escape notice, and, often only when it finds itself fully discovered, will it take to flight. This habit is similar to that of the S. American Bittern (*Butorides involucris*) described by Mr. Hudson, which conceals itself very effectively by flying in among the tall reeds and clinging there in an upright position, where its colours and its shape so closely harmonize with its surroundings, that even when one is close by it, it often quite eludes detection.

The Purple Herons differ from all others of the genus in having very long toes, the hindmost being specially elongated, while the hind claw is large, strong, and straight. Indeed on this account they are often placed in a genus—*Phoyx*—by themselves. Its long feet enable the bird to walk over the floating vegetation, which it is apparently fond of doing. It loves also to burrow under the arches of reeds and push its way, crab-like, through the dense rushes, growing up out of deepish water. It very rarely perches on a tree, but if it ever does so, it chooses a low and leafy branch amid which it can be concealed. It walks with slow and deliberate step on the ground; in the air it is a powerful flyer, and carries its legs outstretched behind it, and its neck doubled back between its shoulders. As a rule this species is a silent bird, and only on the wing, or when suddenly flushed does it utter its short and harsh note, which has by some observers been likened to that of a Duck.

The Purple Heron does not nest in trees, but on the marshy ground; nor in large flocks, but in small companies of from four to six pairs. Colonel Legge, however, found an allied species—*Ardea manillensis*—breeding in Ceylon in trees in company with White Herons. When once the Purple Herons take a

fancy to some particular breeding place, they will return year after year, if left undisturbed.

The species we are now describing arrives in Europe towards the end of March, and the various pairs begin to build shortly after, placing their nests forty to fifty feet apart from each other. Their nests are large and flat, roughly constructed of sticks and reeds, placed atop of growing reeds bent down all round, and elevated a few feet above the level of the water, which is often over six feet deep. Sometimes the nest is less substantial, consisting "merely of a few dried rushes collected together to form a sort of platform just clear of the water," as Colonel Irby has described. The eggs, three to four in number, and of the same greenish-blue colour as, but of a slightly smaller size than, those of the Common Heron, are laid between the middle of April and the end of the first week in May. The nestlings, which make their appearance in July, have, according to Mr. Howard Saunders, the skin and feet yellowish green and the abdomen yellow; the crest hairy; the plumage reddish brown, the shafts of the feathers lead-blue, all edged with white down, whitest on the abdomen; the upper half of the beak greenish horn colour, and the lower yellow.

"In the young in the first plumage," we quote Seebohm, "the crest feathers and the elongated feathers of the neck and back are absent. The black stripes on the neck, breast, and belly are only represented by obscure dark centres to the feathers, and all the small feathers of the upper parts have broad chestnut margins."

The young begin to moult in the autumn of the year of their birth, and by the following March have assumed an intermediate plumage, which is again moulted in the next autumn, and when completed in the succeeding March, the birds are arrayed in their adult feathering. In its general style of colouration the adult Purple Heron resembles the previously described species; but it differs from it in having the forehead and crown black instead of white; the dorsal plumes, which are white in the Common Heron, are chestnut; the sides of the neck and the underparts below the throat are pale chestnut. Many of the under wing-coverts are chestnut, the sides of the breast are reddish chestnut, and the white of the belly and thighs is represented by chestnut, and that of the under tail-coverts by black and white.

The female is duller than the male, and its ornamental plumes are less conspicuous. Both birds are about thirty inches in total length.

In winter the black plumes which adorn the back of the head are wanting, and the elongated ashy feathers of the back as well as the long filamentous scapulars are much less developed. These ornaments are only fully displayed during the pairing season.



J. W. Rohawk

GREAT WHITE HERON. ♂

Family—*ARDEIDÆ*.

THE GREAT WHITE HERON.

Ardea alba, LINN.

THIS splendid bird comes to be included in the fauna of the British Isles by reason of its having strayed some eight times within our borders and been inhospitably shot and identified. Its distribution is somewhat more restricted than the Purple Heron. Dr. Sharpe, who has recently very carefully studied the species of this extremely difficult group, has come to the conclusion that this species is only found from southern Europe to central Asia, wintering in Africa, and perhaps, but with some doubt, in north India and Burmah.

The counties in England which have been favoured by its visits are Cambridgeshire, Nottinghamshire, Oxfordshire, and Yorkshire. In Scotland, one was taken in the Firth of Forth and another on Loch Katrine. It appears in Europe only in summer, whither it migrates from warmer latitudes in April, leaving again in September. It is many years now, however, since a specimen was seen in this country.

“The habits of this graceful bird,” says Mr. Seebohm, “resemble those of the Common Heron in many respects. It delights to frequent the outskirts of extensive swamps, the margins of rivers, and shallow weed-grown lakes, together with willow-thickets and other wooded country when it is flooded. It may frequently be seen in small parties of half a dozen individuals, walking sedately about mud flats and low islands, or standing preening its brilliantly white plumage. It is a very conspicuous bird, and may be observed for half a mile or more; consequently is very wary and seldom allows the observer to come near. It looks remarkably graceful as it walks slowly up and down the marshy banks of a stream, or stands motionless, sometimes on one leg, in the water patiently watching for food. * * *. Its flight is moderately slow, performed by a series of regular flappings of the wings. It seems more buoyant in the air than the Common Heron, and looks more graceful,”—due to its standing more erect and drawing in its neck less. “Its flight is often prolonged for a considerable distance, and the bird is very conspicuous as it flaps over the dense waving reeds. The Great White Egret may be seen in small parties all through the breeding season, and

in winter congregates into much larger flocks. It also mingles freely with other species of Herons; but its large size is always enough to distinguish it from its congeners. It does not appear to frequent the most secluded and inaccessible parts of the marshes and reed-beds so much as their borders. * * *. It often wades for some distance in the water, and seems as partial to running streams as to still lakes and ponds."

The food of this species—which feeds chiefly in the day and in clear moonlight nights—is much the same as that of the two which have been previously described, fish, fish-fry, frogs, mice, rats, and water insects in their different stages. It has been known, when in captivity, to snap up birds swooping near its head.

The Great White Heron is pure snowy white in all parts of its plumage. It has no crest, though the feathers are lengthened on the occiput, but those on the lower neck and on the pectoral region are narrow and much elongated, while during the height of the pairing season the bird carries a magnificent train of long feathery plumes which extend beyond the tail; the bare space round the eyes is pale green, and the unfeathered part of the upper leg light coloured. There is this curious fact about the bill, that in summer it is black, and in winter it becomes yellow. In the two other—the American and the Chinese—species of Great White Herons, the very opposite is the case, the bills are yellow in summer and black in winter. During the latter season the species under description has no great dorsal plumes, they begin to be shed after the breeding season, and are not replaced till the next pairing. The female of *Ardea alba* is similar to its mate; but its neck and back ornaments are less fully developed.

Soon after their northward migration in the beginning of May, the Great White Herons begin to build—which they do only once a year—or to repair the nests they have frequented in former years. These as a rule are placed on trees in an island or in a morass, or on the ground among thick reeds in some swampy place. The nest is composed, when on a tree, of larger twigs lined with smaller ones, or with fragments of reeds or flags; when on swampy ground, it is built up with rushes and reeds. The nest, as Mr. Seebohm remarks, is broad and quite flat, and by the time the young are able to fly, is so trodden about as only to resemble a mere heap of sticks. It is a more sociable bird than the Common or the Purple Heron, and builds in close companionship with not only its own species, but with other *Herodiones*, and with unrelated species. During the month of May or the first half of June, the Great White Heron lays from three to five roundish eggs, which are quite indistinguishable from those of the Common Heron. Early in July the young are hatched. When they are nearly fledged



LITTLE EGRET ♂

they often leave the nest, according to Seebohm, and perch on the adjoining branches to wait for their parents' arrival with food. Their first years' plumage is very similar to that of the adult in winter; the bill is yellow, and the neck and back plumes are wanting.

The Great White Heron has often been kept in captivity in menageries, and on account of its beauty, by those who can afford it suitable enclosures. It is said to become very tame, and to live contentedly and on friendly terms with common fowls. The late Lord Lilford, on the other hand, records that, in his experience, its disposition towards its own species, as well as others, is spiteful and hostile. As among other animals, individual Great White Herons may have spoiled tempers and bad dispositions; so that probably, careful and kindly treatment of the young bird from the nest is required to obtain a docile and amiable pet.

Family—ARDEIDÆ.

THE LITTLE EGRET.

Ardea garzetta, LINN.

THIS pretty little species is included among British Birds on the strength of its having occurred within our area, on the 3rd of June, 1870, when a specimen was killed at Countess Weir, on the Exe. The Little Egret has a wide distribution, being chiefly abundant in the countries bordering the Mediterranean Sea; in the valley of the Lower Danube, and in Hungary, it breeds in large numbers; it occurs, and breeds also, in most parts of Africa, as far south as the Cape. It ranges to India, Ceylon, China, Japan, the north-western regions of the Malayan Archipelago, and even Australia. In Europe it is only a summer migrant, breeding in its southern regions, and only straggling to its northern countries.

In its habits generally, the Little Egret differs very little from other species of the genus. It is eminently gregarious, and not only breeds in colonies—often in association with Night Herons, Cattle-Herons, Spoonbills, and Ibises—but is usually to be seen, in the non-breeding seasons of the year, in larger and smaller flocks. Compared with its allies, it is not a shy bird, and may be stalked, Mr. Dresser says, with comparative ease, unless it has been subjected to much persecution, when, as may be supposed, it becomes wary, and frequents such places as cannot easily be approached. It is essentially a marsh bird, preferring swampy localities, well overgrown with aquatic vegetation, to any others; and its nesting haunts are often situated in almost inaccessible swamps. Its food consists chiefly of fish, but frogs, insects, and water plants, also form a large part of its diet.

The heronries of this species are carefully concealed, being built among dense bushes or thick trees, in or near a swamp; in some of its retreats, unless one is well acquainted with the district, one may travel far, and search long, before discovering the birds' actual breeding places. For a graphic account by Mr. Seeböhm of the difficulties encountered in his attempts, during a visit to the Lower Danube, by boat and wading, patient hewing and clearing his way, and pushing and squeezing his body through the dense branches, to reach a heronry he was bent on inspecting, situated in a forest of pollard willows, we refer our readers to his "British Birds." The nest is composed of a few sticks and reeds, in which the bird lays greenish-blue eggs up to half a dozen in number.

The male of this species in nuptial plumage is pure white all over, and it has no crest; but gracefully curving down from the back of its head, are two long narrow plumes, and from the chest and lower part of its throat, a cluster of long, narrow, pointed feathers; while a profuse and beautiful train of elongated, and slightly recurved filamentous feathers, which the bird can elevate when excited, adorns the lower back, forming the coveted "Aigrette" of the plumassiers. The bare skin round the eye is whitish, the legs are black, and the feet yellowish green; the long and slender bill is also black. The female is similar to the male, but her plumes are less developed than her lord's. During the autumn and winter months both sexes lose the adornments of the love season.

This Heron, which is constantly kept in confinement by the Sindh fishermen, in India, has also been kept in this country by Lord Lilford. He found it, however, he says, delicate in confinement, but very tame and careless of observation, yet spiteful in disposition. It is a much more noisy bird than the Great White Heron.

The pure white species of this section of the genus are among those birds whose beautiful plumes have proved their most fatal dower. The White Herons

and Little Egrets are ruthlessly shot or caught during the breeding season—when alone their ornaments are developed—in all countries where they nest, by “bird plumers,” for the purpose of providing female adornment in hats and otherwise. The patch of skin on the back, from which spring the plumes, and occasionally the wings, are hastily torn off, and the remains of the bird, often still alive, are thrown aside. As many as two or three hundred dead bodies of Egrets and White Herons have been counted, in a heap, near their heronry, after the hasty visit of one of these devastating parties. No consideration is had for the helpless young in the nest, whose pitiable cries for food may be heard miles away for days after, gradually waning till death relieves their agony, and silences the heronry. These plumes were formerly sold without disguise by plumassiers and milliners as “Aigrettes”; but it would appear that the sympathy of many of their more gentle and tender-hearted patrons has been aroused, and brought a lucrative trade into danger. The dealers have, therefore, adopted the deceit of assuring (of malice aforethought) their customers that the “Aigrettes” are either cast off feathers—which would, of course, be too worn or draggled for wear,—or, that they are “Ospreys” and “Brush Ospreys,” names adopted for manufactured imitations, and that the plumes are no longer taken from real birds. Nevertheless these “Ospreys” and “Brush Ospreys” are the true nuptial plumes of White Herons and Egrets. The abundance of these birds and their slaughter may be estimated when, as Mr. Litchfield, of Kensington Square, London, has lately pointed out in a letter to the *Times*, their plumes may be purchased retail, at from sixpence to sevenpence apiece, in shops in such expensive localities as St. Paul’s Churchyard, Kensington High Street, Edgeware Road, Oxford Street, and Wigmore Street. It is almost hopeless to stop the cruel trade, so long as “ladies” will exercise only the slight care they do, to discover whether the plumes they are offered, are artificial or not; and until, indeed, those whose example is powerful in the social world, refuse to wear feathers altogether, and express their abhorrence of this cruel destruction of the most beautiful birds going on all over the globe. The extent to which the slaughter of birds of bright plumage—many of them after all, never used because not “in fashion”—solely for plumassiers’ purposes, is carried, is almost beyond belief. The present writers witnessed the shipment, in one vessel, of a consignment, for London and Paris, of numerous cases, containing, they were assured about five hundred thousand skins, from Rio de Janeiro; and they have seen equally great numbers from New Guinea, Aru, and Ceram, laid out in long sheds, awaiting shipment for Europe, at the Moluccan Islands of Ternate and Banda. We may perhaps be allowed to quote here the late Lord Lilford’s remarks in this connection. The Little Egret “in habits is by far the most confiding and fearless of man of any of

the non-skulking *Ardeidæ* of my acquaintance. I have frequently approached on horseback or in a boat, without any sort of concealment, to within a few yards of these Egrets, who took very little notice of us. It is probable, however, that the poor birds, or those that may be left of them, have learned that *feminine* fashion has cast its eye upon them for personal decoration, and that the lust of gain by this cruel folly has rendered the animal Man, as a rule, a very dangerous neighbour."

Family—ARDEIDÆ.

THE BUFF-BACKED HERON.

Ardea bubulcus, AUDOUIN.

THIS pretty little Heron is also included among the British Birds on the plea of its one occurrence in England, and that over ninety years ago. The specimen, which was obtained in 1805, is now preserved in the Natural History Museum, at South Kensington. In his recent Handbook, on the Birds of Great Britain, Dr. Sharpe has placed this species in a genus (*Bubulcus*) distinct from *Ardea*, under the name of *Bubulcus lucidus*, RAFIN.

This Heron, in the full plumage of the breeding season, has a well developed crest, a large tuft of plumes on the chest and lower neck, and a profuse dorsal train of hair-like feathers. These ornamental developments are of a rich "vinous isabelline colour"; elsewhere the plumage is pure white. The bill is rich yellow at the top, and reddish at the base; the legs and feet variable with age, but yellow in the adult; the bare skin on the face yellowish-green. The female is like the male, only its train plumes and gorget are less elaborate; and the bare parts in the neighbourhood of the eyes are bright yellow. The adults in winter,

as well as the young in immature plumage, are pure white, the former having no dorsal train, and the latter no plumes at all.

The Buff-backed Heron is found chiefly in the countries bordering the Mediterranean; it occurs in most parts of Africa, where such marshy localities as it affects are to be found, and extends to east of the Persian Gulf. It builds its nest among reeds, in large colonies, constructing it of sticks, and laying in it five or six bluish-green eggs. It feeds on frogs, insects, ticks, and leeches. These last items of its diet it seeks on the bodies of cattle, in the south of Europe, and of the more tropical buffaloes, fresh from their mud baths. From this habit they have earned the name of Cattle-Egrets. One of us well remembers his first introduction to this pretty genus on the margin of the lake of Ranau, in Sumatra, and his delighted astonishment at observing the buffalo-herd, belonging to the village in which he was camped, attended by quite a troop of these conspicuous and gregarious birds, which allowed him to watch them, without concern, close at hand. Some were stalking alongside the quadrupeds, every now and then grabbing at a newly detected tick or leech; others—often more than one—perched on their backs, were being carried about, in the most unconcerned manner, as the grazing buffaloes moved slowly from place to place. The cattle, no doubt, appreciated their kind operations, for they never flicked them with their tails, and never showed signs of annoyance or impatience at their proceedings. It was not unusual to see the Egrets in company with the livelier Cattle-Starlings (*Sturno pastor*) searching for the same food, now on the back, next perhaps on the belly, then on the head of the bovine, and the next moment flying off to another individual, but rarely venturing within reach of the Heron's beak. The Cattle-Herons often appear, as has been noted by Mr. Abel Chapman, in Spain, fast asleep on the backs of the half-wild cattle, "their heads snugly tucked under their back feathers, their long toes and strong claws enabling them to sit thus securely."

The Buff-backed Heron attends also on wild herds, and follows elephant troops in quest of these same specially favourite constituents of its food. Grasshoppers form, besides, a very large part of its diet. Buff-backed Herons will follow the plough for worms and grubs just like Rooks in our own country. It is not surprising, therefore, that they are held in affectionate regard, and rarely molested, in those countries where they associate themselves so closely with, and place so much confidence in, the husbandman and his herds. "Sir Gardner Wilkinson," as Dr. Leith Adams remarks, "is disposed to consider that the Cattle-Egret was the sacred bird named in Egypt the 'Tufted Benno,' an emblem of Osiris, and chosen in consequence of its familiarity and predelection for cultivated districts, and feeding on insects and worms turned up by the farmer. The bird is very plentiful along the

river's banks, and in fields, and is the White Egret so frequently pointed out by dragomans as 'the Ibis.' Although it has been often asserted that the true Ibis now no longer inhabits lower Egypt, and is to be found only in Nubia, Abyssinia, or the Soudan, it is, nevertheless, still pretty frequently met with in that region. Of the Cattle-Egret it is, that this old legend is told, that every year, upon a certain day, they all assemble—along with all the birds of the world—at Gebel-et-Têr, one of the hills guarding the entrance to the Nile Gorge, and "one after another," according to Makrizi's description of Egypt, "each puts his beak into a cleft of the hill until the cleft closes upon one of them; and then, forthwith, all the others fly away. But the bird which has been caught, struggles until he dies, and there his body remains until it has fallen into dust." Maspero remarks that this tale "faintly recalls that ancient tradition of the Cleft at Abydos, whereby souls must pass, as human headed birds, in order to reach the other world."

Family—*ARDEIDÆ*.

THE SQUACCO HERON.

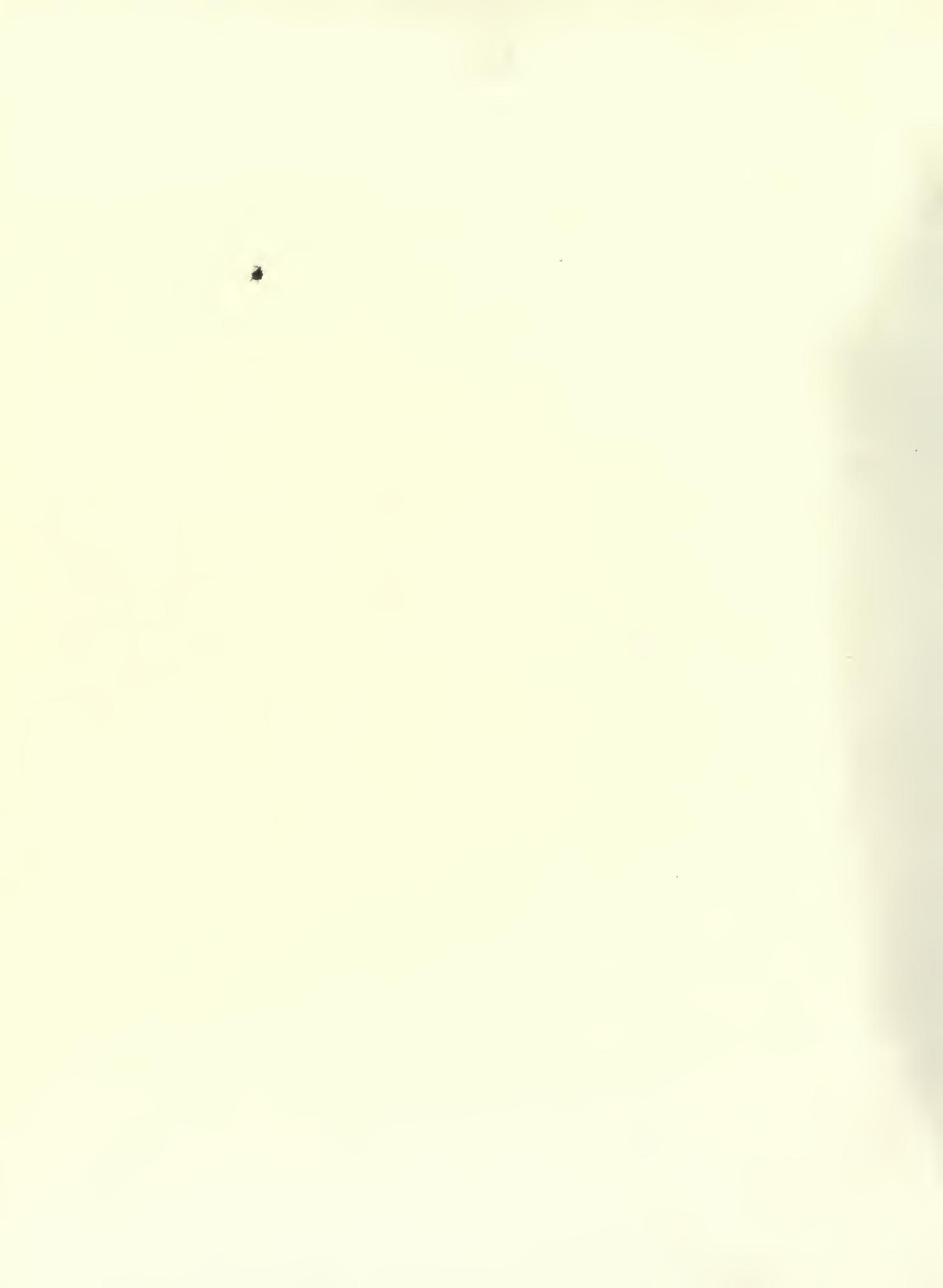
Ardea ralloides, SCOP.

THIS pretty, but rather pugnacious, little Heron, has been recorded from various parts of England, on some twenty or thirty occasions; but only twice or thrice from Scotland and Ireland. It has never been known to breed with us, yet it has full right to a place among the number of those birds that one may, at any time, have the good fortune to encounter at unexpected corners, in this country, in the migratory season. Its visits, however, are very intermittent.

Dr. Sharpe, in his recent revision of this group, placed the Squacco Herons in a genus, *Ardeola*, distinct from that of the Common Herons, *Ardea*. "The Squacco Herons," he says, "form a small group of four or five species confined



SQUACCO HERON ♂¹/₃ ♀



to the old world. Although approaching the Little Bitterns in size and general appearance, the Squacco really belongs to the group of true Herons. They have twelve tail feathers, and the bill shows distinct serrations near the end of the upper mandibles."

The Squacco Heron has a considerable resemblance to the Buff-backed Cattle-Egret; but it is a smaller and much handsomer bird. Like *Ardea bubulcus* it is in its nuptial array, pure white, except for its rufous buff-coloured train and gorget; but it differs in having the buff extending from the well developed dorsal train, up the back, on to the hind neck, and from the gorget, along the fore neck and throat. The crest of the Squacco—which consists of plumes from the forehead, crown, and nape—is more ornate than the Cattle-Egret's, having each of its feathers margined with black lines, and the longest plumes white at the tip. The chin is white; the beak is rich blue, with the tip black; the bare skin which surrounds the eye bright green, and the legs and feet flesh colour.

The female is like the male in colour of plumage, but has, as is the rule among the Herons, the ornamental plumes less developed, and in size is slightly smaller.

In winter the male loses the long plumes of the nape, and has the others much reduced, and of a straw colour. The general hue of the plumage is yellowish white, except the crown feathers, which are margined with brown, and the upper part of the back, including the scapulars and inner secondaries, which is earthy brown.

The young birds resemble the adults in winter garb; but they can be distinguished by the black shafts to their primary wing feathers.

The Squacco Heron is distributed throughout southern Europe, and nearly the whole of Africa; it occurs in Asia, on the Caspian Sea. It migrates to Europe for the purpose of breeding, crossing over the Mediterranean northwards, in the beginning of April. It then assumes its nuptial plumage; its nest being made in May, and the eggs laid in June. Some of the chief breeding places for this species, in Europe, are the reed beds, and sallow brakes of the marshes of the Save and the Lower Danube. As they are strictly preserved, the number of Herons, Bitterns, Spoonbills, and birds of such feather that nest there, runs to thousands; and sometimes one pollard willow will contain twenty-five nests of four species of Herons, besides those of other birds. The Squacco Heron builds a far smaller and less compact nest than the Common Heron; indeed, its nest is smaller than any other Heron's. It consists of sticks and twigs, rather loosely put together, through which the eggs, lying in the nest, can be seen by one looking up from below. This species builds, as a rule, in trees standing in water,

a little above the level of which the bird places its nest. Where there are no trees, it may be found situated on the ground. The Squacco lays four to six greenish-blue eggs, averaging in size about $1\frac{1}{5}$ inch in length, by $1\frac{1}{4}$ in breadth.

The food of the Squacco consists of fish, mice, frogs, and insects, its taste being much the same as the other species of the genus, and it closely resembles them in general habits, its mode of carrying the head and feet in flight, and its gait on the ground.

This species has been occasionally seen in captivity in the gardens of the Zoological Society of London, but, as observed above, it is rather of a pugnacious temperament.

Family—ARDEIDÆ.

THE AMERICAN GREEN HERON.

Butorides virescens, LINN.

IT is extremely doubtful whether the American Green Heron should be honoured with a place in the list of British Birds. Neither the Committee of the British Ornithologist's Union, Mr. Seebohm, nor Dr. Bowdler Sharpe, has recognized it as entitled to be included; but it has been entered by that well-known authority, Mr. Howard Saunders, in his list, so marked, however, as to indicate that the history of its occurrences is not well authenticated; or that after being intentionally introduced, it may have possibly escaped from confinement.

Under these circumstances we have given but a short notice of the bird, yet sufficient, should it occur again within our shores, to enable it to be easily identified.

The fully adult bird, in breeding plumage, has the crown of the head, its pendent crest, and the elongated narrow dorsal plumes, dark shining or bluish green, often washed with bronze; the wing-coverts are green, edged with tawny;

the rest of the head and neck purplish chestnut, while the fore neck and throat are white, broadly striped with white and dusky. Beneath, the bird is brownish grey, with the belly lighter; and the tail feathers bottle-green.

The Green Heron is widely distributed throughout the United States, the West Indies, and as far south as the northern parts of South America.

This pretty little Heron is less gregarious than many of its congeners, and is generally to be seen alone, or in pairs, by the side of tree-clad river banks, where it may be discovered, during the day, hiding in a tree, or on the ground, in a more or less sleepy condition. It feeds in the gloaming, or in bright moonlit nights, on insects, crabs, small fishes, or, indeed, any small aquatic animals it can seize. Its nest is situated in a tree, or a bush, in association with its own kind, or with other Herons—often indeed near a dwelling house—and is constructed loosely of large twigs, lined with smaller, in which any number up to six eggs, of a pale green colour, are laid.

The Green Heron, according to Dr. Cones, is peculiar in its method of feeding. On seeing a fish, "it crouches low on its legs, draws back its head, crooks its neck, creeps slyly along on the ground, laying its tarsi almost down on the rock [from which it prefers to fish, instead of wading into the water], carries the bill level with the top of the back, and, when near enough, darts the bill forward towards it, and sometimes with such force as to topple forward a step or two. It seldom immerses its head in fishing, is always disposed to steal upon its prey in a sly cat-like crouching manner, remaining quite motionless for a long time, and often advancing so slowly and stealthily, that even a keen-eyed observer would hardly perceive the motion."

Family—ARDEIDÆ.

THE NIGHT-HERON.

Nycticorax griseus, LINN.

THE Night-Heron is only a rare straggler to the British Isles, its visits being recorded generally in the migration seasons of spring and autumn, from Scotland and Ireland, as well as England. The number of its visits altogether is, however, large in comparison with that of several of our other visiting *Herodiones*. It has appeared in some localities in companies of a few pairs; but the persistency with which every rare bird-migrant to our country is killed as soon as observed, precludes the hope that this species will ever be permitted to breed anywhere in it; and there is no reason why it should not do so, if it were left unmolested.

The distributional range of the Night-Heron is very wide. It prefers a moderately warm climate, consequently it is not found far to the north, but it is to be met with in the latitudes which favour it, across from mid-Europe to the eastern-most coasts of Asia. During its migratory wanderings, it occasionally finds its way even to the Pelew Islands, in the Pacific. It occurs throughout Africa, and also in the middle and southern parts of North America, and the northern regions of South America, as well as in the West Indian Islands. In many parts of Europe it was formerly more abundant than now, its decrease being due to the extensive draining, during the past century, of the swamps and marshes which it used to inhabit.

The Night-Heron begins to arrive in Europe, from its southern winter retreats, in the middle of April, and by the middle of May it has reached its various breeding places.

The Night-Heron is a shorter bird in every way than any of the true Herons, and it has comparatively a much stouter and shorter bill. In the male the crown and nape of the head, with the back and scapulars, are black, washed with dark green; the sides of the neck, the hind neck, the lower scapulars, the wings, and the lower back, down to the tail, are pinkish lavender grey; the forehead, a line above the eye, the cheeks, the throat, and the whole under surface of the body, are pure white. From the nape proceed, during the nuptial season, from two (as



NIGHT HERON, JUR. ♂ & ♀

a rule) to as many as ten, pure white cylindrical plumes. Its bill is black, its legs and feet yellow, and the bare skin round the eyes pale green. The bird's length is about 23 inches.

The female is like the male in all respects; but in the winter both sexes become darker and more glossed with green, and lose their long white occipital plumes.

The Night-Heron is to be found chiefly in the neighbourhood of swamps and marshes, and amid the pollard brakes or bushes growing in such places; its nest will be found on a branch, set generally only a few feet above the level of the water. This is, however, not an invariable habit, for the bird often—Stork-like—selects the very tops of lofty trees in a wood, or even in the depths of a forest; while at other times it will build low down, quite among the reeds. It is not only a gregarious bird, but one evidently very sociable and fond of company; for often enough, on the same tree with it, there will be found nests not only of its own species, but of several other Herons, Squacco and Common Herons, as well as of Egrets, and even Cormorants. In the month of May, the Night-Heron begins its building operations, constructing its nest entirely of sticks, very loosely laid together, lined with smaller twigs, all of which are arranged to radiate from the centre. In this gaping bundle of sticks, which a man looking up from below can see right through, the Night-Heron deposits from three to five eggs, in size averaging from a little under 2 inches in length, by $1\frac{1}{2}$ inches in breadth, of a pale greenish colour. From these emerge, in June or July, nestlings covered, as Saunders states, with down of a purplish grey, tipped with white on the crown, and white on the flanks and belly. Its bare skin is sea-green.

The brood is fed at intervals during the day by the parents, with food fetched often from a long distance; but (as their name, derived from their nocturnal habits, indicates) it is chiefly, though by no means exclusively, in the dusk and night that they are most active. Then also it is that the babel produced by the young, even from a small heronry, is such as is never likely to be forgotten by those who have had the chance to hear it. During the daylight hours the Night-Heron, when it has no nest, sits hidden away, in a tree, in some retired corner, dozing, with his neck drawn back on his shoulders.

Among the drawings of birds on the Egyptian tombs, is one of a species called the "Tufted Benno," of which "the best drawings," remarks Dr. A. Leith Adams, in his "Natural History and Archæology of the Nile Valley," "I have seen rather incline to the belief that the ancients meant the Night-Heron with its long white plumes, [and not the Cattle-Egret, as Sir Gardner Wilkinson is disposed to consider it.] This tenant of the river may be seen during the day resting

on the tops of palm, tamarisk, and acacia trees—the Tufted Benno is often so represented in the ancient pictures; and after dusk, when the other water-fowl have settled down for the night, the unweildy form of the Night-Heron, with head well back, silent, and measured flappings of its great fan-shaped wings, is apt to startle the unwary traveller as it passes overhead, uttering its well-known ‘wah’ ‘waak.’”

Mr. Styan, a well-known authority on Chinese birds, says that there are many heronries of this bird round Foochoo. “Generally they are placed,” he says, “near a village, and the natives, probably from some superstitious motive, will not allow them to be interfered with. I once was allowed to visit one of these places, but not until I had promised not to disturb the birds. This heronry was established in a clump of pine trees, which covered a hillock, overlooking the village. The nests were placed on the summits of the pines, and numbers of Herons were flying about or sitting on the nests.”

The food of the Night-Heron consists of small fish, frogs, and water insects.

Family—ARDEIDÆ.

THE LITTLE BITTERN.

Ardetta minuta, LINN.

THE Little Bittern has been seen and taken in most parts of England, Scotland, and Ireland, though less frequently in the two latter countries than in the former; and naturally oftener in the counties of England nearer to the Continent, and in those specially, which, like Norfolk, with its extensive reedy “Broads,” provide the situations it likes best to frequent. Dr. Sharpe agrees with Mr. Howard Saunders, in thinking that the evidence is strong enough to affirm that it undoubtedly bred, in former days, in this country, and that even “recent instances of its doing so are not unknown.”



LITTLE BITTERN. ♀ ♂

This active, attractive, and graceful bird, comes north to us in the summer and spring migration season, but occasionally it appears in winter. As a rule, even those that breed in southern Europe, and along the northern shores of the Mediterranean, migrate southwards, in winter, into tropical and even southern Africa. The Little Bittern seems to range to western Asia only—its place in eastern Asia, across to Japan, being taken by an allied species,—and by way of Asia Minor, and Palestine, to India. It is, however, rarely found to the north of the sixtieth parallel of latitude in Europe, or far out of the Himalayas in India. Westward, it extends to the Azores, and Madeira.

The species comprising the genus *Ardetta*, agree with the Night-Herons in having the second quill of the wing the longest; but they have only ten feathers instead of twelve in the soft rounded tail. Their middle toe, with its claw, is shorter than the next higher segment of the limb. The feathers on the head are elongated, but do not form a crest; there are no dorsal plumes as in the Herons, but the feathers of the chest are elongated. The hind neck is bare, but concealed by the feathers along its sides. Unlike the Herons also, the females differ from the males in colour and markings. The Little Bittern inhabits marshes, covered with reeds, osier thickets or aquatic herbage.

In presenting relationships both towards the Herons and the true Bitterns of the genus *Botaurus*, the members of this group form a connecting link between the two genera.

In breeding plumage the Little Bittern has the whole of the dorsal surface, the back of the neck, up to the crown of the head, black glossed with green; the lesser wing-coverts, the sides of the neck, the throat, the chest with its elongated plumes, and the rest of the under surface, rich vinous buff; the long feathers on the breast, partly concealed by the pectoral ruff, are blackish brown, with vinous margins, and the under wing-coverts are white. The bill, legs, and feet, are yellowish-green; the bare space round and in front of the eye, yellow.

The adult female differs from the male in being slightly smaller, and in having a brown tinge on the top of the head, the lower neck, the back, scapulars, and inner secondaries, chestnut-brown, with reddish buff edges; the back and sides of the head, chestnut; the chin, throat, and chest, have dark ochreous centres to the feathers, while those of the breast and sides of the body are centred with black, producing a distinct effect of longitudinal striping on the back, throat, chest, and sides.

The Little Bittern begins to arrive in Europe during the month of April, and in April or May, according to the latitude in which its breeding quarters are reached. For a short time after their arrival these birds seem to loaf, and are to

be observed perched on trees near marshes, in their curious erect attitude with sky-pointed bill; but very shortly they commence to give their attention to domestic and family concerns. During the amorous season, the male may be heard uttering, from amid the thickets, a modified boom, as contrasted with the call of the true Bittern, "resembling the syllable *pumm*, several times repeated," or "woogh, woogh," as Lord Lilford writes it, "a sort of deep guttural cough," to which the female replies with a sharper "gett, gett."

The nest is carefully hidden away among dense reeds, in shallow water, almost on the level of the marsh, or sometimes a little elevated above it, or even on a willow stump or low tree. It is a rather massive structure, six to seven inches across, composed of dry flag-leaves lined with rushes, softer bits of flag, or grasses, wherein are laid five to nine dull greenish-white—or, according to Mr. Seebohm, pure white—oval eggs, small in comparison with the apparent size of the bird, the body of which, however, is not so large as its full, and often semi-erect, plumage suggests. After sixteen or seventeen days of incubation, the chicks emerge from the eggs, their pinkish flesh-coloured bodies covered with a stiff reddish-yellow down, somewhat longer on the top of the head, and on the back, than elsewhere. The bare skin about the head, and the legs, and the shorter bill, are yellowish green. The squabs are helpless, and require the fostering care of the parents till they are able to fly. The downy covering very soon gives place to a plumage in both sexes, which nearly resembles the adult female's; but, according to Mr. Seebohm, the chestnut on the back of the neck is duller, and the feathers have pale tips; the back also being darker and duller, while the wing-coverts have dark centres. The sides of the head, the chin, throat, and fore-neck, are buff, each with a broad, dark brown centre. This plumage is followed by one intermediate between it and the male or female adult dress.

The Little Bittern migrates southward in September, but occasionally a few individuals remain part of the winter months in their summer quarters.

The food of this species is much the same as that of the Herons already described—small fishes, amphibians, and mice, and any animal-life to be found in the marshes and meres which they frequent. The Little Bittern is chiefly nocturnal in its habits, and during the day it roosts in the dense thickets of reeds, sometimes on a low and thick bush, in a sleepy attitude, often poised on one leg, with the other drawn up close to the body, and buried amid its plumage, with its neck drawn in on its back, and its bill pointing straight up into the air. This erect attitude, and the coloration of their dark green and buffy plumage, with the brown markings of the flanks and throat, especially in the female, enable it to escape detection, often even when one is quite close to it. The bird, one



BITTERN. $\frac{3}{4}$
(SEXES ALIKE.)

would think, is aware of this protective resemblance, and it will often, if intruded upon too suddenly to escape, throw itself into a stiff attitude, and drawing its feathers tight against its body, pose as a bunch of the reeds among which it is hiding. When at last flushed, the Little Bittern rises—the female uttering a short kek-kek-like cry—perpendicularly from its retreat, flies a short distance with a few strong and swift strokes, and drops hastily back again into the safe protection of the dense thicket. It will then skulk away—as it does when warned of the approach of danger,—thrusting itself, rail-like, with great rapidity, through the thickets, and elude both capture and observation with the utmost ease. Even among low bushes it can scramble from branch to branch with great celerity, and make its escape unseen and unsuspected.

The Little Bittern is an interesting bird in confinement; but Lord Lilford says he experienced considerable difficulty in keeping it alive. Mr. Meade Waldo, on the other hand, writes that he succeeded in keeping one he brought from Madeira, for three years. A friend of Lord Lilford told that distinguished ornithologist, that “a bird in his possession supported itself to a great extent by catching the mice and lizards that came into the aviary, in which it was kept, in the island of Teneriffe.”

Family—*ARDEIDÆ*.

THE BITTERN.

Botaurus stellaris, LINN.

THE Bittern has, undoubtedly, higher claims to be included in the list of British Birds, than any others of the Heron family, with the exception of the *Ardea cinerea*; for it was in former times a resident and a regular breeder in this country. Its favourite nesting grounds were the fen-lands of Cambridgeshire

and Norfolk; and in the latter it is said to have bred so recently as the year 1834, while in Herts there is a record of its nesting in 1855. The very rapid advance of the plough during the past three quarters of a century, has finally extinguished, or largely curtailed, many of the fens and marshes beloved of the bird, with the result that it has taken its departure to less cultivated regions, and visits us now only at irregular intervals in winter and spring; yet it is seen in some part of the country almost every year. It has visited nearly every district of the three kingdoms, though in Ireland it is now a rare straggler. We so thoroughly agree with the following remarks by Mr. W. H. Hudson, that we quote them here in the hope that they may meet the eye of, and be duly taken to heart by, those whom they most concern. "It is, however, a noteworthy fact that, whereas other species that have been driven out, such as the Great Bustard, Spoonbill, Avocet, Black Tern, and several more, appear now as only rare occasional visitors in our country, the Bittern comes back to us annually, as if ever seeking to recover its lost footing in our island. And that he would recover it, and breed again in suitable places as in former times, is not to be doubted, if only the human inhabitants would allow it; but unhappily, this bird, like the Ruff, Hoopoe, and Kingfisher, when stuffed and in a glass case, is looked upon as an attractive ornament by persons of a low order of intelligence and vulgar tastes."

Outside the British islands, the Bittern inhabits Europe and northern Asia, or what is known as the Palæarctic Region of Wallace, south of the 68th degree of N. latitude, thence extending into India, China, and north-eastern Africa in winter. In many parts of Europe, however, where it was once very common and nested, it has now become a rare visitor, from the same causes that have driven it from England.

In the Bitterns the neck is shorter and thicker than among the Herons, the middle toe and the claw are both very long, and together are far longer than the next higher segment of the limb. On the occiput there is an erectile crest, and on the neck a very large ruff of erectile feathers; but no dorsal plumes as in the Heron. Unlike what is seen in the female of the Little Bittern, the plumage of the adult female of the true Bittern does not differ from that of the adult male. In the fully mature Bittern, at all ages and all seasons, the upper surface is of a general ochreous colour, or yellow buff, each feather irregularly vermiculated and barred with brown and black, and with a centre streak of brownish black. The crown and nape dark brown; the back and scapulars black, margined with yellowish ochre; lower back, down to the tail, tawny buff, mottled and barred with black; wing feathers reddish brown, barred with black, but the coverts slate grey, also barred and mottled with dark brown. The eyebrows, sides of face, and sides of the

neck, tawny buff. The throat creamy white, with a central brown streak; rest of the neck, the ruff, and the remainder of the under surface, whitish cream colour, or yellowish buff, the feathers, each with a broad central streak of blackish-brown, uniting into broad longitudinal lines, radiating from the throat, along the under-side of the bird; under wing-coverts, and axillaries, tawny buff, barred with brownish black; bill, bare skin about the face, legs, and feet, greenish yellow. Total length 24 to 26 inches.

At the nuptial season, the male Bittern's call to his mate—said to be uttered with its neck out-stretched, and the beak pointing upwards—is a very remarkable sound, which is usually described as its “boom,” audible at a long distance off. It is to be heard generally in the gloaming, in the night, or in the early morning, from the bird's dreary hiding place, amid the marshy thickets. The call has been compared with, and likened to, many different sounds and noises, among others to that of a drum, by Sir Walter Scott, in the “Lady of the Lake,” where the following line occurs:—

“And the Bittern sound his drum”;

and by Crabbe, to the bellowing of a bull:—

“What time the sea birds to the marsh would come,
And the loud Bittern from his bull-rush home
Gave, from the salt-ostel side, his bellowing boom”.

In Welsh the Bittern is known as “the bird of the hollow cry,” (*Aderyn y bwm*), and “Boom of the Marsh,” (*Bwmp y gors*). In many parts of England it goes by the name of “Bog-bumper,” and “Butter-bump,” an approximate interpretation of its call.

The voice of this shy, solitary bird, floating out on the still evening air from its haunts in the dismal swamps, has been long held in superstitious dread. It was in many places believed to portend the death of the hearer, or of some of his near relatives, or dear friends. From time memorial, the Bittern's presence has been regarded as an emblem of desolation:—“The Cormorant and the Bittern shall lodge in the upper lintels of it; their voice shall sing in the windows; desolation shall be in the thresholds.”

The Bittern arrives in Europe in the beginning of March, or a little later according to the weather; and its presence can, shortly after, be detected by its “booming” from amid such reed thickets as have survived from the previous year, by the margins of unfrequented swamps and marshes, where alone it makes its home. It may sometimes, however, be seen settled on a tree, or bush, if the marsh vegetation has not reached a sufficient height. The nest is built on the mud, in the deepest concealment of the reeds, and is constructed of dry reeds,

leaves of the flags, and rushes. From three to five smooth, somewhat glossy eggs, often pointed at both ends, of a buffish-grey colour, are laid. They become darker when blown, and are yellowish brown inside when viewed by transmitted light. In length they vary, according to Seebohm, "from 2'15 to 1'97 inch, and in breadth from 1'55 to 1'45 inch." After about twenty-five to thirty days of incubation, the young chicks break into the world, covered with long, rather loose, rusty yellow, hair-like down, which gradually gives place to plumage of the same colour as their parents'. The young are helpless at first, and require to be fed till they are fully fledged, when they leave the nest able to provide for themselves.

The Bittern, as already stated, is nocturnal in its habits, more so than the Little Bittern, or the Night-Heron. Both on this account, and from its shy skulking character, direct observation of the bird is extremely difficult, and there are very few naturalists who have had the opportunity of keeping it under observation for more than a few minutes at a time. It seldom goes in the daylight for an extended flight in the open. During migration a flock has occasionally been seen passing overhead; but as a rule its flights consist of a rapid ascent when disturbed in its retreat, and a sudden drop into the reeds a few yards off. On the wing it carries its head drawn in on its back, and its feet straight out behind.

The Bittern has a voracious appetite, it feeds on all aquatic animals, insects, mollusca, frogs, and fishes. It has been known to have at one time in its stomach a four ounce roach, besides other fishes: small birds do not come amiss to it, and a water rail, which must have been swallowed whole, has been discovered within one of them awaiting digestion.

The Bittern has been but little kept in confinement; its pugnacious disposition, and the hostile manner in which it uses its beak when out of temper, rendering it a dangerous pet.*

"In its habits the Bittern is a somewhat mysterious peculiar bird," to quote Mr. Dresser's interesting account, "seldom seen during the day-time, unless suddenly surprised and driven from its hiding place, where it rests by day, and only begins to move about as the dusk of evening sets in. Reed-covered marshy localities are its favourite haunts, especially when the tract covered by these reeds is large and difficult of access, for there it can remain all day undisturbed. It never flies round during daylight of its own accord, and even when flushed, flies off with a somewhat laboured flight, like an Owl in the sunshine, and drops again

* The Rev. H. A. Macpherson writes:—"A Bittern, which had been captured in one of the marshes, near Yarmouth, in an unfledged state, lived for upwards of five years in the aviary of Mr. C. Jecks. It was usually fed on fish, but when that was impracticable would eat anything that was supplied, swallowing little birds entire." (cf. Dixon, "The Dovecote and Aviary," p. 333.)

into the densest portion of the reed thickets, where it is hard to put up again. Even when a dog is sent to flush it, and the reeds are high and dense, it will climb up above the surface of the mud, or water, amongst the reeds, and trust thus to escape observation. It does not appear to pass the day in sleep; or at least it sleeps very lightly, as its call may at times be heard, and the rustling amongst the reeds and flags seems to indicate that it is moving about; but only after sunset does it appear to become more active, and bestir itself in search of food. Its position when seated amongst the reeds is peculiar, and I have more than once come across one sitting without at first realizing that it was not an old stump or a bundle of dried flags. Sometimes the feathers are as if drawn in; and as the bird sits with its head pointed upwards, it is hard to believe that it can be a living bird. But it does not always look so peculiarly thin and stake-like; for when sitting at ease it frequently puffs the feathers out rather than draws them in; and although the neck is curved, as most of the Herons frequently hold it, yet the heavy feathering on the neck hides the contour, and makes it appear as if it were a short, thick-necked bird; and should it suddenly stretch its neck, it shoots out as from a scabbard, and one cannot help being astonished at its great length so suddenly displayed.

“When winged or wounded it is by no means an easy task to get hold of it; for it defends itself with great pluck and determination, throwing itself back and using bill and claws as weapons of defence, and I have seen a dog get considerably the worst of it in an attack on a wounded bird.” Under these circumstances it also erects its great neck frill, to swell its size and add to its terrifying appearance.

Family—ARDEIDÆ.

THE AMERICAN BITTERN.

Botaurus lentiginosus, MONTAGU.

THIS American bird was, strange to say, first described as new to science by Montagu, in his "Ornithological Dictionary," in 1813, from a specimen killed in England. Over a dozen examples in all have been recorded, in the autumn and winter, from various parts of the British Islands. Indeed the American Bittern makes its appearance more frequently within our borders than many other Herodians from even the Continent of Europe. The circumstances under which it has been taken, or observed, leave no doubt, as in the case of the American Green Heron, that *Botaurus lentiginosus* does itself accomplish this long journey across the Atlantic, undertaken, not improbably, through having been driven across in front of the gales which prevail from the west at that season, or having lost its bearings during its migration flight, it has held on its misguided course east instead of southward, till it reached our shores; those that arrive being the survivors, probably, of many others who have perished on the way. The American Bittern has never yet reached the continent of Europe. Once again on land it seems to rest content with its "farthest east"; but they are not allowed long time for consideration or rest, for somebody with a gun very soon detects its stranger wings and—shoots it.

The American Bittern closely resembles our own Common Bittern. In general colour it is ochraceous buff, the plumage being freckled with brown and blackish; but the frecklings are much finer than in the European species. Down the side of the neck from the gape there runs a black stripe. The region behind the eye, which is reddish brown in *Botaurus stellaris*, is ochraceous buff. The neck and under side are tawny white, the feathers striped with brown; the chin and throat white, with a dusky ochraceous median streak. The crown of the head is uniform dark brown, not black, and a stripe over the eye yellowish white. The wing feathers are uniform slaty, or greenish black, not barred and tipped with rufous as are the primary coverts. Bill, legs, and feet greenish yellow. The feathers at the base of the neck are not so long or full as they are in the Common Bittern.



AMERICAN BITTERN. $\frac{1}{3}$
(SEXES ALIKE.)

The female is similar to the male, and so are the young, though more reddish, and with coarser freckling.

The American Bittern has a very wide distribution in North America, inhabiting every suitable locality on the Continent, as far south as Guatemala, and extending also into the Indian Islands. In winter, however, it migrates to still more southern latitudes; and in summer it finds its way into Alaska and Greenland, and even to the shores of the Arctic Ocean.

The localities which this species affects are river banks, marshes, and swamps, where there are dense willow brakes, or abundance of reeds and long grass. It builds on the ground, in similar situations to those selected by its European congener, the nest consisting generally of a substantial heap of grass or decayed rubbish. It is, however, often quite scanty, and frequently there is none at all. It may build also occasionally on low trees. Its eggs, which number from four to seven, are so similar to those of *Botaurus stellaris* that they could not, if mixed together, be separated out by the most expert oologist with certainty.

The American Bittern is not gregarious, nor does it associate either with its own kind or other species of *Ardeidae*. It keeps closely to the covert of the reeds or brakes, rarely exposing itself during the day, except it be suddenly intruded upon, when it takes wing with an abrupt hoarse croak, dropping as soon as possible again into their friendly protection. It feeds during the day, generally in its concealment; but coming out more into the open in the evening, although not truly a nocturnal bird.

The food of the American Bittern consists of small fishes, insects, mice, and all small aquatic creatures. Its flesh is considered excellent, and the bird is hunted for the market. "On ordinary occasions," Dr. Baird says, "it is a difficult bird to flush. The instant it becomes aware that it has attracted the attention of the fowler, it covers its head, runs quickly through the grass, and when again seen, is usually in a different direction from that taken by its pursuer, whose movements it closely watches. When thus pursued it seldom exposes more than its head. When wounded it makes a vigorous resistance, erects the feathers on its head and neck, and extends its wings, opens its bill, and puts on a fierce expression. It will attack a dog, or even its master; and when defending itself, directs its sharp bill at the assailant's eye."

The call of the American Bittern differs considerably from the "booming" of its European relative. It is a curious note, often described as a hoarse croaking, as if "the bird's throat were filled with water"; others hear it as a resonant cry, from which its name of "Bog-bull" is doubtless derived; others again describe it as a "dunk-a-dunk" sound, heard chiefly during the mating season, from which

the name of "Stake-driver" has been widely applied to the bird. Except at the pairing season, and when suddenly disturbed, this Bittern is, according to Dresser, a rather silent bird. "He stands motionless," as Dr. Elliott Coues describes, "with his head drawn in upon his shoulders, and half closed eyes, in profound meditation, or steps about in a devious way, with an absent-minded air; for greater seclusion he will even hide in a thick bush-clump for hours together. Startled in his retreat * * he seems dazed, like one suddenly aroused from a deep sleep; but as soon as he collects his wits, * * he shows common sense enough to beat a hasty retreat from a scene of altogether too much action for him. Some such traits have doubtless led to the belief that he is chiefly a nocturnal bird; but such is not the case. He may migrate by night, but so does the Killdeer and the Bobolink, and many other birds not in the least nocturnal * *. When the Bittern is disturbed at his meditation, he gives a vigorous spring, croaks at the moment in a manner highly expressive of his disgust, and flies off as fast as he can, though in a rather loose lumbering way. For some distance he flaps heavily with dangling legs and outstretched neck; but when settled on his course, he proceeds more smoothly, with regularly measured wing-beats, the head drawn in closely, and the legs stretched straight out behind together like a rudder."

Family—CICONIIDÆ.

THE WHITE STORK.

Ciconia alba, BECHSTEIN.

THIS stately bird, about which so much folk-lore, superstition and sentiment have gathered, so many fables have been constructed, and legends handed down, in prose and verse, has, unfortunately, no other claim to belong to our fauna, except for its occasionally straggling to our coasts, chiefly those of the eastern counties, during the spring or autumn migratory seasons.



WHITE STORK $\frac{1}{2}$
(SEXES ALIKE.)

The White Stork, while not infrequent in England, has been recorded several times from Scotland, even from as far north as Shetland, and twice from Ireland. It is distributed, and breeds abundantly through the central and southern parts of the Palæarctic region, (except in France, where it has been exterminated by persecution), as far east as Turkestan. In winter it migrates to India from the eastern part of its range; while from Europe it seeks South Africa, where it not infrequently stays a season to breed, especially if locusts, which are a favourite article of diet with it, be unusually numerous.

The White Stork is a migratory bird, and arrives in mid-Europe, to spend the summer, towards the end of February and during March, or even as late as the beginning of April, in flocks numbering many hundreds of individuals. Canon Tristram has described how, when in Palestine, he saw numbers of them suddenly appear from the south, moving northwards a few miles a day, "not close together, but scattered over hill and valley, plain and marsh alike, steadily quartering the ground, seldom near one another, but generally about one hundred yards apart, picking up snakes, lizards, frogs, or fish, according to the locality * *. They remained, apparently, till they had cleared off the reptilian harvest, and departed for the north as suddenly as they came." In such manner they journey, travelling generally by day, resting at night upon trees, or as the Canon observed them, for a few days at a time, in some more provendered spot; as each reaches the region known to itself, it repairs, without fail, to the nest that has known it from year to year. The males and the females migrate in separate flocks; but the males are said to arrive in Germany and Denmark in advance of the females. As soon as he reaches the familiar scene, he starts at once to inspect the condition of his dwelling, and institute repairs, with an anxious eye for the coming of his mate, which is generally a week later than his own. When that event does take place there is great jubilation between the couple, many love passages, and much bustle and preparation for the house warming.

Many and various are the sites chosen by the White Stork for its nest, which may be close to or remote from others, for this species is not strictly a gregarious bird. The nest is sometimes in a tree—solitary, or in the forest; on the ledge of a cliff; on a ruined wall; or in the towers and belfries of churches and mosques. But what has enshrined it in the affection of the people of nearly every country in which it builds, much as the Swallow which frequents our eaves is esteemed in this country, is its habit of selecting a barn or outhouse, a stack in a farm-yard, and above all the roofs or the chimneys of dwelling houses, not only in the quiet of the country, but in villages, as well as amid the bustle and commotion of a crowded city, whereon to construct its ponderous nest. It has now become

a settled but acquired habit of its life to seek the neighbourhood and the association of the human species, civilised or savage; and the house-top forms, indeed, now as much one of the bird's habitual nesting places, as the hedgerow does the Blackbird's.

The Stork is called in Dutch "Ooijevaar." The derivation of this word can, as Professor Newton states in his valuable "Dictionary," be traced to an old word signifying "Bringer of Good." It is this wide-spread belief in the luck-bringing influence of its presence, that the Danes and Germans hold the bird in such regard, even veneration, and so sacredly preserve its home from spoliation, and itself from harm. The bird's selection of a newly erected house for its own domicile, is an omen that brings profound happiness to the owner, especially if it has chosen the site of its own unwooded accord. Such hints and enticements as the erection of an old cart wheel, or a platform, to serve as basis for its nest, are constantly offered to the Storks by those whose abodes have been passed over by the "Bringer of Good," to induce them to build, if not on, yet within the precincts of their dwelling. So anxious, indeed, are the people to have a Stork's nest on their houses, that knowing its almost invariable habit of returning, season after season, to its own nest, they will often purchase, at considerable cost, a nest on a neighbour's house, and transfer it to their own. This ruse is not seldom successful in enticing the Stork to follow the nest-heap gathered by itself. The popular belief instilled into all children in Germany, Holland, and Denmark, is probably too well known to require stating, that the Stork is the winged and heavenly carrier, which brings from the fountain all the new babies. Natural wells were widely esteemed as sacred places; and this explains why so many churches and sacred edifices, in all parts of the world, have been erected near or over such spots. The same mythological idea that each new sun was born from the previous night, appears in the Stork's return from its annual winter absence bringing with it the fresh life of spring, and in the idea of its bringing new children from the wells. This new child was supposed to be born only at the moment when the Stork dropped it from its beak into the expectant mother's lap. We find in "Notes and Queries," that at the birth of a child it used to be customary to give a sugar-tongs as a christening gift, in shape representing a Stork standing upright upon the claws which partly form the handle. When opened for the purpose of grasping the sugar, the body, which is hollow, disclosed the image of a baby, in swaddling clothes.

Occasionally an egg or a young bird is cast out of the nest by the Storks, and this is popularly believed to be thrown down as rent. The first year they say a feather is paid, the second an egg, and the third a young bird. It is also

as widely entertained that the male Stork's jealousy of any lapse from virtue in his spouse is so great, that on the suspicion of such a thing, as, for instance, on the discovery in the nest of chicks hatched from alien eggs, which may have been substituted for her own, say of fowls or geese, he calls in his male relatives and friends, who, on confirmation of the charge, after due consideration before a "Stork's court," proceed to execute, without delay or mercy, the extreme penalty of the law on the erring wife, with their sharp and terrible beaks.

The White Stork's nest is composed of sticks, lined with reeds, and straw, and various kinds of soft vegetable, or other substances. As the old nest is repaired and added to year after year, it sometimes attains to gigantic proportions. It is formed of a pile of wood, in which small birds frequently build their nests, rising often to a height of five or six feet, with a circumference of twelve to fifteen, and of such enormous weight that, when built on a roof, it becomes imperative from time to time to remove the greater part of the structure. This is generally done during the Stork's migration in the winter.

The White Stork lays from three to five eggs, at various dates between the end of March and the middle of May, according to the latitude of the bird's home. Seebohm describes the eggs as dull white in colour, rough in texture, and with little gloss, and when viewed by transmitted light, yellowish white inside. They vary from about $2\frac{2}{3}$ to 3 inches in length, and from $2\frac{1}{5}$ to $2\frac{1}{10}$ inches in width. In connection with the egg of the Stork, a curious superstition is prevalent in some parts of Spain that, if administered to a drunkard, it will cure him of his evil propensity. Their incubation, which is conducted chiefly by the female, lasts about thirty days, a period during which she is assiduously fed by her lord. The chicks appear between the end of April and the middle of June, the latter being the date about which they may be seen in Holland, North Germany, and Denmark. On emerging from the egg the pullets are helpless, and are fed with half digested food regurgitated by the parents. They are covered with greyish-white down, which gives place to plumage similar to that of the adult; the colour of their bill, legs, and feet, however, are less brilliant than in the mature bird.

The fully adult White Stork has the feathers of the whole of the fore neck elongated into broadish plumes. The red beak is long, conical, and pointed. On both the upper and under sides the plumage is pure white, but the wing feathers, with their larger coverts, and the mantle are black; the outer web of the secondary feathers are grey; the bare skin round the eyes is black, but below the chin red. The legs and feet are bright pinkish red. The total length of the bird is from three feet to three feet six inches. The female differs from the male only in being somewhat smaller. There is no difference in the colour or the amount of

their plumage in winter from that of the breeding season; the moulting of their feathers taking place through all parts of the year except the breeding time.

The young males, when their mating time comes, engage in fierce contests with each other for possession of a particular female, who then becomes the partner of the successful combatant, not for a season only, but for life, a bond to which both birds are believed to be very faithful. An instance of the constancy of a wedded pair of White Storks is given by Mr. Lydekker, in his "Royal Natural History," where "it is stated that for three years a female which remained during the winter, in Europe, was visited annually by her mate, when both nested as usual. In the fourth year, however, the male bird also remained with his partner during the winter, and this continued for three years. Eventually both birds were shot, when it was discovered that the female had been prevented from migrating by an old wound."

The White Stork has been, from time immemorial, the emblem, not only of conjugal fidelity, but of filial piety. It is a very ancient belief that when the parent birds are grown old and unable to fly, their young support them on each side from place to place, and if they become blind they feed them also, and carefully tend them as long as they live. It was also an ancient belief that the Storks, when they reached old age, departed to the isles of the sea, and there turned into men as a reward for their piety.

The White Stork's food consists of lizards, frogs, locusts, beetles, and other insects, mice, rats, and snails. In its quest for these it may be seen stalking sedately, and with perfect fearlessness, in the fields where, as Professor Newton observes, "apart from its considerable size * * its contrasted plumage of pure white and deep black, with its bright red bill and legs, makes it a conspicuous and beautiful object, especially when seen against the fresh green grass of a luxuriant meadow."

The White Stork is a voiceless bird; but it can be none the less a very noisy one, for it can produce quite an uproar when a number of them take to clattering their mandibles together, tossing their heads high in the air, and well thrown back. They have also another peculiar habit, when they assemble together in the open country, which they always frequent, of indulging in an extraordinary evolutionary dance, so high-stepping and grotesque, that no idea can be conveyed in words, and the show-off requires to be seen to be fully conceived and enjoyed.

This species flies with its neck fully outstretched, and not carried, as among the Herons, shortened on the back. Mr. J. H. Gurney says that it leaves its nest with a spring, "getting quite clear before it ventures to expand its huge wings. It does not draw in its legs, which are so long that they exceed the tail



BLACK STORK $\frac{1}{6}$
(SEXES ALIKE.)

by nearly twelve inches. Its feet appear to touch when it is flying; but when it is just about to alight they are parted widely."

"As we entered Dobanovei," Mr. Eagle Clarke relates in his "Slavonian Notes," "no less than nine White Storks were soaring over the village at a great height, and one of these descended rapidly, at an angle of 60°, to a nest close to us, using its wings as a parachute, by keeping them parallel with its legs, which are outstretched in the direction of the descent; the neck and head were lowered in the same direction, and altogether it presented a most remarkable appearance. During our trip we had abundant opportunity for studying the habits of this species, and considered it rather an uninteresting bird than otherwise. As a rule one of the parents was generally to be seen standing on the side of the nest in a most lethargic attitude. Sometimes, when both were at the nest, one of them (perhaps the male) made a loud, hollow, snapping noise, and went through the pantomimic performance, while so doing, of throwing back the neck and placing the crown of the head on the lower portion of the back."

Before setting off for their autumn migration to the south, they assemble together in great flocks.

The White Stork is easily tamed, and takes well to captivity.

Family—*CICONIIDÆ*.

THE BLACK STORK.

Ciconia nigra, LINN.

THIS splendid bird, even handsomer perhaps than its white cousin, has been recorded over a dozen times from the British Islands, chiefly during the spring and autumn migratory seasons. It is not, however, known to have visited either Scotland or Ireland.

The Black Stork breeds in most parts of Europe, but more seldom in the

northern than in its southern and eastern regions. It ranges throughout the whole of Africa, breeding in the Mediterranean region. In Asia it is found nesting in southern Siberia, east to China, and throughout the Indian Peninsula.

In full plumage the Black Stork has the whole head, neck, chest, back, wings, and tail, glossy black, with metallic purple reflections, especially on the top and back of the head; the lower axillaries, chest, and whole of the underside pure white; the beak, the legs, and the bare skin round the eye and under the throat bright scarlet. Total length about 35 inches; bill $7\frac{3}{4}$ inches long. The female is similar to the male, but not so glossy. The immature birds are brown, and without the purple and coppery metallic reflections of the adults. There are also to be found some white tips to the feathers of the head and neck.

In its habits the Black Stork differs very much from the *Ciconia alba*. It rarely selects a nesting place near the dwellings of man, and it consequently never figures in his folk-lore, and is unknown to his affections. It prefers to rear its family on high trees, in the solitude of the forests, or in holes in high and precipitous and inaccessible rocks, distant from human habitation, and even far from the nesting places of its own species. Although not gregarious it is by no means an ill-dispositioned bird; only a solitary and contemplative creature, given to standing motionless for hours on one leg, with its beak buried amongst its feathers.

Like the White Stork the present species is voiceless, except when quite young and up to about six months, when it utters, according to Dresser, a peculiar guttural sound; but it can make plenty of noise by clattering with its mandibles in the same manner as the White Stork.

Montagu has given an interesting account in the "Transactions of the Linnean Society," of a Black Stork he kept for some time in captivity, from which we learn that it soon became very docile, and would feed from the hand; and that when hungry and supplicating for food it would sit down on the whole length of its tarsi, nod its head, flap its wings, and blow the air from its lungs through its nostrils. Its disposition was mild and amiable; and it never attacked its fellow prisoners. "From the manner in which," continues the same writer, "it is observed to search the grass with its bill, there can be no doubt that reptiles form part of its natural food; even mice, worms, and the larger insects, probably add to its usual repast. When searching in thick grass, or in mud, for its prey, the bill is kept partly open; by this means I have observed it take eels in a pond with great dexterity; no spear, common in use for taking that fish, can more effectually receive it between its prongs than the grasp of the Stork's open mandibles. A small eel has no chance of escaping when once roused from its

lurking place. But the Stork does not gorge its prey instantly like the Cormorant : on the contrary, it retires to the margin of the pool, and there disables its prey by shaking and beating with its bill before it ventures to swallow it. I never observed this bird attempt to swim ; but it will wade up to the belly, and occasionally thrust the whole head and neck under water after its prey."

The nest of the Black Stork is often very large and composed of dried sticks, lined with smaller twigs, and with grass or moss, and in it are deposited eggs varying in number from three to six, similar in colour to those of the White Stork, but green inside when the shell is viewed by transmitted light. After about a month's incubation the chicks are hatched, and they are covered with a greyish yellow down, which gives place to plumage which differs only from the adult's in having but little of its metallic gloss, and many of the head, neck, and wing-coverts are spotted with white, while the bill, legs, and feet, instead of being bright scarlet, are bluish olive green. The young birds are said to leave the nest earlier than in the case of the White Stork.

The Black Stork arrives in the early summer from its southern winter quarters, and departs again late in the autumn, never remaining in Europe over the winter. Mr. Styan, however, states that it is to be seen during the winter in China, generally singly, or in twos and threes, and sometimes in company with the Common Heron. Canon Tristram observed it in small flocks all through the winter on the plains of the Dead Sea. Except during migration, it is not, Mr. Seebohm says, gregarious, and it is more shy and cautious, especially in the breeding season, than its cousin.

The Black Stork is a long-lived bird even in captivity, where it has been known to have been detained for thirty years.

Family—IBIDIDÆ.

THE GLOSSY IBIS.

Plegadis falcinellus, LINN.

THIS handsome bird is now a much less frequent visitor to this country than it was in former times. It arrives generally during the autumn migratory season, more rarely in the spring. It has been recorded from various parts of Scotland, as far north even as Shetland, and from Ireland, but more rarely than from England, where it is most frequently met with in the southern and eastern counties, Norfolk perhaps being that from which the most numerous records come. The Glossy Ibis is widely distributed in both Hemispheres; in the western world it is found in North America, in the eastern states, south to Florida, and in the Antilles. It ranges over a great part of Asia and of Europe, whither it comes only in the summer; it is abundant in Australia, as well as in most parts of the African Continent, with which its name is so closely associated, through its congener the venerated Ibis (*Ibis æthiopica*) of the ancient Egyptians, though it is said, however, by some, to be found no longer in Egypt proper.

Like all other Ibises, the species under consideration breeds in morasses, and generally in inaccessible localities, placing its nest a few feet above the water, either in a low tree, or on bent-over flags or reeds. The nest is constructed of sticks, and lined with reeds, and other aquatic plants. It nests in Europe in the swamps of the Danube, and in the Deltas of the Rhone, and of the Guadalquivir. The most celebrated of these breeding places has been described by Mr. Eagle Clarke, in the "Ibis" for 1884, and by Mr. Seebohm in his "British Birds," that, namely, in the valley of the Danube, near Belgrade. "This District," says Mr. Seebohm, "extending for one hundred miles from the Weirse Morast to the Obedska Bara, is the eldorado of Herons, Ibises, Spoonbills, Cormorants, Terns, Gulls, Sandpipers, Ducks, Geese, and Pelicans. It looks like an endless plain, a boundless forest of reeds, a paradise of fish and fish-eating birds, full of rivers and lakes, ponds and canals, marshes and swamps, flooded meadows, half drowned forests of pollard willows, and alders, every possible combination to make bird-life easy, and birds-nesting difficult." In such spots the Ibises congregate in hundreds, and build in close association, and often in the same trees, with Common, Night, and Squacco Herons, and Pigmy Cormorants.



GLOSSY IBIS ♂
(SEXES ALIKE.)

The Glossy Ibis lays three to four eggs, in form similar to those of Herons, and varying in size from $1\frac{3}{4}$ to 2 inches in length, by $1\frac{8}{10}$ to $1\frac{1}{2}$ in breadth. In regard to the colour of the eggs, "one of the most remarkable things about this species," as Professor Newton has pointed out, "is that it lays eggs of a deep sea-green colour, having wholly the character of Heron's eggs, and it is to be noticed that it often breeds in company with Herons, while the eggs of all other Ibises, whose eggs are known, resemble those of the Sacred Ibis," which are "dingy white, splashed, spotted, and speckled with reddish brown." Canon Tristram has also noted that the Glossy Ibis is a common attendant of the Herons, and he says in one of his chatty articles, that he and his fellow travellers in North Africa, used to compare them to the black sheep in a flock of white ones. It has a habit of consorting also with other gregarious birds, not so nearly related to it as Herons, such as Crows and Pigeons, even feeding with and following the flocks from place to place, as Dr. Leith Adams observed in Malta.

The Sacred Ibis, "the emblem of Thoth, the scribe or secretary of Osiris, whose duty it was to recount the good and bad actions of the souls of the deceased when ushered into the presence of the God," was embalmed and preserved in enormous numbers by the ancient Egyptians, in their religious ceremonials, specimens of which so mummified are familiar objects in most museums; but the Glossy Ibis was never, it would appear so treated, nor was it, according to Dr. Leith Adams, ever portrayed on the tombs.

Both on the ground and on the wing, this Ibis has the actions of a Heron; flying in flocks, however, in a wedge-shaped formation, more like Geese. Like the Spoonbill it is a silent bird; but it occasionally emits a hoarse Heron-like croak.

The food of the Ibis consists of fish, insects, crustacea, and fresh water mollusca, as well as small reptiles and some vegetable scraps.

The chicks, which, when hatched, are unable to fly, are covered with close black down, with a white band over the top of the head from eye to eye; and a yellow and straight (not curved) beak, with a central black bar. If disturbed in the nest when still unfledged, it is said that they will scramble out on to the branches, and climb among them, holding on tightly and tenaciously with their feet, if an attempt be made to remove them.

The two sexes of the adult birds are similar in plumage, but the female is slightly smaller than the male, and has a somewhat shorter bill. The forehead and front part of the top of the head, as also the lower part of the cheeks, are metallic green; the head, the neck, the mantle, and the upper back, are coppery red, with purple and green metallic reflections; the wings and their coverts have

a glossy green metallic colour, washed with bronzy purple; the lower back to the tail is black, with the same metallic sheen and reflections. The under side of the body is coppery red like the mantle, except for the under tail- and wing-coverts, which are black, glossed over with metallic green and purple. The beak, which is about $5\frac{1}{2}$ inches long, is greenish olive, except at the base, where it is bluish grey.

In winter the coppery red of the head, neck, and under surface become dark brown and duller, and but slightly washed with purple, and having stripes consisting of white spots on the head and neck.

The immature birds closely resemble the adults in their winter plumage, being dark earthy brown, with little or none of their metallic sheen, while the head and upper neck have a series of white dotted lines.

The Glossy Ibis has lived for many years in captivity, in large numbers in the Zoological Gardens in London, and has also reared its young there.

Family—PLATALEIDÆ.

THE SPOONBILL.

Platalea leucorodia, LINN.

THE Spoonbill is one of our not infrequent visitors, especially to the eastern and south-eastern counties of England, whither a few individuals find their way every year, occasionally in flocks of five or six, doubtless from across the North Sea, where the bird still breeds in considerable numbers in the meres and wooded marshes of the low countries. It has been recorded both from Scotland and from Ireland, but it is not frequent in the northern parts of Britain. It has not always been a "foreign" bird. Under the name of "Shoveller," "Shovelard," and "Sholarde," it was well-known in England, as late as the seventeenth century, when it was a resident. In the year 1668 it was still breeding in Norfolk, for



SPONBILL ♂ 1

J.W. Woodcock

Sir Thomas Browne, a celebrated medical man of that time, has this note in his "Account of Birds found in Norfolk":—"The Platea, or Shovelard, which build upon the tops of high trees. They have formerly built in the heroury, at Claxton, and Reedham; now at Trimley, in Suffolk. They come in March, and are shot by fowlers, not for their meat, but the handsomeness of the same; remarkable in their white colour, copped crown, and spoon or spatule-like bill."

Mr. J. E. Harting, for so many years the able editor of the "Zoologist," brought other notices of the breeding of this interesting species in England, to the knowledge of ornithologists in 1877 and 1886. In a manuscript "Survey" of certain Manors in Sussex, which he disinterred, the following memorandum, made in the twelfth year of Queen Elizabeth's reign, (1570), appears:—"That within half a furlonge of Halnaker Parke pale, on the west side thereof lyeth a parke called Goodwoode Parke; and by the northest parte thereof lyeth one other parke called Shelhurst Parke, distante from Halnaker Pale one quarter of a myle. And on the north side of that pale lyeth one other parke called Eslden, half a myle distante. In the woods called the Weestwood and the Haselette, *Shovelers* and *Heron*s have lately breed,—and some *Shovelers* breed there this yeere."

Shovelards in those days were considered a delicacy for the table, for among the bills of Henry the Eighth's household expences, there is a record of his paying for bringing from Cobham Hall "Shovelards to the King's Grace"; and among those of the Earl of Northumberland, there is the entry of sixpence each for "Sholardes to be hadde for my Lorde's owne Mess, at Pryncipale Feestes." There was also passed, in 1534, an Act of Parliament making it penal to "with-drawe, purloyne, take, destroye, or convey any maner of egges of any kind of wildfowle from, or in any neste, place or places where they shall chance to be laide by any kinde of the same wildfowle, upon peine of imprisonment for one yere," and to forfeit "for every egge of every *Bittour*, *Heronne*, or *Shouelarde*," eightpence.

Mr. Harting brought also to light an account of an action for trespass, in 1523, instituted by the Bishop of London, Dr. Tunstall, against an unnamed defendant "for having broken his close, and for taking *Heron*s and *Shovelars*," which made their nests in the trees of his park, at Fulham, or as it was anciently spelled Fulanham, which signifies "the habitacle of birdes, or the place of fowles; *fullon* and *fuglas* in the Saxon toong doe signifie fowles, and *ham* or *hame* as much as home in our toong."

At Cobham Hall there has existed a heronry from time immemorial, and it is very likely, as Mr. Harting suggests, that the Shovelards, mentioned above as sent thence to King Henry the Eighth, nested in the heronry there.

How long a period elapsed after that date before the last Spoonbill's nest was built in England, is unknown; but as no penalty attached to shooting the bird, we may conjecture that the fowler and the poacher, attracted by its "handsomeness," rarely missed any chance that presented itself of killing the Spoonbill, especially at the nuptial season, for its "copped crown" and its quaint "spatule-like bill." We suspect, too, that the "purloining" of the eggs of the Spoonbill was not very seriously checked by the "peine" of a year's imprisonment, and the "forfeiture of eightpence" an egg. The draining of the fens and marsh-lands, in the parts of England frequented by the Spoonbill, had also much to do with their elimination from the numbers of our resident fauna, and the banishment of their whistling wings from the "tops of high trees" in many parks where they were, and still would be, welcome visitors in the breeding season. The Spoonbill visits the south-east of England nearly every year in small companies of two or three pairs, which might still breed in this country as they did two hundred years ago, were it not for their fatal conspicuousness, especially if perched on a tree, which seals their doom within a few hours of their arrival. But the moment they are caught sight of, the "lucky" observer hurries off to borrow a gun if he does not own one, and often with several armed companions, pursues these "strange" birds from resting place to resting place, till they have been triumphantly done to death, or hunted from the land.

The Spoonbill is distributed over all those parts of Europe, North Africa and Asia, which constitute the Palæarctic Region of Zoologists. Species of the genus are found also in India, South Africa, Australia, and New Guinea, and a single roseate, instead of white representative, occurs in tropical America.

The European Spoonbill, of both sexes, has, in the nuptial season, a crest of drooping plumes, longer in the male than in the female, which, with the rest of its plumage, is everywhere pure white, except for a buff sheen on the front of the neck, and on the crown of the head, and a buff band on the breast. Its feet, legs, and beak are black, but of the latter the spatulate end is bright yellow. Of the same colour is a naked patch on the throat.

In winter their plumage varies only in the sparser and shorter crest, and the loss of much of their buff markings.

The Spoonbill builds in both high and low situations. It very often selects a heronry in which various species of *Ardea* are breeding, in or by a lake or marsh, and there builds in the top, or on a lower branch of a high tree, not occupied by a Heron's nest. If there be no high trees it may choose a low alder or pollard willow similarly situated, and there it will construct, three to four feet above the ground, a nest of branches two to three feet in width. Mr. O.

Hume says that in India it builds often near a village, and sometimes even in its midst. The nearest breeding place of this species on the Continent is the Horster Meer, near Amsterdam, where the majority of the nests are, on the other hand, placed on the ground. The fishing and right of gathering the eggs of the various wild birds that frequent it, is let, and not to everyone is permission granted to visit it during the breeding season. Dr. P. L. Sclater, in company with the late Mr. W. A. Forbes, were fortunate enough to obtain leave to inspect the nests in 1877, and Mr. H. Seebohm in 1880. Mr. Forbes has given an interesting description of his visit in the "Ibis," from which we quote the following account of the situation and construction of the Spoonbills' nests.

"The nests were not situated so near together as those of the Cormorants, but scattered two or three yards from each other, with thin patches of reeds growing between them. There was, however, a clear open space in the neighbourhood, formed of broken-down reeds, in which the birds were said to congregate. The Spoonbill's nest, in the Horster Meer at least, is a mere flattened surface of broken reed, not elevated more than two to three inches above the general level of the swamp; and no other substance but reed appears to be used in its construction." Mr. Seebohm, however, says that most of the nests were built upon a foundation of a few sticks, the principal structure being of dead reeds, lined with dry grass. Mr. Eagle Clarke describes the Spoonbill's nest, as he saw in Slavonia, as "immense structures of sticks and dead reeds; some were only just above the water, while others were as much as four feet from the surface." The Spoonbills return year after year to build in the same place, and to the same nests if they be not weather-worn past repairing.

The draining of the meres and fens, even in Holland, is proceeding so fast, that ere long the Spoonbills will soon have few places left in which to rear their young.

This bird lays four to five elongate or roundish eggs, blotched, spotted, or streaked, but not profusely, with reddish brown, on a white chalky ground. The chicks are covered with white down. They are helpless and dependent on their parents till full fledged. In their first plumage they are like the adult, except in having black tips to the wings, and shafts of the same hue to the primary coverts and quills, and in the absence of a crest, while the bill is yellow.

The Spoonbill, though differing remarkably in the shape of the bill, presents points of resemblance to the Storks, in its flight and sedate walk. Spoonbills are also silent birds; even when their nests are being harried they utter no cry; for like the Storks they have no true organ of voice. The only noise that the Spoonbills appear to make is a loud clattering of their mandibles.

The Spoonbill exercises a larger choice in the selection of its food than the Heron. It varies its fish, crustacea, and insects with a considerable quantity of vegetable diet of marsh plants, which it has a Duck-like manner of eating.

ORDER ODONTOGLOSSÆ.

IN this Order are included the members of a single family—the *Phœnicopteridæ*, or Flamingoes—remarkable for their long supple neck, and their tall stilt-like limbs, of which latter the bones of the two middle segments—those immediately above and below the so-called “knee”—are pretty nearly equal in length, the bone of the former being only slightly longer than that of the latter. Of the four toes, the first or hind one is either absent or very small, and is isolated, while the other three are united by a web. If the bones of the skull be examined, it will be found that the palate is “roofed in” as in the Ducks. In all the living forms of the family, the shape of the beak is unique among birds; it is bent downward, and the part behind the nostrils forms a well marked angle with the part in front. The bones of the lower jaw on each side project behind the place where it articulates with the skull, into a recurved process, similar to what is seen in the skull of the Ducks and Geese. The *Odontoglossæ* differ conspicuously from the *Herodiones* in that their young instead of being born naked, sealed-eyed, and helpless, are covered with down, and like the young of Ducks and Geese, are able to leave the nest very soon after they have emerged from the egg.

Some fossil forms, placed in the genus *Palælodus*, which come from the Miocene Strata of the Tertiary Epoch, have been ascribed to this family. They differed, however, from the present day Flamingoes, in having a straight instead of a bent bill. It is interesting to note, however, that the young Flamingo has a straight bill for some time after it is hatched. The bent bill is acquired as the chick grows.

Family—*PHŒNICOPTERIDÆ*.

THE FLAMINGO.

Phœnicopterus roseus, PALLAS.

THIS magnificent and stately bird, often called "The Flame Bird," which often stands over six feet in height, has been included in the British list by Mr. Howard Saunders, but it is really one of the very rarest stragglers to our shores, if, indeed, it has strayed to them ever of its own accord. In any part of the British Isles it is considerably out of its habitual latitudes, which are the southern regions of Europe, Northern Africa, and east to Lake Baikal, India, and Ceylon. In all of these regions it is found, sometimes in thousands, where there are suitable localities. It occurs also throughout the African Continent, but it is represented in the New World by several distinct species, of which one breeds far up the Andes. The localities which the Flamingo considers suitable, are almost always extensive marshes of fresh, salt, or brackish water, situated in flat, open country, such as the deltas of large rivers, like the Rhone in France, or the Guadalquivir in Spain. Probably few of our readers have ever seen these birds alive except in a menagerie. One of the sights that must have deeply impressed those among them, who may have travelled through the Suez Canal,—near which the present writers first made the acquaintance of this species,—or wintered in Egypt, even if they should not be specially interested in birds, is the large assemblages of these birds, very frequently in company with Herons, Ibises, Pelicans, and Cormorants, so often to be seen ranged motionless in long files on the sand banks, or by the margins of the brackish lakes of Eastern and Upper Egypt, brightening extensive areas with a rich glow of pink and red, which becomes a blaze of colour as the birds, when disturbed, take wing and expose the under side of their pinions. In the air, with the neck extended to the full, and their long legs carried projecting straight out beyond the tail, the sight of thousands of them flying in a long undulating line of waxing and waning colour, forms as remarkable and impressive a spectacle as any that bird-life can offer. Among the Egyptian Hieroglyphics, this bird stands for the colour red.

ORDER ANSERES.

THE Birds which compose this large and important Order, familiarly known as Geese, Swans, Ducks, and Mergansers, form a very distinct and natural group, a well defined family having many points and characters in common, differing however, as will be seen, in their habits, and graduating from the grass-eating Geese to the fish-eating Mergansers.

The *Anatidæ* possess, in common, a laminated bill, covered with a soft skin, and having a hard tip to both mandibles, called the nail; they have also, comparatively, short legs and webbed feet. They are all water-birds, and swim with facility, and many are most expert divers. They can fly strong and rapidly, having the head and neck extended to the full. If we exclude the game birds, no other Order contains so many species offering a large and valuable supply of food for man.

Generally speaking, the nest is on the ground, not far from water, and in some few species holes and ledges of rocks, and excavations and burrows in the soil, and the decayed hollows in trees, are utilised for nesting purposes. In all cases the nest is made of much the same materials: fragments of reeds, rushes, grasses, moss, turf, and various aquatic plants; and the eggs are placed in a plentiful bed of down, or mixed down and feathers, from the breast of the female bird. The eggs are without any conspicuous markings, from ivory-white to bright green, and various shades of pale green and buff. The young are at first covered with a close coat of down, and take to the water as soon as they leave the shell.

The stomach in the *Anatidæ* is very muscular, particularly in the shell-fish eating species. The trachea varies greatly, and in the males often exhibits extraordinary peculiarities and enlargements.

The various species which make up the family *Anatidæ*, included in the British list, have been divided into seventeen genera, specified as follows:—

1 ANSER, *Brisson*.—This includes the four large Grey Geese, and the Lesser White-fronted Goose, which some ornithologists are inclined not to recognize as a separate species from the White-fronted Goose.

2 CHEN, *F. Boie*.—The Snow-Goose, a North American bird.

- 3 BERNICLA, *F. Boie*.—The rare Red-breasted Goose, the Bernacle-Goose, and Brent Goose.
- 4 CYGNUS, *Bechstein*.—Four European species of Swans, and the two American Swans.
- 5 TADORNA, *Fleming*.—The Common Sheld-Duck, and the Ruddy Sheld-Duck.
- 6 ANAS, *Brisson*.—The Mallard or Wild Duck, and Gadwall.
- 7 SPATULA, *F. Boie*.—The Shoveler.
- 8 DAFILA, *Stephens*.—The Pintail.
- 9 QUERQUEDULA, *Stephens*.—The Teal, and Garganey, also the American Green-winged and the Blue-winged Teal.
- 10 MARECA, *Stephens*.—The Wigeon, and American Wigeon.
- 11 FULIGULA, *Stephens*.—The Pochard, Tufted Duck, and Scaup-Duck, and two rare wanderers, to the British islands, the Red-crested Pochard, and the White-eyed Duck.
- 12 CLANGULA, *F. Boie*.—The Goldeneye, and the American Buffel-headed Goldeneye.
- 13 HARELDA, *Stephens*.—The Long-tailed Duck.
- 14 COSMONETTA, *Kaup*.—The Harlequin Duck.
- 15 SOMATERIA, *F. Boie*.—The Common Eider, King-Eider, and the rare Steller's Eider.
- 16 CÆDEMIA, *Fleming*.—The Common Scoter, Velvet-Scoter, and the American Surf-Scoter.
- 17 MERGUS, *Linnaeus*.—The Goosander, Red-breasted Merganser, Smew, and American Hooded Merganser.

In the following chapters the nomenclature and arrangement are in accordance with Mr. Howard Saunders "A List of British Birds, 1892." The number of species described is forty-six, the two American Swans, and the two American Teal, being united in the same chapters. Of the forty-six Swans, Geese, and Ducks, nineteen are classed as residents, having been recorded as nesting in some part or other of the British Isles; nine are winter visitors only, and eighteen occasional visitors.

There has been a considerable increase in numbers, as well as extension of the breeding range, of several of the most valuable (as regards a food supply) of the *Anatidæ*, since the passing of the "Wild Bird's Protection Act." This is notably the case with the Sheld-Duck, Mallard, Teal, Gadwall, Shoveler, (probably the Pintail), Tufted-Duck, Pochard, and Wigeon, also the Goosander. This is a most gratifying fact, and cannot be too strongly dwelt upon, should the value and benefit of this admirable Act ever be called in question.

JOHN CORDEAUX.

Family—ANATIDÆ.

THE GREY LAG-GOOSE.

Anser cinereus, MEYER.

WHATEVER may have been the former position of this Goose in Great Britain, it must now be considered the rarest of the four commoner species of Grey Geese which are included in our *avi-fauna*. At one time a permanent resident in the fen districts of the eastern counties, and in the carrs of Yorkshire. There can be no doubt that this wild species is the ancestor and originator of the domestic breed, although it is probable, as Yarrell remarks, that another species (*Anser albifrons*) had some share in establishing the tame race, these two being the ancestors of those enormous flocks of Geese, formerly kept for profit, in a semi-domesticated state, in the wild fenland of Eastern England.

The drainage of the lowlands, at the commencement of the present century, drove the Grey Lag from its ancient quarters, and at the present day it only remains to nest in Sutherlandshire, Caithness and Cromarty, and the Hebrides, more particularly the outer islands. In these localities it can scarcely yet be called uncommon, although I regret to state that its regular nesting places are yearly decreasing in number, and others becoming partially deserted.

The European range of the Grey Lag is somewhat restricted, its breeding quarters not extending so far north as the three other species of Grey Geese. It nests regularly in many parts of temperate Europe, and in Asia as far east as lake Baikal. Dr. O. Finsch says it was the only species of Goose seen by them on the Ala-kul, and it had hatched its young by May 9th. It is plentiful in Macedonia, and not uncommon in Bulgaria, where it breeds, a few also in the marshes of Spain. Great numbers breed in the valley and delta of the Terek in the Caucasus. Dr. O. Finsch found it nesting in Western Siberia, with the young hatched off by May 9th. It was plentiful, in flocks, near Obdorsk, in August. Messrs. Alston and Harvie-Brown saw many in the neighbourhood of Archangel, ("The Ibis," 73, p. 70). It nests in very considerable numbers in Northern Norway, and the islands which fringe the coast. In Iceland, on July 1st, 2nd, and 3rd, 1894, Messrs. H. J. and C. E. Pearson found young goslings. Formerly



GREY LAG-GOOSE. †

it bred in great numbers on Sorvaag lake, in Færoe, but it has long since been driven away by the persecution of the islanders, and now only occurs as a spring and autumn visitor.

It winters in Southern Europe, Northern Africa, Burmah, and China, and at this season is a very abundant species in the jheels and larger tanks in India.

In Scotland it is more or less resident throughout the year, collecting at its summer haunts by the middle of March. The young are able to fly by the end of July, and the flocks leave again by the middle of September. The Grey Lag-Goose is the first of the Geese seen on passage in England in the autumn. Colonel Irby (*Ornithology of the Straits of Gibraltar*) says that in some winters enormous numbers frequent the Laguna de la Janda, and the various lagunes of the marisma of the Guadalquivir, arriving about the 20th of November. The earliest arrivals in two consecutive years, in the former locality, being October 25th and November 8th. They commonly commence leaving again about the middle of February, and are gone by the first week in March. It is common in Sardinia in winter.

The late Mr. Robert Gray, in his charmingly written "*Birds of the West of Scotland*," speaking of the "Geadh-glas," (the Gaelic name of this Goose), says: "Nothing can be more desolate looking than some of the haunts of the Gray Lag in the outer Hebrides. In North Uist especially, where it breeds away from the cultivated tracks on the west side of the island, the nests are usually found on the most barren part of the moor, out of sight and hearing of all that tells of cultivated life. In Benbecula and South Uist there is perhaps less of that feeling of desolation to picture; in one or two spots, indeed, the nursery scenes are comparatively bright and fair; still the very cries of the birds, as they cross the path of the wearied traveller on the Hebridean highways, are so full of lament and disquietude, that when, at the close of day especially, the disturbed group rise one after another in alarm from their dreary repose, the blending of voices becomes perhaps, one of the most memorable sounds that the ornithologist can listen to."

The nest is a large, rough structure of dead grass and sedge, situated and concealed in heather, two to three feet deep. Mr. Gray says it resembles the nest of a Great Black-backed Gull, when found breeding on heath-clad islands, with the exception of being lined with down and feathers, and is generally placed amongst coarse grass or heather.

The late Charles St. John says, that in Sutherlandshire, he has found them embedded in the wild garlic, which, with its bright and beautiful green, covers the islands in the lochs.

The eggs, which are buried in down and feathers, plucked from the breast of the sitting bird, are from four to six, and in some cases more, and twelve and

fourteen eggs have been found in nests. The colour is a creamy or yellowish white. Montagu, writing of the Lincolnshire fens, gives the number as eight or nine, of a dirty white. The time occupied in incubation is twenty-eight days.

In the autumn and winter, small flocks or parties of Grey Lags are occasionally seen in various parts of England—they rarely exceed, however, seven or eight birds. These almost invariably resort to extensive tracks of pasture in the maritime marshes, keeping close together near the centre of the field, one or other being always on the watch whilst the remainder graze.

Although partial to all sorts of grain, they feed, at this season, almost exclusively on short sweet grasses, like the smaller fescues,—grazing exactly after the manner of their congeners on the village common.

Mr. C. St. John (Natural History and Sport in Moray) says that *Anser ferus*, the present species, “appear to be more inclined to graze on the short grass and other herbs, than to seek out the corn-fields like the Bean Goose.” The power of vision in wild Geese is most acute, so also their sense of smell and hearing. When Grey Lags are disturbed they rise and fly, at a low elevation, to some distant part of the marsh, and if a sportsman is lucky enough to hit off their line of flight, and keep concealed, he will be tolerably certain of a shot. They are invariably so excessively wary, that it is impossible to approach within shooting distance in the open. On the wing they can readily be distinguished from other species at a distance, by their large size, light colour, and blue-grey shoulders, and the wing-coverts, which form two conspicuous bars across the wing; also their cry or gaggle, which is by no means unmusical.

Mr. Robert Gray, writing of his experiences in South Uist, says:—“In the stillness of the Sabbath morning following my arrival, I was aroused from sleep by the cries of the Grey Lags as they flew past the house. Their voices, softened by distance, sounded not unpleasantly, reminding one of the clanging of Church bells in the heart of a large town.”

I am, unfortunately, not in possession of sufficient data to determine the time when the Grey Lag-Goose ceased to nest in the eastern counties. In Lincolnshire this was probably about the commencement of the century, when their last retreat was broken up, in the East Fen, by drainage—the Act for which was obtained in 1801.

The naturalist, Pennant, writing in 1766, remarks of the Grey Lag:—“This species resides in the fens the whole year; breeds there, and hatches about eight or nine young, which are often taken, easily made tame, and esteemed most excellent meat, superior to the domestic Goose. The old Geese, which are shot, are plucked and sold in the market as fine tame ones, and readily bought—the

purchaser being deceived by the size, but their flesh is coarse. Towards winter they collect in great flocks, but in all seasons live and feed in the fens."

The Rev. W. B. Daniel ("Rural Sports," p. 242, published in 1807) writes: "This species inhabits the English fens, and it is believed does not migrate, as in many countries on the Continent, but resides and breeds in the fens; they sit thirty days, hatch eight or nine young, which are often taken; are esteemed most excellent meat, and are easily tamed. The compiler took two broods in one season, which he turned down, after having pinioned them, with the Common Geese; both parties seemed shy at first, but they soon associated, and remained very good friends." From an old letter, originally printed in Professor Owen's edition of "John Hunter's Essays," (Vol. II, p. 321), and published by Mr. Harting, in "The Zoologist" for 1883, p. 383, he writes, William Walcot, Junr., of Oundle, (Dec. 30th, 1790), states that, to the best of his recollection, it was in the summer of 1773, that he took four little Goslings in the fens, between Cambridge and Ely.

Remains of the Grey Lag-Goose have been found in the fens of Cambridge and Norfolk, and in river deposits near Salisbury. There was much discussion at one time as to the origin of the term "lag" as applied to this Goose, and Mr. Skeat has given what is no doubt the true derivation of the word; the early English adjective "lag," meaning originally late, last, or slow; consequently the Grey Lag-Goose was the one which formerly *lagged* behind the others to breed in the fens.*

The notice of the Grey Lag would be incomplete without some reference to the enormous numbers of Geese formerly reared and fed in the fen districts. Pennant says:—"During the season these birds are lodged in the same houses with the inhabitants, and even in their very bed chambers; in every apartment are three rows of coarse wicker pens, placed one above another; each bird has a separate lodge, divided from the others, which it keeps possession of during the time of sitting. A gozzard, or Gooseherd, attends the flocks, and twice a day drives the whole to water, then brings them back to their habitation, helping those who live in the upper stories to their nests, without misplacing a single bird."

Arthur Young, in the report published in 1798 to the Board of Agriculture on Lincolnshire farming, tells how immense flocks of Geese were kept in the fens. These were plucked four, or sometimes five times. The feathers of a dead Goose were worth sixpence. In Wildmore fen, plucked Geese paid in feathers annually

* Professor Newton, "A Dictionary of Birds," Part iii, foot-note, p. 372, quoting from Mr. Rowley, (Orn. Miscell., iii, p. 213) says:—"that to this day the flocks of tame Geese in Lincolnshire are urged on by their drivers with the cry of 'Lag'em, Lag'em.'"

one shilling a head. Some owners winged them only once a quarter, taking ten feathers from each Goose, making five shillings a thousand—six score to the hundred,—this was long before the days of steel pens. There was nothing to prevent a cottager, renting five pounds a year, and who had only a cow and a few sheep, running 1,500 to 2,000 breeding Geese on the common lands. Thousands were driven to London and other markets in the autumn; they moved at the rate of a mile an hour, and did ten mile a day.

In the adult Grey Lag-Goose the rump is lavender-grey, the same colour prevailing the wing-coverts; bill pink; nail white; legs and feet flesh colour; irides brown. My friend, Mr. G. H. Caton Haigh, of Grainsby Hall, informs me that in an example shot by himself in Lincolnshire, the beak was orange, except a narrow strip surrounding the white nail.

The Grey Lag-Goose is one of the most wary and knowing of birds, yet the word "Goose," as applied to men and women, is a term of ridicule, and this notwithstanding that the bird is credited with having saved Rome; neither can we forget that the Grey Goose feather winged the deadly cloth-yard shafts, which on many a hard fought field, against overwhelming odds, brought victory to the side of England.

Family—ANATIDÆ

THE WHITE-FRONTED GOOSE.

Anser albifrons, SCOP.

THIS species is not a common Goose anywhere on the east coast of England or Scotland, although it is not altogether absent in any season during its residence, in some winters being more plentiful than in others, thus in the winter of 1864-5, a very severe one, several flocks were seen, and many examples were



WHITE-FRONTED GOOSE. ♀

obtained in the Humber District, and, as far as I am aware, they have never been seen in anything like the same number since.

Montagu says, "we have met with this species, in general, more plentiful than the Bean Goose. It visits the fenny parts of this country in small flocks in winter, is killed on the coast, as well as on our rivers, in severe weather, and not uncommonly brought to market and sold for the common wild Goose."

The Rev. Richard Lubbock ("Fauna of Norfolk," new edition, 1879, p. 165), says:—"enormous flocks of the Bean Goose visit the western part of Norfolk every autumn, with these are sometimes a good many of the White-fronted Geese." At the present day it can scarcely be called a regular winter visitant to the county. Mr. Selby says:—"it varies from the Bean Goose in preferring low and marshy districts, to the upland and drier haunts of that bird, and in these localities subsists on the aquatic grasses, being very seldom seen to frequent corn and stubble fields."

Mr. St. John says:—"it arrives in this country (Moray) from its breeding quarters in the Arctic and northern regions about the middle of October, in small companies of from six to twelve generally, and if left tolerably undisturbed frequents regularly the same swamp and piece of marsh till the end of April, feeding on aquatic plants, and in the spring frequently grazing on the young clover and green wheat, more in the manner of the Grey Lag than the Bean Goose, the latter confining itself as much as possible to grain."

It is very probable that since the drainage of the fens and marshes, this species has deserted many of its old haunts in the eastern counties.

The adult White-fronted Goose is a very handsome bird, and is more closely connected with the Grey Lag than with the other Geese. It is a smaller bird than the Bean Goose, measuring, in an adult, twenty-seven to twenty-eight inches, against thirty-one to thirty-four of the other.

Bill orange-yellow; nail white; legs and feet orange; forehead white in adults—hence its name;—mouse-coloured upper wing-coverts; breast and belly with patches and bands of black. These marks vary greatly in size and distribution according to the age of the bird, and in some examples in Mr. Haigh's collection,* shot in Ireland, which I have examined in connection with this notice, the entire underparts are black. In young birds the white markings on the forehead are absent, and the feathers at the base of the upper mandible darker than the crown of the head, and there are no black markings on the breast and abdomen. On the wing, adults are readily distinguishable by these black markings, and their

* Mr. Frohawk's excellent illustrations in connection with these papers, are largely made from local skins of the geese and ducks, lent for the purpose, by Mr. G. H. Caton Haigh, of Grainsby Hall, Lincolnshire.

wild aerial laugh or cry, which has a striking resemblance to a human laugh—*hah-ha, hah-ha, hah-ha, hah-ha, ha-a-a-a*,—hence a local name, “Laughing Goose.” In Ireland it is known as the “Tortoise-shell Goose,” from the marbled markings on the abdomen. Both the Grey Lag and this species were probably domesticated by the ancient Egyptians, as they are represented, in the act of being fed, on the walls of temples.

Regarding its range in Great Britain, it is not uncommon in some localities in the autumn and winter in the west of Scotland, notably on Islay (which appears to be its head quarters), and in some other places in the Inner Hebrides, but rare on the outer islands. According to Messrs. Harvie-Brown and Buckley, not an uncommon species in Caithness, but extremely rare in Sutherlandshire, and the commonest of all Geese in Orkney. In Shetland, the late Dr. Saxby says:—“very large flocks have been known to occur, but its visits are few and far between.” In Cumberland, Messrs. Macpherson and Duckworth describe it as a casual visitant of irregular occurrence. It is a very numerous species in some parts of Ireland.

In Europe and Asia it nests in Iceland, Kolguev, Arctic Russia, and Siberia, being confined to the tundras, or the barren districts beyond the forest belt. Rare in Northern Scandinavia, where its place is taken by the smaller species *A. erythropus*. It was found nesting, by Dr. Bunge, (1886), ten degrees east of the delta of the Lena, on the Great Liakoff island, the most southerly of the New Siberian islands, many breeding there in July (“The Ibis,” 88, p. 350). Mr. Seebohm says they nest in the Kanin Peninsula, in northern Russia. Mr. T. H. Pearson found it in July, 1895, in Novaya Zemlya—they were then in full moult. In 1895, Mr. H. L. Popham got old birds and eggs, and a gosling in down, from the Yenisei. In winter it is occasionally found in Turkey, and is the most abundant Goose on the Nile. Very common on the southern shores of the Caspian and the lakes of the south-west Caucasus—(“The Ibis,” 1883, p. 33). It is a scarce species in Transylvania, Italy, and Spain; and it is somewhat curious, in connexion with its abundance in some parts of the British Isles, that only two examples have been obtained in Heligoland during the last fifty or sixty years. It is common in Japan in winter, also in some parts of China and Northern India.

The American White-fronted Goose has been separated from the European under the name of *Anser gambelii*, HARTLAUB. It is the larger of the two, and the bill measures 2 inches instead of 1.50 as in *A. albifrons*. It is perhaps not entitled to specific distinction, and is difficult to say if the summer range of the two races overlap, and to which of the two species the birds which breed in Greenland and Alaska belong.

Mr. Robert Gray (“Birds of the West of Scotland”) quoting from notes

taken by Mr. Elwes, says:—"this is the common Grey Goose of Islay. It arrives usually in the first week of October, and stays till the second week in April. On their first arrival they keep a good deal about the lochs, and feed in the marshy places around them; but later in the year they go regularly to the stubble and grass fields to feed, shewing a great partiality for particular fields. They go in flocks of from three or four to one hundred or more, and are not very difficult of approach to a good stalker when on the fields, as there is nearly always some wall or ditch within shot of them. The old birds sometimes have the breast entirely black, but usually the black is in irregular lines. Neither the White-fronted, nor any of the Geese, except the Brent, settle on the water often, unless driven to do so, as they seem to prefer the land." A fine adult male was got on St. Kilda, in June, 1895, and presented by the Rev. H. A. Macpherson to the Science and Art Museum, Edinburgh. Mr. St. John says:—"it is more easy to approach than any other wild Goose; and I have often found it feeding in small hollows and spots easily got at, where the Bean Goose would never trust itself."

Mr. Robert Warren says ("Zoologist," 1877, p. 322) in Ireland "very common in suitable localities. I have seen them as early as the 29th September, and as late as the 25th April, and have been told of their remaining up to May 1st. All through this winter several flocks pass over this place, twice daily, to and from their feeding grounds. They generally rest by day on the wide expanse of flat bog, lying at the foot of the Ox Mountains, County Sligo, and just before dusk cross over into the County Mayo, to feed about Rarooyeen Lake, and the swampy lands near Mullifarry. I have only twice seen them on the tidal part of the river, but the great haunt for Geese is near Foxford, on the wide expanse of marshes along the river Moy." In the south of Ireland it is only common, according to Mr. Ussher, in severe frosts.

Mr. G. H. Caton Haigh informs me (*in litt*: 25, iv, 96) that in Connemara it is very common, and he is inclined to think the commonest Goose of that district, and is found in much larger flocks than the Bean Goose; he has often seen fifty or sixty together. It is much less cautious than the Bean Goose, and will alight in hollows, and amongst rocks, where the other would never be seen. In North Wales it often appears in hard weather, frequenting the marshes and saltings. Its habits and food are the same as in the Bean Goose; but he has never known the two species consort when feeding in the same locality, and when flushed the flocks keep apart. The legs and bill are bright orange, very different from the pale yellow of the Bean Goose; one specimen shot in Merionethshire had the bill reddish flesh colour. Weight from $4\frac{1}{2}$ to 6 lbs. In its summer quarters it goes to a higher latitude than the Grey Lag or the Bean Goose. Dr.

Von Middendorff found it nesting abundantly on the Taimur Peninsula, between lat. 70° and 74°, where the Bean Goose had become comparatively rare. He describes the nest as built on a grassy hillock, a mere hollow on the summit, abundantly lined with down. Seebohm says, in "Arctic Asia the flocks are three weeks later than the Bean Goose in passing north." "Dall found it breeding in great numbers on the banks of the river Yukon, in Alaska, and describes the nests as mere depressions in the sand; further east Mac Farlane found at the mouth of the Anderson river, the nests were substantially lined with dry grass and feathers, as well as down."

In both these latter cases it is probably that the American *A. gambelii* is the species referred to.

The eggs are five to seven, of a creamy white, and buried in down, as with the rest of the Geese.

Colonel Shelley ("Birds of Egypt," p. 280) says:—"This is the most abundant Goose in Egypt, where it may be usually met with in flocks, but does not remain in the country later than March. When on the wing they fly in a wedge-shaped flock, and frequently utter a loud harsh cry, which may be heard at a considerable distance. They are generally on the move just before sunrise and sunset, and as they are very regular, taking the same line of flight, and feeding at the same spot each day, they may be most readily obtained by lying in wait for them. If once fired at, the flock generally leaves the neighbourhood altogether."

All the Grey Geese, when they have fed in the autumn some time on grain, are by no means bad for the larder. When, however, they have been feeding long on grasses, roots, and particularly the roots of sedges in bogs and peat mosses, the flesh is coarse and not altogether agreeable. From a gastronomic point, all depends on the season when the Goose was shot. Our marsh shooters used to affirm, in the days when Geese were more abundant, if you require a tender Goose do not shoot at the leading birds, but take those in rear of the flock. It need scarcely be said that a young Goose is preferable to an old one, and the young grain-fed birds are good eating, providing always they are not kept too long; all wild fowl, unlike game, should be eaten fresh.

In Mr. Walter Rothschild's magnificent Natural History Museum, at Tring, there is a skin of a Goose which, Mr. Hartert thinks, is a cross between *Anser albifrons* and *Bernicla brenta*. The late Lord Lilford had a female of this species which, in three successive seasons, mated with a male Bean Goose, layed eggs, and reared several young birds.

Family—ANATIDÆ.

LESSER WHITE-FRONTED GOOSE.

Anser erythropus, LINN.

THIS little Goose is the *Anser erythropus* originally described by Linnæus. Much confusion once existed, amongst modern ornithologists, between this and the larger species, *Anser albifrons*, and it was only in 1860 that Professor Newton, of Cambridge, cleared up the doubts in connection with the nomenclature in a paper, which was reprinted in "The Ibis" of that year. The Lesser White-fronted Goose is the smallest of the five species of Grey Geese found in Europe, and it has in recent years been added to the British list.

This addition to the British *avi-fauna* was made by the late Mr. A. C. Chapman, who on September 16th, 1886, shot a young male on Fenham Flats, on the Northumbrian coast. Some years prior to this I saw an example, the size of an Eider Duck, hanging on a game stall, in the market place, at Great Grimsby; shortly returning to purchase the bird, I found, to my sorrow, it had been sold and taken away, and, although making every possible enquiry, was never able to trace the purchaser. My friend, Mr. G. H. Caton Haigh, who has given me many notes about the Geese, thinks it has occasionally visited Lincolnshire, as the wild-fowl shooters have told him that, on one or two occasions, they have seen small grey Geese, no larger than Brent. On November 14th, in 1886, one was seen by a correspondent of the "Zoologist," in Leadenhall market, and said to have come from Holland.

The length of an average Lesser White-fronted Goose is twenty-one and twenty-two inches, as compared with twenty-seven and twenty-eight for *Anser albifrons*. It is altogether a smaller bird in its measurements, and with the colour brighter and more distinct. The short straight ridged bill forms a line with the forehead, and the comparative length of the wing, which in *A. erythropus* extends considerably beyond the tail, is perhaps the most ready point of distinguishing the two.

Family—ANATIDÆ.

THE BEAN GOOSE.

Anser segetum, GMEL.

THE Bean Goose, in its habits and plumage, so closely resembles the next to be described, (*Anser brachyrhynchus*), that it is extremely difficult to define the range of the two in Great Britain. From the time of the Scotch ornithologist, Macgillivray downwards, much confusion and uncertainty has existed, not only regarding the specific distinction, but also the habitat of the two species, and it is only in recent years that the great increase in local lists of birds, and county histories of the same, has increased our knowledge of the subject.

There can be no possible doubt—and the accumulation of evidence is overwhelming—that at the commencement of this century, the Bean Goose was the common species of the low-lying districts, next the sea, in Lincolnshire, arriving with the greatest regularity as the season came round at the close of bean-harvest, about the middle of October—hence its name, Bean Goose. It is equally certain that at the present time, the Pink-footed Goose is the common species of the Humber district, having gradually usurped the position of the once familiar and old-fashioned species.

This change has, I believe, been brought about by the altered conditions of agriculture, enclosure of those vast open fields, which at one time surrounded each village, the decline of bean cultivation, and the gradual substitution of rotation cropping—green and corn crops alternately. We learn from Arthur Young's "Agricultural Survey," (1798), that the small country towns and villages, in the middle-marsh and sea-marsh districts of Lincolnshire, were surrounded by vast open fields, arable lands, cow and horse pastures, and furze; on strong land the rotation was fallows, wheat, beans, and again fallows. The area under beans in the low country was enormous, the wheat stubbles being ploughed once, and the beans sown broadcast in the spring, and never cleaned. These were harvested late in the autumn, usually got with much loss from the jaws of winter. These were the days of the Grey Goose, which our observant forefathers called the Bean Goose, (*Anser segetum*), coming in great flocks in the later autumn to feast on the shelled beans in the open fields; and this continued, till the change in



BEAN GOOSE 1

cultivation and general enclosure, banished them from their ancient haunts.

Most of the old wild fowl shooters, who have long since gone over to the majority, used to assert that these autumn flights fed regularly in the bean fields as long as the old system of agriculture continued—a system in which quite one-third of the cultivated land was under that crop.

The late Mr. John Clubley, of Kilnsea, in Holderness, a most famous wild fowl shooter in his day, told me that in his father's time all the district in south-east Yorkshire, round Kilnsea and Easington was unenclosed, and here and there many small ponds or "sypes," and birch trees, single or in groups. Great flocks of Geese came in the fall and again in the spring, during bean harvest and sowing, to feed; but they ceased to come when ditches were cut and hedges planted.

In those days nearly every farm house in the marshes had a long single barrelled gun, called the "goose-gun," originally a flint and steel, but afterwards converted to a "tube and nipple," and subsequently cut down in the barrel to be used for tenting purposes, when its use to the wild fowl shooter was no more.

The Bean Goose is very partial to all sorts of grain, and, in this respect, differs from the Grey Lag, whose chief food is grass. A local name is "Corn-Goose," in France "Harvest-Goose," and in Transylvania it is known as the "Growing-grain Goose"; it will, however, eat grass and clover as readily as its congeners when the stubbles are exhausted.

Mr. T. Southwell, (Stevenson's "Birds of Norfolk," vol. iii, p. 21), writing on this species, says:—"whatever its former status in Norfolk, there can be no question that the Bean Goose (amongst the Grey Geese) now ranks, in point of scarcity, next to the Grey Lag, as evidenced by the few examples observed in our markets in late years, even in the most severe winters"—and subsequently he enumerates four examples only as having come under his notice between January 10th, 1861, and January 31st, 1867, all these from the Norwich market.

Mr. Haigh informs me that the Bean Goose is, at the present day, a regular visitor, in very small numbers, to the coast and middle-marsh districts of Lincolnshire, but never to the wolds—the flocks are from half a dozen to fifteen birds—its food seems exclusively grain or young clover, and prefers grass which grows in wet fields or fittie lands.

The late Mr. Arthur Strickland, in a paper on "British Wild Geese," first read before the Natural History Section of the British Association, at Leeds, in 1858, describes a long-billed Goose, which formerly frequented, and bred in the carrs of Yorkshire. To this he gives the name of *Anser paludosus*—the "Carr Lag-Goose." There can be no doubt, however, from the description and sketch, that

this was the Bean Goose which, in those days, frequented the low lying districts of Yorkshire, at a time, too, when probably the Pink-footed Goose (as I shall endeavour to shew in the next chapter) was the common wild Goose of the district.

Mr. Abel Chapman, in his excellent book ("Bird-life of the Borders"), says considerable doubt still continues as to the proper identity of the species of Grey Geese, which, in the autumn, frequent the coast of Northumberland, arising from the "inaccessible nature of their chosen haunts, and the resulting impossibility of obtaining a sufficient number of specimens at different periods" * * so that "a thousand Geese may spend a month or two on the coast, and depart without losing a single member of their mess."

The Rev. H. A. Macpherson (Zool., 1894, p. 114) thinks:—"In former days the Bean Goose was the most common Grey Goose in the Solway Firth—of late years, it has, in my experience, been replaced to some extent by *Anser brachyrhynchus*." Again in a letter to "The Field" newspaper, (24-vi, 93), the same author writes "there can be no doubt that the Pink-footed Goose is ousting the Bean Goose in many districts. Until a few years ago, most of the Grey Geese shot in the neighbourhood of the English Solway were Bean Geese; latterly the Pink-footed Goose has been the more abundant of the two with us." He goes on to say "the late Mr. Robert Gray told me, some few years before his death, that he had himself witnessed the fact of the Pink-footed Goose replacing the Bean Goose in the neighbourhood of the Forth."

A similar uncertainty in the identification of the two species is continued beyond the north-east border. Mr. Muirhead ("The Birds of Berwickshire," vol. ii, p. 66) says:—"Immense flocks of wild Geese frequent Berwickshire during the autumn and spring months, consisting of the Bean Goose and its Pink-footed congener, and as the relative number of the two kinds is a matter of conjecture, owing to the similarity of their plumage—whilst their habits are alike—it has been considered advisable to include them both in one chapter."

Mr. J. A. Harvie-Brown informs me (*in litt.*, 18, iii, 96) that the commonest Grey Goose, in the Lowlands of Scotland, is without doubt the Pink-footed, and that the Bean Goose is rare.

In Lancashire the Pink-footed species is the commoner of the two, but in Cornwall, the late Mr. Rodd has stated that nine-tenths of the flocks of wild Geese which visit the south-west of England, in hard weather, are Bean Geese. ("Yarrell's British Birds," iv ed., vol. iv, p. 266). In winter it is found on both sides of the Straits of Gibraltar, and is common in Sardinia also at that season. I mention these facts to shew that there is still very great uncertainty as to the present status of the Bean Goose in Great Britain, and that much remains to be cleared up.

In Ireland, however, the case is very different. Sir R. Payne Gallwey considers "it is by far the commonest species, and may be seen in enormous 'gaggles' for six months every year. It is essentially an inland feeder, on bogs and meadows; but will fly to the mud banks, and slob of the tides, at dusk, to pass the night. These Geese frequent every bog and marsh in Ireland, which afford security from molestation. They are always found inland in large numbers, save in frost, when they fly down to the meadows and soft green reclaimed lands that lie near the tide. A small proportion will, in the wildest weather, frequent the mud banks to feed and rest. They usually quit their inland haunts at dusk, disliking to remain on land by night, where dogs, men, or cattle, may disturb them, and accordingly fly to the estuaries to rest and feed. At first dawn they again wing inland, and pass the day in open, unapproachable ground." In the south of Ireland, according to Mr. Ussher, it is less plentiful than the White-fronted Goose.

Regarding its European range, the Bean Goose is a more northerly species than the Grey Lag; it is only an occasional visitor to Iceland, and in Scandinavia does not breed south of lat. 64°. In the breeding season it is found across the whole of high northern Europe and Asia, from Norway to Japan. In eastern Asia it has been separated as *A. grandis*, from its larger size. Von Heuglin found it plentiful in Novaya Zemlya, migrating south about the middle of September. In 1895, Mr. H. T. Pearson saw it and the goslings in Russian Lapland, also in Novaya Zemlya, in July of the same year. Mr. A. Trevor-Battye says in Kolguev it exceeds the White-fronted Goose by at least three to one, and is the Grey Goose of that island.

Skins of *Anser segetum* were brought back to Copenhagen by the Danish expedition in 1891-92, where it was found breeding. It has not been recognized in India in winter.

The eggs are three to four in number, dull white in colour, and are buried in the grey down from the parent's breast.

The Bean Goose is altogether a darker bird than the Grey Lag, and has no grey-blue on the wing-coverts. It may readily be distinguished from *Anser brachyrhynchus* by its long and somewhat weak bill, black at the tip and base, and orange-yellow in the centre; legs and feet yellow.* It is also rather the larger of the two. Old birds, both of this species and the Grey Lag-Goose, have white feathers at the base of the bill. The Bean Goose has been known to live twenty-six years in captivity.

* Mr. Haigh says—feet, legs, and beak pale yellow when fresh shot, the latter black at base and tip; weight 7 to 8½ lbs.

Family—*ANATIDÆ*.

PINK-FOOTED BEAN GOOSE.

Anser brachyrhynchus, BAILLON.

THE late Mr. Seebohm ("British Birds," vol. iii, p. 498) thinks this Goose can scarcely be considered more than a local race or inland form of *A. segetum*. I think most ornithologists, if the question was put to them, would be in favour of its specific identity, and that it ought not to be relegated to the rank of a sub-species. It may be that the Pink-footed Goose is still undergoing a process of differentiation, and that its specific characters are not yet fully established. It is somewhat suggestive that the very characters by which it claims specific rank, are not constant, either in the wild bird, or in those reared in domestication. In the typical *A. brachyrhynchus*, the bill is much shorter, and also deeper at the base, than in *A. segetum*, and the middle portion of the bill, the legs and feet, are pink in the former, and yellow in the latter. After the Pink-footed Goose has been dead a few days, the legs sometimes turn almost red in colour.

I have, during the last forty years, seen several examples of Grey Geese, which in the size and proportions of the bill, as well as the colour of the central part, and the legs and feet, make it extremely difficult to diagnose the species; so great has been the divergence from either the Pink-footed or Bean Goose, that I have thought can there be a fifth British Grey Goose—an *Anser medius*—not yet recognized by ornithologists.

Broods of the Pink-footed Goose, bred in captivity by Mr. Cecil Smith, contained individuals shewing orange in bills, legs, and feet, and their colour remained permanent; Lord Lilford says that he has kept several of these birds at Lilford, where they are constantly on the water, and keep apart from the other species of water fowl, and he has no hesitation in saying he has seen quite as many with orange coloured as with pink legs.

Whatever the former position of the Pink-footed Goose in Great Britain, the balance of evidence is now in favour of its being the most common of the four Grey Geese which come in the autumn.

Anser brachyrhynchus was first recorded as a British species in 1839, by the late Mr. T. Bartlett. It is, however, a remarkable fact that this bird was known



PINK-FOOTED BEAN GOOSE †

to the naturalist, John Ray, and is described, at that distant period, as the common wild Goose of Yorkshire, in his "Synopsis Methodica Avium," page 138, written in Latin, and completed in 1694, but not published till 1713.*

Mr. Arthur Strickland, in his paper on "British Geese," published in 1858, appears not to have been aware of Ray's statement, although he describes the Short-billed Goose as the species which visited the Humber and the Yorkshire Wolds, confounding it, however, with the young of *A. segetum*. Finally, in 1887, Mr. F. Boyes, of Beverley, in a letter to "The Field" newspaper, pointed out that the Pink-footed was the common Goose of the Yorkshire Wolds, a fact now fully accepted by all local ornithologists.

The habits of the Pink-footed Goose so closely resemble those of the Bean Goose, that much which has been written of the one will hold good of the other. They arrive in the Humber district the last week in September, and early in October; the earliest dates in my note-book are—September 26th, October 3rd, October 5th, (twice), October 10th. Mr. Haigh has known them appear as early as August 26th, in 1893, in excessively hot weather. During the day they haunt the stubbles and clover fields on the wolds and open districts, rising about the same hour in the evening, and wending their way, in the long extended order, to the islands and sand-banks in the Humber, to return as punctually to their feeding grounds at the break of day. They are the wildest and most unapproachable of all the Geese.

Within the recollection of certainly three generations, and probably since the enclosure of the wolds, if not before, flocks of wild Geese, coming up from the coast, have been in the habit of passing over the town of Louth, in the early morning, on their way to their feeding grounds on the high wolds. The large barley walks are the places which are most frequented not so much, as I have found by an examination of the stomach, for scattered grain, as young white clover and trefoil plants, of which they are immoderately fond. Considering the persistency with which Geese, day by day, resort to the same locality, it is surprising so few are shot. The fields on the wolds are very extensive, and Geese keep near the centre; on coming in from the coast they fly high, and it is only in stormy weather that their flight is low enough for a shot from a heavy gun to do execution, fired from the vantage ground of a solitary barn, shed, or stack, on a hill top, where at the same time the shooter remains concealed till the skein of Geese are well above him.

In recent years there has been a great decrease in the numbers which frequent

* The coloured figure of the Bean Goose in Lewin's "Birds of Great Britain," 1800, Vol. VII, plate 240, is, I think, probably taken from a bird of this species.

the high wolds, this is not an intermittent falling off, more one year and less the next, but a gradual annual decrease. Fifty years since, wild Geese were most plentiful on the wolds, where they are now seldom seen, and now, in the winter of 1896-7, they have practically altogether been absent from the hill districts.

Geese, on reaching their feeding grounds, whirl in wide circles over the selected spot, and when satisfied that all is safe, sweep suddenly downwards with considerable velocity, and commence feeding at once on alighting.

When, through the depth of snow on the high wolds, food is not to be got, Geese entirely change their habits, loafing about on the coast and sand-banks during the day, and in the evening flying and dropping anywhere in the low country, where they can get green food; the snow seldom lies long in coast districts, and there are always places which the winds have left bare, and the ground is more or less uncovered. I have often seen their paddings and droppings in pasture, corn, and turnip fields, near the coast. If the neighbourhood is quiet and retired, they come inland just as readily in the day-time as at night.

Geese feed very greedily anywhere at the break up of a snow-storm, and they are then least difficult to approach, being too much engrossed in eating to heed slight indications of disturbance or interruption. The Pink-footed Geese when associated with other species on a feeding ground, keep apart, and are not inclined to be sociable. In the day they are visible on a hill side at a very considerable distance, and if a yellow stubble, look like a blue cloud on the land. They are also very conspicuous objects on the sands of the coast, lining the tide-edge in long extended line, like a regiment on parade.

In the dusk of evening, or at night, Geese are not so wide awake as in the day, or they do not see so well, and I have sometimes walked into a flock to our mutual astonishment.

The European, or rather the western Palæarctic range of the Pink-footed Goose is not very clearly defined. Messrs. Cocks and Chapman found this species at each of the localities they landed at in Spitsbergen; and Mr. Chapman found three pairs, with goslings, at Magdalena Bay (July 29th); he found their droppings and a quantity of long quill feathers strewn thickly about at the top of the *débris*, under the precipitous cliffs, which doubtless indicated the site of their nests. They were told that the Pink-footed Goose is quite capable of defending its young from the Arctic foxes. ("Zoologist," 1882, p. 413).

It nests also in Iceland, and probably on lands nearer the Pole. It is not unlikely to be found nesting in Northern Norway and Finland. In winter it has occurred in Northern India, but so far has not been recorded from China or

Siberia.* In Heligoland it has only been shot three times in the last fifty or sixty years.

Mr. Howard Saunders ("Yarrell's British Birds," vol. iv, p. 273) says:—"the voice of the Pink-footed Goose differs from that of the Bean Goose in being sharper in tone, and the note is also repeated more rapidly." It is extremely difficult to express the note, or the difference between the calls of birds on paper. I can, however, testify, from experience, that there is a very distinct difference between the call-note of these two species.

This Goose, I think, in its adult dress, is the most bright coloured of any of its congeners, and the one perhaps most entitled to the term "Grey-Goose." It is a lively, active, cleanly-shaped bird, and has the blue-grey shoulders, and lavender or ash-grey rump of the Grey Lag. The local gunners on the coast constantly confound the two. Mr. Haigh says the average weight of four he shot was about five lbs.

For centuries the autumn flights of Geese, on the east coast of England, have arrested attention, and have been accepted as an augury of the approach of winter. The Reports of a Committee, in connection with the migration of birds, appointed by the British Association, between 1879 and 1887, contain numerous notices of the flight of Grey Geese in the autumn. The records, however, of a spring migration to the north, are few and far between, one reason for this, is that, in the spring, migrants going north appear to move by the most direct route, and in the most expeditious manner, as if in the greatest hurry to reach their breeding grounds. Pink-footed Geese leave the Humber district in the latter part of March, and through April.

The late Colonel Russell, (May 1880), in a letter, informed me that he had a communication from a friend living at Havering, about three miles from Romford, on the Essex coast, on the south slope of a steep high hill, who informed him that "the Grey Geese were seen on Saturday, 21st February, flying in a triangular form in a north-east direction. I have repeatedly seen them sometimes passing for whole days, and have always noticed that we never had any winter to speak of afterwards. They generally fly about a mile high. We very seldom saw them going south, I suppose because the days are shorter, or possibly some may go another way, but they generally go north about this time of the year. I used to try and shoot them with a rifle to see what sort of Geese they were."

The late Mr. Seebolin ("The Ibis," 1879, p. 158) describes the rush of Grey

* In "The Ibis," for 1897, pp. 5-8, Mr. P. Sushkin, of Moscow, describes a new Palearctic Goose under the name of *Anser neglectus*, from examples obtained by himself on Lake Thonngak, in the government of Ufa, (Rossia orientalis). This he considers a distinct form from both *A. segetum* and *A. brachyrhynchus*, but, of the two, more nearly allied to the former in colour.

Geese northward—"The great annual battle of the Yenisei lasted longer than usual the year I was there. We had alternate thaws and frosts during the last three weeks in May; summer seemed to be always on the point of vanquishing winter, but only to be driven back with redoubled vigour. During all this time there must have been thousands and tens of thousands of Geese hovering on the skirts of winter, continually impelled northwards by their instincts, penetrating wherever a little open water, or an oasis of grass, was visible, in the boundless desert of ice and snow, and continually driven southwards again by hard frosts or fresh falls of snow. It was not until the ice on the great river broke up, that the great body of Geese finally passed northward."

Similar phenomena, in the spring, attract the attention of dwellers near the great Canadian lakes. Geese innumerable as the sands, in long waving lines, or echeloned along the two sides of a triangle, cleaving their way in the cold thin atmosphere, to their breeding grounds, in the barren-lands of the far north.

"*Hawnk! honk!* and for'ard to the nor'ard, is the trumpet tone,
 What Goose can lag, or feather flag, or break the goodly Cone?
Hawnk! onward to the cool blue lakes where lie our safe love-bowers;
 No stop, no drop of ocean brine, near stool or hassock hoary,
 Our travelling watchword is 'our mates, our goslings, and our glory!'
 Symsonia and Labrador, for us are crowned with flowers,
 And not a breast on wave shall rest until that heaven is ours.
Hawk! Hawnk! E-e hawnk!"

Family—ANATIDÆ.

SNOW-GOOSE.

Chen hyperboreus, PALLAS.

THIS North American Goose was first recorded, by Mr. Howard Saunders, as occurring in the British Islands from two immature examples, purchased in Leadenhall market, on November 9th, in 1871. Subsequent enquiry shewed that they had been shot a few days previously near the south coast of Wexford; a third also having been got shortly after in Wexford harbour.



SNOW GOOSE †

Mr. Harting, in "The Zoologist" for 1878, p. 419, records a small flock of seven in the Barony of Erris, Co. Mayo, about the end of October, 1877; one was shot, and a second, a gander, trapped. On August 22nd, 1884, an adult was seen on the Cumbrian coast, near Allonby, by the Rev. H. A. Macpherson, who identified four Snow-Geese, flying down the Eden valley, near Carlisle, on January 22nd, 1891; being then in company with Mr. D. L. Thorpe, a member of the B.O.U., who has a special knowledge of American wild-fowl.*

Again, in "The Field," January 24th, 1891, Mr. Henry Sharpe, of Beverley, a very competent observer, has recorded three seen by him near that town; these flew past at the distance of about two hundred yards; pure white, and with black wings. This occurrence on the east coast is not remarkable, as the Snow-Goose has occurred several times off Heligoland. In 1844-45, nine quite white Geese, with black flight-feathers, like Gannets, flying in a row past the eastern point of the shore. The same phenomenon occurred on the 19th of December, in 1847. Again in May 1880, two gunners, then lobster fishing, saw four white Geese, with orange-coloured beaks and feet, flying close past them; and again on the 12th three. Finally on December 25th, the same year, a perfectly white Goose, with black wings, and orange beak and feet, alighted on the Oberland or upper plateau.

Pennant, in his "Arctic Zoology," 1785, vol. ii, p. 546, speaks of the innumerable flocks of Bean Geese which, in the autumn, visit the wolds of Yorkshire; "and amongst them are some white." This is very suggestive of Snow-Geese coming down with the great flocks of northern Geese.

The Snow-Goose is probably by far the most common of the American Geese. Ornithologists distinguish two races, a larger *Chen nivalis*, (Forster), and *Chen hyperboreus*, (Pallas), the subject of this notice, both have very distinct geographical ranges; the first frequenting the Hudson's Bay territory, distinguished by its size and larger bill. The occurrence in England and Ireland, so far as they have been diagnosed, belong to the smaller race of Arctic north-west America. The Snow-Goose is a circumpolar bird, probably both races breeding in Arctic Siberia, as they occur together in Japan in winter, and no doubt in China. It has occurred sporadically on migration in various parts of Europe. The American birds in the autumn go as far south as Texas and the West Indies.

There is another North American Goose, *Chen caerulescens*, the Blue-winged Goose, with much the same size and proportions as the Snow-Goose, which has

* These by no means exhaust the list. The appearance of a whole flock of *Chen albatus* has been recorded by Mr. George Bolam, from the Northumberland coast. Five were seen by Sir R. Payne Gallwey, in the severe winter of 1890-91, near Berwick-on-Tweed; also three Geese in three successive years came with gaggles of the White-fronted Goose to Berkeley, ("Letters to Young Shooters," p. 81); and again another occurrence is recorded by Mr. H. A. Macpherson, in the "Fauna of Lakeland."

frequently been confounded by naturalists with the young of the latter; they are certainly closely allied forms, but, considering the evidence, little doubt can be entertained of their specific distinction. The young of *C. hyperboreus* are four years in assuming the plumage of the adults.

According to Richardson (*Fauna Boreali, Americana*), the Snow-Geese breed in great numbers in the wilds of Arctic America, on the shores of rivers and lakes; the young can fly by the middle of August, and they leave for the south a month later.

It was found in 1879 by the "Vega" expedition, in June, on the shores of Tchuski Land. On the American coast of the Arctic and Bering's Sea, it is not abundant, occurring, however, in considerable flocks, for a few days in the spring and autumn migrations.

Pennant ("*Arctic Zoology*," 1785) says they leave the settlement at Hudson's Bay "about the 10th of October, flying very high, southward to pass the winter. They come in flocks of thousands; quite cover the country, rise in clouds, and with an amazing noise. They visit Carolina in vast flocks; and feed on the roots of sedge and grass, which they tear up like hogs."

In "*The Zoologist*," 1862, p. 7831, there is a reprint, taken from the "*Canadian Naturalist*," for October, 1861, of a paper read before the Montreal Natural History Society, by Mr. George Barnston, of the Hudson's Bay Company, on the Swans and Geese of Hudson's Bay. Mr. Barnston, during his residence in the Company's Stations, had unusual opportunities of practical observation, in connection with the migratory Swans and Geese. He says:—"The Snow-Goose, although it plays a less conspicuous part in the interior of the country, where it seldom alights, except along the margin of the larger lakes and streams, becomes from its consolidated numbers, the first and greatest object of sport after the flocks alight in James's Bay. The havoc spread throughout their ranks increases as the season advances, and their crowds thicken, and even the Indian becomes fatigued with the trade of killing. In the fall of the year, when the flocks of young 'wewais,' or 'wavies,'* as they are called, are numerous and on the wing between the low tide-mark and the marshes, or are following the line of coast southerly, it is no uncommon occurrence for a good shot, between sunrise and sunset, to send to his lodge, about a hundred head of game."

"These 'wavies' or White Geese, form the staple article of food as rations to the men in James's Bay, and are the latest in leaving the coast for southern climes, an event which takes place towards the end of the month of September, although some weak broods and wounded birds linger behind until the first or

* Native "wawa" Goose.

second week in October. They are deliberate and judicious in their preparation for their great flight southwards, and make their arrangements in a very business-like manner. Leaving off feeding in the swamps for a day or more, they keep out with the retreating ebb tide, retiring, unwillingly as it were, by steps at its flow, continually occupied in adjusting their feathers, smoothing and dressing them with their fatty oil, as athletes might for the ring or race. After this necessary preparation, the flocks are ready to take advantage of the first north or north-west wind that blows, and, when that sets in, in less than twenty-four hours the coast that has been covered patch-like by their whitened squadrons, and widely resonant with their petulant and incessant calls, is silent as the grave—a deserted, barren, and frozen shore.”

Mr. R. G. McConnell, in his report on his expedition of 1887-88, in the Mackenzie and Yukon districts, North-west Canada, says that on the first of May, Canada Geese were first seen at an open place on the river, and on the 5th the “Wavies,” (*Anser hyperboreus*), which usually lag a few days behind the Canada Geese, commenced passing northward, and in a couple of days later were passing in such numbers that flocks were rarely out of sight.

One hundred and twenty-five years ago, the naturalist, J. R. Forster, who sailed with Captain Cook in his second voyage, in “Animals of Hudson’s Bay,”* (a paper first read before the Royal Society, 1772), says:—“The Indians have a peculiar method of killing all these species of Geese, and likewise Swans. As these birds fly regularly along the marshes, the Indians range themselves in a line across the marsh, from the wood to high water mark, about musket shot from each other, so as to be sure of intercepting any Geese which fly that way. Each person conceals himself, by putting round him some brushwood; they likewise make artificial Geese of sticks and mud, placing them at a short distance from themselves, in order to decoy the real Geese within shot; thus prepared they sit down, and keep a good look out; and as soon as the flock appears, they all lie down, imitating the call or note of Geese, which these birds no sooner hear, and perceive the decoys, than they go straight down towards them; then the Indians rise on their knees, and discharge one, two, or three guns each, killing two or even three Geese at each shot, for they are very expert. Mr. Graham says he has seen a row of Indians, by calling round a flock of Geese, keep them hovering among them, till every one of the Geese was killed. Every species of Geese has its peculiar note or call, which must gradually increase the difficulty of calling them.”

According to Richardson, they frequent the shores of lakes and rivers, and are very shy and difficult to approach.

* Reprint, by the Willughby Society of Forster’s paper, 1882.

The eggs are yellowish-white; the young fly about the close of August, and by the middle of September both old and young wing their way southward. In their breeding haunts, in the fur districts, they feed on various grasses and rushes, also on insects, and are particularly fond, like so many northern breeding birds, of the fruit of the crow-berry (*Empetrum nigrum*).

The bill is very stout, shorter than the head, and deep at the base, the lower mandible displaying the lamellæ, these are very prominent and large, and admirable adapted for cutting off the tough grasses and sedges which form their chief food. Seebohm says:—"very little is known of the changes of plumage in this species; but young in first plumage are pale slate-grey on the head, neck, back, and breast; the scapulars and wing-coverts are darker grey, with pale edges, and the rest of the plumage is white; bill, legs, and feet, olive brown." These parts in adults are red or orange-red; nail white; irides hazel. Length over all, 30 to 32 inches; wing, 15 to 18½.

The first report (1892) issued by Prof. Henry F. Nachtrieb, State Zoologist of the University of Minnesota, contains a valuable contribution by Dr. P. L. Hatch, "Notes on the Birds of Minnesota." Speaking of the Snow-Goose he says, "in its favourite localities, during the autumn especially, this species eclipses any other of the Goose kind for numbers." One day, in October, 1884, in Grant County, he arrived at the conclusion that within an area of five miles in diameter, not less than five thousand Snow-Geese were concentrated. This was without having recounted any flocks seen. The day was bright and sunny, and the various flocks confined themselves to the same bodies of water, so that none were shot. "The hunters call them 'White Brant.' The sight of one of those animate clouds of floating snow, on which the dazzling rays of the sun are pouring on a bright October day, can be neither described or forgotten. The Snow-Geese make but a comparatively short stay in this latitude in the spring, but seek those most northern by the 15th or 20th of April generally. The measures of all which I have obtained, and found in the markets, have placed them within the lesser species as recognized by the Check List of the American Ornithological Union, not one in ten exceeding twenty-seven inches in length, with the wing sixteen." Dr. P. L. Hatch is of opinion that the Blue Goose, (*Chen caerulescens*), is beyond a doubt the young of this species, the measurements essentially agreeing with theirs. Whichever side of the question is advocated by ornithologists, each, individually, is most positive as to the correctness of his deductions. Perhaps there is a middle course out of the difficulty, and, as Mr. Howard Saunders suggests, the Snow-Goose and Blue-winged Goose may be, respectively, coloured and white phases of the same species, like those which exist in some of the American Herons. The



RED-BREADED GOOSE †

best American authorities, however, think it must be regarded as an entirely local species.

Mr. Herrick found the Snow-Goose most abundant at Lake Shatek, the source of the Des Moines river, Iowa. They proved exceedingly wary and hard to get near. Their food in the autumn is said to consist chiefly of wild rice and various berries—earlier they feed on aquatic and marsh vegetation, including snails and insects.

In the report of "The Death Valley Expedition," California, Dr. Fisher says: "A flock of Snow-Geese was seen by Mr. Nelson about Morro Bay, in November, 1891. Mr. Bailey found this species common, in flocks, in Virgin Valley, where it was first observed near Bunkerville, Nev., January 23rd, 1889. They frequented the shores of Virgin river, where they fed on the bleached stems and tender roots of a small club-rush. The gullets of two individuals secured, contained nothing except the remains of this plant."

This Goose probably occurs more frequently on the shores of the British Islands, and in Europe, than is generally supposed.

Family—ANATIDÆ.

RED-BREASTED GOOSE.

Bernicla ruficollis, PALLAS.

HALF a century since, little was known of the habits and migrations of this most beautiful Goose, and it was one of the rarest birds in European collections.

The Red-breasted Goose, or Red-breasted Bernacle, was first recorded by the naturalist Pallas, (1769). Pennant, in his "Arctic Zoology," quoting from the "Russian Explorer," says, the breeding range of this Goose extends from the

mouth of the Ob to that of the Lena; also that they are observed in the spring, flying from the Caspian Sea, along the Volga northward, in small flocks, and are seen about Zarizyn, between the 5th and 10th of April—facts which are probably correct at the present day.

From what we know now of the Red-breasted Bernacle, its range is comparatively a restricted one; its summer nesting quarters probably extending from Russian Finland in the west, across the tundra districts of the valleys of the Ob and Yenisei, and not eastward of the Lena. In the winter it migrates southward to the delta of the Volga and the southern shore of the Caspian, but it is rare in Turkestan.

Dr. O. Finsch says it is by no means uncommon near Obdorsk, in western Siberia, in the autumn; and Herr K. G. Henke found it near Astrakan, in the spring and autumn, also occasionally near Archangel, in the former season. Modeste Bogdanow states, ("The Ibis," 1883, p. 33), that it visits the Caspian in large flocks in the autumn on migration, and there can be no doubt this great inland sea is the chief winter resort of this species. It is said to have occurred as far to the east as India.

To the late Henry Seebohm belongs the honour of being the first English ornithologist to become practically acquainted with the Red-breasted Goose in its summer haunts, in those dreary tundras which, for hundreds of miles in breadth, fringe the ice-bound shores of the Arctic Ocean. When in the valley of the Yenisei, in 1877, in latitude $70\frac{1}{2}^{\circ}$, he gave the two mates of the schooner a commission to collect eggs on the delta, and on one of the islands they found, and shot on the nest, a Red-breasted Goose; this nest contained two eggs, one of which was unfortunately broken on his return journey; on July 28th, he again met with the species, a few miles south of the same locality, and saw several of the birds, with their young broods, on the banks of the river.

From information obtained by Mr. H. T. Pearson in Russian Lapland, in the summer of 1895, ("The Ibis," 96, p. 210), it is not improbable it nests there; he says his informant "assured us it bred occasionally near Lake Ukanskoe, but he failed to find any trace of it." The fact, however, of its occasional appearance near Archangel, in the spring, is suggestive of its nesting in European Arctic Russia.

In 1895, Mr. H. L. Popham was fortunate in getting four nests of seven, seven, eight, and nine eggs, (of a creamy white colour), in the Yenisei country. The females were in each case shot from the nests; all these were placed at the foot of a cliff, occupied by a Peregrine or a Rough-legged Buzzard, (possibly for protection from foxes), and well supplied with down. ("The Ibis," 1897, pp. 96-100.)

The nest is said to resemble that of the Bean Goose, but smaller, and the eggs creamy white, with obscure traces of an underlying green shell—the shell itself very fragile.

Mr. Howard Saunders, ("Yarrell's British Birds," vol. iv, pp. 282-3), has recorded sixteen probable occurrences of the Red-breasted Goose between 1776 and 1871, in the British Islands; the last of these was shot at Maldon, Essex, from a flock of Brent Geese, on January 21st, 1871, and was purchased by Mr. Harting. Subsequently it was added to Mr. Marshall's collection, at Taunton, having been purchased at the sale of Mr. Harting's skins, on June 6th, 1872, at Messrs. Steven's rooms for thirty guineas.

The Red-breasted Goose has occurred as a straggler in various parts of Europe and North Africa, but so far not in the Spanish Peninsula. On February 12th, 1869, an adult male, in full plumage, was got twenty-two miles from Florence; another is said to have been shot, near Mantua, some years previously. On December 11th, 1879, an immature example, sex not determined, was shot in the marshes of Saint-Jean d'Abbetot, Dep. Seine Inférieure. Again on February 18th, in 1881, one, in most perfect plumage, was killed on the coast of Holland, by two punt shooters, from a flock of Bernacle-Geese, twenty-three of the latter being got at the same time. One was got in Württemberg in 1844, and a few are recorded from other parts of Europe.

The Red-breasted Goose has not been found in Egypt; it is a remarkable fact, however, that the ancient Egyptians appear to have been well acquainted with it, for in some of the oldest pictures in the world, in tombs and temples, it remains to this day, accurately portrayed, in never fading colours.

Seebohm, in his "British Birds," (vol. iii, p. 516), summarizes the accounts of the various naturalists, Russian and German, who have become acquainted with this pretty Goose in its winter quarters, where it occurs in such enormous numbers that thousands are sold every year, at prices varying from three half-pence to twopence half-penny each. "Dr. Radde describes its great abundance in winter on the islands near the south-west shore of the Caspian—after a heavy fall of snow, the fishermen clear a space on the grassy islands, and often catch them in such numbers in nets, that they are sold from five to ten kopecks each. When they begin to collect before migration, thousands of flocks are reputed to be seen, and it is stated that the worst shots obtain as many as two hundred during the season. When feeding together they utter a loud trumpet-like note; but their cry, as they call to each other on migration, is a double note, which Finsch says is easily imitated by the aid of a bit of birch bark, and which Pallas represents as resembling the sound of the syllables '*shak-voy*,' whence its local name amongst

the Russian sportsmen of Obdorsk. It is a very shy bird, and very difficult to shoot, but curiously enough, reconciles itself at once to confinement, and soon becomes tame."

The Red-breasted Goose is less in size than the Bernacle, and about the same size as the Brent Goose, and it has been known in confinement to pair with that species. The female is rather smaller than the male, and both sexes are alike in plumage. It is three years before they get the fully adult dress. Length twenty-one to twenty-two inches; wing fourteen inches.* It is said to be most excellent eating. This reminds me that the only Norfolk example, of this extremely rare bird, was purchased in the Yarmouth market, in 1805, by a local naturalist, and—*horresco referens*—plucked, cooked, and eaten; it is, however, some satisfaction to learn that "its flesh was well flavoured."

Family—ANATIDÆ.

BERNACLE-GOOSE.

Bernicla leucopsis, BECHST.

MUCH doubt exists as to the derivation of the common name of this Goose. Professor Newton ("A Dictionary of Birds, part i, p. 31) says:—"Dr. Murray, under the word 'Barnacle' in the *New English Dictionary*, gives as the oldest known English form, the *Bernekke*, (Latinized *Bernaca*), of Giraldus Cambrensis, about 1175; and states that the Cirriped (*Lepas anatifera*) also so-called, took its name from the bird, a kind of Goose, and not the bird from the Cirriped."

Great confusion also has existed between this and the next species regarding their distribution, the names Bernacle and Brent having been applied to both, so

* For a full description of the plumage of this beautiful Goose, see "Yarrell's British Birds," 4th Ed., Vol. IV, p. 285.



BERNACLE GOOSE. ♀

that it has often been extremely difficult to get at the truth as to the occurrence of one or other in any special locality.

The winter distribution of the Bernacle-Goose, in the British Islands, is a very peculiar one. On the east coast, from the Thames to the Pentland, it is very uncommon, except, perhaps, in unusually severe seasons. On the Essex coast, it is said to be a rather rare winter visitor; in east Suffolk, a rare winter visitor; the same now applies to the Norfolk coast. In Gurney and Fisher's list of "Birds found in Norfolk," 1846, it is spoken of as "not uncommon in the winter." On the Lincolnshire coast, and Humber estuary, several small flocks occurred in December, 1867—which season was an exceptionally mild one—and again in 1868. I have also occasionally met with small flocks on the coast, and frequenting the foreshore, fittie lands, and marshes, close to the sea, where it used to be known to the local gunners, at one time, as the "Spanish" Goose. In recent years it has been very scarce, and we have no note of its occurrence in the Humber district since 1875.

In the neighbourhood of Flamborough, it occurs more frequently, and at shorter intervals. In 1891, early in September, a large flock frequented the coast north of Scarborough, and on September 19th, a flock of twenty-nine were seen inland, at Brompton, nine miles from Scarborough, and two shot; a skin of one of these was seen and examined by Mr. William J. Clarke, of that place. Mr. Abel Chapman has never met with it on the coast of Northumberland. On October 15th, 1882, nine Geese appeared at the Longstone Lighthouse, Farne Islands, and one, wounded against the lantern, was subsequently shot and proved a Bernacle-Goose. It is more than probable that flights of *B. leucopsis* reaching the coast of Northumberland, pass on at once to the Solway, the distance across land being only sixty miles.

It is rather remarkable, shewing the scarcity of this species on the east coast, that in the nine reports issued by the Migration Committee of the British Association, from 1879 to 1887 inclusive, although we find innumerable entries of Grey Geese and Brent, this small flock at the Longstone Lighthouse, in 1882, is the only notice of the Bernacle. On the east coast of Scotland, during the same period, a flock of twenty-five are recorded off Dunnet Head, on December 7th, 1879. The references in the schedules to "Bernacles" seen in the spring, in Cromarty Firth, in 1885 and 1886, Mr. Harvie-Brown thinks, undoubtedly, refer to the Brent Goose.* It is not a very common visitor to the mainland of Orkney,

* On September 28th, 1889, when, with Mr. J. A. Harvie-Brown, a few miles east of Grangemouth, on the Firth of Forth, I saw forty Bernacle-Geese passing west. The flock passed at the distance of one hundred yards, and may have been crossing to the west coast. On the wing, when approaching, they much resemble Great Black-backed Gulls.

and in Shetland Mr. Saxby only once met with it. On the west coast of Scotland, however, the case is very different, for in many localities—the Inner and Outer Hebrides, the Sound of Harris, and other places—it is most abundant. It visits the Solway regularly in some numbers, also the coast of Cumberland and Lancashire; it appears on the Welsh coast, not unfrequently, as Mr. Haigh informs me, in severe weather, in flocks of ten to thirty, resorting to the marshes and sides of rivers; and Mr. Rodd says, occurs in Cornwall in very severe winters, in small flocks.

In Ireland it is very common in some parts, chiefly the north and north-west, and equally scarce in others. It is known as the Land Bernacle, in distinction with the Sea Bernacle, the Brent Goose; in other places the latter is the Norway Bernacle, and the former Wexford Bernacle. The Brent often passes for the other in the game market, through the ignorance of the purchaser.

The chief nesting quarters of the Bernacle are unknown and undiscovered; probably the great bulk of the flocks which pass northward in the spring go, like the Knot, to lands on the American side of the Pole. It is a regular autumn visitor to South Greenland; and occurs in Iceland, Spitsbergen, and Novaya Zemlya in the breeding season, and also a few nesting in one locality on Kolguev. In the autumn it passes through Scandinavia on migration, and also is seen at Archangel, but is rare there. It has only twice occurred in Heligoland in fifty years. It is known as a spring and autumn migrant at Færoe. According to Prof. Collett, a pair have bred regularly for some years on one of the Loffoden Islands, from which the proprietor once forwarded him two eggs. A nestling in down was sent from Greenland to the Museum at Copenhagen. In the winter it is found on the opposite shores of the Continent and single examples have wandered as far south as Spain and Italy. It is only a chance visitor to North America.

The food of the Bernacle-Goose is both vegetable and animal, it is remarkably fond of the short sweet grasses which cover the holms and islets off the western coasts of Scotland, at low water also resorting to saltings, fitties, mud flats, and foreshores, left uncovered by the sea, and is as much a land feeder as its congener, the Brent, is a sea-Goose. Mr. C. M. Adamson, of North Jesmond, had some tame Bernacles which in the spring would eat worms, an exceptional diet.

The late Mr. Robert Gray says it "is a very common bird in the west of Scotland, and especially abundant in the Outer Hebrides, where it arrives early in October. Being a strictly migratory species, it takes its departure about the end of April or beginning of May, by which time the Grey Lag-Goose has commenced laying. Previous to leaving, the Bernacle-Geese assemble in immense

flocks on the open sands, at low tide, in the Sounds of Benbecula and South Uist; and as soon as one detachment is on the wing it is seen to be guided by a leader, who points the way with a strong flight northwards, maintaining a noisy bearing until he gets the flock into the right course. After an hour's interval, he is seen returning, with noisy gabble, alone, southwards to the main body, and taking off another detachment as before, until the whole are gone. A notice of this singular habit was first communicated to me by Mr. Alexander A. Carmichael, and has since been corroborated by Mr. Norman M'Donald, who informs me that the inhabitants of the Long Island, have been long familiar with it."

Perhaps the best account of the habits of the Bernacle-Goose, is that given in Messrs. Macpherson's and Duckworth's "Birds of Cumberland." "Upon the English side of the Solway, the marshes of Rockcliffe and Newton are its chief feeding grounds, especially Rockcliffe, where the western extremity of the marsh affords fine feeding ground, on the sand, between high tide mark and sound grazing land." They arrive at their winter quarters about the last week in October. The late Mr. A. Smith, the authors' principal informant, considered that they feed chiefly by night, but when much persecuted and harassed, they find it safer to feed by day.

"It is interesting to wait upon the point of Burgh marsh, before day-break, and listen to the cries of the Bernacles, feeding upon the point of Rockcliffe marsh, just opposite. About an hour after day-break, they rise *en masse* from their feeding ground, and after wheeling up and down the Solway for a few moments, displaying their pretty barred grey, black, and white plumage against the mud-flats, they fly seawards to the estuary of the Wampool, or, circling round, pitch in a long line upon the exposed mud half a mile to windward. Bernacle-Geese are constantly vociferous, especially when feeding, and Mr. A. Smith compares the volume of sound produced by a flock of several hundred feeding at night together, as heard at a distance, to a pack of harriers in full cry." Many other details concerning the habits of this Goose are recorded in the "Fauna of Lakeland."

The adult Bernacle is an exceedingly handsome bird, either wild or domesticated; it readily loses its wildness, becoming thoroughly tame. The weight of a male in good condition is from 4½ to 6 lbs.

Family—*ANATIDÆ*.

BRENT GOOSE.

Bernicla brenta, PALL.

DURING the whole period of its autumn and winter residence in the British Islands, the Brent Goose is purely a marine species, seldom coming inland. The only exception to this rule, which has so far come under my notice, has been in the early spring, after the breaking up of long continued frost and snow, when I have occasionally met with them feeding in fields of young wheat, close to the coast.* During their residence in these islands, most of their time is spent at sea, or in bays, and shallow estuaries, mud flats and sand banks—floating off with the rising tide, and returning to their feeding grounds at ebb.

The winter range of the Brent Goose extends from Southern Scandinavia and Denmark to the Mediterranean, and in very severe seasons the African and Asiatic sides of that sea. It is a regular visitor to the coast of Portugal, and has been obtained as far south as the Atlantic coast of Southern Morocco. Von Heuglin states it is found in Lower Egypt, in small flocks, in winter. It is often considerably abundant on the coasts of Belgium and Holland, and the Zuyder Zee, but only occasionally seen off Heligoland.

On the east coast of Great Britain, its chief haunts are the coast of Essex, (where formerly it was extremely abundant, but in late years, from constant persecution and loss of its favourite food, it has greatly decreased), the Lincolnshire Wash, and the estuary of the Humber; but in the latter, only common in severe winters. Immense flocks yearly frequent the Fenham flats, off Holy Island, on the Northumberland coast. Further north it is often plentiful off the mouth of the Tay, Montrose Basin, mouth of the Findhorn, Beaully, Cromarty, and Dornoch Firths, but specially the two latter, where, in some winters, it collects in enormous flocks. In the Orkney Islands, although not uncommon, it is local; and, according to Mr. Saxby, not a common visitor to Shetland, occurring usually, when it does appear, after rough weather from the south. A common name for Brent on the north-east coast is "Sly" Goose. On the west coast of Scotland it is much less common than

* Mr. P. Boyes (*Zool.*, 71, 2643) records Brent Geese at Arram, near Beverley, fourteen miles from the Sea and Humber; this was in the spring.



BRENT GOOSE †

the preceding—the Bernacle Goose. In Ireland it occurs in many localities, and abundantly wherever its favourite food is to be got. Some of the chief localities are Strangford, Larne, and Belfast loughs, but I know of no place where it may be found in greater abundance than Blacksod Bay, Belmullet. Altogether it may be said that the positions chosen by the Brent Geese on the coasts of Great Britain are the result of the abundance, or otherwise, of their favourite food, the common grass-wrack (*Zostera marina*).

The Brent Goose occurs as a spring and autumn visitor, on migration, to Færoe. It nests nowhere on the mainland of Europe, and is not recorded as breeding in Iceland, although it is not improbable the nest will some day be found there.

It breeds in immense numbers on the large islands, and groups of islands, north of Europe and Asia, as Spitsbergen, Novaya Zemlya, Franz Joseph Land, the Taimyr peninsula, and as far eastward as the new Siberian islands. Mr. A. Trevor-Battye saw immense numbers of old and young in one part of Kolguev, in July. It is curious that the old birds had both dark and light coloured breasts and bellies. Great quantities were taken in nets by the Samoyeds, for winter consumption. The result of one drive, witnessed by Mr. Trevor-Battye, was three thousand two hundred Brent, thirteen Bean, and twelve White-fronted Geese.

The Brent breeds in North America, east of the Rocky Mountains, and on lands on the American side, as far north as man as yet penetrated. In Parry's expedition, a nest with two eggs was taken at Rose inlet, in lat. 80° 48' N., on June 16th, the most northern land at that date ever reached by man.* In 1895 it was not seen by Mr. H. L. Popham on the Yenisei, south of 72° N., where young in down were taken.—("The Ibis," 97, p. 99). In the autumn in America, it occasionally wanders as far south as the Gulf of Mexico, and has once (15th November, 1876) been shot in Barbados.

There are two, if not three, races of Brent Geese which visit the shores of the British Islands—one, the so-called East Atlantic form, our typical Brent Goose; this comes from the Arctic islands of Europe, and has the neck and upper breast black, ending abruptly in a well-marked line, and the belly smoke-grey. In the West Atlantic form, from Greenland, the under parts below the breast are pure white. This latter is much the less common. From the valley of the Lena, eastward to Bering's Straits, the Black Brent (*Anser nigricans*) with the belly nearly as black as the breast, and no distinct lines of parting between the two shades; in this the white marks on each side of the neck are continuous in front.

* Subsequently by Colonel Feilden, 82° 30' N.

The White-bellied race is very local, and is perhaps more frequently met with as a winter visitor on the east coast of England, than anywhere else in the British Islands. A small flock has, to my knowledge, for twenty years, come to the same locality on the Lincolnshire coast. Mr. Haigh says he has never seen more than half-a-dozen together, more generally a single bird or a pair.

In the winter of 1880-81, the White-bellied race were very plentiful in the Humber estuary. It was, however, in the Arctic winter of 1890-91, when enormous numbers of wild fowl visited the district, that I met with the greatest number of White-bellied birds. On January 24th and 25th, the great bay inside the Spurn was crowded with all sorts of wild-fowl, a sight never to be forgotten, and one which filled the oldest inhabitants with astonishment, for such a multitude of Geese, Swans, and Ducks, had not been seen congregated, at one time, on the coast for many years. On this occasion I saw, through a telescope, a flock of White-bellied Geese, which swam somewhat apart, and were readily distinguished as they rolled up a white flank on the wave. In this winter several Brent were obtained, in which the dark under parts were uniform in colour, the belly as black as the breast. The probability is that the three races of Geese intergrade—a view already expressed by American ornithologists; and there is a regular gradation in the colour of the under parts, from Greenland, eastward, to Bering's Straits.

The chief food of the Brent Goose is the long grass-like blades and roots of the *Zostera*, the longer pieces are neatly rolled up, like ribbons, in their stomachs; they also devour the fronds of some species of algæ, crustaceans, mollusca, worms, and marine insects. Mr. Gätke says, at Heligoland, where the sea is calm, small companies will approach the cliffs and pick off the small mollusca and crustaceans.

The common cry or call-note of the Brent is a loud metallic *chronk, chronk*. The confused gabbling and mixed cries of a flock can be heard at an immense distance at sea. They have another, and double note, which has been likened to the word *torock*, constantly repeated on the wing: and the alarm cry is a single word *wauk*.

I have at times been greatly entertained in watching a flock of Brent feeding in shallow water, close in shore, the greater portion of the birds upside down, their rumps and tails shewing the white coverts, only visible as they greedily tear at the blades and roots of the grass-wrack, whilst others are seizing the floating fragments of the plant, broken off and dislodged by their mates; and on the outside there are always some with heads held high ever on the watch, and ready to give alarm. All the time they keep up a continuous noisy gabbling and grunting, the rear birds constantly swimming forward to get in advance of their fellows, a

procedure which I have known, more than once, bring them within range of an ordinary sporting gun.

The late Colonel Russell, of Stubbers, near Romford, Essex, who was a regular correspondent of the writer's, had a large experience of Brent Geese, their movements and habits. Regarding the proportion of old and young, he says, in one of his letters:—"The Brent Geese seem to come to the Essex coast pretty regularly about the beginning of the second week in October.* Sometimes the first I hear of are not seen at all; with a fair light wind, they may be heard miles off at sea, far out of sight. In October, 1880, my informant, a very experienced gunner, told me he was afraid there were no young ones; he was right; throughout the season, from the time of their first arrival, there was not one young one to one hundred old ones. Last October, my informant about their arrival was another gunner, who lives close to high water mark, in the part most frequented by the Geese; he told me that there were young ones amongst them. These men are pretty close observers of some things; they know when there are young amongst the Geese by their *voices*. I soon had an opportunity of verifying the presence of young Geese, by examining a small flock of fifteen and twenty through a telescope, the sun shining on them. By watching them as they turned their sides to the sun, I could make out that something like half of them were young of the year. As far as I could make out, this was the proportion all through the season.

The proportions of young and old during the last four winters are:—

1878-79—About one young Goose to twelve old ones.

1879-80—Great numbers of young all the season.

1880-81—About (or less than) one young Goose in a hundred old ones.

1881-82—Nearly as many young as old."

Colonel Russell did not think the old and young come separately, but together. The earliest record for them on the Essex coast is September 29th. The young have always old amongst them. The mildness or coldness of the winter has nothing to do with the presence or absence of young Brent. The proportion of young and old is about the same in the Black and the White-bellied races. In 1846-7, weather mild, with a week of sharp frost in January, an Essex gunner shot thirty dozen in that week, all old birds. On the Essex coast they feed entirely on *Zostera*; on the mud flats they eat by preference the roots or white parts below the surface, leaving the green blades by cart-loads; this is carried out to sea, with westerly winds, in the next ebb, and furnishes plenty of food,

* The earliest record for the east coast is in the "Migration Report" for 1879. Corton Lightship—July 18th, twelve Brent; July 30th, two flocks, thirty to forty, close past the vessel.

day and night, far out at sea. This weed is rapidly disappearing everywhere on the Essex coast, and the Geese are getting less and less feeding ground each year.

Brent Geese leave for their northern breeding quarters about the middle of April; I have known them off the coast as late as the middle of May. They are paired at the time of leaving, and the females may be distinguished in a flock by their somewhat lighter appearance.

Professor Robert Collett ("Bird Life in Arctic Norway," Mr. Cocks' translation) says:—"in the spring, Brent Geese push in under the Naze (*Lindesnæs*) on a fixed day, towards the end of May, in large skeins, and more follow on the succeeding days; in rows as straight as a line, they sweep compactly over the surface of the sea, along the whole coast, until they reach the outermost north-westerly skerries. Then the crowds sweep further afield, so as to fetch their nesting places in Spitsbergen and Novaya Zemlya; and the sealers and Arctic travellers, who have stood upon the northern point of Spitsbergen, have seen them wandering yet further over the snowy sea, seeking still more northerly archipelagoes, which as yet no human being has trodden."

This is the great home-going, a collective movement of great masses of birds, impelled by a common impulse, which, notwithstanding all modern research, remains the most wonderful phenomenon and enigma in nature.

Family—ANATIDÆ.

WHOOPER SWAN.

Cygnus musicus, BECHST.

THIS grand and noble bird is a regular winter visitor to some part or other of the British Islands wherever it can obtain security and food. In severe seasons it is often very numerous.

Its summer or breeding range extends across Europe and Asia, and, as a rule, north of the Arctic circle. It is the earliest of the Arctic breeding birds to move towards its nesting quarters, and its loud trumpet-calls are the first notice



WHOOPER SWAN ♂

to the dwellers in high latitudes that the long dreary winter is nearing its end.

The Whooper is plentiful in summer in Iceland, where it breeds, and formerly also in southern Greenland, but only occurs there now as a rare visitor. According to Dr. Von Baer, it nests in Novaya Zemlya, and Dr. Alex. Bunge saw this, Bewick's Swan, and the Mute Swan, all three in the breeding season, on Sagastyr Island, mouth of the Lena. At one time also in Orkney, on small islands, in Loch Stennis, this was prior to 1775; constant persecution from the natives drove it away. Some authorities, however, are inclined to extend the date of its final extinction twenty years later—(see Harvie-Brown and Buckley, "Vertebrate Fauna of Orkney Islands").

In the autumn it moves southward over two Continents, occurring in Japan, where it is the common species at Yezo; it visits also the Corea. Mr. F. W. Styan found it a common winter migrant on the Lower Yangtse Basin. It has been seen in the Punjaub at the same season (W. W. Cordeaux); and, according to Dr. Severtzoff, occurs on passage in Turkestan, and winters in some districts there. It is seen at Astrakhan as a spring and autumn migrant, wintering on the southern shores of the Caspian and in the Caucasus, and has also been recognized in Palestine. In Europe it visits in considerable numbers the basins of the Black Sea and Mediterranean, and the Nile delta, in small flocks, in winter. Colonel Irby says, this is the only species of Swan he was able to identify in Andalusia. It visits Sardinia in winter. At Heligoland it occurs regularly on migration every winter, flocks, with trumpet-like notes, passing high overhead in long lines to the south. Herr G. Hartert has recorded it as common in East Prussia in spring and autumn; it is a rare visitor to Transylvania.

Swans arrive at their nesting quarters as early as the end of March. The nest is a round mass of water plants and moss, fragments of turf and peat, of considerable elevation and often visible at a long distance. It is placed in some vast wilderness of bog or marsh, and sometimes on a small island in a lake. The eggs, from three to five, and seven, are creamy white, and small for the great size of the parent. They are buried in down from the bird's breast, with which the nest is also lined.

The egg shells of *Cygnus olor* and *C. musicus* examined microscopically shew specific difference. It is known that a well defined type of egg-shell structure belongs to certain families of birds, but in these two the difference is a specific one; this also is the case between the eggs of *Anser cinereus* and *A. segetum*. The question, as bearing directly on classification, is one of much importance, and, without further going into details, I refer the reader to Professor Newton's remarks ("A Dictionary of Birds," Part I, p. 190).

According to Naumann, incubation lasts five weeks; the cygnets are very slow in growing, and are not able to fly before the end of August or September.

Swans feed on vegetable substances, as grass, and shoots of shrubs and trees, and the roots and leaves of water plants, which their long necks enable them to tear up from the bottom of the rivers, and shallows of the lakes they frequent. They will also eat grain when it can be got. The wild Swan when swimming carries its neck straight and erect, on the contrary the tame Swan usually has it gracefully curved, a difference which the naturalist Pennant remarked upon more than a century since. One unfailing distinction between the two is in the bill. In *Cygnus musicus*, this has the basal part, to below the nostrils, and some distance along the lateral margin of the upper mandible, yellow, the rest black. In *C. olor*, the bill is reddish-orange, with the base and lores black, also a prominent black tubercle, in adults, above the nostrils. The colours are thus reversed.

Mr. H. J. and C. E. Pearson ("The Ibis," 1893, p. 243) say, in Iceland, "this was the only species of Swan we observed. Eggs were taken on June 20th and 28th, but the weather among the hills had been so bad this spring, that several pairs were only commencing to prepare their nests about the latter date. We afterwards saw a clutch of seven eggs which had been recently taken. Although these birds sometimes breed on islands in the inhabited districts, it is little use to look for their eggs before you pass the last farm, as they are generally taken to eat or sell."

Saxby ("Birds of Shetland") says:—"sometimes, though very rarely, the Swans return northwards as early as the end of February, but the usual time is during the months of March and April. The flocks which arrive in spring are much smaller than those which pass southwards in autumn, * * * in spring, the greater number arrive late in the evening, or very early in the morning, when there is little stirring below; whereas in autumn, they most frequently pass over in broad daylight, when the people are gathering in their harvest * * * *. During flight they utter a soft, rather melancholy cry, resembling the words *who-who-who*, repeated many times in succession; on a calm spring evening, about twilight, or as the Shetlanders say 'in the dim,' these sounds have a strange—one might almost say, a solemn effect."

There is no sound in nature more likely to attract attention than the aerial music of a herd of migrating Swans passing high over-head; some speak of it as exhilarating to the highest degree, but to me there is always a touch of sadness in the sound—the sadness of Highland music in those long drawn, melancholy, and plaintive notes, which seem suggestive of the illimitable wilds of the great lone-lands where the birds have passed the long day of the short Arctic summer.

Many of the Whoopers killed in Shetland, are found to be marked on the feet as domestic Swans are marked in Iceland.

Mr. St. John ("Nat. Hist., and Sport in Moray") has seen them arrive on Loch Spynie as early as September 30th; he says:—"while they remain with us, they frequent and feed in shallow pieces of water, of so small a depth, that in many places they can reach the bottom with their long necks, and pluck off the water grasses on which they feed. While employed in tearing up these plants, the Swans are generally surrounded by a number of smaller water-fowl, such as Wigeon and Teal, who snatch at and carry off the pieces detached by their more powerful companions. The rapidity of the flight of a Swan is wonderful; one moment they are far from you, the next they have passed you like an arrow. This speed, however, is only attained when at a considerable height above the ground."

Swans are most powerful swimmers, and will swim out from the sea-shore in the teeth of a considerable gale with the greatest ease.

Wild Swans seldom occur as far south in the winter as the Humber estuary, except in very severe weather. They were abundant in 1864-65, and 1870-71, in the latter season almost entirely adults; in this year very great numbers were obtained in the Wash, and off Lynn, in Norfolk. Again, 1890-91 was a great Swan year on the Lincolnshire coast, both for the Whooper and Bewick's Swan. The Arctic winter of 1894-5, brought several small herds to the Humber district in January. These suffered greatly from the unusual severity of the season, several were washed up dead in miserable condition, others caught by hand, completely exhausted, and one by a shepherd dog, this only weighed thirteen-and-a-half lbs. Another shot, in fair condition, weighed eighteen lbs. The largest flock or herd I have ever seen, on the Lincolnshire coast, numbered forty-two birds, all adults. In 1879, on December 18th, a flock of thirty Whoopers passed the Spurn, twenty-nine of which were immature birds in the brown plumage, the line was led by an adult white bird. Saxby, (*Zool.* 64, 9093), speaking of the order of their flight, says: "I never saw any other than a white, and therefore adult bird, taking the lead."

The line taken by the trachea, or wind-pipe, in the wild Swan, is very remarkable. This organ is composed of many broad, flattened rings; after passing down the neck of the bird to the level of the keel, or breast bone, it enters between the two plates of the sternum, which it traverses nearly throughout, and then suddenly turns upon itself, and passes forwards and upwards to join the bronchial tubes.

The Swan has always occupied a prominent place in the folk-lore and fairy-tales of many lands, and myths and legends closely connected with it, are interwoven in the religious beliefs of ancient races. Juno's chariot was drawn by

Swans. Jupiter visited Leda in the guise of a Swan. Cygnus, with its great central star Deneb, is a prominent constellation in the heavens during much of the year, low down in the spring, and then, as the months roll by, soaring Swan-like to the zenith. Greek and Latin poets, and historians make frequent allusion to the Swan. It was, however, more especially in the old Aryan mythology, that the Swan held so conspicuous a place. Sacred to Freya, herself the goddess of spring, when her great white favourites, sounding their loud bugle-notes, flew northwards, then

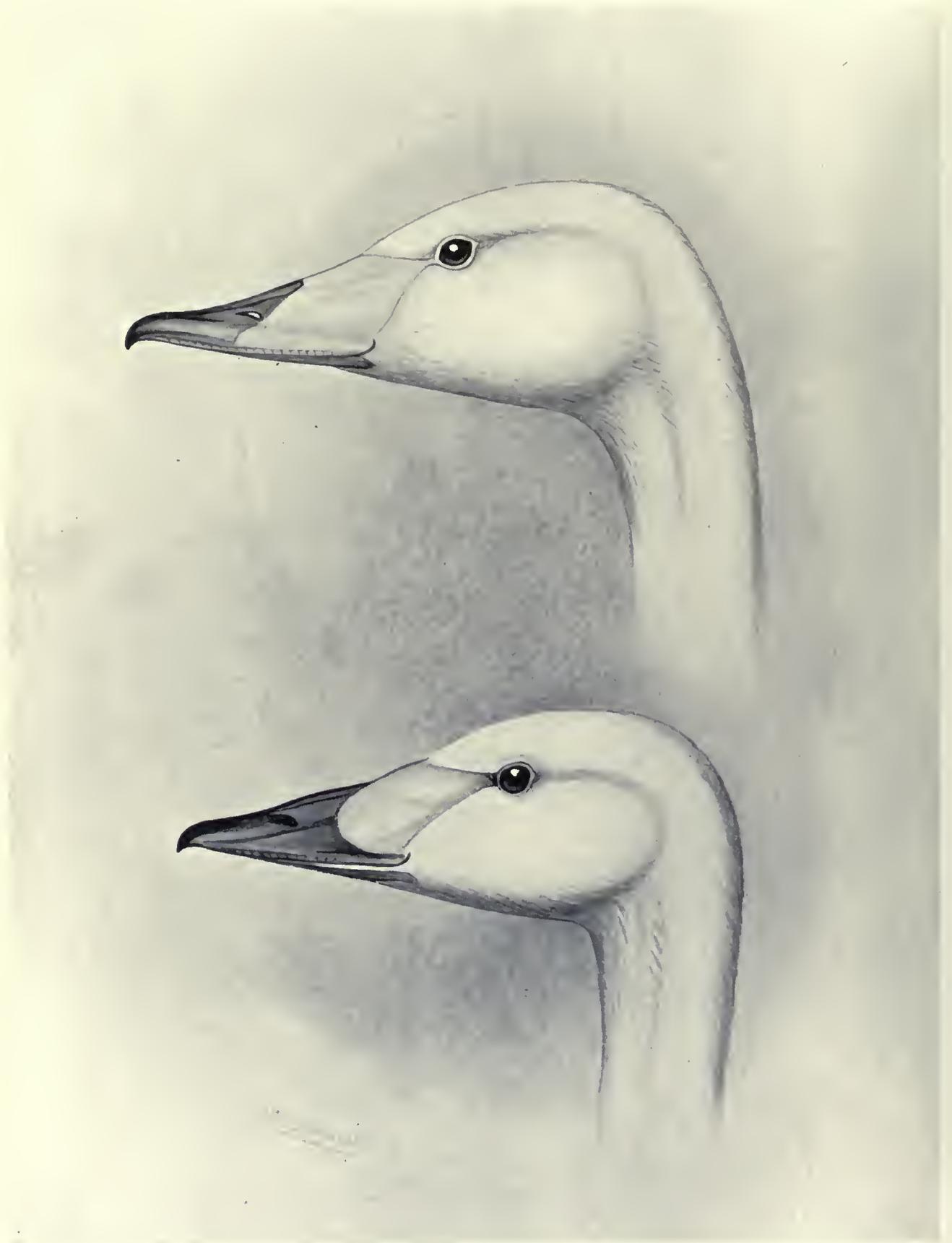
“Out of the morning land,
Over the snow-drifts,
Beautiful Freya came,
Tripping to Scoring.
White were the moorlands,
And frozen before her;
Green were the moorlands,
And blooming behind her.”

The birds, too, were lovely maidens—Swan-maidens—who could take upon themselves the human form at will. And we find the same beautiful myth contained in some of the romances of the middle ages, like that of Lohengrin and Helias. Oaths, the most binding and sacred, were taken on the bird; and an order of the Swan was instituted in Germany. The Swan's bath of the Viking was the North Sea. Swan-neck, as applied to a woman, expressed grace and beauty. The simile recalls fair, pale Edith, with hair dishevelled, searching through heaps of slain—Saxon Thane, and Norman Knight—on the bloody field of Senlac, for her dead lover.

“Round the red field tracing slow,
Stooped that Swan-neck white as snow;
Never blushed nor turned away,
Till she found him where he lay.”

In some parts of Ireland there yet lingers a strong feeling against the killing of a Swan, as it is believed the souls of the departed take possession of the bird's body, so that a man might be guilty of slaying his nearest dead relative. Another superstition is that women, who, whilst living, had been remarkable for the purity of their lives, were afterwards enshrined in the body of these birds, and decked with a plumage symbolical of the same. The Swan, too, probably as an emblem of a pure life, became the badge of the great Saint Hugh, Bishop of Lincoln.

Mr. Gray says:—“a few years ago, a wounded Swan remained throughout the summer on Loch Bee, and attracted much attention by the loud and melancholy cries to which it gave utterance. An old crone, in telling me about this bird, reiterated her conviction that it was the ghost of her grand-mother, who had met with a violent death about sixty years previously. It was a bold image, though I cannot but think that a *Black Swan* would have been more appropriate.”



WHOOPER SWAN $\frac{1}{2}$
BEWICK'S SWAN $\frac{1}{2}$

Family—ANATIDÆ.

BEWICK'S SWAN.

Cygnus bewicki, YARRELL.

THIS beautiful little Swan was first described by the Russian traveller, Pallas, under the name of *Cygnus minor*. He considered it, however, a small race of the Whooper.

Bewick's Swan may readily be distinguished by its small size—compared with the Whooper it is a mere Goose. The dimensions over all vary from forty-six to fifty inches in the one, and sixty and over in the other. The lemon yellow at the base of the bill does not extend below the nostrils, the rest black. The plumage is brilliant white, like crystallised snow; adults have a little rust colour on the forehead and top of the head. The weight varies from nine-and-a-half to fourteen lbs., against twenty to twenty-two lbs. in the Whooper. Although an undoubted visitor to the British Isles before 1829, it was always looked upon by ornithologists as a small race of *Cygnus musicus*.

Like the Bernacle-Goose, this little Swan is much more abundant on the west coast of Scotland, and in Ireland, than in other places in the British Islands. A remarkable western distribution in the winter, as from all we know it does not appear to breed anywhere westward of Archangel, and certainly not in Greenland and Iceland. Dr. Von Henglin found it nesting in Novaya Zemlya. Mr. H. T. Pearson, and Colonel Feilden, on July 26th, saw four Swans near Saxon River, on the west coast of the island, supposed to belong to this species. Bewick's Swan, both old and cygnets, were obtained by Mr. Pearson and his party on Kolguev, in the same year, on the Gobista River; from the number of Swan mounds seen by them it must, at one time, have been much more plentiful. It was the only Swan found, in 1894, by Mr. A. Trevor-Battye on this island. It nests on the mainland east of Archangel, and probably across the whole of Arctic Asia to Bering's Straits. Dr. Alex. Von Bunge found it in summer on Sagastyr Island, at the mouth of the Lena, along with *Cygnus musicus* and *C. olor*. Mr. H. L. Popham, who visited the Yenisei in 1895, says all the Swans, as far as he could ascertain, were of this species—"The Ibis," 1897, p. 100). In winter Bewick's is common in Japan and China.

C. bewicki occurs regularly on migration at Astrakhan, but not so commonly as *C. musicus*. It winters in the southern Caspian. It is a rare winter visitor to

Heligoland, and has twice been obtained in Italy, in 1874 an adult female, by Mr. Lucas, out of a small flock; also near Pavia, in January, 1891. It is a scarce visitor to the Baltic.

I have examined, as far as possible, all the reputed occurrences of Bewick's Swan in the British Islands, ranging over a period of thirty-five years, and find, although the Whooper is the most common of the two on the east coast, that taking the whole area of these islands, this small species is equally numerous as its large congener, and appearing in larger flocks.

The nest of *C. bewicki* is described as a rather ponderous structure of rushes, moss, peat, six feet by four and three-quarters wide, and two feet high. The cavity one foot-and-a-half in diameter. A nest examined by Mr. Trevor-Battye, was entirely of moss. The eggs are three or four in number, and dull white in colour.

In Nordenskiöld's voyage of the Vega (Leslie's translation, 1881) there is a delightful account of that ornithological paradise, "Gooseland," lately visited by Mr. Pearson and his friends in the summer of 1895. "Gooseland is a low stretch of coast, occupied by grassy flats and innumerable small lakes, which projects from the mainland of Novaya Zemlya, between 72° 10' and 71° 30' N. lat. The name is a translation of the Russian Gusinnaja Semlja, and arises from the large number of Geese and Swans (*Cygnus bewicki*, YARR.) which breed in that region.

The Geese commonly place their exceedingly inconsiderable nests on little hillocks, near the small lakes, which are scattered over the whole of Gooseland; the powerful Swans, which are very difficult of approach by the hunter, on the other hand, breed on the open plain. The Swans' nests are so large that they may be seen at a great distance. The building material is moss, which is plucked from the ground within a distance of two metres from the nest, which, by the excavation which is produced, is surrounded by a sort of moat. The nest itself forms a truncated cone, 0.6 metres high and 2.4 metres in diameter at the bottom. In its upper part there is a cavity 0.2 metres deep and 0.6 metres broad, in which the four large greyish-white eggs of the birds are laid. The female hatches the eggs, but the male also remains in the neighbourhood of the nest."

Bewick's Swan was comparatively abundant in the Humber, in the winter of 1870-71.

On their first arrival they are much more easy of approach than the larger species. The largest flocks I have known have numbered forty to sixty, and these almost exclusively adults. Their cry is very musical, and is perhaps best represented by the word *tong-tong-tong*, with a metallic tinkle about it.

Regarding the cry of this Swan, my son, Captain E. Kyme Cordeaux, sent in 1891 the following note to "The Field" Newspaper:—"When looking for Duck

along our stream at daybreak, on January 17th, I was greatly pleased to make acquaintance with a small herd, presumably of this species, and at very close quarters, at a spot where the beck makes a sharp turn at the corner of a wood, and when I was crossing the angle of the wood through the bushes, just before reaching the other side, seven or eight Swans, flying altogether in a body and very low down, passed me, following the course of the stream, and certainly within fifteen yards of where I stood. Their size was one third less than the Whooper; plumage a most brilliant white, like snow with the frost-sparkle on it, and, in beautiful contrast, jet black feet and legs, relieved against the unsullied white of flank and belly. I think I must have heard their notes two minutes before seeing them; it resembled some plough-boy playing a jews'-harp, which, indeed, I thought it was, or the single twang of a great harp string. So near did they pass that I could see the creases and wrinkles on their feet and legs—lovely creatures to look upon so closely. I felt pleased afterwards that I had just before taken the cartridges out of my gun, to jump a drain, and had not replaced them."

The food of this Swan is much the same as the rest of the genus, a purely vegetable diet. Mr. J. H. Gurney found in the gizzard of one shot at Hampstead decoy pond, in Norfolk, silt, pond-grass, water insects' legs, and the tail of a small fish.

Mr. St. John ("Nat. Hist. and Sport in Moray," p. 72) remarks that they "usually come in small companies with the Whooper. I never see above eight of the *Cygnus bewicki* 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 peculiarly white; and the young apparently are not of the same blue-grey as those of *Cygnus ferus*. I can assert this as a fact: but I never saw one of the Bewick's Swans that was not of a pure and snow-like whiteness."

In Ireland, Sir Ralph Payne-Gallwey considers the Whooper or Great Swan far rarer than Bewick's, he has seldom seen more than a dozen Whoopers together, but of the latter thirty to fifty in a herd are not uncommon on the estuaries and lakes near the coast; their numbers in any locality are greatly influenced by weather. A good resort for these Swans is the small lakes at Castle Gregory, on the coast of Kerry, here as many as two thousand have been seen at one time.

The convolutions and anatomical structure of the trachea in this species differ in a marked degree from the same in the Whooper Swan, and in cases of doubt which might arise in the proper identification of the two species, dissection of these parts would at once settle the question.

Family—*ANATIDÆ*.

MUTE SWAN.

Cygnus olor, GMEL.

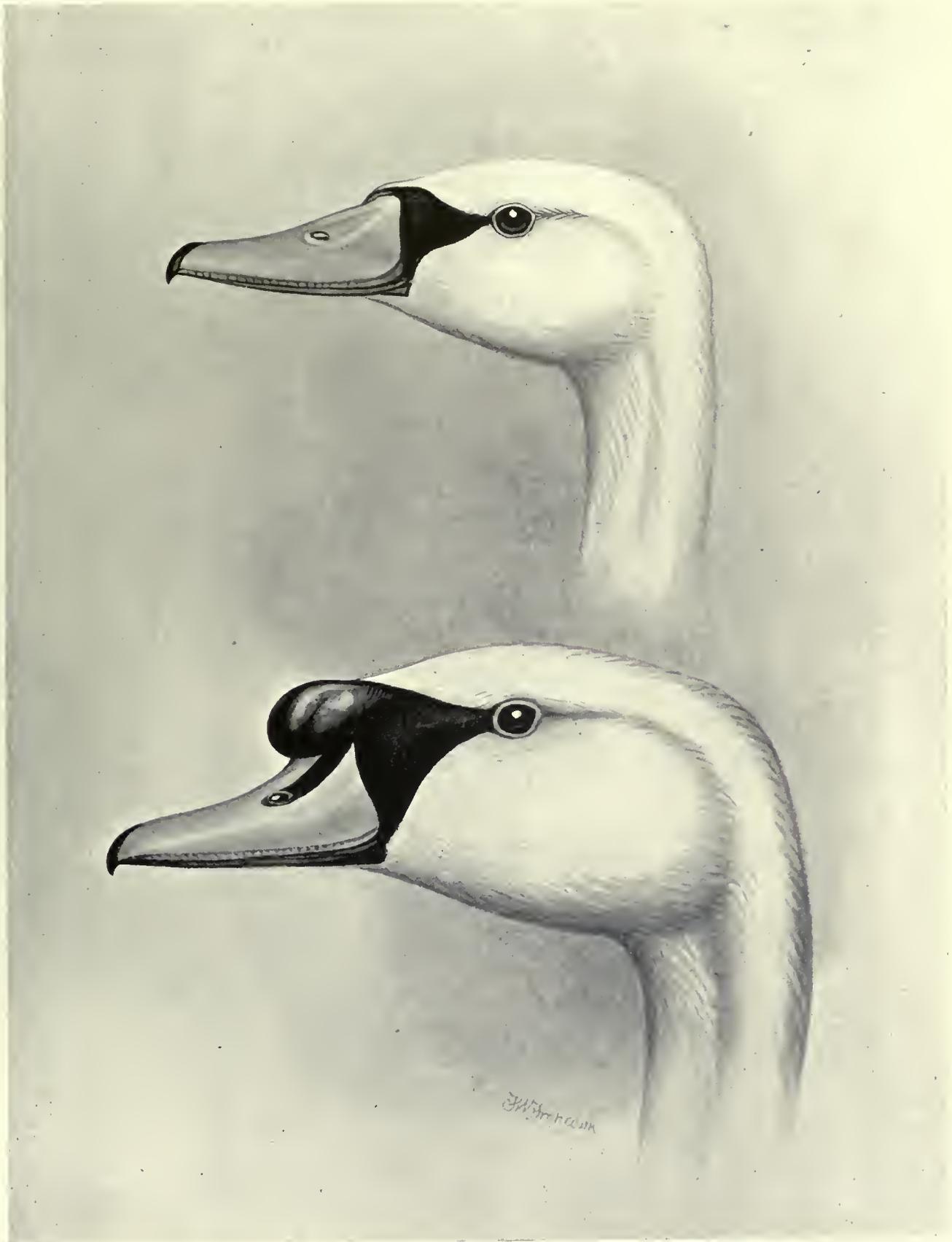
IT is somewhat remarkable that Professor William Macgillivray, the most acute of observers, and occupying the foremost place amongst the ornithologists of a past generation, should have omitted (except in half-a-dozen lines) any mention of the present species.

Cygnus olor, in a perfectly wild state, breeds in many parts of Europe, from the Baltic as far south as Greece, and from the Rhine to the Volga. It nests in limited numbers in southern Scandinavia, and possibly Denmark. Mr. Hartert says it breeds in small numbers in some of the great lakes of eastern Prussia. It also occurs sparingly in Transylvania. In Turkey, both in summer and winter.* Common in the Caucasus, and breeding in the delta of the Terek. Is a common summer visitor to Astrakhan, nesting in the delta of the Volga, and in the northern Caspian. According to Severtzoff, it nests regularly in north-eastern and north-western Turkestan. Dr. F. H. Guillemard found it in Cyprus, in April, ("The Ibis," 1888, p. 111). Dr. Alex. Bunge has recorded it on Sagastyr Island, at the mouth of the Lena, in summer, and if he is correct, this will extend the range of our bird further to the north-east than has been supposed.

In winter it has been obtained once in Heligoland, in 1881, and again, once, many years before. It has been recorded in Spain by Mr. Howard Saunders. Mr. A. B. Brooke says it is the commonest wild Swan visiting Sardinia. In Italy it is only common in severe winters in a wild state. Many frequent and breed on the Swiss Lakes in a semi-wild state, (Saunders). Mr. C. A. Wright has recorded a flock in the Harbour, at Malta, in December, 1865. It has been seen also in north-west India in winter, and visits the lakes of Egypt and Algeria in the same season; and in Asia the southern Caspian.

The circumstance of the Mute Swan, as already stated, occurring in Cyprus is interesting, from the fact that this bird is said first to have been introduced into this country from that island, at the close of the twelfth century, by Richard I, *Ceur-de-lion*.

* Messrs. Elwes and Buckley, "The Ibis," 1870, p. 338, have recorded seeing a mixed flock of Whoopers and Mute Swans, about a thousand, in the Gulf of Salonica, on February, 1869.



POLISH SWAN $\frac{1}{2}$
MUTE SWAN $\frac{1}{2}$

The Swan was dedicated to Apollo and the Muses, and it was a common belief amongst the ancients, that the body of a Swan was allotted as the future residence of a poet. The legend of the death-song of the dying Swan was held by many Greek and Latin poets and historians, but discredited by others, of whom Pliny was one. In modern times it has served the purpose of a pretty poetical fiction. The late Lord Tennyson has embodied the idea in his poem "The Dying Swan."

"The wild Swan's death-hymn took the soul
Of that waste place with joy;
Hidden in sorrow: at first to the ear
The warble was low and full and clear."

* * * * *

"But anon her awful jubilant voice,
With a music strange and manifold,
Flow'd forth on a carol free and bold.

* * * * *

Till—

"The desolate creeks and pools among,
Were flooded over with eddying song."

Shakespeare makes frequent allusions to the Swans' death dirge, as—

"I will play the Swan, and die in music."

Othello—Act 5, Sc. 2.

and in many other passages.

Although known as the Mute Swan, it is perfectly true it utters at times a few plaintive notes, particularly in the spring, or when swimming with its young. Colonel Hawker represents it as a melody made up of two notes, C, and the minor third, E flat.

In the present day we can hardly realize the value formerly set' on the possession of Swans by our forefathers. Thousands were kept by the crown, the nobility, lay and clerical, rich city companies, guilds, town corporations, and colleges. No banquet was complete without its quota of Swans, Peacocks, and Herons. In fact, our ancestors appeared never to be tired of roast cygnet in season, which was about Christmas time. In the celebrated banquet, the fare bill of which has been so frequently quoted, given at the "intronization" of George Nevell, 1464, Archbishop of York, four hundred Swans were provided. In these days roast Swan is not a fashionable diet; I have tried cygnets, both tame and wild, and much prefer a fat stubble-fed Goose.

The laws regulating the keeping of Swans in the middle ages seem, by the light of the present, very arbitrary. All Swans were Royal birds and the King's property, and permission to duly qualified subjects was given, by a grant from the Crown to keep them, at the same time a special and registered Swan mark being granted. These Swan marks were cut on the upper mandible of the bird, the

device being chiefly nicks, lines, letters, crosses, circles, and stars, curiously disposed. A description of the Swan marks alone would fill a large volume, it is a literature to itself, and those who are interested in the subject will find full details in Yarrell's "British Birds," vol. iv, 4th ed.; Stevenson's "Birds of Norfolk," vol. iii; "The Athenæum," August 18th, 1877, reprinted in the "Zoologist" of the same year; and papers in the "Archæological Journal," vol. xli, p. 281, and vol. xlii, p. 17, by Mr. Edward Peacock. By an Act of Edward IV, it required a freehold qualification to keep a Swan, excepting only the king's own son. The punishment in Henry VII reign for stealing their eggs, was imprisonment for a year and a day, and a fine at the king's will. All unmarked Swans were the property of the king. The king had a chief Swan-herd—a "master of the king's Swans"—and no person keeping Swans could appoint a new Swan-herd without a license from the king's Swan-herd, and the fact being duly registered in his book. The position of chief Swan-herd in those days must have been an exceedingly lucrative one.

In Thompson's "History of Boston," p. 625, is given the following fen laws, passed at "the court view of free pledges, and court leet of the east, west, and north fens, with their members, held at Revesby, 19th October, 1780," to the effect that "no person shall bring up or take any *Swan's eggs*, or Crane's eggs, or young birds of that kind, on pain of forfeiting for every offence three shillings and fourpence." In old days the fine for stealing a Swan was paid in wheat, the bird being hung in a house by the beak and just touching the ground, the delinquent then had to recoup the owner, by pouring wheat over the Swan till the heap covered all the bird to the tip of its beak.

In the olden days Swans, compared with other birds, were expensive luxuries. At the wedding dinner of Gervase Clifton to Mary Neville (1530) the following birds and their prices occur:—twelve Swans, each 6/-; eight Cranes, each 3/4; sixteen Heron-sews, each 1/-; ten Butters, or Bittern, each 1/2; at the same dinner an Ox was 30/-, a Calf 3/-, a Lamb 1/6, a Wether 2/4, and Chickens 1/6 per dozen.

The number of eggs laid by the female are greatly in excess of the wild species, ten and twelve is not an unusual number, and seventeen has been recorded. Mr. Stevenson, in the "Birds of Norfolk," mentions an instance of a very exceptional produce of a pair, a fine young male and three-year old female, on Surlingham Broad, as taken from the Swan-herd's book. In the year 1886 to 1873, inclusive, eighty-five eggs, and these produced eighty-two cygnets. A marked Swan has been known to live for fifty years, and a tradition exists of a Norfolk Swan reaching the extreme age of one hundred years.

Great numbers of Swans were formerly kept on Lincolnshire rivers, and on the famous Swan pool, at Lincoln. St. Helen's Swan pool, at Norwich, is a noted feeding place for the cygnets, from eighty to one hundred being fed there at once. The reader will find a most exhaustive description of the whole process of feeding, etc., in Stevenson's "Birds of Norfolk," vol. iii, p. 96.

The great Swannery of the Earl of Ilchester, at Abbotsbury, near Weymouth, is the largest in the kingdom, and existed in the time of Elizabeth. When Mr. J. H. Gurney visited the place in April, 1878, the Swan-herd informed him that the total number then under his charge was one thousand three hundred, half of which were engaged in the duties of incubation. In 1877, about seven hundred cygnets were hatched. In 1888, there were six to seven hundred Swans on the water, most of the young cygnets being hatched by the first week in June.

Swans are accused of destroying the spawn of fish, and I think not without reason, although this may be caused by their pulling up the weeds on which spawn is attached. They are very fond of feeding upon the troublesome American weed *Anacharis alsinistrum*; and will eat frogs and water insects, which themselves are destructive to spawn.

Family—ANATIDÆ.

POLISH SWAN.

Cygnus immutabilis, YARR.

THE Polish Swan was first distinguished and described by Mr. Yarrell, as far back as 1838, under the name of *Cygnus immutabilis*—The Changeless Swan. The supposed specific distinctions which separated it from its nearest ally *C. olor*, are very clearly pointed out by Mr. Yarrell. The cygnets produced by a pair of these birds are from the first pure white, or with very light buff-coloured down,

which soon becomes white, and never assume the grey colour which is borne for the first two years by the cygnets of *C. olor*. The black tubercle at the base of the bill is either wanting altogether, or is greatly reduced in size. The bill also is said to be redder, and in immaturity flesh-colour, and not greyish-black. The legs and feet are ash-grey, and not black. Subsequently anatomical distinctions in the form of the cranium, between the two, were pointed out by Mr. Pelerin, in the "Magazine of Natural History," and verified by Mr. Yarrell.*

Swans, in every respect answering Mr. Yarrell's description of his new species, have been obtained in England, Scotland, and Ireland, and recorded as *C. immutabilis*.

It is true that the majority of naturalists consider the Polish Swan to be only a variety of the Mute Swan, and will not admit its specific distinction. On the other hand, no ornithologist has so ably advocated its specific distinction as Mr. T. Southwell, of Norwich, in a paper read 26th September, 1876, before the Norfolk and Norwich Nat. Hist. Society, and subsequently published in their transactions, Vol. II, pp. 258-260. Notwithstanding Mr. Southwell's able pleading for the retention of the species in the British List, I still think the question remains unsolved, and practically where it was twenty years ago.

Family—ANATIDÆ.

COMMON SHELD-DUCK.

Tadorna cornuta, S. G. GMEL.

THIS very handsome Duck is more or less a constant resident on the shores of the British Islands, nesting in suitable localities in warrens, and amongst the sand-dunes, under conditions hereafter to be stated. Occasionally it chooses

* I have received from the Rev. H. A. Macpherson a photograph of the sternum and trachea of *C. immutabilis*. In his letter he says:—"Mr. Thorpe and I have satisfied ourselves that the trachea is inserted into the thoracic cavity at quite a different angle from that of *C. olor*." This seems strongly in favour of a specific difference.



COMMON SHIELD DUCK ♂ ♀

situations at a considerable distance from the sea, but always near some water, artificial or natural lakes, where it can conduct its young.

The Sheld-Duck is found nesting through the whole of temperate Europe and Asia, from the shores of Holland to Japan, and from the Baltic to the Black Sea. In Europe it generally frequents the districts close to the coast, but in Asia the shores of great inland seas, high central lakes, and the salt steppes of southern Siberia.

On the west coast of Europe its summer range extends as far north as the Lofoden Islands, but not north of latitude 70°. It has once occurred in Iceland, and once in Færoe; and said to have been also seen and shot in the Varanger Fjord. It is very common in some parts of the Baltic, the coasts of Denmark, and southern Scandinavia, but specially on the North Frisian Islands, and those fringing the northern shores of Holland. On the east coast of Great Britain it is much more plentiful in the winter months than in summer.

The Sheld-Duck is a regular winter visitor to the Portugese coast; also in the vast marismas and swamps at the mouth of the Guadalquivir, where it breeds. According to Prof. H. H. Giglioli, it is not uncommon in Italy and breeding on the coast. It occurs also in Timis in winter. In Egypt, Palestine, and Asia Minor, it is less common than the Ruddy Sheld-Duck, *T. casarca*. Messrs. Elwes and Buckley found it not uncommon near Kustendji. Dr. F. H. H. Guillemard saw it on the lake near Famagusta, in Cyprus, in winter. At Astrakhan very common in summer, and nests in fox-holes, and sometimes in the graves of the Kirghiz. Very rare in Transylvania except in hard winters. According to Severtzoff common in Turkestan and nesting in many districts. In the Russian expedition of 1877, 1878, N. A. Severtzow found one on Katir-kul, one of the lakes on the high Pamir. It is a winter visitor to China and India, and resident in Japan all through the year.

In the British Islands it nests sparingly, at the present day, in all suitable localities where it is free from persecution and molestation, excepting perhaps the south coast of England, as far as the Land's-end, where Mr. Rodd says, in Cornwall, it is only a winter visitor. Formerly it used to breed in some numbers on the Welsh coast, on the Cheshire side of the estuary of the Dee, the Lancashire coast, and in the estuaries of the Duddon and Ravenglass, and Upper Solway, in Cumberland.

Mr. G. H. Caton Haigh (*in litt*) says:—"it is an extremely common bird on the coast of Merionethshire both as a winter visitor and a breeding species. In the former season it appears in flocks about the latter end of November, the numbers are very variable, but in severe weather is sometimes present in immense

quantities. At such times it frequents the open sands, particularly in the estuaries, in company with Wigeon and Mallard. It is (excepting Geese) the most wary of all the fowl, and will frequently not allow a punt to approach within three-hundred yards. In February another large increase takes place, when the breeding birds return to their summer haunts, and from thence to September they are one of the most numerous birds on the shore. From the middle of October to the end of November the Sheld-Duck is entirely absent from the coast. The first clutches of young generally appear about the end of May or early in June, and heavy weather at this time produces great mortality amongst them. The old remain with the young for a very short time, and young broods are often to be seen alone, or with forty to fifty young and one pair of old birds.

During winter the Sheld-Duck feeds at night, but in summer it feeds at low water both during the day and night. Large numbers of non-breeding birds spend the summer on the coast. They are very noisy birds, and the harsh quack or laugh of the female, and whistle of the male, is heard both day and night in spring, and there is much fighting amongst the males at this season. It is a poor diver, and rarely goes under water, even when wounded."

Generally speaking the Sheld-Duck is a summer visitor only to the Hebrides and western coasts of Scotland, but on the east coast of Great Britain it is more or less a resident throughout the year. In Low's time (1770-1800) common in Orkney, but leaving in winter. Saxby mentions only three instances of its occurrence in Shetland, at Balta Sound. In many places where, within the last half-century, the Sheld-Duck was common, it is now rare or altogether banished, but where its chosen locality is preserved, it still flourishes, and is even on the increase.

It may be predicted with tolerable certainty that the first loafer that discovers a Sheld-Duck's burrow, or nesting hole, will take the eggs to eat or put them under a hen; and as year by year the coast becomes less quiet and more disturbed by excursionists, it is only under the special conditions enforced by County Councils, or by private preserving, that this most beautiful Duck can continue to bring off its young; where they are not disturbed in the nesting season, they become very tame, and will permit a very close approach with indifference.

On the Lincolnshire coast this species is called "Shell-Duck," in Essex "Bar-Gander," a corruption of "Bergander," a word derived from high German; commonly it is known as "Burrow" Duck, from its nesting habits; and from its cunning, "Sly-Goose," in Orkney. There has been considerable dispute as to the meaning of the word "Sheld"-Duck as applied to this bird. The late Mr. Stevenson, with much reason, clears this up by a reference to a very small and scarce volume

by John Ray, the naturalist, in 1674, entitled—"A collection of English words not generally used." "Sheld" is there rendered as flecked or parti-coloured; so in Suffolk, to the present day, a tortoise-shell cat is a "sheld-cat." I am aware that the same animal, on much the same principle, in Lancashire, is called a "calamanco" cat, a term originally applied to a parti-coloured woollen stuff, checkered in the warp, at one time produced on Lancashire looms.

Unlike other Ducks, the Sheld-Duck places its nest and eggs at the bottom of a hole, generally that of a rabbit, or an old fox or badger earth. I have heard of several instances of their nesting on the ground in thick furze, or in heather. The nest, when in a hole, is placed at various distances, and sometimes quite ten or twelve feet from the entrance. It is made of dead grasses, and many feathers from the bird's body, all mixed together, and the eggs are buried in grey (almost white) down; these are ten to twelve, large in size, when we compare them with those of a Swan; they are round, and very smooth, and pure white; incubation, according to Mr. Selby, is thirty days; as soon as they are hatched the mother conducts them to the sea or nearest water, and from that time they keep to the sea or foreshore; never coming to land above high-water mark, but in sheltered places, where the tide recedes to a distance.

The position of the burrow selected by the parent is not easily discovered, for on her return to the nest, after flying low down backwards and forwards over the bents, she dashes on the wing suddenly in, without leaving the print of her foot on the outside. I remember once seeing a nest of the Sheld-Duck's, which was placed between the joints of a large straw stack, left standing in a field, near the Lincolnshire coast. As a rule these Ducks do not nest far from the coast, although I know of about a dozen pair annually nesting on certain warrens thirty miles from the sea, and in close propinquity to a natural sheet of water, strictly protected. Both the parents are very attentive to their young on leaving the nest. In the "Migration Report," 1880, p. 29, the reporter, a most intelligent man, on the Teesmouth 5, Buoy L.V., says:—"May 25th, 11-30 a.m.; saw two Sheldrakes leave their nest with ten young ones at low water time; they had to travel half a mile before they reached the water; the male kept about six yards behind the young; the female leading; they were fifteen minutes in reaching the water; appeared just hatched; cock bird often looked behind to see nobody was coming."

As far as my own observation goes, on the Lincolnshire coast, the Sheld-Duck appears to live exclusively on various mollusca and crustaceans; the stomach is remarkable for its very thick and strong muscular coat, capable of digesting any tough morsel. In the stomach of one I found some sand and many small shells

of the genus *Buccinum*. The late Mr. Thompson opened the stomachs of ten shot in Belfast Bay, and took from *one* of them nine thousand specimens of *Skenea depressa* and *Montacuta purpurea*, and about eleven thousand others, making a total of twenty thousand shells *in the crop and stomach of a single Sheld-Duck*. Mr. St. John says:—"its food appears to consist almost wholly of small shell-fish, and more especially of cockles, which it swallows whole. It extracts these latter from the sand by paddling or stamping with both its feet; this brings the cockle quickly to the surface. I have often seen the tame birds of this species do the same in the poultry yard when impatient for or waiting for their food."

The Sheld-Duck is heavier and stands higher than the Mallard, and it is much more a Goose in manner than a Duck having an erect carriage and light active step, instead of waddle: their flight, too, more resembles that of Geese and Swans. The young are so active that it is almost impossible to catch them. In winter, not unfrequently, great numbers visit the Lincolnshire coast, particularly in those seasons when a grain ship is wrecked and broken up on some of the outlying sand banks, at which time Ducks congregate in large numbers from all parts to the feast. I have, at this season, known flocks of two to three hundred Sheld-Ducks to be seen off the coast.

With us the "Shell"-Duck is in all seasons of the year inseparably connected with one of its most favourite haunts, the dreary flat coast of Lincolnshire, where the sea, at ebb of spring tides, recedes for miles, and is scarcely visible from the dune except by a far-away glimmer along the horizon, or, if there is any breeze, by that long chequered line of black and white, like the squares of a chess-board, rising and falling alternately, in almost rhythmical pulsations, as the breakers on the sand-banks flash into light or recoil into deep shadow.

"A coast
Of ever-shifting sand, and far away
The phantom circle of a moaning sea."

The great beauty of this bird is no indication of its merits in a culinary sense, it might possibly, when well fed with poultry, be a prize for an epicure, but the wild bird, being a mud feeder, cannot be recommended from a gastronomic point of view; the flesh is bitter and distasteful.

In the north Frisian Islands, the Sheld-Duck nests in a semi-domesticated state. Mr. H. Danford ("The Ibis," 1874, p. 403) says:—"The natives make artificial burrows in the sand-hillocks, and cut a hole in the turf over the passage, covering it with a sod, so as to disclose the nest when eggs are required. Several females lay indiscriminately in the same nest. They are very tame, and suffer themselves to be taken by the hand while sitting. Each burrow has two openings,



RUDDY SHELD-DUCK ♂ ♀

and is made circular in shape. There are sometimes as many as a dozen or fifteen nests in one hillock within the compass of eight or nine yards. The eggs are taken up to the 18th of June, after which they allow the birds to incubate; but they never rob a nest of all the eggs, leaving one or two to avoid driving away the birds. Each person in the village generally has a burrow, and they are scrupulously honest in not taking each others eggs. The female always covers her eggs with down before leaving the nest."

In the Sheld-Duck the trachea is very peculiar, nearly uniform in size, till near the lower end it is much narrower, and on each side of the bony ring above the bifurcation of the bronchial tubes, there are two exceedingly thin bony protuberances, that on the left side being much the larger.

Family—ANATIDÆ

RUDDY SHELD-DUCK.

Tadorna casarca, LINN.

THE Ruddy Sheld-Duck is an eastern bird found in southern Spain—its extreme westerly range—north Africa, south-eastern Europe, and across the entire Continent of Asia from the Mediterranean to Japan, south of about latitude 55°. Compared with the Common Sheld-Duck it is a more inland bird, frequenting salt lagoons occasionally, but by preference fresh water lakes and rivers, and not visiting the sea coast. Like *T. cornuta* it is very Goose-like in its habits, particularly in its gait and mode of feeding, and both in form and colouring approaches the genus *Chenalopex*, represented in the British list by the Egyptian Goose. The bill, however, in *Tadorna* is that of a Duck.

Colonel Irby says the Ruddy Sheld-Duck breeds in the marshes near the Guadalquivir, also on the opposite side of the Straits in Morocco. It is found

throughout North Africa including the Sahara. In Egypt, where it is common on the lakes of the Delta and Fayoom. A straggler to Malta. Lord Lilford is of opinion it breeds in the Papho districts of Cyprus ("The Ibis," 89, p. 345). It is found in Palestine, and is very common generally throughout Asia Minor, where Mr. Danford found it living in a semi-domesticated state near the villages. Very common also in the Dobrudscha. In Transylvania it is rare. Not uncommon about Astrakhan, where, however, *T. cornuta* is the most plentiful of the two. Is a common resident in the low grounds and valleys of the Caucasus. Severtzoff says it breeds generally throughout Turkestan, and found it very common in all the high Pamir lakes where it breeds; large flocks had assembled by the end of August. It is both numerous on the Pamir and Aral-Caspian Steppe. Plentiful in India, where it is known as the Brahminy Duck, thousands collecting on the jheels in the winter. A resident also in Burmah, Central China, the Corea, and Japan.

Regarding its status in Great Britain, Mr. Howard Saunders has recorded ("Yarrell's British Birds," ed. iv) about thirteen occurrences of the Ruddy Sheld-Duck in Great Britain, between 1776 and 1869, and probably of these some were escapes; between this and 1892 there have been isolated examples of this rare Duck turning up in both England and Ireland; and in the latter country, in June and July, 1886, three separate flocks turned up north of Kinsale, Co. Cork. It was, however, in 1892, that an event, second only in importance to the immigration of the Sandgrouse, put all the ornithologists of the British Islands on the alert, and that was the remarkable appearance of considerable numbers of Ruddy Sheld-Ducks, in various parts of the country. Attempts were made to minimize the importance of this special invasion, and attribute the occurrences to escaped birds; for it is well known that this species is kept amongst ornamental water-fowl, and in places where it has full liberty. A consideration, however, of the whole facts of the various occurrences, and the great area covered by the immigration, can leave no doubt, that at least in this case, the birds were wild and of foreign origin. I am, in writing this notice, greatly indebted to Mr. F. Menteith Ogilvie, who has been at the trouble of collecting and tabulating the records from different localities, and summing up the results of the enquiry in a very able paper, which was printed in the "Zoologist" for 1892, "On the recent occurrence in the British Islands of the Ruddy Sheldrake." From this it would appear that altogether sixteen were obtained, between June 20th and September 13th, namely, eight in Ireland, six in England, and two in Scotland. The principal flocks seen were twenty birds near Adara, Co. Donegal, seven in Co. Dublin, eight at Thorpe-mere, in Suffolk, and five on Buckie Loch, mouth of the Findhorn, Elginshire—total number about 40-50, and probably more.

Subsequently three were shot on the river Taw, near Braunton, in North Devon, in June; also some got near Barnstaple, in September—so that we may put the number of examples actually got at over twenty birds. The sexes were ascertained in ten cases—four males and six females. No doubt others would be got in out-of-the-way places in the country, and not recorded.*

In the same year three were shot in Iceland, near Fyrarbakki, in August; also others obtained in the north of that island about the same date, (see Messrs. H. J. and C. E. Pearson's list of Icelandic Birds, "Ibis," 95, p. 247). We may, however, go further north still, and record one in the district of Upernavik, Greenland, without doubt, in 1892, ("Uebereine Vogelsammlung aus Westgrönland," Von Herman Schalone, 1895).

The earliest occurrences were Durness, Sutherlandshire, June 20th, five—one shot. In the course of the fortnight after the 20th, *three* flocks were seen by the observer. The second occurrence in date is June 24th or 25th—the flock of twenty near Adara, Co. Donegal. The last occurrences are September 8th and 13th, the first in Donegal, the second in Norfolk. From this it would appear that the Ruddy Sheld-Ducks did not all come at the same time, but gradually, the immigration covering nearly three months, and the two earliest occurrences are suggestive of an E. to W. line of flight, or not improbably from S.E. to N.W. across Europe, the extreme right wing striking Iceland and Greenland. Since this was written I have seen an example in the Bergen Museum, labelled Skídesnæs, September 23rd, 1892.

Messrs. Elwes and Buckley ("The Ibis," 1870, p. 339) say:—"in its habits it resembles the Common Sheld-Duck, but it is more fond of fresh water and of inland ranges of rock, whither it resorts in the breeding season. The nest is very difficult to find, as it is always in a hole, sometimes in the middle of a corn-field, and the male bird keeps watch near by to call the female off her eggs when any one approaches."

"We got a nest near Kustendji containing one egg, which is exactly like that of the Common Sheld-Duck; and the young are marked with black and white in the same manner. The Ruddy Sheld-Duck is very wary, and utters a harsh metallic cry when disturbed, from which it is called 'Angout' by the Turks." It is said to nest in holes of trees, at a considerable height, also in steep precipitous rocks. In the Himalayas it is found nesting at 16,000 feet, and the late Col. Prjevalsky found the female sitting, grimed and sooty, in the fire-places of deserted Tartar villages. Salvin found it breeding in Algeria in the crevices of the cliffs.

* The Rev. H. A. Macpherson recorded the occurrence of two Ruddy Sheldrakes on the Solway Firth, July 18th, 1892.

Canon Tristram obtained its nest in a similar situation in Palestine; and Dybowski took the eggs out of the deserted nests of birds of prey.

In a paper on "British Fossil Birds," by Mr. R. Lydekker, published in "The Ibis," 1891, p. 390, the author says:—"Coming to the Ducks, or *Anatinae*, we have first to notice the occurrence of a species of *Tadorna* in the Pleistocene of Brixham cave, near Torquay, as exemplified by a large series of specimens in the British Museum. These bones indicate a bird of somewhat larger size than the Ruddy Sheldrake, *T. casarca*. One of these specimens shews the great development of the keel of the sternum, and the square shape of the pneumatic foramen leading into this keel, by which *Tadorna* may be distinguished from *Anas*."

Family—*ANATIDÆ*.

MALLARD, OR WILD DUCK.

Anas boschas, LINN.

THE range of the Common Wild Duck may be said to be world-wide, covering the whole of the northern hemisphere, breeding in the temperate and sub-arctic regions of two continents, but exceptionally so beyond the Arctic circle. In the winter it goes as far south as almost to touch the equator. The range also extends across the whole temperate portion of North America. Great numbers nest in the British Islands, their numbers being greatly augmented in the later autumn by vast flocks from the Continent. The word Mallard as applied to the male of this species, is the French *Malart*, Italian *Mallardo*, and refers to the drake of this and the domestic bird. The female is simply the Duck, *Canard* in French, but in the eastern counties, and generally in our islands, "Mallard" is used indiscriminately to express both male and female. The young are called "flappers." The specific name has been written *boschas* from the beginning (1758),



J. H. Brown

MALLARD OR WILD DUCK ♂ ♀

and was given by Linnæus. Modern ornithologists write *boscas*, from the Greek, a small kind of Duck mentioned in Aristotle.

The Mallard is a common resident species in Greenland, breeding there; eggs have been found from May 26th to June 29th, which is much later than in countries further south; the eggs are considerably larger than those of the Danish bird. It is an early breeder in England, commencing to nest in the latter part of March. It nests also regularly in Iceland and Arctic Norway. The most southern of its nesting quarters are the Canaries, where a few are resident; Morocco, where eggs are laid in February; Spain; common in Tunis and North Africa; Sardinia and Corsica. The commonest Duck nesting in Sicily, Palestine, Turkey, and Asia Minor, the plains of the Caucasus, Cyprus. Immense numbers winter in Egypt, Nubia, Northern India, but is much less common in Central India.* Has been seen near Aden in winter. At Gilgit it occurs on migration in autumn and spring, the bulk going further south to winter. It is common near Kandahar in January and February, but leaves by the middle of March. Is a winter visitor to southern China, coming about the end of September, and leaving in April.

In northern and central Asia it does not seem, according to Dr. A. Von Middendorff, to go further north than the forest zone; it is common near Archangel.

On the American side of Bering's Straits a few breed about Michaelaski, in Norton Sound, in latitude 55°. The American Ducks of this species go as far south, in winter, as the Gulf of Mexico, and the north part of South America.

The numbers of Wild Ducks which nest in the British Islands have greatly increased in recent years from the beneficent working of the "Wild Birds Protection Act."† This is particularly noticeable in the low-lying districts of the eastern counties, south of the Humber.

These local residents, even when their ranks are swelled by foreign immigrants, represent but a mere fraction of the wild fowl which visited the fens before drainage and general cultivation broke up their old haunts. In these times we are told a flock of Wild Ducks has been observed, passing along from the north and north-east, into the East Fen, in a continuous stream for eight hours together. Formerly immense numbers were taken in decoys, for which special mode of capture the eastern counties were famous. The general season for working the

* In the winter of 1895-6, a good many were shot, about Christmas, in southern India, in the neighbourhood of Hyderabad.

† Mr. G. H. Caton Haigh says, that in Merionethshire, the Mallard has greatly increased since the passing of the "Wild Birds Protection Act" of 1880. Large numbers now breed in all the marshes and bogs, and in the rough grass near the shores of the estuaries. A favourite site for a nest is the root of a thick clump of gorse or heather. The first young appear about the third week in April, or early in May. Large flocks of adults of both sexes sometimes appear on the sands in June, probably birds which have hatched off their young.

decoys was from the latter end of October to February, the earlier taking being prohibited by Act of Parliament. The Ducks used to retire to these quite sheltered peace-pools during the day, during the hours of which they were captured by being decoyed into the pipes by the employment of tame decoy ducks, a little hemp-seed, and a small dog. In the evening the Ducks rose in a body, and streamed away over the marsh to feed during the night, the noise of their wings being heard at a great distance; this, in old days, was called the "rising" of the decoy. Full details of the art of decoying will be found in Lubbock's "Fauna of Norfolk," new edition, 1879; Stevenson's "Birds of Norfolk," vol. iii; Yarrell's "British Birds," vol. iv; and Sir Ralph Payne-Gallwey's "The Book of Duck Decoys." No matter how good a Duck decoy was, and how well situated, the takes of wild fowl were dependent on the skill of the decoy-man, for I know of no pursuit which requires more forethought, care, and knowledge of the ways, habits, and peculiarities of wild-fowl. This special skill seems to run in certain families, and the writer, when a boy, was well acquainted with some of the members of a family—the Skeltons—whose name in this particular avocation was, at one time, a household word in Lincolnshire and Norfolk.

At the commencement of the century, amazing numbers of Mallard, Teal, and Wigeon were captured in decoys. Pennant speaks of ten decoys, near Wainfleet, taking 31,200 in a season, in which is included several other species of Duck, besides those named above. In this account Wigeon and Teal are reckoned but as one, and sell at half the price of the Ducks (the true Mallards). In the small decoy of Ashby, near the Trent, in Lincolnshire, which is still worked, between the years 1833-34, and 1867-68, according to the very carefully kept books of the late owner, Captain Healy, 48,664 Mallard, 44,568 Teal, 2019 Wigeon, 285 Shovelers, 278 Pintail, 13 Gadwall, and about 29 Garganey Teal, a grand total of nearly 96,000 of all sorts were taken in thirty-five years. The most captured in one year was in the winter of 1834-35—6357 of all sorts, 4287 of these being Mallard, and again in 1852-53—6059, of these 2682 Mallard and 3279 Teal. Since 1868, 6321 Ducks and Teal were taken in one season, and 2300 of them in thirty-one days. In recent years the captures have considerably declined, more particularly since the death of the old decoy-man, George Tacey, at the age of 79. The last note I can find in my book is connected with 1884-85, the capture in that season being 2000 Mallard, Teal, and a few Wigeon, with about a score of Shovelers. The greatest number taken in that year, in one day, was 109 Mallard, in November. This little decoy had four pipes running nearly E. W. N. and South. The largest number ever taken at one run in any pipe was 113 Mallard in the east pipe, 248 being taken altogether in the decoy on that day. The best takes were always

in mild open seasons, with much rain. The decoy was worked generally from the beginning of September to the end of March; in some instances taking commenced as early as the second week in August, and in many years it was kept open as late as the end of April. The greatest takes were in the latter half of November, when the foreign Ducks had come in, and in December and January.

From old family papers connected with a former famous Lincolnshire decoy, at Dowsby, near Falkingham, I learn that from October 1st, 1765, to April 1st, 1766—one year—13,160 Ducks, of various species, were captured. The produce of this decoy in that year realized £385 18s. 10d.—a large sum for those days—1084 dozen was sold at 7/5 per dozen.*

The nest of the Mallard is a very compact structure, the outside of grass and sedge, with a very thick lining of down, in which the eggs—ten to twelve—are deeply buried. I have found it in all sorts of situations, close to the edge of water, in reeds, on the sides of pools, or drain banks, in the middle of corn or clover fields, or in a plantation amongst briars and grass, a long way from water. They sometimes choose very odd situations for their nests. I have met with the following instances:—in a hollow on a pollard willow; once in an oak in a plantation in the old nest of a Carrion Crow; in ivy, on the summit of a ruined wall; on the top of a straw stack; also on the roof of a last year's bean stack, standing in the field. In all these cases the Duck would have to carry her young brood down to the water.

The Wild Duck nests from the end of March to the middle of April. I have known flyers early in June. The young strong on the wing as old birds by the end of July. During the time the Ducks are sitting the males pack together and frequent the nearest piece of water. About the end of May, or early in June, the drake commences his remarkable change of plumage, and adopts that of his wife.

In the "Zoologist" for 1886, pp. 228-233, there is a very interesting paper on the "Moulting of Flight-feathers in the Mallard," by Mr. J. E. Harting, the greater portion of which is translated from the French, being an essay on the subject by a well-known sportsman, Baron d' Hamonville, the sum and substance of this is that the drake moults all his primary and secondary quills at once, losing all powers of flight; on the other hand the female moults gradually, and never loses the power of flight, and is thus better able to attend to the wants of her young brood. This rapid moulting of the male and slow moult of the duck is not peculiar to the Mallard, for it occurs also with others of the *Anatida*, also with the Black Cock (*Tetrao tetrrix*).

* We may compare these wholesale prices with those paid by the dealers to the Spurn shore shooters in 1841, as given the writer by the late Mr. John Clubley, of Kilnsea; these were Brent Geese 6d. each; Mallard 1/3; Scaup 4d.; Curlew 6d.; Sheldrake 6d.; Knot 1d.; Grey Plover 3d.; Golden Plover 4d.; Wigeon 6d.

The Wild Duck is practically omnivorous, and will devour anything that its domestic congener will take. They are greedy feeders, and very partial to water insects, frogs, caddis larvæ, worms, the seeds of *Zostera marina*, crustaceans, marine and fresh water shell-fish, roots and fronds of several water plants, and all sorts of grain.* Perhaps the fattest are those killed in winter, on the Indian jheels, not unfrequently bursting when they fall, and disclosing a great thickness of fat on the breast.

In confinement they live to a great age. Mr. J. H. Gurney has recorded two at Northrepps, one of which lived for twenty-two years, and then died by an accident; and another tame Wild Duck, a female, which lived in the same parish, from 1854 to 1883—twenty-nine years—and during the last eight years of its life assumed a complete drake plumage, with exception of a slight sprinkling of brown amongst the green feathers of the head and neck. Proverbially wild as this species is, no birds can become tamer than those reared from the egg under domestic fowls. The Wild Duck pairs freely with other species, and there are many instances of hybrids between the male or female and the Sheld-Duck, Pintail, Wigeon, Gadwall, Teal, and Muscovy Ducks.

The Mallard is subject to considerable variation, and I have seen many very beautiful varieties, the last, a pure white bird, in the Lincolnshire marshes—a most conspicuous object in flight.

In the present day, the best sport to be had amongst Ducks is obtained by “flight” shooting, watching, concealed in the line of flight, as the birds pass at dusk from the sea, or some tidal estuary, to feed on the stubble lands. I recently knew eighteen couple killed by one gun—a twelve-bore ordinary sporting piece—in less than half an hour, and the shooter only desisted because his barrels got too hot to hold. This sort of shooting is a great lottery, and you may stand “flight” night after night and hardly get a shot, the Ducks passing too high, or coming too late to see them, or taking some other line to their feeding ground.

The weight of a Mallard is a little over three lbs., the duck somewhat less than this; I have weighed drakes three lbs. seven to three lbs. nine oz. Its nearest ally is the Black-Duck (*Anas obsкуро*) or Black-Mallard, of America.

* Colonel Feilden (Zool. 1891, pp. 350-1) gives an instance of great flocks of Mallard being driven by the severe winter of 1890-91, at Holkham Park, in Norfolk, to the woods, where they were constantly engaged for weeks feeding on fallen acorns; after feeding they spread about the Park, and presumably the undigested acorns must have been dropped everywhere over the grass-lands, as on the following June, hundreds of acres were studded with seedling oaks.



GADWALL ♂ ♀

Family—ANATIDÆ.

GADWALL.

Anas strepera, LINN.

THE Gadwall* is amongst the rarest of the Ducks which visit the British Islands. This is made evident from the returns of the Aslby decoy, where, notwithstanding nearly ninety-six thousand Ducks of various sorts were captured in the pipes in thirty-five years, only thirteen Gadwalls were got. The derivation of the name is not known, it is frequently called the Grey Duck, from its colour; also "Heart" Duck; and the Rev. C. Swainson, in his "Provincial Names of British Birds," gives "Sand Wigeon" in Essex.

In recent years the Gadwall has become very plentiful in Norfolk, having been introduced in private waters, where it has thrived and increased to a remarkable degree, and perhaps also induced wild birds of this species to take up their abode in the same quarters. In Scotland, generally speaking, it is far from common, except in one locality, the Island of Tiree, Inner Hebrides, where at least for the last twenty-five years it has been fairly abundant.

Messrs. Harvie-Brown and Buckley ("A Fauna of Argyll and the Inner Hebrides," 127-8) say:—"Considering the scarcity of this Duck as a Scottish species, we think it curious that this narrow line (or isolated locality) should be so visited by them, and annually yield considerable addition to the sportsman's bags. It has indeed been increasing in the number which winter in Tiree steadily since that time, and by 1891 is denominated as very abundant in winter, flocking at sea, especially outside Ballyphetrish reefs, on the west or north-west side, sheltering inside the reefs in very heavy weather, and fighting all over the islands at night to the mosses; and many are shot every season among other wild-fowl—and on some occasions actually bulking in the bag above other species." Their cry is peculiar, and, as Mr. Anderson says, "more like the croak of a Raven than the voice of a Duck. They are easily recognized by it; they keep repeating it after they rise, and until they are well out of shot."

* The Gadwall closely resembles the Pintail, hereafter to be described, but differs in having the lamellæ of the upper mandible more projecting, and the pointed central feathers of the tail not elongated. The first feature has induced some ornithologists to put it in a separate genera, under the name of *Chaulelasmus*, a Greek word, having reference to its outstanding teeth.

“As many as thirty or forty have been shot by one shooting party in Tیره, in the winter of 1878-79.”

Sir R. Payne-Gallwey thinks the Gadwall is more frequently shot in Ireland than is generally supposed. It is very fond of fresh water lakes and lonely pools abounding with reed and rushes, acres of equisetum and bog-bean (*Menyanthes trifoliata*). On one occasion he says:—“the birds had to be gently driven from a mass of aquatic herbage. They would silently paddle to the verge of the clear space in the centre of the mere, then turn back and thread their way in and out among the reeds and water plants. If too much noise was made in doing this, they would rise singly and cross to a distant corner, there remaining hidden from view. They were never seen by day to swim in the open space with the Duck and Teal.” Montagu describes it as a good diver, yet the general consensus of opinion amongst naturalists is that it never dives for food, but only when wounded; when feeding in shallow water the Gadwall immerses all the fore part of its body, groping at the bottom much after the manner of the Brent.

The geographical distribution of the Gadwall is nearly the same as that of the Mallard, but it is not so generally distributed over the same area. In Europe the nesting range extends from Iceland to southern Spain, and from the British Islands to the Oural, and across Asia, but not north of the Forest Belt. In America it nests commonly as far north as latitude 50°. In winter it is common within and around the Mediterranean Basin; but, according to Col. Shelley, only moderately abundant in Egypt, in winter, on the large sheets of water.

It is a common breeding Duck in Macedonia, Asia Minor, Turkey, the Crimea, and southern Russia. Breeds regularly in Turkestan, and on the high dry lands of the Kirghiz Steppes, and central Asia. It is a winter visitor to China and Japan, and in immense numbers to northern India, frequenting the reedy jheels in great flocks, and feeding greedily on both wild and cultivated rice. It passes through Gilgit on migration to India the first week in October, returning in March. It collects in great quantities about Kandahar in the first quarter of the year. Although nesting in Iceland, it has not been recognized anywhere in Arctic Norway, and is a very rare visitor to Scandinavia, although it nests in south-eastern Sweden. In north-east Prussia, Mr. E. Hartert says, it is “not a rare breeder on some of the lakes of the southern parts,—occurs also on passage;—I found clutches in the second half of May, and even before that time.”

When seen swimming at some distance, the Gadwall very much resembles the Common Wild Duck, but may be readily distinguished from that species, as also in flight, by the white speculum. With the use of a glass the bright chestnut patch on the median wing-coverts—less so in the female—and the beautiful

marbling and delicate crescent-like markings of the forepart of the body, will be clearly apparent. When the male is feeding head downwards, the black upper and lower tail-coverts are very conspicuous. Professor Newton ("Dictionary of Birds," Part I, p. 298) says:—"its appearance on the water is very different" (from the Wild Duck); "its small head, flat back, elongated form, and elevated stern, rendering it recognizable by the fowler, even at such a distance as hinders him from seeing its very distinct plumage." It also floats higher and sits more lightly on the water than the Mallard. When coming inland to feed at "flight," their note, which is a "hoarse croak," and the whistle of their wings will distinguish them from the Mallard.

Mr. Southwell, in its continuation of "Stevenson's Birds of Norfolk," Vol. III, says:—"I have never seen the nest of a Gadwall far from the water, it is generally placed either in a very boggy spot, or in a tussock of sedge, by which it is raised above the shallow water itself. In such situations it is constructed of dead grass or sedges, and very sparingly lined with down." The usual complement of eggs seems to be from ten to thirteen, creamy-white, or almost a greenish-white, in colour. The male Gadwall is in size about equal to the female Wild Duck, and weighs about two lbs. or a trifle over.

Audubon says:—"it dives well on occasion, especially on being wounded. At the appearance of danger, it rises on wing, whether from the ground or from the water, at a single spring, in the manner of the Mallard, and, like it also, ascends almost perpendicularly for several yards, after which it moves off in a direct course, with great celerity. I have never seen it dive on seeing the flash of a gun; but when approached, it always swims to the opposite part of the pond, and, when the danger increases, flies off. On being wounded, it sometimes, by diving, makes its escape among the grass, where it squats and remains concealed. It walks with ease, and prettily, often making incursions upon the land, when the ponds are not surrounded by trees, for the purpose of searching for food. It nibbles the tender shoots and blades of grasses with apparent pleasure, and will feed on beech nuts, acorns, and seeds of all kinds of gramineæ, as well as on tadpoles, small fishes, and leeches. After rain it alights in the corn fields, like the Mallard, and picks up the scattered grains of maize. The common notes or cry of the female have a considerable resemblance to those of the female Mallard; but the cry of the male is weaker, as in that species.

In the State of Minnesota, no species is a more regular resident, arriving by the 25th of March, and leaving occasionally as late as November. Dr. P. L. Hatch says:—"incredible numbers of this species are slaughtered for the fall markets, and are regarded only second to the Mallard in value for the table. It is a gamy

Duck, and flies promptly at the approach of danger; is an *exceptionally good diver* (the italics are mine) and rapid swimmer. It wanders a long distance from the water for nuts, acorns, etc. In the cloudy, windy days of November, they retire from this latitude generally during the last week in October."

Lord Lilford, who had very considerable experience of this Duck in the Mediterranean, speaks of it as common in Epirus, in winter, and in cold weather, in Sardinia, Sicily, and Tunis, most of those obtained were got by flight shooting. Lord Lilford says:—"I noticed a peculiarity in the habit of this species at the sunset flight:—whilst the Mallards would circle cautiously several times around their feeding-place before settling; the Teal came dashing in over the tops of the reeds; and the Shovelers drop in quickly, in small parties; the Gadwalls came straight over us at a considerable height, and, without any preliminary revolution, always turned suddenly and came pouring in from the direction opposite to that of their first approach."

Family—ANATIDÆ.

SHOVELER.

Spatula clypeata, LINN.

THE Shoveler, although not nearly so common as the Mallard, has a more extended distribution even than that species. In fact the range covered by it in its summer and winter quarters greatly exceeds that of any other Duck, so that for all practical purposes it may be called cosmopolitan.

Its breeding range extends over the British Isles, Denmark, northern Germany, and southern Sweden, across Russia; through Asia, but not as a rule north of the Forest Belt, to Kamtchatka, Japan, and China, numbers wintering in the two latter countries. It nests in central Asia, and occurs on migration at Gilgit,



SHOVELER. ♂ ♀

April, May, and September, and at Kandahar, in February and March. Great numbers winter throughout India, and into Ceylon, and they have been recorded on the jheels and tanks of the former country as late as the 20th of May, ("The Asian," June 4th, 97). Common on migration at Astrakhan, and breeding regularly in Turkestan, the plains of the Caucasus, and Asia Minor. It is a winter visitor to Persia and the shores of the Persian Gulf.

Messrs. Alston and Harvie-Brown found it very common in the delta of the Dwina, in summer. It visits Portugal from the middle of October to the middle of March, and is common in southern Spain, and said to breed annually in the marshes of the Guadalquivir. Messrs. Seebohm and Harvie-Brown did not find it common on the Petchora, and only obtained one, a male, at Ust Zylma; subsequently Seebohm very seldom saw it in the valley of the Yenisei. Professor Collett ranks it amongst the uncertain breeders in Norway. Mr. E. Hartert reports it as breeding, in small numbers, in eastern Prussia. It is rather remarkable that it has only been obtained (a female in Mr. Gätke's collection) once in Heligoland, probably from the fact that its breeding range is not directly north of that island, but to the east.

The Shoveler is common in the Mediterranean basin, in the winter months. In Corsica becoming plentiful in February and March. Plentiful and resident in Egypt and Nubia, and found generally all over North Africa and as far south as Abyssinia. It has occurred also in the Canary Islands, and, quite recently, one in the Capetown Museum, was shot eight miles from Capetown, and others seen, ("Ibis," 93, p. 153). In America it breeds from Texas to Alaska, wintering as far south as Guatemala, Cuba, and Jamaica, and on the mainland to Panama. It has occurred in Borneo; and a specimen was obtained by Mr. Swayne, the British Resident, on the Gilbert-group, in the south Pacific Islands, recently united to Australia. Mr. Gould once received an example from Australia.

Returning again to America, it is a summer migrant to Newfoundland, and found all over the island, and, according to Colonel H. W. Feilden, visits Barbados in October and November, in small numbers.

In South America its place is taken by a nearly allied form, *S. platalea*, VIEILL., having a spotted breast, and very common about Buenos Ayres and the southern parts of that Continent. Both Australia and South Africa also have Shovelers peculiar to those countries only.

In England the Shoveler breeds in several counties, the chief of which are Norfolk, Cambridge, Lincolnshire, (about thirty pairs altogether in three localities), also Nottinghamshire (the forest district). Again in Yorkshire (Hornsea Mere); Northumberland, and also sparingly in Cumberland, near the Solway. Mr. Haigh

says it is very rare on the Merionethshire coast, and he only once met with it on April 7th, 1891, three beautiful drakes in company with four pair of Wild Duck, male and female, two males and one female Wigeon, and a Pintail drake.

In Scotland it breeds in several localities, notably in one, Loch Spynie, in Moray, a spot rendered historical by the writings of Charles St. John. Mr. J. A. Harvie-Brown thinks that it is a rapidly increasing nesting species, in late years, in many parts of Scotland. In 1891 Shovelers nested on a small loch, Sanday, in Orkney, about thirty young ones being seen together in the course of the summer.

In Ireland, Sir R. Payne-Gallwey says that this Duck is more or less common in all parts of the country, particularly the south, and they breed in several places throughout the island.

Between the years 1833-34 to 1867-68, (thirty-five years), two hundred and eighty-five Shovelers are recorded in the decoy book, at Ashby-on-the-Trent, north Lincolnshire, as taken in the pipes; the largest number in any one year was thirty-four in 1860-61. These captures, however, only represent a small proportion of those visiting the decoy, flocks coming and going without entering the pipes. In 1868-69, sixteen, chiefly males, visited the pond for some days, and escaped capture. Shovelers, I was told by Tacey, the decoy-man, have a curious habit of swimming round and round each other in circles, with the head and neck depressed to the surface of the water; this they will continue for hours.

Professor Newton, commenting on this particular action of the Duck (see Stevenson's "Birds of Norfolk," vol. iii, p. 151, from which I quote), thinks it is no amatory action, but the real and only object, he considers, is that of procuring food, as a pair, when feeding, "get opposite to one another, and swim round in a circle, holding their heads towards its centre, and their bills plunged into the water perpendicularly and up to the base, while their mandibles are employed in 'bibbling,' to use a Norfolk term. They will swim in this way for ten minutes together, always preserving their relative position on the circumference of the circle they are describing, then after a pause, and perhaps a slight removal of a yard or two, they will resume their occupation."

Shovelers appear, as a rule, to prefer small shady pools to more open waters, and the shallow ends of lakes, sheltered by dense reed beds and overgrown with *Equisetum*, *Menyanthes trifoliata*, *Comarum palustre*, sedges, and other water-loving plants.

Shovelers, when flushed, make a clapping noise with their wings when rising, but I have never heard them, either wild or tame, utter any note or sound. A friend, Mr. T. Ostler Nicholson, who lives near one of their breeding haunts, says, (*in litt.*) "the note in the breeding season is *tuck-tuck*, which is frequently uttered

when in flight. I have once heard it when a pair were flushed out of a pond in the middle of the day."

Their food is very varied. I have found the stomach of a young male crammed with small seeds, like trefoil, and some small angular stones; this was in the autumn. They will eat the roots and leaves of water plants, various small fish and aquatic insects, small frogs, tadpoles, crustaceans, mollusca, land snails, worms; nothing hardly comes amiss. The broad spoon-like bill is admirably adapted for sifting fine mud and retaining any foreign substances. But neither in this or any other Duck, as Macgillivray points out, do the lamellæ of the two mandibles fit into each other. It is impossible that they should, for those of the lower are always more slender and more numerous than those of the upper, and with a closed bill, pass within the upper, and without intermingling.

A local name is "Spoonbill," the real Spoonbill (*Platalea leucorodia*, LINN) having ceased to exist in England. It is a Duck of ancient lineage, the Norfolk forest-bed having produced a single coracoid bone.

The flesh of the Shoveler is much praised and extolled by some, and as strongly condemned by others; of course all depends on the sort of food which has been consumed for some weeks previously. I do not consider that for the table it can be compared to a Mallard, Wigeon, Teal, or Pochard,—the flesh being soft with a muddy flavour,—I confess, however, to be in a minority in this matter; Sir R. Payne-Gallwey, no mean authority, considers these Ducks in point of edible excellence, come second when shot on fresh water; he has seen fat an inch thick on a Shoveler. He places the Pintail first for delicacy of flavour.

The nest is placed sometimes in a dry and as often in a wet situation, both near and occasionally some distance from water. I have found it in long heather, and it is always well-sheltered and concealed, constructed of dry grasses and bents, the eggs being buried in the down of the bird; there are ten to fifteen, of a greenish-buff colour. The male bird occasionally assists in incubation, at least it has been seen to rise from the eggs.

The Shoveler is a late nester. In the young, in down, the sides of the bill are straight, and not spatulate, as in the adult. On the wing it moves rapidly, and usually at no great height, and may readily be distinguished by its square-ended and heavy looking bill, as compared with the size of the head, the former organ looking as if it was thrust into an empty cartridge case. When wounded this Duck is a poor diver.

The feet, when compared with other Ducks, are very small. Mr. T. Whitaker, of Rainworth Lodge, Notts., who has had most favourable opportunities of observing the habits of this Duck, says that "in flying the feet are held quite an inch

above the tail, apparently to give a good balance, as the wings are very far back."

Lord Lilford says, when flying alone and unalarmed, the Shoveler is observed to turn its head constantly, as if looking for an acquaintance or some special object, and that the Pintail has the same habit. He considers it is not an easy bird to keep in captivity, as corn and meal do not seem to suit it.

The peculiar form of the bill will distinguish the Shoveler at once from all other species. It is not always easy to distinguish between the male recovering from his "eclipse" plumage, and a young male of the year assuming the breeding dress.

Family—ANATIDÆ.

PINTAIL.

Dafila acuta, LINN.

THE Pintail is a Duck of the most elegant and high-bred appearance, and on land and water its movements are both active and graceful. Although generally distributed throughout Great Britain in winter, it can scarcely be considered a very common species anywhere, especially so when we contrast its appearances in these islands with other parts of both the old and new world, where it is found in immense numbers. The Pintail has a breeding range only second to that of the Shoveler and Mallard. It nests in some numbers in Iceland, also in Færoe, and generally across arctic and subarctic Europe, as far north as lat. 70°.

In the British Islands, Holland, Denmark, North Germany, and Russia, as far south as lat. 50°. On May 17th, 1894, and subsequently, Mr. Wm. Eagle Clarke found Pintails in the swamps of the Camargue—that is the delta of the Rhone—under circumstances which left no doubt that they were breeding. This was an important discovery, as it extends the breeding range of the Pintail 7° further south than was suspected. Mr. Hartert says in East Prussia it passes regularly



PINTAIL ♀ ♂

Chenonetta americana

on migration, some remaining to nest on the lakes. About Archangel, and generally in northern Europe, it is very abundant in summer. It nests through central Asia, and spreads a considerable distance into the Polar sub-regions; also in the lowlands of the Caucasus and the Kirghiz Steppes. It is a migrant across Turkestan, but, according to Severtzoff, nests in at least one district. Severtzow found it near all the lakes of the Pamir, not very common, but many were shot from the end of July to end of September. Dr. O. Finsch found it, with immense numbers of other water-fowl, in Central Asia, on the waters of the Ala-kul, on May 9th; also in the neighbourhood of Obdorsk, in July, with young, in the tundra creeks and on the Ob river.

Considerable numbers winter in the British Islands, more particularly in Ireland. It is common in winter in Portugal, and in Spain is the most common of all the Ducks in the "marismas" of the lower Guadalquivir. In Corsica common in February and March. Messrs. Elwes and Buckley report it abundant in Bulgaria and Macedonia to the end of April. In Transylvania, Mr. C. G. Danford and Mr. Harvie-Brown record it as not a common species; it is recognized by the natives as the "Arrow-tailed" Duck. The former ornithologist found it, with immense numbers of other wild-fowl, on the "Giaour-geul" lake, in Asia Minor. Its winter range also covers the whole of North Africa, being very abundant in lower Egypt and the Fayoom, and generally frequenting the larger and more open sheets of water. An example was obtained by Mr. Holland in the Wády Gharandel, in the Sinai peninsula.

Pintails occur at Gilgit, in north-western India, in winter, but are not common. It is, however, a common Duck in the Kandahar marsh in the same season, migrants also arriving in February to leave again in March. An extremely common species in winter in Persia, northern and central India, Ceylon and Upper Burnah, wintering also abundantly in Japan and China, and specially common in the Lower Yangtse basin. It remains in the Corea in mild seasons, and it has occurred as far to the south-east as Bornéo.

In the Nearctic regions, the Pintail is a common species over the whole of North America, nesting chiefly in the north up to the Arctic ocean. Dr. Walker found it at Godthaab, and Reinhardt both in north and south Greenland. In the winter it retires south to the extreme limits of California, Mexico and Panama, also generally over the Southern States and in the Bermudas. In Great Britain the Pintail is not an uncommon species in the Humber district in severe winters, and is frequently obtained by the wild-fowl shooters in the upper reaches of the river. The Ashby decoy book records two hundred and seventy-eight as taken in thirty-five years—fifty-four of them in the winter of 1834-5, and seventy-four in 1839-40.

The late Mr. Rodd reports it as common at the Land's End in severe winters. Mr. Southwell says it is sparingly met with in most years in Norfolk from October to March, but at no times can be considered numerous. The late Mr. Hancock thinks there can be no doubt that at one time it occasionally bred on Prestwick Carr, in Northumberland. He had a female in his collection, shot there in the summer, which had all the appearance of having bred in that year. Mr. Haigh informs me it visits the estuaries of North Wales every November, but in small numbers, rarely more than half-a-dozen, together with Mallards. It is far more numerous on the spring migration in February, some remaining to April and once on the 23rd of that month.

The Pintail is not a common species anywhere in Scotland. It is reported rare in Orkney, and Saxby says never seen in Shetland in the autumn and winter, but in spring, in April, a few small parties, seldom more than half-a-dozen together.

There is strong evidence of its having nested in Sutherlandshire, and a certainty of its having done so on the rock of Hysgair, off Canna, full particulars of which are given in Messrs. Harvie-Brown and Buckley's "A Fauna of Argyll and the Inner Hebrides," pp. 129-131. Since this, a nest of the Pintail has been found in Skye, by the Rev. H. A. Macpherson, in 1889; it had been destroyed by rats; but eggs, down, and feathers were taken and the birds identified, (foot note to above). St. John used to see them flying about Loch Spynie, in Moray, in June and July, and had no doubt of their breeding there.

The Pintail is a much more common species in Ireland than in Great Britain, but very local, as it rarely occurs in the northern parts of that country on the great loughs. Sir Ralph Payne-Gallwey says that on Castle Gregory Lake, in Co. Kerry, he has seen them in hundreds, and on the estuaries of Clare, Connaught and Kerry, a hundred to three hundred may often be seen together. Pintails occasionally nest in Ireland, notably in localities in Queen's County and Co. Galway. They breed readily in a semi-domesticated state; and there are numerous instances of hybrids between these and other species.

The winter immigrants come to Ireland in October and even earlier, and up to middle of November. In Iceland they arrive at their nesting quarters about the end of April, and leave again in September; it is not improbable that the source of those wintering in Ireland may be derived from the northern island. I have known Pintails appear on the east coast of England sometimes as early as September, and remain till late in April, at which time the males and females are in pairs.

Pintails are constantly found associated with Wigeon, and Booth says that in north-east Scotland they are called "Wigeon-leaders." A common local name on

the east coast is "Sea-Pheasant." In Ireland "Spear-Wigeon," both names having reference to the long tail-feathers of the male. Another Irish name is "Lady-duck" from its elegant and graceful carriage. The Long-tailed Duck (*Harelda glacialis*) is known as the Pintail in Shetland, and this has led to considerable confusion when determining the range of the two species.

In winter the males, females and young of the year together, are found in separate flocks; but males and females are paired again in the early spring. The male Pintail may be distinguished on the water at a considerable distance. It looks longer than other Ducks, and swims low, the slender snake-like neck has a very conspicuous snow-white streak along its length, ending in the pure white breast. The stern is also well elevated with the two long tail-feathers, from which it gets its name.

It is rather remarkable, considering the number of these Ducks nesting in Jutland, that the species has only been obtained six times in fifty years in Heligoland,—more particularly when we find that in the North Frisian Islands, in October, 1880, 24,000 Teal, Wigeon, and Pintail were taken in decoys, and double that number in the autumn of 1877.

Messrs. Seebohm and Harvie-Brown, when at Ust Zylma, on the Petchora, in the spring of 1875, found many nests of the Pintail placed in the grass, among the shrubs, in dry places, generally at some distance from the water; they were deep and well lined with dead grass and sedge, and when the full clutch was laid, contained plenty of down; this is brown in colour. The eggs are seven to ten, smaller than those of the Mallard, and pale buffish-green.

In West Jutland, in May, 1893, Mr. A. C. Chapman and his brother found many nests of Pintails on the islets, in the lagoons and marshes; "the Pintails generally had eight or nine eggs, warmly ensconced in down, and in every case they were on the point of hatching. The old Duck, in some cases, when disturbed from her eggs, half flapped and half ran away over the ground, and in one instance so rapid and peculiar was the motion, that I imagined for an instant some quadruped was trying to escape from our very feet. The drakes were in attendance, their white striped necks glistening in the sun as they sat on the sands a hundred yards away. Some of the Pintail's nests were placed on the barest ground, while others were concealed in beds of grass and nettles."—"The Ibis," 1894, pp. 349-50.

Pintails seldom dive, they prefer to feed in shallows, groping on the bottom with their long necks and fore part of the body immersed, the rump elevated. They are remarkably active on land and quick in catching insects, every action being marked by grace and agility. I have found the stomach filled with seeds

of the scurvy-grass, (*Cochlearia officinalis*), a plant which grows commonly on our eastern sea-board.

In Minnesota, Dr. P. L. Hatch says that when the ice leaves the lakes and pools, numbers of Pintails visit the mud flats and marshes on the prairie to feed on the tadpoles; they also frequent the woodlands in search of acorns, insects, snails, and various larvæ under wet leaves and rotten wood. On the water they swim in very compact flocks, uttering a low chattering note; on the wing they also fly in very close order; they are amongst the shyest of water-fowl. They leave the northern portion of this State in which they breed from the middle of October to the end of the month for the south.

Dr. Cooper, in his "Californian Notes," describes them as very noisy, quacking much like a Mallard, but more subdued, diving but little and feeding on vegetable food. The late Mr. Robert Kennicott says they go further north on the American Continent than any other of the fresh-water Ducks—few breed south of the Great Slave Lake. In spring they move in immense flocks, a few reach the lake on May 1st, the bulk go northward. On the Yukon the first were seen at the end of April; they are the last to nest of the fresh-water Ducks. The nests were always found in low but dry ground, under shelter of trees and bushes, though never among thick large trees, and not more than two or three rods from water, they never build on hummocks in the water, nor on high land, but always just upon the edge of a marsh or lake. In observing the breeding and habits of this Duck, Mr. Kennicott was struck with the persistence in the individuals of each species choosing precisely similar localities for their nests as far as possible, ("Water Birds of America.") To the Long Island fowlers they are known as "Sprig-tails," or "Spindle-tails." Their flesh is much esteemed, and they become very fat after feeding in the marshes on the roots of *equisetum*.

Mr. E. Adams ("The Ibis," 1878, p. 431) says they were the first to arrive at Michalaski, in Norton Sound, (April 28th), and the only fresh-water Ducks that were numerous. The natives, he says, use the long tail-feathers to ornament the wooden shades which they wear over their eyes in summer.

Mr. E. W. Nelson ("Cruise of the Corwin") thinks it the most abundant fresh-water Duck found on the coast of Bering's Sea and the Arctic shores to the north, and that it nests in the greatest abundance all along the coast from the peninsula of Alaska to near Point Barrow. They are considered the finest table Duck in the north. They are among the last to leave in the autumn, and, as in Europe, they are back when the open spaces of water begin to shew along the ice-fringed shore.



Family—ANATIDÆ.

TEAL.

Querquedula crecca, LINN.

THE Teal is the smallest of British Ducks, little more than half the size of a Wigeon and the third of a Mallard, and weighing about twelve ounces. The male in full nuptial attire is a remarkably handsome bird, with bright contrasting colours and exquisitely pencilled plumage. Its nearest affinities are with the Mallard, and it is scarcely second to that species in numbers and general distribution. The Teal is common to the greater portion of the old world, and there are few districts in Europe in which it has not been recorded as nesting. In the new world it is an occasional straggler. According to Reinhardt and Holböll it has been taken in various parts of Greenland. It is of irregular occurrence in eastern North America, and has several times been obtained close to New York and seen in the market of that city.

In Europe the Teal is a common nesting species in Iceland, and through the whole of Scandinavia from the south to far up within the Arctic circle. It is plentiful near Archangel in the summer. In the valley of the Petchora, however, the late Mr. Seebohm did not find it north of the Arctic circle. It is sparingly distributed in Færoe, chiefly in spring and in small flocks. In Shetland tolerably numerous, although nowhere common. It nests generally in the Orkneys; is not common in the outer Hebrides, but much more so and nesting in the inner islands. Over the whole of the British Islands fairly plentiful in all suitable localities. I do not consider it a common nesting species in Germany. In East Prussia Mr. Hartert says it breeds regularly. Its most southern breeding quarters are in Madeira, and the bird is quite common in the Azores; while in the Canary Isles it is a visitor in wet winters; there is fairly good evidence of its nesting in southern Spain. In Sardinia it breeds in numbers, and is also a very common winter visitor in flocks of forty to fifty; and abundant in Corsica at this season; and in all countries, in winter, on the north side of the Mediterranean basin, specially Portugal and the marismas of southern Spain; and again on the African side from Tangiers to Egypt, and in the latter country and Nubia the Teal is a most abundant Duck, going as far south as Abyssinia. Canon Tristram found it

on the shores of the Dead Sea with the Wild Duck and Pochard. Mr. C. W. Wyatt flushed a couple in Wády Gharandal, in the isthmus of Sinai.

The Teal is most abundant in Turkey and Asia Minor in the winter. In Asia it is recorded as breeding through Siberia both in the forest belt and tundra up to lat. 70°, and also in Kamtchatka. Dr. Finsch found it on the Ala-kul with thousands of other water-fowl, and subsequently on the Mara-kul. It is found in summer on the Pamir, where it probably nests; abundantly also in the plains of the Caucasus; about Astrakhan; common near Kandahar; and breeding in Afghanistan. The Teal is a winter visitor to Japan, the Corea on migration, China, Formosa, Hainan, Burmah, a most abundant species in India as far south as Ceylon, in Persia, and in the vicinity of Aden.

In the eastern counties of England great numbers of these beautiful little Ducks were formerly taken in decoys, and not being as a rule so wild or of so suspicious a disposition as some of the larger species, its capture was comparatively easy. At the decoy of Ashby, in north Lincolnshire, 44,568 were taken in thirty-five years, and of these as many as 3,279 in the winter of 1852-53. Mr. Southwell (Stevenson's "Birds of Norfolk") mentions the fact that the famous decoy-man Skelton, took in six consecutive days, in the Winterton decoy, 1,010, and at the same place he took 200 at once in a single pipe.

On the east coast of England the Teal used formerly to be very regular in its appearance, arriving in small companies from the middle of August throughout September. I have known them in some numbers as early as the second week in July. These first arrivals may perhaps be referable to home-bred birds, the great body of foreigners coming late in October or early in November. When Teal, and the same remark will apply to Wigeon and Mallard, first come up from the sea they are frequently very rufous on the under parts; our wild-fowl shooters attribute this to the influence of salt water, remarking that in fresh water the stains speedily disappear. It is more probable that the sea has nothing to do with the colour, which is caused by peat-staining, or perhaps the presence of oxide of iron, in the water of their summer quarters. These rufous-stained birds are always in fine condition and to be preferred for the table.

Mr. Haigh says they are chiefly winter visitors to Merionethshire, arriving in November and leaving in March and April. In severe weather large numbers frequent the rivers and any open fresh-water, but very seldom the sea.

Teal when flushed rise very quickly and fly at a great pace, shooting up perpendicularly into the air and, after reaching a certain height, go off in a direct line as if not intending a return; in the vast majority of cases, however, they are speedily overhead, passing backwards and forwards over their ground, sometimes

suddenly making down as if intending to pitch and as rapidly ascending to their former level, finally when satisfied they descend very quickly and instantly settle with elevated wings on the water.* Although easily approached in the day time with ordinary precautions, I have always found them much more wary and on the alert at night, and it has been very seldom, when walking the streams and springs for Mallard on moon-light nights, that I have been able to get a shot at Teal, although conscious by their calls that numbers were on the wing at no great distance.

The nest is placed sometimes close to water, but more frequently at some distance, amongst trees, in long grass, gorse, or heather, and amongst sedges on spongy wet moor-lands. The materials are decayed sedges and reeds, or dead grasses and fragments of heather. The eggs vary in number from ten to fifteen, and are deeply bedded, when the full complement is completed, in a dense cushion of down, dark brown with a white centre, the eggs creamy-white with sometimes a tinge of green. A Teal's nest is a most beautiful object, the whole structure and closely packed eggs in a space which the two hands will easily cover; incubation lasts for three weeks. Both parent birds shew great attachment to their young brood, the female stumbling and fluttering close to the feet of an intruder in attempts, often successful, to draw him from her treasures. In July the males gradually acquire the "eclipse" plumage, which resembles that of the females, and they are later than other Ducks in acquiring the new feathers of the autumn moult. They are never in finer or more complete plumage than in January.

Their food is various, aquatic plants, insects and larvæ, small mollusca, worms, and the seeds of various cereals and grasses, and also the seeds of *Zostera marina*, the common grass-wrack of the coast. The foreign immigrants arrive on our coast about the middle of October to the end of the first week in November, a period after which, as a rule, all migrations of birds on to the east coast ceases. Compared with other land Ducks, Teal are very impatient of cold weather, and quickly change their quarters on the outbreak of frost and snow; without access to water they very soon perish. In the early part of March they begin to move northward again, but do not reach their most northern breeding quarters till the ice is breaking up.

Mr. St. John has found the nest, generally in the vicinity of some swamps, in a tuft of heather, or in some grassy and elevated spot; sometimes, however, in a wood, at a very considerable distance from water, in situations where it is a

* In his "Letters to Young Shooters," Sir R. Payne-Gallwey estimates the flight of the Teal as equal, on occasions, to 150 miles an hour, and gives his reason for this conclusion. I see no reason to doubt the correctness of this, and believe with him that the pace at which some Ducks and Golden Plover travel is much under-estimated.

mystery how the tiny young are ever got down to the water. On one occasion he says, ("Nat. Hist. and Sport in Moray") "as we were driving the other day, a Teal came fluttering out of the dry ditch by the road-side, and for above a hundred yards continued flying and running almost under the horse's feet. I found she had a number of young ones unable to get over the wall, so we helped them into the adjoining wood; they were a long distance from water, and had very rough ground to pass over to reach it. I remember exactly a similar circumstance happened to me in Ross-shire, when also I saved the lives of a young brood of Teal by lending them a helping hand. These instances prove that, notwithstanding the instinct of birds, which generally enable them to keep their young out of harm's way, they occasionally get them into a situation not only of difficulty, but where any dog or mischievous boy coming along might destroy the whole brood."

In Ireland Sir R. Payne-Gallwey has seen on their first arrival, about the end of October or first week in November, from two to five hundred together, they are found throughout the winter in more or less plenty on the coast, but unless the great lakes are frozen they do not visit the coast in any number, but with a continuation of frost go south to a more open and genial clime.

Some very beautiful crosses have been recorded between the Mallard and Wigeon; the male progeny of these has been described and figured as the "Bimaculated Duck."

Family—ANATIDÆ.

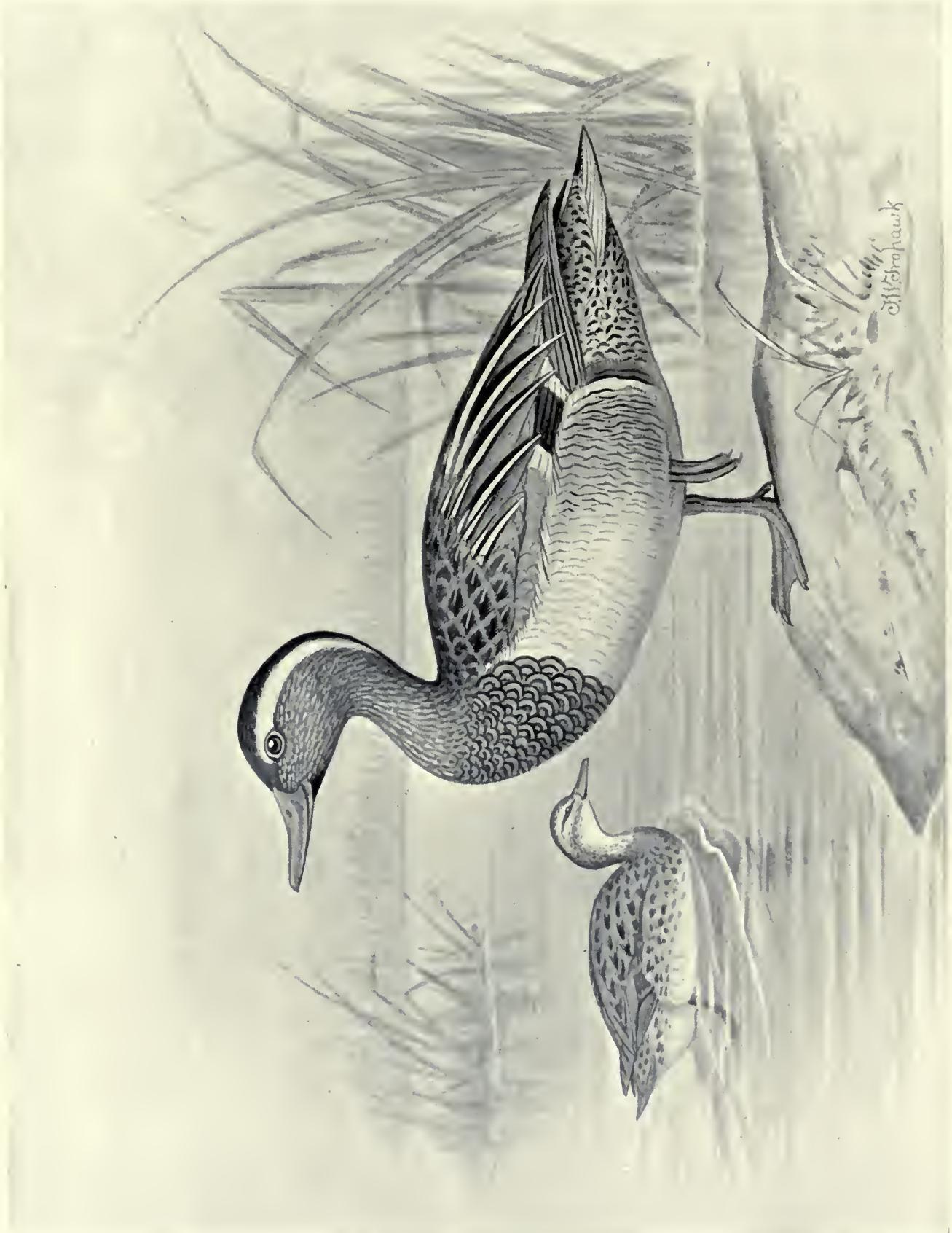
AMERICAN GREEN-WINGED TEAL.

Querquedula carolinensis, GMEL.

AMERICAN BLUE-WINGED TEAL

Querquedula discors, LINN.

THE Green-winged Teal is recorded as having occurred three times in England, once, November 23rd, 1879, in South Devon; again, an adult male, at Scarborough, in November, 1891; and another, many years ago, in Hants, (Zool., 80, pp. 70-71.)



GARGANEY. ♀ ♂

This species is the representative of the English Teal, (*Q. crecca*), on the American Continent, but differs from it in the male bird in some well marked features of plumage.

It ranges over the whole of the North American Continent, but is more abundant on the Pacific than on the Atlantic side, nesting chiefly north of the United States, and extending its range to Greenland and Alaska. In winter it moves as far south as Mexico, Honduras, and Cuba. It is essentially a fresh-water Duck, and rarely visits sea-water.

It is a very active bird on land, and when disturbed on water rises with a single spring, and when in full flight its pace is very rapid. It is said to attain a velocity of one hundred and sixty miles an hour.

The Blue-winged Teal, (*Querquedula discors*), in North America is more restricted in its range than its congener, and it is altogether a more southern species. It breeds as far north as Alaska and occurs sparingly at the Yukon mouth, and has been seen, and eggs obtained near Cape Romanzoff. Generally speaking it is not common north of latitude 62°, that is north of the Great Slave Lake, and in the winter retires as far south as Trinidad, Cuba, and the West Indies, arriving later at its nesting quarters and retiring earlier in the autumn than *Q. carolinensis*, and being much more susceptible to cold than that species.

The Blue-winged Teal is the Nearctic representative of the British Garganey, and I have known this latter mistaken for it, the bluish-grey wing-coverts of *Q. circia* being suggestive of the same part in its American cousin, but those who have had opportunities of comparing the two will see at a glance how much brighter and more beautiful is the blue of the transatlantic species.

Family—ANATIDÆ.

GARGANEY.

Querquedula circia, LINN.

THIS beautiful little Duck is a summer visitor to Great Britain, where it is generally known as the Summer-Teal and sometimes Cricket-Teal from its cry. Probably at one time it had a much more extended breeding range in these

islands; at the present day, however, it only resorts regularly to one county, some districts in Norfolk, but occurs sparingly on migration in various parts of the country both in spring and autumn, usually in the former season. In North Lincolnshire and Holderness I have numerous notes of occurrences in the spring, from the middle of March to the end of the third week in April, so that in this district at least it can hardly be considered an uncommon species. Between the years 1833-4 and 1867-8, twenty-nine Garganeys were taken in the decoy at Ashby, and all of these, as far as is ascertainable, in April, and from the frequency of its occurrence in spring in the north-western part of this county there can be no doubt it at one time remained to nest.

In Yorkshire it occurs more frequently in Holderness; on the 21st of May, in 1882, Mr. T. C. Swailes, of Beverley, found a nest with nine eggs, almost stepping on the Duck before she rose.

The Garganey is a rare visitor to Ireland and Scotland, but not seen in the breeding season, and we can find no notice of its nest being found in either country. It has occasionally been obtained in winter. Mr. Harvie-Brown, on the authority of Edwards, records two shot in Moray, in December, 1840. In Cumberland it has occurred in spring and early autumn; also two in Dublin Bay in the winter of 1880-81. In Norfolk, however, where it is the most common, I can find no notice of a winter occurrence.

The Garganey is not a species which goes very far north to breed. It nests in many parts of Europe, but nowhere numerous, except perhaps in East Prussia, where, according to Mr. E. Hartert, it breeds in great numbers on the vast fresh-water basins known as the Kurische and Frische Haff, formed by the rivers Pregel and Niemen. In Russia it goes as far north as Archangel, also breeding not uncommonly in Denmark, but only casually in Scandinavia. At Heligoland it has only been recorded three times in half-a-century; rare also in Færoe. In Transylvania Messrs. C. G. Danford and Harvie-Brown report it as common on lakes and rivers, and Messrs. Elwes and Buckley say in Bulgaria it seems to take the place of the Common Teal, and remains to nest. Mr. W. Eagle Clarke saw two drakes on a sheet of water in the Camargue (the delta of the Rhone) on May 18th, 1895, a locality where in all probability the nest will be found sooner or later. Lord Lilford says a few pairs nest in Andalucia, in Southern Spain. In Portugal it arrives in large numbers on the spring migration, but not to breed. The winter range of the Garganey in Europe covers the mainland of the whole basin of the Mediterranean and the great islands, as Corsica, Sardinia, and Cyprus; in Egypt it is tolerably abundant up to the end of April.

Across subarctic Asia the Garganey's breeding range extends a long distance

eastward, having the same distribution on the Pamir as the Pintail, but found more numerous on the rivers. In Turkestan it breeds in several districts, also is reported to breed in Northern India and Burmah.

In winter the Garganey is common near Aden, southern Persia, September to March; Afghanistan rare; has been obtained at Kandahar end of March; at Gilgit passes through to and from India in September and March and into April; in India and Burmah it is found in flocks of thousands in winter, leaving again in April; in South-east China abundant in autumn and spring, and on the Lower Yangtse Basin in April is rather common on passage to the north; it has also been got in Hainan, Borneo, and Celebes. In Japan also in the winter, it is not easy to understand where the Japan birds migrate from, their presence being suggestive of an extension of the breeding range into the north-eastern districts of Asia.

The Summer Teal which visit the eastern parts of England in the spring are always in pairs, and there is some reason to suppose that they enter England in the extreme south-west, and pass across the country to the eastern side. I am not able to speak much of their habits from actual experience, but having flushed a pair occasionally when fishing on a small stream in North Lincolnshire in the spring, am able to affirm that they rise very quickly and almost perpendicularly from the water and fly with great rapidity. On the wing they look larger and darker than the Teal and have a longer neck, carrying their head well out before them.

The nest of the Garganey is said to be placed in the most inaccessible reed beds; Mr. Southwell, however, ("Birds of Norfolk," Vol. III), shews that it is very frequently placed in high and open situations, carefully concealed in a tuft of coarse grass, the nest itself is described as very deeply cup-shaped, composed of grass and thickly lined with down from the parent bird, so as to make it very snug and warm. The down of a Duck's nest is often a great assistance in diagnosing the species, in this case it is very dark and differs from that of *Q. crecca* in having white tips, and it can hardly be mistaken for the down of any other species. The eggs vary from eight to fourteen, and are exactly like those of the Teal, but slightly larger, buffish-white or cream coloured; incubation lasts about three weeks. The young very much resemble those of the Mallard. I know of no Duck so late as this is in getting its full plumage in the autumn moult. The flesh of the Garganey is of little esteem for the table.

Lord Lilford says that his principal acquaintance with this Duck was in Turkey and Andalusia; "it arrived in the former country in very large flocks about the end of February and remained throughout March in the tamarisk and

willow swamps. A flock of Garganeys twisting amongst trees presents a very remarkable appearance, from the simultaneous flashing in the sun of the blue-grey wing-coverts of the male birds amidst the pale green of the early spring foliage. The birds are very restless and perpetually dashing in from place to place with a curious harsh rattling note." * This note it is said is only heard in the breeding season; the ordinary call may be represented by the syllable *knake* or *knack*.

The food of the Garganey is composed much of the same substances as the Teal takes, these being both of an animal and vegetable nature.

The long slender neck of the Garganey resembles that of the Pintail, and its plumage in some respects approaches both the Pintail and Shoveler. The weight of an adult male in good condition is about one pound, three ounces. The female is considerably the smaller.

Family—ANATIDÆ.

WIGEON.

Mareca penelope, LINN.

EXCEPT in summer, this is one of the commonest species of Duck on the coasts of the British Isles, often occurring in enormous numbers wherever the conditions are suitable for a regular supply of food in the shallow bays and estuaries along the coast.

Although a resident in Scotland and Ireland the nest of the Wigeon is said not to have been found in England, there is, however, strong presumptive evidence that in a few isolated cases it has remained to nest. Dr. Dobie, ("Birds of West Cheshire"), quoting from Brockhole's list of the "Birds of the Wirral District," mentions two instances of Wigeon nesting—(see also "Ibis," 1865, pp. 438-444).

* Hence a local name "Cricket Teal" in Norfolk.



WIGEON ♂ ♀

J.M. Troshaw

The male bird has been seen on inland water in the summer, notably on the Broads of Norfolk. In the early autumn I have more than once in Lincolnshire met with young broods and shot examples under circumstances which practically left no doubt of wild birds having been successfully reared not very far from the immediate neighbourhood.*

In north-east Lincolnshire there are two distinct arrivals of Wigeon—broods which come very early in the season, perhaps moving from the more northern parts of these islands—and the great body of foreign immigrants from the middle of October to the middle of November. The earliest date for the former in my note-book are August 26th and September 5th, 7th and 13th.

On the coast of Merionethshire, Mr. Haigh says the Wigeon sometimes appears in October in large numbers, which increase to the end of November, and leave again in February and March, a few remaining into April and occasionally as late as the middle of May. Owing to the absence of food on the hard sands they go inland at night to feed, and many are killed by the flight-shooters on the saltings and marshes.

The Wigeon breeds abundantly in several districts in Scotland north of the Forth. In Orkney regularly for many years past in Hoy. In Shetland, Mr. Saxby used to receive eggs from Yell, Unst, and Hascosea. Mr. Grey never took the nest in the Outer Hebrides, although he had no doubt a few pair nest there regularly. Mr. J. A. Harvie-Brown considers it a rapidly increasing and extending species in many parts of North Scotland. South of the Forth several pair are known to nest on a few obscure lochs in Selkirkshire; and according to Mr. George Bolam there is strong probability of Wigeon remaining to nest in localities north and south of the Borders, ("Ann. Scot. Nat. Hist.," Oct., 96). In Ireland, where it is known in great numbers in the winter, a few remain to nest on the great loughs and inland waters.

The breeding range of the Wigeon extends across the Arctic and Subarctic regions of Europe and Asia. Mr. Seebolin took the eggs in the lower valley of the Danube, which is probably the most southerly limit of its nesting quarters in Europe. In Scandinavia it is one of the commonest of the northern Ducks, but does not extend its range into the extreme north and the islands in the Arctic Ocean. One was got on Waigats Island, in September, by Th. Von Heuglin. It nests in Iceland and also in Færoe; is very common about Archangel and the White Sea in summer. Mr. A. Trevor-Battye saw a pair in Kolguev in June. Messrs. Seebolin and Harvie-Brown, ("Ibis," 76, p. 444), consider it the most

* Since this was written, the Rev. Murray Mathew has called my attention to the fact of the Wigeon having presumably nested for some years on Slapton Ley, in Devon.—See the *Supplement* "Birds of Devon," pp. 20-22.

abundant species on the shores and islands of the Petchora between Ust Zylma and Alexievka, judging from the immense numbers of their eggs found or brought to them by their collectors. On the Yenisei, Mr. Seebohm says, it became very common as soon as the ice broke up; he took the first nest, with seven eggs, on June 18th. It occurs, with immense numbers of other Ducks, on the great lakes of Central Asia, Baikal, the Ala-kul and Mara-kul, where it was seen by Dr. O. Finsch. Its range extends far to the north-eastern into Kamtchatka, and it is rather common in the Aleutian group and the Alaska peninsula.

Returning to Europe, Mr. E. Hartert says that in East Prussia the Wigeon is common on passage and in winter, but only breeds in small numbers. In Transylvania common on migration, spring and autumn, and in Turkey common as the Mallard, but only in winter. Great numbers winter in Spain and Portugal, and in countries on both sides of the Mediterranean basin. In Corsica plentiful to the beginning of March. In the Caucasus it is not common, although very abundant on migration at Astrakhan. In Turkestan on passage and in winter. A winter visitor to Kandahar; at Gilgit only on migration. A common winter visitor to Northern, but uncommon in Central India. Very many winter in Burmah, China, Hainan and Japan, and it has once been shot in Borneo, in November, 1875. Dr. O. Finsch had a single example obtained on the Marshall Islands, in the South Pacific, on October 26th, 1879, probably a far driven bird as it was a mere skeleton clothed in feathers.

According to Reinhardt the Wigeon has occurred occasionally in South Greenland, and has been obtained on the Atlantic coast of North America, and on the Pacific coast as far south as San-Francisco.

Formerly immense numbers of Wigeon were captured in decoys, and Colonel Montagu says more were caught in those of Somersetshire and Devonshire than Duck, Teal, and all other wild-fowl put together. From their suspicious nature they have always been considered a difficult bird to decoy. In the Ashby decoy, in north-east Lincolnshire, the Wigeon was never a common species, for out of 93,232 Ducks and Teal taken in thirty-five years, only 2019 are entered as Wigeon, this is more remarkable when we consider how plentiful it is on the Humber in winter. The proportion does not seem to have been much greater in the Norfolk decoys. Mr. Southwell states (Stevenson's "Birds of Norfolk," Vol. III, p. 174) that in 1864, at the Ranworth decoy, were taken eight hundred and seventy-seven Ducks, seventy Teal, three Shovelers, one Pintail, one Tufted Duck, one Goosander, and only eight Wigeon. It was, however, in the Essex decoys in old days that the great hauls of Wigeon were made; from an old decoy book, (that of Canney marsh decoy), which was kindly lent to the writer, I find that between the years

1714 and 1726, 44,677 Wigeon were taken in the following monthly proportions: August 1,085; September 15,897; October 18,671; November 7,655; December 1,085; January 275; February 9. This proves that one hundred and fifty years since, the great takes of Wigeon were made in the early autumn months, not as at present, in January, February and March, that is on the return migration from the south.

Some of the best days in the Canney marsh decoy were:—September 20th, 1714—1 Duck, 20 Teal, 785 Wigeon; September 23rd, 1715—7 Teal, 1 Pintail, 478 Wigeon; October 7th, 1715—6 Teal, 4 Pintail, 512 Wigeon; October 14th, 1715—2 Teal, 1 Duck, 490 Wigeon; October 18th—1 Teal, 1 Duck, 1 Pintail, 537 Wigeon; August 23rd, 1716—3 Teal, 548 Wigeon; September 16th, 1717—702 Wigeon, and 348 on previous day. The two best months were:—September, 1714—39 Duck, 81 Teal, 9 Pintail, 3907 Wigeon; September, 1717—12 Duck, 8 Teal, 1 Pintail, 3440 Wigeon. The best year was 1714—675 Duck, 347 Teal, 46 Pintail, 6296 Wigeon. The total of thirteen years was:—4576 Duck, 1396 Teal, 138 Pintail, and 44,677 Wigeon—total 50,787.

A large proportion of the Wigeon which visit the Humber in winter are males. Mr. Boulton, of Beverley, (“Zoologist,” 1865, p. 9528), remarks:—“The Wigeon shot on the Hull river are usually male birds, either old or young, a real mature female is quite a *rara avis*.” Mr. St. John, writing of Loch Spynie and the wild-fowl shooting on it, says:—“there seems to be an immense proportion of drakes amongst the Wigeon.” On the other hand the late Dr. Saxby, writing of Shetland, says:—“adult males are always very scarce.”

Wigeon are early migrants, and are paired by the middle of February. I have met with flocks late in January all males, and by the middle of the next month each drake swam in company with a duck; by the middle of March they have left the Humber, and I have once seen them as late as April 1st.

The late Colonel Russell, of Stubbers, told me (*in litt*) that in 1880, on February 15th, thousands of Wigeon arrived on the Essex coast on their spring migration. These were all “yellow-bellied,” that is, stained with rufous on the under parts, which he considered the result of peat-stained water.

Those who are interested in the subject of punt-shooting should consult “The Fowler in Ireland,” by Sir R. Payne-Gallwey; also “Bird-Life on the Borders,” by Mr. Abel Chapman, both writers having done their best to popularize this branch of sport. In Ireland, Wigeon greatly predominate in the fowler’s return; out of fifteen hundred wild-fowl killed by the first named author, in 1880-1, twelve hundred were Wigeon. The best time to approach Wigeon with

success is in the lull of a protracted storm, when they are eagerly on the feed and much less shy and suspicious.

The ordinary note of the male Wigeon is a shrill whistle, a sound which like the "wheuple of the whaup" is strikingly in harmony with the usually dreary and retired character of their feeding grounds. Often in former years when sitting concealed in a prepared hole on the oozy slob, have I listened to the familiar whistle of the male, or the purring growl of the female, as they fed greedily on the *Zostera* beds, for no Duck is fonder of this marine grass than is the Wigeon.

The flesh of the Wigeon is said to be inferior to that of the Mallard and Teal, but I have not found this to be the case, and prefer a Humber fed Wigeon to any other species, of course much depends on the cook and the sauce,* but these being up to the mark then the subject of this notice will bear off the palm against the rest of his order.

Generally Wigeon fly very silently, and except when in great bodies the sough of their wings is not so apparent as with some other Ducks. They are a very active bird on land, and graze on the short grass much after the manner of Geese. Their usual food consists of land grasses and their seeds, and various aquatic plants both fresh-water and marine, notably the common grass-wrack *Zostera marina*. Lord Lilford says that in fresh-water the favourite food is decidedly the willow-herb (*Potamogeton*); and the late Mr. Anderson, of Newcastle, says that his tame birds were very fond of feeding on the willow leaves which drop from the trees in the autumn.

The nest is generally very well concealed and close to water, and like the nests of other Ducks is built up of grasses and dead plants, the eggs being buried in down; these, usually six to ten, are of a creamy-white. The males are very solicitous about the safety of the young brood if their haunts are disturbed, and become very noisy and excited.

Local names of the Wigeon on the east coast are "Winder," "Whistler," (from its note), and commonly "Whewer" or "Whew" Duck, and in Norfolk "Smee" Duck. The name is sometimes spelt with a *d*, this is incorrect and a modern innovation. Professor Skeat says that the name *Wigion* occurred as early as 1570.

* The following recipe was given me by an old gentleman, a bon vivant, who wrote a treatise on cookery. We have never found it excelled as a sauce for wild-fowl. "One salt-spoonful of salt; $\frac{1}{2}$ to $\frac{3}{4}$ cayenne; one dessert spoonful of lemon juice strained; one dessert spoonful of pounded sugar; one dessert spoonful of ketchup; two dessert spoonfuls Harvie's sauce; three dessert spoonfuls of port wine. All the above ingredients to be well mixed and heated and poured over the Duck; the Duck must not be too much roasted, and must be put on the dish without any of the gravy which comes from it."

Family—ANATIDÆ.

AMERICAN WIGEON.

Mareca americana, GMEL.

THIS Duck, which is best known on the other side of the Atlantic as the Bald-Pate, is distributed over the whole of the American Continent, from the Arctic Ocean to Mexico, Guatemala, Cuba, and the West Indies, and it breeds nearly throughout its range.

The American Wigeon has occurred twice in the British Islands, and perhaps more frequently without recognition. The first occurrence on record is an adult male, now in Mr. J. H. Gurney's collection, and was purchased in the winter of 1837-38, in Leadenhall market, by Mr. Bartlett, formerly the superintendent of the Zoological Gardens, in Regent's Park. The last is a young male purchased in the Leeds market, in the winter of 1895-6, and now in the possession of Sir R. Payne-Gallwey. This bird was traced to Ireland, having been forwarded in a consignment of wild-fowl from that country.

In the adult American Wigeon the head and neck are greyish, the former with the feathers thickly spotted and the latter barred with black; top of the head nearly white; a broad and continuous patch of green around and behind the eye; this green patch seems to be much more pronounced in the American than in the English bird. I have, however, an example of *M. penelope* in which the bronze-green patch covers nearly the whole side of the head, and is quite as large as in the fully matured American bird. The blackish chin in the American Wigeon, and the same applies to the European, is only found in very highly plumaged birds.

The female American Wigeon is very much like the European, but may be known by its velvet-black alar bar. Young in first plumage have a metallic alar speculum.

Family—*ANATIDÆ*.

POCHARD.

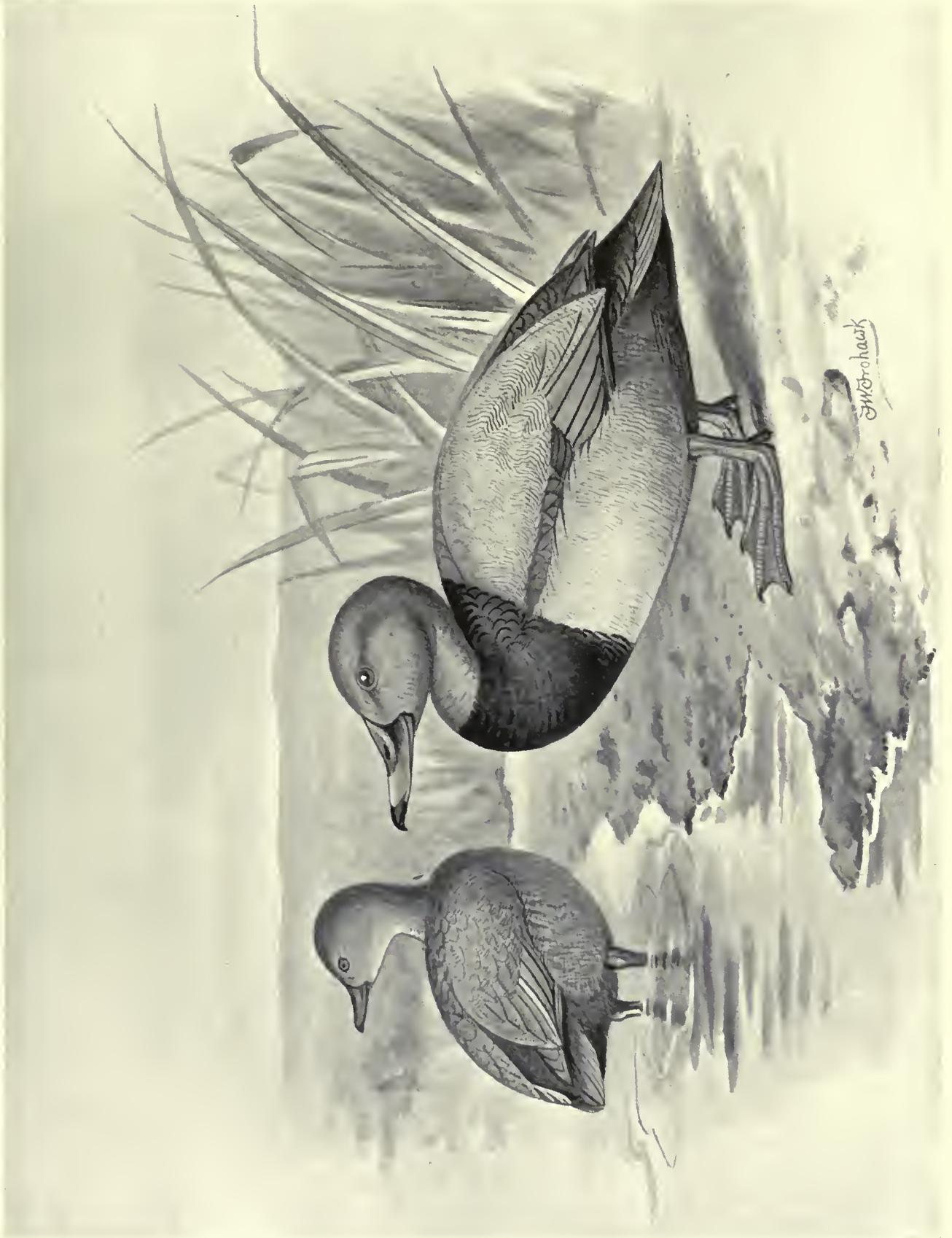
Fuligula ferina, LINN.

THE Pochard, Poker, or Red-eyed Poker, of which the female is known as the Dunbird,* is a common winter visitor to the British Islands, and some remain resident throughout the year nesting in suitable localities. It is generally distributed over the greater part of Europe and Asia, except in the Arctic and Subarctic regions of both Continents, also (if we refuse to admit the specific validity of the American Pochard, *Fuligula americana*) covers a great part of North America. American examples of the Pochard differ in being slightly larger and with no black at the base of the bill, greyer back and whiter belly. America, however, possesses a closely allied species in the famous Canvas-back Duck, *F. vallisneriana*, a name derived from a fresh-water plant on which it feeds and thereby obtains its delicate flavour. The Canvas-back is a much larger Duck than the Pochard and with a longer, slenderer and more tapering bill, and there are also differences of plumage, the chief of which are the character of the markings on the back; these in the former have the waved lines of black more open and less prominently marked, the ground-white colour greatly predominating: a well-marked feature to which it owes its familiar name of Canvas-back.

The immigrant Pochards arrive on our shores in October, and occasionally are met with as early as the middle of September; they are by no means an exclusively marine and estuarine species, but great numbers resort to inland waters, particularly those which are shallow in some parts and have their bottoms overgrown with weeds; they are very rapid divers, feeding almost exclusively under water. On the Lincolnshire coast Mr. G. H. Caton Haigh considers the Pochard a rather scarce Duck; he has oftener met with old red-headed males than females or young. It is, however, very irregular in its appearance, a year passing without coming across a single flock; at the beginning of this century it was very common in the fens and in Thoresby Field, in North Lincolnshire.

As a winter visitor the Pochard is far more numerous in Scotland and Ireland

* In many localities this name is applied indiscriminately to male and female, young and old alike. In the Fens they used to be known as "Parkers" or "half-birds."



POCHARD ♀ ♂

than in England. In Scotland immense flocks visit the fresh-water lochs of the west and the muddy estuaries of the east coast. On Loch Lomond, Mr. Robert Gray says, hundreds congregate feeding in the shallows round the islands and flying in company with Wigeon and Tufted Ducks. In the Shetlands it occurs in October in small flocks, but at uncertain periods. In the Orkneys, in some years, in vast numbers on the lochs of Skaill and Stenness; a winter visitor also to both the Outer and Inner Hebrides, but scarcely an abundant species.

Mr. Haigh has met with it in Merionethshire both on the coast and inland, but odd birds only, and at long intervals.

I have never considered the Pochard a common species on the east coast of England; in some winters it is fairly plentiful in the Humber, and in others we may perhaps never obtain an example. In the winter of 1885-6 it was common, particularly adult males, and the following winter both adults and immature, and again, 1889-90, with a preponderance of male birds. The sexes probably to some extent separate in winter. On January 26th, in 1889, I saw twelve adult males swimming in company on Croxby pond, a lonely sheet of water on the Lincolnshire north wolds, and at the same place in 1891, on March 19th, six adult males and four immature males, acquiring the adult plumage. Again on January 9th, 1893, three were shot from a small flock of five with a punt gun at Tetney, on the Lincolnshire coast, these were all adult males in splendid plumage. On May 23rd, in 1863, I saw three adult males in the Humber; these may have come from some local breeding place like Hornsea mere.

Mr. Abel Chapman ("Bird-life on the Borders") says:—"In punt-shooting on the coast we never meet with them." He considers that although formerly abundant, according to the recollections of old fowlers, the Pochard is now rarely met with.

Of its former status in the fens of the eastern counties we know very little. The Pochard was much disliked by decoymen, because when a flock entered a decoy they speedily, by diving, devoured the corn intended for other Ducks, and were far too wary to enter the pipes, and in those cases in which the enticements of food induced them to do so, they invariably managed to escape by diving towards the entrance. It was very rarely that one allowed itself to be circumvented and decoyed into the tunnels.

Sir R. Payne-Gallwey ("The Fowler in Ireland") says Pochards arrive about the end of November in small parties, and increase up to the middle of January. The majority of those killed appear to be adult males. Their abundance or otherwise seems dependent on the severity, or otherwise, of the season, they may be

seen on the south-western estuaries in numbers from a dozen to a thousand, and once, after a gale, he saw five thousand together.

A considerable number of Pochards remain to nest in the British Islands. In the Orkneys there is strong presumptive evidence ("A Fauna of the Orkney Isles," J. A. Harvie-Brown and T. E. Buckley) that it nests annually on Loch Skail, and probably on other lochs in the neighbourhood as well, while in 1896 the nest was found at Hoy; also in Fifeshire. It is reputed as nesting in several localities in the Tongue district; also in Loch Spynie, St. John's old hunting ground. On May 20th, in 1876, the writer saw several in the shallows of Loch Oich, in Inverness. Some years since, in June, Mr. Abel Chapman and his brother saw at least a dozen Pochards (mostly adult drakes) on a small lough on the Scottish side of the Border, under circumstances which left no doubt they were breeding.

In England, I have no doubt, it has nested on the Northumberland lakes, some which I have visited are admirably adapted for its habits, densely fringed with reed beds and very quiet, being strictly preserved. Formerly it nested in the mere at Scarborough. In 1881 about fifty pair were nesting on Hornsea mere, in Holderness; and in recent years it has, to my knowledge, nested in two, if not three, localities in North Lincolnshire. It breeds also fairly plentifully in Norfolk, and in Hertfordshire at the Tring reservoirs. Although common on the lakes of Nottinghamshire in the winter, I was never able to ascertain that it had remained to nest.

In Ireland Sir R. Payne-Gallwey gives an instance of its breeding on Lough Derg, in 1880. Probably also it nests regularly in other localities in some of those weed-grown loughs with which the country abounds, and which are so rarely visited by any having a knowledge of ornithology in the summer months.

Beyond the British Islands its geographical nesting range extends from Denmark and Holland across Europe and Asia to Lake Baikal. It has not been recognized as nesting in Iceland, though one was shot some years since on Thingvalla lake in the middle of June. Professor Collett does not include it amongst the breeding birds of Norway, and classes it only as a very rare visitor to that country. In the middle of August, 1896, the writer saw an adult male, which had partly recovered his full plumage, close to the steam-boat when passing through a narrow sound on the Norwegian coast, a little south of the Arctic circle.

Mr. E. Hartert says this species is not uncommon on passage in East Prussia, and breeds on some of the lakes. In Russia it nests as far north as Lake Ladoga, and it has occurred near Archangel in summer. In Central Europe it is found in Slavonia and Hungary, breeding in some numbers on the Obedska Bara; common

also and nesting on the lakes of the Mezöség, in Transylvania. In 1892, Lord Lilford had a female and a quantity of eggs brought to him from the marisma below Seville, and was told that in the previous spring and summer the species had been most abundant.

The Pochard is a common winter visitor to Portugal and Spain; examples have been obtained in Tenerife, in February. It is common in Sardinia and Corsica in winter; in Morocco, Algiers, and Tunis, ranging through Egypt and Nubia, but more plentiful in the Delta; common in Turkey and Asia Minor also at the same season. Canon Tristram saw small flocks skimming the water of the Dead Sea at its northern end, in the winter.

It is found all through the plains of the Caucasus, and is extremely abundant on the Kirghiz Steppes in summer. Severtzoff records it as common in Turkestan both on passage and in the winter. Colonel Swinhoe did not find it plentiful near Kaudahar, where a few only were shot in March. Great numbers winter in Persia and on the jheels of Northern India, also in China. Captain Blakiston sent an example from Hakodadi, where it may be more frequent than is supposed, being not uncommonly figured in Japanese native drawings.

Pochards nest about the middle of May, the nest is generally placed close to the water and well concealed, composed, like the nests of most Ducks, of dead grasses and sedges; the eggs, of a greenish-buff colour, from seven to twelve, and bedded in down, very much like the down of the Mallard. The young nestlings resemble young Wild Ducks, but the size of the lobe of the hallux will readily distinguish them.

The flight of the Pochard on first rising is low and heavy, the wings being small in comparison with the body. At flight time they come in from the sea in close order or clumps, and often offer a good shot, but they are an exceedingly hard bird to bring down, carrying a lot of shot. In the autumn I have not unfrequently found single birds in ponds in the fields, but these are invariably young of the year. Their ordinary call is a whistle and the alarm-note on being disturbed a croak.

Pochards are readily distinguishable in flight by their dark fore-parts, and wings, and light bodies. They are a heavy plump bird and the males will weigh from 2 to 2½ lbs. Their food is chiefly vegetable, torn up from the shallows of grass-grown lakes and ponds, they also take worms, snails, mollusca, acorns, beech-nuts, and on the coast and at sea various marine shells, sea-urchins, crustacea, and the rhizomata of *Zostera* and salt-loving plants; one kept in captivity by Mr. St. John preferred worms before anything.

The flesh of the Pochard is in great esteem; I have, however, on this coast

found it invariably very inferior to the land-feeding Ducks. Their flavour and quality depends entirely on the special character of their food. Thus Mr. Robert Gray ("Birds of the West of Scotland") says that on the west coast of Scotland the Pochard is a useful bird for the table, but on the east coast is in poor request.

The male Pochard in full plumage is a remarkably handsome bird; the head and neck chestnut-red, contrasting with the ruby-coloured irides; the breast and fore-part of back brownish-black; the upper parts minutely undulated with dark lines on a whitish ground; tail-coverts blackish-brown; the speculum is grey; bill black with a blue centre; the wings and tail greyish-brown. They vary much in size, the adult female is considerably less than the male, with the head and neck reddish-brown; throat inclined to white; the vermiculations on the upper parts are brown and not black.

Bones of the Pochard in the British Museum were obtained from superficial deposits at Barton, in Norfolk. Mr. Lydekker points out that all members of the subfamily *Fuligulinae* have the upper part of the anterior surface of shaft of the tibia much flattened. The form of humerus is also different from *Anatinae*.

Family—ANATIDÆ.

RED-CRESTED POCHARD.

Fuligula rufina, PALLAS.

THIS very beautiful Duck is a south and south-eastern European species, also in some parts of North Africa, and a considerable extent of Asia. It is common to the western Mediterranean basin, but rare in the eastern. The range therefore is comparatively a restricted one.

In Mr. Harting's "Handbook of British Birds" there are sixteen occurrences of the Red-crested Pochard recorded between 1818 and 1869, this number would



RED-CRESTED POCHARD ♀ ♂

be materially increased if we take into calculation that in the winter of 1826, Mr. Bartlett saw several exposed for sale in Leadenhall market (Nat., Vol. III, p. 420). Also a flock of eighteen, of which only one was got, was seen in the Thames, at Erith; and there are also Norfolk specimens unrecorded in Mr. Harting's book. In 1881, on January 18th, one was shot near Tralee, in Ireland. Altogether one is recorded for Scotland, one for Ireland, two for Wales, and the remainder for England.

The Red-crested Pochard has, as far as I know, not been obtained north of the Baltic; there is a male and female in the Konigsberg Museum stated to have been killed in that province. Gätke has not recorded it in Heligoland. It has occurred, but only as a wanderer, to Holland and Belgium. It is known to breed in several localities in Germany and in the valley of the Danube. In Transylvania it is rare, but has been shot on several occasions on the Meöseg. According to Favier it is extremely rare in Tangiers; and Colonel Irby never met with it on either side of the Straits.

In the Albufera, of Valencia, Mr. Howard Saunders found it very abundant in 1863, and, although greatly reduced in numbers, it was the only species he found there in May 1870. The species winters in Sardinia and, according to Salvadori, breed in one locality. It is one of the commonest breeding Ducks in Sicily. It is not uncommon as a nester in the Camargue, that is the Delta of the Rhone, where Mr. W. Eagle Clarke found it in May, 1894. Canon Tristram found it nesting on the Algerian lakes. It is a winter visitor to the Italian lakes. Mr. E. Cavendish Taylor has recorded ("Ibis," 1878, p. 374) a fine male shot at Damietta: a new species for the Egyptian list.

The Red-crested Pochard is seen near Astrakhan, but is not common; it winters in the Caucasus and probably breeds there; according to Severtzoff breeds in several districts of Turkestan, also Persia; at Kandahar Colonel Swinhoe says a few were shot in March, but it was not common; it is fairly numerous, according to Col. Sir O. B. St. John, in Southern Afghanistan and Kelat, and is reported to be an exceedingly common species in northern and central India in winter, thousands assembling on the jheels and sheets of water. My son, however, Captain W. W. Cordeaux, does not consider it a very common Duck, although a few will form part of most bags at the end of a days wild-fowl shooting. Unlike most of the diving Ducks it is an excellent bird for the table. In July, 1862, an immature male was purchased in the Fulton market, New York, probably shot on Long Island Sound; this is the only occurrence recorded for the New World.

The most recent addition to our knowledge of the breeding habits of this

Duck is that made by Mr. W. Eagle Clarke, ("Ibis," 1895, p. 203), from notes taken by him in the south-western Camargue, in May, 1894. On an island in one of the shallow *etangs* they came upon a nest with the female on; "this was placed in the centre of a thick tangled mass of purslane (*Atriplex portulacoides*) so dense that it was reached by a covered way, two feet in length, worked in the shrub where it rested on the soil; the nest was on the ground, and consisted of a broad rim of down, with a few short dry tamarisk twigs, and contained ten fresh eggs. A few yards further on another duck of this species was disturbed—this time from under an immense shrub of seablite, quite four feet in height and as many in diameter. The nest in all respects resembled the last, and contained seventeen eggs of two distinct types, and probably the production of different females. The eggs of one set were white and were all singularly mal-formed. The normal eggs are of clear pea-green, and a trifle smaller than those of the Pochard. The down in the nest closely resembles that of the Eider-Duck in tint. Both nests were about six yards from the water, and the birds wriggled off at our feet."

All who have had the advantage of seeing the male bird in a state of nature speak of its exceeding beauty. Mr. A. B. Brooke, who saw it in Sardinia, says: "the males have a peculiarly handsome appearance in the water, with their bright-red bills and black breast plates shining and glistening in the sun as if they were polished." Mr. W. Eagle Clarke and his companion "were at once much impressed with the extreme beauty of these birds, which greatly exceeded our conception formed from cabinet specimens and portraits. We particularly noticed that the elongated feathers of the head, as seen under the brilliant sunlight, appeared to be fringed with gold."

The late Mr. John Henry Gurney, describing one of the Norfolk specimens killed in the winter of 1844, and now in the Norwich Museum, says:—"when newly killed it was as beautiful a bird as I have ever seen; the beak was of a most splendid vermilion-red colour, the nail of the beak being also red, but paler than the rest. The colouring of the beak began to fade soon after the bird was mounted, as also did another beauty which was apparent when the bird was first killed, and which consisted of a wonderfully elegant tinge of rose colour, which pervaded the whole of the white part of the plumage, especially the two large patches on the back above the shoulders."—"Zoologist," Vol. II, p. 576).

Some of the most beautiful tints in birds, particularly those of the soft parts, are lost very rapidly after death. The faded and badly set-up specimens in some Museums, are but miserable caricatures of nature when matched against the living creature in all the brightness and freshness of glorious life. I was



FERRUGINOUS OR WHITE-EYED DUCK ♂ ♀

recently much struck with this in an example of the Eastern Houbara Bustard, shot at Easington, near Spurn, on October 18th, in 1896; within a few hours the beautiful salmon-pink which pervaded the base of the feathers on the back and breast had either disappeared or faded to the merest tinge of colour. Subsequently also, after skinning, it lost that beautiful undefinable tint or gloss of purple which was at first perceptible on the body feathers.

The Red-crested Pochard is a true diving Duck, and has the hind toe with a broad membranous lobe like the rest of the *Fuligulinae*. It is said to be an expert diver, and its food, which is partly vegetable, is chiefly obtained in fresh water.

In the adult male, which is considerably larger than the Pochard, the bill is bright crimson; nail white; irides reddish-brown; legs and toes bright orange, the webs darker; upper neck and head with the thick dense crest chestnut-red, but lighter on crest; the remainder of neck, breast, and most of the abdomen and lower back, black; back and tail yellowish-brown; the speculum, two patches near bend of wing, and flanks, white; in fresh killed specimens these white parts are tinged with rose. Weight 2-lbs. 6-oz. to 2-lbs. 10-oz., or an average of 4-oz. over the Common Pochard.

The female has no crest; the plumage consists of various shades of brown, with the cheeks, throat, and sides of neck, greyish-white.

Family—ANATIDÆ.

FERRUGINOUS OR WHITE-EYED DUCK.

Fuligula nyroca, GÜLDENSTÄDT.

THIS small and soberly-clad Duck is an occasional wanderer to the British Islands in the winter and spring months, and chiefly in localities on the east side of the country, notably the county of Norfolk, where the great extent of

fresh-water, bordered by dense aquatic vegetation, is admirably adapted to their requirements, and I should never be surprised to hear of a pair remaining to nest in so likely a locality.

The distribution in Europe is peculiar, for it is not known to nest north of the Baltic or in Denmark proper. There is evidently no migration from the north across Heligoland, as only one example is known to have occurred there in fifty years. Mr. Ernest Hartert says it is not uncommon in East Prussia in summer, and eggs may be got by the middle of May. It is represented amongst the Ducks in the Archangel Museum. In Central Europe it nests in several localities; in Transylvania a great many occur on passage in the middle of May, and some probably remain to nest. It is resident and breeding in Turkey, and other countries on the northern side of the Mediterranean. In Spain the White-eyed Pochard nests regularly in the lower marshes of the Guadalquivir. Colonel Irby records it as common in some parts of the marismas, commencing to nest about the end of April. Mr. A. Chapman found it numerous in April in the reed beds bordering the lakes in the Coto de Doñana, but failed to get the eggs, ("Ibis," 1884, p. 78). Lord Lilford, however, had obtained the eggs from this same locality in May, 1872. It occasionally wanders as far as the Canaries. In Sicily it is one of the commonest breeding species. In Sardinia, according to Mr. A. B. Brooke, it appears to be very rare.

On the African side of the Straits it is common and resident in Morocco, and equally so in Algiers and Tunis. In Egypt it is not recorded as breeding. Colonel Shelley says, ("Birds of Egypt," p. 288), it ranges through Egypt and Nubia, and is very plentiful on the large lakes of the Fayoom and Lower Egypt. On Birket-el-Karun, he used daily to see thousands together near the centre of the lake; when disturbed they rose with a running flight, striking the water rapidly with their feet, and in so doing making a noise which might be distinctly heard a couple of miles distant.

Dr. F. H. H. Guillemard found it in Cyprus, in February. The most southerly range of the *Nyroca* is Ceylon; also Madagascar where it has a local name. The White-eyed Duck is very common in the valleys of the Kuban and Terek in the Caucasus. It is resident and breeding in Ferghana; also on lakes on the Pamir. At Gilgit it occurs on passage in spring and autumn. In Afghanistan, next to the Gadwall, Lieut. Col. C. Swinhoe ("Ibis," 82, p. 125) records it as the commonest Duck in the country, arriving early in February, and some appearing to breed in the country. He has flushed them in pairs from reeds and tamarisk on the banks of the water-courses in the Pisheen, and right down the Bolan, as far as Kirka, in May.

Captain W. W. Cordeaux (21st Lancers) writes, (*in litt*), this "little Duck is the first to tell the jaded sportsman, who has been panting through the long hot season, that it is time to write and order cartridges, appearing as it does about the middle of October, before the great rush of wild-fowl takes place. It is also one of the latest to go, often remaining as long as the last week in April or first in May.

Its favourite haunts are pools of water, and the large weed-encumbered marshes and tracts of flooded land, found everywhere in India. As far as I have noticed this Duck is a bottom-feeder, constantly diving for weeds in the shallow water. Many remain to breed amongst the rushes which fringe the Wular Lake, in Kashmir, though the bulk go further north; some breed, I have been told, on the shores of the Tso Morari. I have noticed this Duck coming in small flocks as early as the first week in September, down the valley of the Suru river." Dr. O. Finsch observed it with the downy young on the river near Obdorsk, the most northerly station in Tobolsk, at the end of August. In the winter it occurs in some numbers in Northern China, also visiting Japan.

The White-eyed Duck has not unfrequently been exposed for sale in Leadenhall market. In 1871, in March, an adult male was shot from a small flock on the east coast of Ireland. In 1879 Sir R. Payne-Gallwey shot two in immature plumage also on the east coast of Ireland; and on October 9th, in 1895, an immature male was shot at Yarmouth, this being, as far as I am aware, the last occurrence on record in England.

The nest has been described to me as made in dense reed beds on the sides of lakes and rivers, it is rather a bulky structure, not unlike a Coot's, of fragments of reeds and rushes; the eggs, eight to ten in number, are buried in a mass of dark down; they are creamy-buff with a greenish tinge.

The adult male has the whole of the head, neck, and fore-part of breast and sides a rich deep reddish-brown or ferruginous; encircling the middle of the neck a more or less distinct brown ring; a white spot on chin; speculum white, and very conspicuous, bordered with black; breast and under tail-coverts white; abdomen dusky; upper parts brownish, with a green gloss and a great many minute specks; irides white, (hence the name); bill and feet bluish-black.

The female is a very obscurely coloured bird, the prevailing colour shades of brown; there is no ring on the neck; wings as in the male; irides less conspicuously white, also the under parts. I have no knowledge of transition plumage. The note is said to represent the words *kirr, kere, kirr*, harshly given, and has a certain resemblance to that of the Pochard and Tufted Duck.

Family—*ANATIDÆ*.

TUFTED DUCK.

Fuligula cristata, LEACH.

THE Tufted Duck is a very common species, and is distributed either as resident or on migration over a great part of Europe, Asia, and North Africa; it is not, however, recorded from any portion of America. It is a very regular autumn visitor to the British Islands, and large and yearly increasing numbers nest in various localities. The Tufted Duck has probably nested in Scotland, notably at Loch Leven, since the beginning of the century; in England, in Nottinghamshire, since 1849, and in Ireland since 1875. Its gradual extension as a breeder over the country is very remarkable, and may, in recent years, have been accelerated by the "Wild Bird's Protection Acts." It has also been largely introduced to private and artificial waters.

The Tufted Duck does not occur in Iceland, and is not included in the Catalogue of the Birds of Greenland. It is recorded as nesting in Færoe in 1872, and is fairly common in Norway, except in the north, but increases very considerably in numbers eastward across Sweden, Finland, and Russia. It is a common summer visitor to Archangel. Mr. A. Trevor-Battye saw a female on a lake in Kolguev. In temperate Europe it nests in many suitable localities north of latitude 50°, and also across temperate Asia. It nests regularly on the Kirghiz Steppes, but is not common, and was found at the end of July breeding on the Kara-Kul; on the Pamir, however, it is rare. Dr. Thiel shot it as far north in Asia, in summer, as latitude 68°.

In winter it visits the Swiss lakes, like Geneva, where it is semi-domesticated. It is a well-known species in Southern Spain, and common in Morocco in small ponds in the open country. In Portugal most abundant in lagoons near the sea from October to March; the most numerous of the *Anatidæ* in Sardinia; thousands make their appearance in the lakes on the east coast of Corsica, in winter, to the end of April. Col. Feilden obtained an adult male in the Malta market, in November. Plentiful in the Fayoom, and one of the commonest Ducks in Algeria and Egypt; abundant also in Asia Minor, Macedonia, and Turkey. In Transylvania it occurs in considerable numbers on migration. The Tufted Duck is



TUFTED DUCK ♂ ♀

common in the Caucasus as a spring and autumn migrant, wintering on the southern shores of the Caspian. Very common in southern Afghanistan, where it probably breeds; passes through Gilgit on migration and has been shot in winter. In Turkestan occurs both on passage and wintering. Exceedingly common on the jheels and tanks of Northern and Central India, and as far south as Secunderabad. It is an abundant species in the China markets, also in Japan and Corea; common at Foochow, and has been shot in Borneo in October. Mr. T. O. de la Touche saw a large flock on a lake in South Formosa, but found them quite unapproachable, ("Ibis," 95, 326-7). Altogether this little sober coloured Duck has an enormous winter range from Western Ireland to the bounds of Asia and the far East.

In 1886 I had the pleasure, in company with Mr. Whitaker, of Rainworth Lodge, of visiting one of the chief nesting quarters, at that time, of the Tufted Duck in England, on his own and adjoining properties in Nottinghamshire; since this I have had many opportunities, in various places, of studying the habits of this bird, but none which have left such pleasant and abiding memories: also I was in company with one who had the fullest knowledge of the bird and its habits.

In the "Descriptive List of the Birds of Nottinghamshire," Mr. Whitaker, (I give his remarks in an abridged form), says, this Duck is very partial to Rainworth Water, where it had then nested for thirty-five years. It pairs in March, but goes to nest late at the end of May or early in June. After pairing the male and female are inseparable, swimming together. The female on being alarmed always takes wing before the male, and calls *currugh, currugh*. He has never seen the male fly before the female had got two or three yards start. The call note is uttered several times, not only at starting, but when about to alight. The flight is first close to the water, but when they rise in the air they fly very strongly with a loud rushing noise of wings. It is a very tame bird. In the evening they leave the ponds at flight time and return in the morning, resting and diving for weeds during the day and becoming restless as the hour for leaving approaches. The nest is made of rushes and grass, and is placed close to the water; the number of eggs from eight to thirteen. Mr. Whitaker has frequently seen twelve or thirteen young following the female. The young do not join in the evening flights till September, only the males leaving the pond.

The numbers of these resident birds are greatly increased by immigrants which come late in October, but more commonly in November. In the dusk of evening I have several times been startled by the rapid rush of a flight coming from the Humber to some inland feeding place, usually flying very low, quite within

reach of a gun. I have "stood flight" for them, but seldom with any success, they never seem to follow exactly the same line on consecutive evenings, which Mallard generally do.

Mr. G. H. Caton Haigh says this Duck is one of the first to appear on the Lincolnshire coast; he has seen it in August on the marsh drains and creeks,* (these early arrivals may be home birds). In the winter, and particularly during "a blast," they are often fairly numerous on the coast. He has often met with adult birds in pairs—of course young birds are much more often shot; but there is not much difference in numbers between old males and females. It is a tame bird, and when present on the coast many are shot by the fowlers. On the Merionethshire coast he has only met with it, on one or two occasions, in flocks of not more than five or six.

The foreign birds are often late in leaving in the spring. I have seen a flock on the Humber at the end of the first week in May. The handsome adult male with a perfect crest is not common. Our gunners in the Humber distinguish it as the "Brass-eyed Pocher," and I have never heard this name applied to the Goldeneye.

When living in Nottinghamshire, 1892 and 1893, near the Forest, I used to see hundreds of Tufted Ducks on the Clumber, Thoresby, and Welbeck waters all through the year. Several pair also used to frequent the neighbouring streams, notably the Idle and its tributaries. The nest was placed usually close to the water amongst rough vegetation, and sometimes got mown over when the banks of the streams were opened out. The first pair recorded as nesting in England were at Lord Galway's, at Serlby, in 1851, where the water is very much choked with rushes. They also nested at Osberton, in 1854. I saw several on the water there in 1893, and they have now nested continuously for forty-three years. Mr. Foljambe told me that the young almost invariably fell victims to the pike.

Great numbers now nest in Norfolk, where it had probably been resident for some years before having been actually recorded as nesting. The Rev. R. Lubbock in his "Fauna of Norfolk," relates how Mr. Girdlestone, a thorough practical ornithologist, and his boatman, when passing through a narrow strait flanked by a wilderness of reeds, saw an old bird and three young close to his boat; this was about half-a-century since. On Lord Walsingham's estate, where this species is now so numerous, they are not known to have nested with certainty before 1873. The nest is generally well concealed and is merely a slight hollow; the eggs from five to twelve, of an olive-brown, much resembling in colour those of the Pochard, they are, when the full complement is laid, buried in down of a

* The earliest period I have shot it on our marsh drains was September 7th.

blackish colour, and often mixed with white feathers, which may come from the breast of the male bird. When the young are hatched they are cared for by the female only, the selfish male retiring with his fellows to assume the "eclipse" plumage, which is of a dull chocolate colour.

Tufted Ducks are very expert divers, and when diving for weeds Mr. Whitaker says, remain immersed for fifteen seconds; they are, however, as I can testify, capable of remaining underneath much longer than this, and quite as long as a Goldeneye. Their food is fresh-water insects and small pond shells, with the shoots of various aquatic weeds. The flesh is considered fairly palatable, but in this, as in so many other cases, much depends on the nature of their food, and proper dressing and cooking. Lord Lilford thinks the flesh, when living on fresh water, far superior to the Pochard.

The flocks of immigrant Tufted Ducks which arrive in the autumn frequent both the sea coast, the estuaries of rivers, and inland waters. The Sea Ducks, however, come inland to feed at night, but whether this is their regular custom, or only the result of bad weather at sea, I am unable to say.

In the "Zoologist," 1887, pp. 342-4, Mr. Robert Service gives an interesting account of the recent breeding of the Tufted Duck on lochs in Kirkcudbrightshire. In one case the female appearing on the loch with eight little dusky young, on July 21st. When approached by a boat the mother feigned inability to fly, and fluttered along the water, the young commencing diving incessantly, she frequently returned within eight or nine yards of the boat, and finally gathering her ducklings took refuge in the reeds. Mr. Whitaker remarks in the "Zoologist," 1887, p. 236, that the Tufted Ducks are in full breeding plumage by the end of March, and have a very pleasant note or number of notes during the pairing time, resembling the words "*tuc, tuc, tuck; quit, quit, quitta; wheeou, whit; quit, quit, quee.*" At all other times the ordinary, or perhaps the alarm note, is *carrugh* or *kur-ruk*. The "Black and White Curre," a name by which it is known in the west of England, is suggestive of its call. The alarm note of the Common Pochard is exactly the same, and it is the "*dun curre.*" The extreme scarcity of this little Duck at Heligoland is remarkable—in extremely isolated cases in severe winters, and it is not seen at other seasons of the year.

The Tufted Duck is a very plump and compact bird, much resembling the Scaup in colour. The head, crest, and upper neck in the adult male, black, shot with green and purple reflections; the upper parts brownish-black, spotted all over with minute whitish spots; the breast and flanks white; when the birds are rolling on short waves at sea, the white sides of the males shew conspicuously in contrast to the dark upper plumage. The bill is slate-grey; legs

and toes slate-blue; irides golden-yellow. Weight—1-lb. 10-oz. to 1-lb. 14-oz.*

The female is dark brown above, greyish brown underneath where the males shew white. The young birds have white feathers about the base of the bill, these also are occasionally found in adult birds.

Family—ANATIDÆ.

SCAUP-DUCK.

Fuligula marila, LINN.

THE Scaup is one of the commonest Ducks on the east coast during winter, where it is partial to the estuaries of rivers, and wide extending mud flats, and sandy shores, broken with warp deposits and clay beds. They arrive late in autumn, at the end of October or early in November, and are usually the last of the Ducks to leave our shores in the spring, flocks remaining off the coast till late into May, and in some cases throughout the summer. In 1867 an adult male and female frequented the debouchure of one of the Humber creeks in Great Cotes throughout the summer.

On their first arrival in the autumn, Scaup keep together in mixed flocks of old and young of both sexes, but later in the season, and to the end of March, I have, as a rule, met with the adults in pairs, males and females, in about equal proportion; but there is no general law as to the composition of the flocks. In the winter of 1875-76, young birds of the year, males and females, were very common on the river, adults almost altogether absent. Once on March 8th, I examined through the glass a large flock of entirely adult males, and on the 26th of the same month a large flock of adult male and female swimming in pairs.

* The most accurate of recent authorities on the weight, and colour of the soft parts, of wild-fowl, is Sir R. Payne-Gallwey, ("Letters to Young Shooters"). The descriptions are taken from fresh killed specimens, and can be thoroughly relied on.

In the day-time Scaup keep a distance from the shore, either resting on the water or diving for food above some sand-bank or mussel scalp; they are most expert divers, and will continue underneath from fifty to sixty seconds. These flocks come in towards the shore with a rising tide, and are often so intent on feeding that they offer a good chance to the concealed gunner, at the same time if they suspect danger they move rapidly out of range, swimming quickly, but very quietly out to sea. At dusk and on moonlight nights they leave the water and come up on the mud flats, particularly to those places where they can vary a shell-fish diet with the succulent shoots of *Zostera marina*. When at sea they swim high in the water, and with a little caution are not difficult to approach in the open; like other Ducks they have the power of sinking or immersing their bodies when approached too closely. Mr. G. H. Caton Haigh thinks that, next to the Scoter, they are the least shy of any of the sea-frequenting Ducks. In the Arctic winter of 1894-95, Scaup, like other sea-fowl, suffered greatly, and numbers were shot from the tide-edge or by wading in a short distance; the poor birds were excessively thin and weak, and quite useless as food.

When watching Scaup through a glass I have frequently noticed their curious habit, which was first remarked by Montagu, who kept them in confinement, of tossing their head and opening their bills while swimming to and fro and sporting on the water.

The main food of the Scaup is marine mollusca, crabs, star-fish. I have found the stomach filled with coarse fragments of marine bivalves; they also greedily devour the grasses which grow on the slobby foreshores. The opening of the stomach of an old Scaup, after it has been some days dead, is not a pleasant operation, and should be avoided inside the house. The late Lord Lilford, who kept them for many years in confinement, says they "train off" readily upon meal and grain, but prefer fish, meat, and snails to any other food.

The ordinary note of the Scaup is a harsh scream, somewhat resembling the word *kaup*, *kaup*, hoarsely repeated.* I have not the slightest doubt this is really the origin of the name, and not, as first suggested by the veteran ornithologist, Willughby, and since followed by others, "because she feeds upon scaup, *i.e.*—broken shell-fish." They have another note when feeding, a grunt or croak, not heard at any distance.

As far as I am able to judge, (having tried them occasionally), the flesh is coarse and unpalatable, and quite unfit for the table. St. John ("Natural History and Sport in Moray") says:—"the Scaup-Duck is in general good for the table,

* I never heard them talk but once, when drifting in a yacht off the coast on a misty morning, close past a feeding flock. The cry, however, once heard came as a revelation of the true origin of the name.

and when in good condition has no fishy flavour." Of course everything depends on the local character of their chief food.

The breeding range of the Scaup extends across the whole of Northern Europe and Asia, from Scandinavia to the Pacific. It is very common in Iceland, but more particularly in the northern parts of the island. A few nest in Færoe, and not improbably also a few pair in northern Scotland, further evidence, however, is desirable. South of the Baltic and in East Prussia it is only known as a winter visitor to the coast. In Transylvania it is not rare in winter and on migration; its range extends to the Mediterranean. It has occurred in the Bay at Gibraltar in the winter. Its occurrence in Sardinia is accidental, but in Corsica it is said to be fairly common in winter. On the eastern side of the Mediterranean it is much more common, also in Macedonia and the coasts of Asia Minor and Palestine. According to Colonel Shelley it visits lower Egypt in the winter, remaining there till May, and has once occurred as far south as Abyssinia. Great numbers also winter on the southern shores of the Caspian; it is, however, not common at this season in Persia or Northern India. The Scaup-Duck is one of the commonest in the China markets; especially abundant about Foochow; also in the Yangste river and the Corean coasts. A migrant to the Loochoo Islands, and a common winter visitant to some parts of Japan, and about the latest to leave in the spring; here its winter range overlaps with *Fuligula mariloides*, a small American form of doubtful specific distinction, and darker on the back than *F. marila*.

In America the Scaup-Duck, known as the Big Black-head or Blue-bill, and identical with the European bird, ranges across the whole of the northern part of that Continent from the Atlantic to the Pacific. Mr. Dall says it is one of the first to arrive on the Yukon in the spring, and the eggs are got near the mouth of the river early in June. When in good condition the bird itself is considered in high estimation for the table.

In the autumn Scaup-Ducks arrive in Chesapeake Bay about the end of October, and are found in scattered parties all over the Bay. It is said to be one of the very few Ducks able to dive and pull up the roots of *Vallisneria*, but other Ducks, and especially the Wigeon, come in for the floating spoil. Scaup-Ducks feed generally at night, and when they can get plenty of the aquatic grasses become very fat, and are considered very good eating, and little inferior to the Canvas-back.

Dr. Hatch ("Birds of Minnesota") says, the Blue-bills come in the first rank of the Duck hosts in late March. They fly in very close compact flocks, which, however large, soon break up into small detachments. He considers them the

tamest and most stupid of all Ducks, and repeated firing does not appear to render them wild. They build their nests, in remote marshes and swamps, in the second week in May. About Lake Superior they are as common as any other species in the marshes during the summer.

The Scaup-Duck is a rare visitor to Greenland, but has occurred both in the north and south. In the Shetlands it is found from October to April, but is not common. On the mainland of Orkney it sometimes appears in hundreds on Loch Stennis, and in the Inner Hebrides it is fairly common. A large flock was seen by Mr. Wm. Eagle Clarke, in Hynish Bay, Tیره, on June 12th, 1891, a very late stay if they ever intended going north. In the Outer Islands it does not seem to be anywhere a common Duck. It is very common in flocks off Heligoland in severe winters, along with myriads of others.

The Scaup-Duck not unfrequently visits inland waters in winter, like Loch Lomond; also the lakes of Nottinghamshire and the Trent. In Ireland, Sir R. Payne-Gallwey says that this Duck may be seen on every part of the coast except the south, but very seldom on inland lakes. In some parts, notably the Shannon, Galway, Kerry, Dundalk, Donegal, and the northern marine loughs, he has seen two or three thousand together; when in numbers they are difficult to approach, but when in two's and three's very tame. Sir Ralph mentions a very curious circumstance in connection with these Ducks, namely—that they do not appear to be conscious of noise as others do. The lighthouse keepers told him that the birds often swim in and out of the pillars supporting these structures when the men are talking and moving above; and they do not mind the sound of the fog bell, although other birds at once desert the locality. This perhaps accounts for their seeming carelessness when shot at, the sound of a gun not driving the flock to any distance. In many ways the Scaup-Duck is a peculiar bird.

The Scaup makes a nest concealed amongst thick herbage, and sometimes quite open amongst the stones on the side of a loch. The late Mr. Seebohm says he always found it well concealed and rarely discovered except by the accident of disturbing the sitting Duck. The eggs, six to nine, pale greenish-grey; the down dark brown, a little paler in the centre. Mr. Procter, who took the eggs in Iceland, describes them as a "uniform clay-buff colour."

On the Lincolnshire coast, the Scaup is known as the "Black Scaup" or "Black Poker," also "Mealy-back." On the Durham coast it is the "Bell-Wigeon," other local names on the east coast are "Grey-backed Curre," "Teal-drake."

The adult male has the bill light grey-blue; nail black; irides yellow; legs and feet bluish-grey; head and upper neck black, with a greenish tinge; lower neck and fore part of back and breast black; tail brown; rump and tail-coverts

blackish-brown; centre of back and scapulars greyish-white, vermiculated with black; wings dusky-brown, with outer secondaries partly white; lesser wing-coverts mottled with white; belly white; sides of abdomen and under tail-coverts dusky.

The female has the head, neck, and fore back and breast chocolate-brown, and a very conspicuous band of white on the forehead. The young in the first year are nearly similar to the female, and young males retain traces of the white markings on the forehead to the end of the third year.

Family—ANATIDÆ.

GOLDENEYE.

Clangula glaucion, LINN.

THE Goldeneye arrives on the east coast of Great Britain about the middle of October. The flocks in the Humber being composed of birds of the year, with a considerable proportion of young males, probably also some adult females. The old male is much less frequently met with, but in very severe winters is of more common occurrence than in mild open seasons, probably arriving from northern localities.* Mr. Robert Gray says, on the east coast of Scotland and Dunbar, he has seen hundreds of males at sea, near the coast, outside the line of breakers.

Mr. G. H. Caton Haigh thinks the Goldeneye common on the Lincolnshire coast, although owing to its great wildness only a very small number are obtained. Immature males and females appear to be nearly equally common as far as can be judged with the aid of a telescope; old females are impossible to distinguish unless in hand, but he thinks they are common enough. Old males do not

* In "The Field," February 20th, 97, Mr. F. Boyes records six fine adult male Goldeneye's, shot on the river Hull, during a severe spell of weather in the winter of 1896-7.



GOLDENEYE ♀ ♂

number one in thirty, being usually seen single, or one and two together, and often in very rough weather, or during a "blast," (the Lincolnshire term for continuous frost and snow).

The Goldeneye is a very active and expert diver, I have often watched them through a glass at no great distance from the shore. In diving the whole body is thrown forwards, adding considerable momentum to the plunge; they remain immersed for the greater part of a minute, forty-five to fifty seconds, rising very suddenly like a bladder, popping up nearly at the point of descent. When on the feed they remain only a few seconds on the surface and then descend, spending four-fifths of their time under water. Mr. Haigh says "in Merionethshire it is common both on the coast and on inland waters, old males, however, do not number one in forty or fifty, although on the spring passage the disparity is not quite so great. It appears in October and leaves in March, some lingering to the middle of April. It is a very silent bird, the only note I have heard being a low croak. The food consists almost entirely of shrimps and other small crustaceans, and seldom fish. It is rather a clumsy diver, going down with a considerable splash, and remaining under twenty to thirty seconds."

The summer breeding range of the Goldeneye extends from Iceland, across the whole of Northern, (as far as lat. 70° north), and parts of Central Europe, and across Siberia. It nests regularly also near Astrakhan, but is not common.

The Goldeneye appears to be a very rare visitor to the Færoes. In the Shetlands, Saxby, at the end of July, saw a female and four young on the Loch of Belmont, from which locality, he says, eggs have been brought to him closely resembling those figured by Mr. Hewitson. Messrs. Harvie-Brown and Buckley, on the authority of Mr. Crichton, record a pair seen on July 5th, 1860, on the Loch of Stennis, in Orkney. Single birds are also recorded as seen on lochs in the north of Scotland late in May and in summer, and in the Spey district, so that altogether there is a strong probability that a few pair remain to nest in Scotland.

In the summer of 1895, a pair of Goldeneyes bred in a plantation on the margin of Fewston reservoir, near Otley, Yorkshire, and the young, four in number, were seen repeatedly near their nesting-place. In this case the female proved a wounded bird unable to fly. A pair of Goldeneyes nested under similar circumstances in 1891, in a plantation on the margin of Swinsby reservoir. Both these instances are given on the authority of Mr. Storey, of Otley, ("Zoologist," 1895, p. 449).

In winter the Goldeneye is a common visitor to all parts of the British Islands, both on the coast and to inland waters; also to the open European waters, immense numbers, according to Mr. Hartert, frequent the Hafts, the vast fresh-water basins

at the mouth of the Pregel and Niemen, in East Prussia. It is very common on the Swiss and Italian lakes, in February and March. Colonel Irby says they rarely occur about the Straits of Gibraltar in winter. An adult male was seen by him when on board Lord Lilford's yacht *Zara*, at Santander, in Northern Spain, on December 3rd, 1876. According to Mr. Whitehead, ("Ibis," 85, p. 46), a single female was seen in Corsica, in December and February, and a few males in parties of four to eight. Mr. Howard Saunders met with it in the Malaga market in January, and there is a specimen in the Lisbon Museum.

The Goldeneye does not visit Egypt in winter, but it is common in Turkey, also in Asia Minor and the Black Sea. In Turkestan in winter and also on migration. Very rare in India; common in China and Japan, and one was obtained at Foochow. These Ducks will stick most pertinaciously to open waters, such as pools below water-falls, rapids, and mill-races, when all other Ducks have been driven away by the inclemency of the season; the Goldeneye was found on the Upper Kashgar Darja, early in December, ("Ibis," 85, p. 358).

The Goldeneye is a common species on the North American Continent, nesting north of the great lakes and across British territory as far as Alaska. Attempts have been made, but unsuccessfully, to separate the American and European bird. The only difference, however, seems to be that the American is rather the larger of the two, but this character is not one to be relied on, a large series of skins shewing that the two intergrade. Dr. Hatch thinks that a few may remain to nest south of the Great Lakes, but, as far as I know, there is no authentic instance of the nest and eggs having been found. The common name amongst American sportsmen is the "Whistler."

The Goldeneye never nests on the ground, but in the hole of a tree, or on the stump; in Lapland and the North of Europe the natives take advantage of this habit, and fix boxes and small tubs in trees to encourage them to nest. The eggs are considered a great delicacy; they vary much in colour and size, and are exceedingly handsome, a bright bluish-green, the down in which they are buried is lavender-grey, a little lighter in the centre. Although repeatedly robbed of its eggs, Goldeneyes will return to the same place. Wheelwright says the old settlers in Lapland, who watch the habits of the birds closely, aver that the old birds lay the fewest, finest, and largest eggs, and this is rarely more than five; on the other hand a young bird will lay fifteen.

Barrow's Goldeneye, (*Fuligula islandica*), an American species, meets *Clangula glaucion* in Iceland, where both breed, but the American is much the commonest of the two. It may be distinguished by its size, purplish gloss on the head, and the large white crescent-shaped spot between the bill and eye. It has never been

recorded in the British Isles. In Greenland it breeds as far north as lat. 70°, in small numbers, and west, on the mainland, to the Rocky Mountains.

The principal food of the Goldeneye consists of various mollusca, shrimps, and crustacea, small fish also have been found in their stomachs. On fresh-water they devour water insects and their larvæ, and doubtless also small fish. I have found shells of *Physa fontinalis* and a mass of the water larvæ of *Neuroptera* in the stomach of a female shot from one of our marsh drains. It also devours all sorts of water plants and their seeds where these can be got by diving. In semi-captivity Lord Lilford said they required an occasional meal of chopped fish or whole shrimps and raw meat.

The adult male is known as the "Pied-curre," other names are "Whewer" or "Whistler," and in Lincolnshire "Rattlewings," from the noise made in flight by the short stiff wings, which on a still night can be heard at a great distance, and has often given me warning of the bird's approach: hence also probably the generic name "*Clangula*."

I never heard any note from the Goldeneye except a low croak, inaudible at a short distance. The late Mr. Seebohm says it makes the same grating sound as the Scaup and Tufted Duck; and Lord Lilford, who kept them on his ponds at Lilford Hall, says, ("Birds of Northamptonshire"), "this species has a curious habit of throwing back its head, at the same time uttering a low mewling note, with the bill pointed straight upwards." This is not confined to the male.

Goldeneyes are amongst the most wary of fowls, and like Pochards are not to be taken in a decoy; in fact their presence is a nuisance to the decoy-man, diving and disturbing the water and gobbling up the corn intended for the Ducks which are more amenable to the arts of the destroyer. At sea or on the coast they are equally intractable, and will not allow a sailing boat or punt to come near them, rising and going off on the slightest suspicion of danger. It is curious, however, that on ponds and inland waters, with a little management, it is very readily approached and shot. Next to the Mallard, Mr. Abel Chapman considers it the commonest on the Border Moors, arriving quite at the end of October in two's and three's, the largest number he has seen together being seven, those he has shot on the moors being either females or in immature plumage. That prince of sportsmen, the late Mr. St. John, says that in Moray the Goldeneye frequents almost every loch and stream, though always in small numbers, generally pairs or single; the particular whistle of its wings can readily be distinguished amongst other fowl; he does not consider it a shy bird, but very active in diving, feeding wholly under water. Goldeneyes are particularly quick in hiding themselves, and

if wounded and dropping in water amongst reeds and sedges it is almost impossible to retrieve them.

On their passage south in the autumn it is said the old males precede the young, then come the females, and lastly the young of the year. The old males as a rule do not appear to come so far south as do the females and birds of the year. Some of the northern flocks being composed entirely of old males, and hundreds together.

The male in full plumage has the bill black; iris bright yellow, (hence the name); legs and feet orange, with webs black; head and upper neck glossy-black, with green and purple reflections; a large ovate white spot at the base of the bill extending to the cheek; back velvety-black; lower neck, breast, and belly, white; inner secondaries, middle and greater wing-coverts, white; a small black stripe divides the wing into two parts; scapulars white, streaked with black on their outer webs; tail blackish; feathers on thighs edged with black.

The female is much the smallest; the head and neck reddish-brown; lower neck, breast, and belly white, and flanks brownish; upper parts blackish-grey; neither the female or young have any white spot at the base of the bill; the irides are bronze-yellow.

The females and young are known to fowlers as the "Morillon," and are often considered a distinct species, a belief which St. John at one time shared. The many and various stages of plumage in the Goldeneye are very puzzling to the amateur naturalist and sportsman, and I have probably had more examples brought to name than all the other Ducks together. The male requires four years to get the full adult plumage; in the second year the white spot at the base of the bill is indistinctly visible, and the black feathers shew amongst the reddish-brown of neck and head. In the first year the young males and females have the bill towards the end yellow, subsequently this disappears in the males, but is retained in the females. The trachea in the male is very peculiar, having two great dilations, one about the middle and the other, an enormous tympanum, at the base; the bronchial tubes are also very large. It is difficult to say what special purpose these peculiar enlargements fulfil in the economy of the male bird: it cannot be voice, for those species with the greatest development are the most silent.

The flesh of the Goldeneye is considered rank and unpalatable; much, however, depends in this, as well as in other Ducks, on the manner of cooking. Sea Ducks if eaten should always be first skinned and the back cut away; this will be found to make all the difference between a fairly dainty and an offensive dish.

Goldeneyes vary greatly in size and weight, an adult male will weigh up to 2-lbs. 6-oz. Mr. Abel Chapman gives the weight of those shot by him on the

Border Moors as—young females, average, 1-lb. 4-oz. or 1-lb. 5-oz.; adult females 1-lb. 12-oz.; young drakes 2-lb. 2-oz. to 2-lb. 4-oz.

Hybrids between the Goldeneye and Smew have been recorded on the Continent. Two of these are beautifully figured and described by Professor Rudolf Blasius, in the "Monatsschrift des Deutschen Vereins zum Schutze der Vogelwelt," for 1887. These partake equally of the characters of both parents.

Family—ANATIDÆ.

BUFFEL-HEADED GOLDENEYE.

Clangula albcola, LINN.

THE Buffel or Buffalo-headed Duck, so called from its thick clumpy head, is found generally through North America, breeding in the more northerly parts and migrating to winter as far south as the West Indies, Cuba and Mexico. It is a rare visitor to Greenland; Reinhardt records an adult female got near Godthaab about 1830.

The Buffel-headed Duck has occurred at least on four occasions in England and Scotland. It was first included in the British list by Donovan, from an example which cannot be traced, and which must have occurred prior to the year 1819. The last occurrence, an adult male, was shot on Bessingby beck, near Bridlington, in the winter of 1864-5, by Richard Morris, of that town, and recorded by me in the "Zoologist," 1865, p. 9659, this is now in the collection of Mr. T. Whitaker, of Rainworth Lodge. In the severe winter of 1893-4, when passing through Hull from station to station, I saw presumably an adult female amongst some Goldeneyes hanging in the front of a fish shop. It was a much smaller bird than the female Goldeneye, and had a conspicuous white longitudinal patch behind the eye. Probably it was shot in the district or brought in from sea in a fishing smack.

Family—*ANATIDÆ*.

LONG-TAILED DUCK.

Harelda glacialis, LINN.

THE Long-tailed Duck, or Ice Duck as it is sometimes called, is a very regular winter visitor to the east coast of England as far as the Lincolnshire Wash and the coast of Norfolk. South of that, and in the Channel from the South Foreland to the Land's End, it is comparatively scarce. North of Flamborough Head its numbers increase and with a much larger proportion of old males. Those obtained in the autumn south of that headland are generally old females and young of both sexes. In the winter of 1887-8, exceptional numbers occurred on the Lincolnshire coast and in the Wash, but not old males. In Merionethshire, Mr. Haigh says it occurs at irregular and uncertain intervals, generally after violent gales; he has never, however, seen or heard of an adult male; on the water the female or young look like young Goldeneyes, but are far more graceful divers.

The chief haunts of this species in winter are, however, the coasts of Scotland and the islands. In the Shetlands, Dr. Saxby says, it is by far the commonest of the *Anatidæ*, arriving in small flocks late in September or in October, and wintering on the coast and never resorting to fresh-water, but in very wild weather entering the inlets and voes to feed. In the Orkneys also it is a very common species in winter, and has several times been seen in July; also all over the Hebridean Seas in winter, especially, Mr. Gray says, in the Sound of Harris and the coasts of Skye, Mull and Islay.* In Ireland, except in the north of that country, this Duck is rare and its occurrence in the south unfrequent.

The breeding range of the Long-tailed Duck extends over the Arctic and Subarctic regions of three Continents. In Europe, it nests in Iceland, Novaya Zemlya, where it is the commonest Duck in the country, Kolguev, and also in Spitsbergen. In Northern Norway it is very common on every lake. I found it in some numbers in flocks on the waters of the Varanger fjord, in August, 1896. It has not, although seen there in summer, as far as I know, been recorded as breeding in Færoe. It is, however, quite probable that a few pair do remain to nest on some of the Scotch islands or on the mainland, and there are good grounds for supposing this is the case. The most southern limit of this Duck in winter

* The Long-Tailed Duck is a comparatively rare bird on the Skye coast.—H.A.M.



LONG TAILED DUCK ♀ ♂

is Italy, and Dr. H. H. Giglioli says in that season it is not uncommon in upper Italy, and specially in the Venetian Provinces.

In Asia it occurs in winter as an occasional straggler to Astrakhan. Mr. R. Swinhoe had a female from Hakodadi in winter, but he never met with it in China; it has, however, been shot off the mouth of the Peiho river, and it is said to be common near the coast at Yezo.

Sir John Richardson found the Long-tailed Duck plentiful in the Arctic seas. In 1875, Colonel Feilden shot it in lat. $82^{\circ} 27'$ N. at Floeberg Beach, and during the summer of 1876 a few visited the Northern shores of Grinnell Land, where they were evidently breeding, ("Ibis," 77, p. 411).

It is one of the last Ducks to leave the Fur countries, and in the latter part of August, when a thin crust of ice forms during the night on the Arctic sea, the female may be seen breaking a way for her young brood.

Adams says they first appeared at Michalaski on May 7th, when scarcely any had completed their spring moult, white feathers about the head and scapulars still remaining. MacFarlane found immense numbers near Fort Anderson, breeding, the great proportion of nests in the vicinity of fresh-water; the eggs, five to seven, and usually covered with down, but if not they were certain to be fresh. The eggs are pale greyish-green, but sometimes paler and less green.

Mr. H. W. Elliot says, at the breaking up of the ice they come to open water with their peculiar sonorous and reiterated cry, resembling the syllables *ah-naah-naah-yah*, which rings cheerfully upon the sea after the silence and desolation of an Arctic ice-bound winter. The Canadians call it "cacca-wee," as it is by far the most noisy of all the Ducks. In Newfoundland, Mr. Reeks says, the settlers call them "hounds," and syllable the cry as *cow-cow-wit*. I know of no bird whose notes have been rendered in so many different ways on paper. I have heard it at sea off the east coast of Scotland in spring, like the distant voices of beagles or low bugle notes; very musical and pleasant to the ear, yet undefinable as—

"The horns of Elf-land faintly blowing!"

In Shetland, Saxby says, it is known as "Calloo," from its cry *cal-cal-caloo*, uttered in a distinct but gentle tone; and when the "Calloo" sings it is a sign of fair weather. St. John compares the note to the distant bugle-note of the wild Swan. Macgillivray (after Nuttall) as *ogh-ough-cgh*. One of its local names Coal-and-Candle-light, (Coal-an-Can'le-light), has been given in imitation of its call. Mr. Graham, of Iona, perhaps comes nearest with *Our-o-u-ah! Our-o-u-ah!* The Gaelic name is "Lach Bhinn"—Musical Duck. The female has no call. Mr. A. Trevor-Battye says, the call is well expressed by the Satmoyed name for the bird, *A-do*.

J. R. Forster, F.R.S., (1772), says, "Animals of Hudson's Bay," that at Churchill River the Indians call this species "Har-har-vey."

This Duck is extremely active and lively, very swift too, on the wing, and a most expert diver. I have seen them off Flamborough, in a heavy sea, diving through the advancing wave to emerge on the other side with a shake and then instantly under again; indeed their diving powers are wonderful.

Their favourite feeding ground is over rocks, shoals, or skerries, covered with seaweed, or on banks where the long ribbon-like fronds of kelp and dulse and other marine plants sway slowly to and fro. Their food consists of mollusca and crustacea, small fish, shrimps, and marine insects. I have taken from the stomach shrimps and many small shells, (*Buccinum*), and the beautiful and delicate *Patella plicata*, like a Phrygian cap set with torquoise beads. These are no doubt picked singly from the waving fronds of seaweed. Other shells which have been found in their stomachs are *Venus ovata*, *Lacuna vineta*, and young specimens of *Mytilus edulis*—(Gray). The small crustacean *Idotea tricuspidata* was on one occasion found by Mr. Gray, the stomach being entirely filled with both entire and mutilated specimens. In Shetland, Saxby says, they subsist entirely on minute periwinkles, picked from the rocks, and although he has examined scores, he has never found any other food. In the crop of one shot at Skye was found examples of *Cyclope neritea*, a Mediterranean species new to Britain, ("Zoologist," 78, 221).

In their summer quarters on the tundra they feed on fresh-water insects and mollusca, also various aquatic plants, and also probably on the wild fruits and berries exposed on the melting of the snow. Those only who have visited these Arctic solitudes can estimate the enormous supplies of bird-food, left at the close of autumn, of many kinds of small berries crowding the creeping vegetation which everywhere covers the soil.

Gätke says, they are the first of the diving Ducks to appear at Heligoland on the approach of a severe winter; they mostly frequent the reef which runs for four miles from the base of the dune in a north-easterly direction, and remain there by preference through the winter. Females and young which come near the rocks often get taken in the Duck nets.

The late Mr. Graham, of Iona, writes:—"In winter you see the flocks of Long-tails far off, twinkling like bright white stars upon the blue waves; but late in spring they become so dark that at a short distance they look very black." On April 18th "they seemed to be in full summer plumage, the males a fine deep black, something reddish about the wings when the sun caught them, curious little white caps on their heads, and a patch of white visible behind the thigh; the females were dark brown."

He further says:—"they are of a very lively and restless disposition, continually rising on the wing, flying round and round in circles, chasing one another, squattering about the surface, half flying, half swimming, accompanying all these gambols with their curious cries. When the storms are at their loudest, and the waves running mountains high, then their glee seems to reach its highest pitch, and they appear thoroughly to enjoy the confusion. When watching them on one of these occasions, I had to take shelter under a rock from a dreadful blast, accompanied by very heavy snow, which in a moment blotted out the whole landscape; everything was enveloped in a shroud of mist and driving sleet; but from the midst of the intense gloom there arose the triumphant song of these wild creatures rising above the uproar of the elements; and when the mist lifted I beheld the whole flock careering about the bay as if mad with delight."

The late Henry L. Saxby, whose account ("Birds of Shetland") of the Long-tailed Duck is probably the best that has been written, mentions a curious fact in connection with them, namely—their antipathy to the Shag or Green Cormorant. When these enter the voes after the sillacks, the young of the Coal-fish, their presence drives the Ducks away, and they do not return to their former haunts till the Shags have departed. On one occasion he was witness to a flock of these Ducks being greatly alarmed by the presence of a grampus, finally, on the monster approaching, they took wing and flew completely away from the voe.

This Duck carries its restless habits on migration and after it has arrived in its breeding quarter. Wheelwright ("A Spring and Summer in Lapland") saw them on the Tana river and the fell lakes in May, and says they were never still, but continually chasing each other about, all the time uttering their pleasing note.

The Messrs. Pearson found the Long-tailed Duck nesting in Iceland from June 20th to July 18th, in 1894, most of the nests being on islands. On one occasion on a bare hill-side of black sand, with no material except down, the black colour of which was a perfect protection when the eggs were covered ("Ibis," 95, 244).*

When on the sea these Ducks—that is the male—carries his long tail erect, like the stern ports of a Norwegian jægt, but in flight the tail is often much depressed.

During their stay on the east coast I do not think they ever come inland to feed. I have never shot it at "flight" but once, and in this instance it may have been passing from the open sea to feed within the estuary of the Humber.

* A nest found by Mr. A. Trevor-Battye, in Kolguev, where it is common, was some distance from the water, and remarkably deep and neat; all of down, with a very little dead grass and birch leaves; the eggs were six, and slightly incubated.

An important communication was read from Dr. E. A. S. Elliot, at a meeting of the Ornithological Club, in London, on May 30th, 1896, in connection with the seasonal change in this Duck from the winter to the summer plumage. This is a complete moult of the pattern on the head, neck, and dorsal region in the male, and a thorough moult in the female, except the white feathers of the belly and wings, and supposed to bring them more in harmony with the surroundings of their summer homes, and less likely to attract the notice of predatory bird and beast.

The moult is completed by the end of May, and the long sickle-shaped white scapulars of the male are the last to disappear. The down on the breast and belly of the female, and used for lining the nest, is a distinct new growth; it is darker than eider down.

In winter the adult has the head and neck white, with a long oblong brownish patch on each side of the latter; the breast, back, wing-coverts, and inner secondaries chocolate-brown; scapulars white; the long narrow central tail feathers brown, the next pair partly white and brown, the remainder mostly white; sides ashy-grey; lower breast, abdomen, and lower tail-coverts white. In May the males put on their brown caps and the rest of the very characteristic summer plumage.

The female in winter has sometimes been mistaken for that of the Harlequin Duck. In the former, however, the parts below the breast are white, in the other they are less pure and more mottled; flanks reddish-brown.

Saxby gives the colour in winter of the soft parts, when fresh killed, in the adult male, bill to nostrils and nail black, the intervening space pale rose colour, but this rapidly fades in a few hours to reddish-brown; eyes amber; tarsi and toes dark lead colour; membrane and claws nearly black. In spring the band on the bill changes to brownish-pink, and the irides yellowish-brown. The trachea in the male is very singular, having five oval openings at the side of the tube near the bottom, and closed with a thin membrane, also a large kidney-shaped tympanum, membranous in front.

The generic term Harelda, first applied to this species by Stephens, in 1824, is probably a false spelling of Havelda, a word derived from its ordinary Icelandic name.



HARLEQUIN DUCK ♀ ♂

Family—ANATIDÆ.

HARLEQUIN DUCK.

Cosmonetta histrionica, LINN.

A MALE of this species was picked up dead on the coast, near Filey, in the autumn of 1862, and subsequently came into the possession of Mr. Whitaker, of Rainworth Lodge.

On December 2nd, 1886, three were shot at the Farne Islands, off the Northumberland coast, only two of which were recovered. One of these, a young male, was sent in the flesh to the Rev. Julian Tuck, ("Zool." 1887, pp. 70-71). The second, also a young male, exhibited by Mr. Howard Saunders at a meeting of the Zoological Society, March 15th, 1887, is now in Mr. Chase's collection, at Edgbaston, ("Zool." 87, p. 190). Mr. Harting, ("Handbook of British Birds"), has recorded a dozen supposed instances of the occurrence of the Harlequin Duck in Great Britain during this century from 1806 to 1858; no reliance, however, can be placed on the majority of these records, and the specimens in many instances have been proved to belong to some other species, (see Professor Newton, "Ibis," 1859, pp. 162-66, and Mr. J. H. Gurney, "Rambles of a Naturalist," pp. 263-69). On the Continent there is an adult male in a private collection at Lausanne, shot on the lake on September 12th, 1865, ("Ibis," 1891, p. 184), recorded by Mr. Howard Saunders.

In Europe the Harlequin Duck is exclusively confined to Iceland, where it breeds. In Greenland it is a summer resident, breeding quite commonly as far north as the 69th parallel. On the mainland it nests across the whole of northern North America, as far south as Newfoundland, and westward to the northern Rocky Mountains and Sierra Nevada, to lat. 38° or farther. In winter it visits the middle States and California, and is numerous on the Great Lakes, specially on Lake Superior.

The Harlequin Duck nests in Alaska, the Aleutian Islands, (and is especially numerous there in winter and spring), Kamtchatka, and over a considerable district of North-eastern Siberia; its range westward on the northern shores of Asia is uncertain; it occurs in flocks in the Prybilov Islands; in winter it visits the north coast of the Main Island of Japan, and the neighbourhood of Yokohama.

Mr. Swinhoe never heard of its occurrence in China. It is very common on the shores and islands of Bering's Straits. Mr. Nelson found it very common at Ounalaska, in May, 1877, in large flocks in the inner harbours, but much too shy to be approached. Mr. Elliott records it as extremely plentiful on the Fur-seal islands, huddled together close along the beach in flocks of hundreds, and heedless of approach, the females appearing to out-number the males at least two to one. Although offering large rewards to the natives he totally failed to obtain the eggs, the probability being that these were young or barren birds which had not proceeded to their northern nesting quarters.

The Harlequin Duck haunts the clear ice-cold mountain streams which enter the Yukon, and elevated tarns and lakes; they will dive and swim entirely under water, or with only the head exposed, and they tumble and roll about through rapids and cascades in the most extraordinary fashion. Their food appears to consist mainly of water insects, chiefly the caddis fly.

Mr. E. W. Nelson, ("Cruise of the *Corwin*"), says:—"Around the shore of Norton's Sound this Duck is not common in spring, occurring very rarely as a migrant, and nesting only along the streams flowing into this body of water. When the young are ready to take wing—during August, or from the last of July until September—they become more and more common on the rocky portions of the shore, frequenting the same localities and often joining in flocks of the Scoters." He further states the natives of the interior use these birds as toys, skinned and stuffed with moss they are decorated with beads and bright threads as dolls for the children, their handsome variegated plumage being very attractive to savages.

Regarding its nesting habits in Newfoundland, Mr. Reeks, ("Zool." 69, pp. 1156-7), tells us it breeds on the borders of lakes and rivers which run into the sea, frequently many miles in the country. The male is known as a "lord." They will easily dodge the shot of a percussion gun by their expert diving, and also frequently escape at close range by the same device when flying, the whole flock dropping apparently "stone dead" into the water unhurt, and rising again out of range. This Duck, when sitting on parti-coloured rocks, is very difficult to see. Adult males are known as "old lords" and females as "jennies."

Messrs. H. J. and C. E. Pearson, ("Ibis," 1895, pp. 244-5), say in Iceland the Harlequin Duck is one of the latest to breed; first eggs were taken on July 1st, and fresh eggs brought to them on the 18th. On July 1st, Mr. H. J. Pearson visited some islands in a river, the remains of an ancient lava stream. "The lava had formed a dam across the river, which had afterwards broken through, forming four channels, and down these the waters ran like a mill-race, so that it was difficult to find a place where even Iceland ponies could cross. On these

islands were six nests with eggs; three of them only two feet from the water, and placed under the leaves of the wild angelica; the others in holes of the banks close to the water, and protected by a screen of trailing plants. Most of the nests contained but little down, though some of the eggs were much incubated." During the time the females are sitting the males, like many other Ducks, keep apart in flocks. The eggs are a creamy-buff, the down greyish.

The dress of the adult is extremely handsome, rich and variegated, and made up of spots, stripes and bands, in true harlequin fashion; the bill, in fresh killed specimens, is slaty-blue; tarsi and feet much the same, with the webs darker; irides orange.

"From the base of the bill to the nape is a broad band of bluish-black, margined on each side behind with light red, before with white, continuous with a large patch of the same occupying the space between the eye and the bill. The sides of the head and neck all round are purplish-blue. Behind the ear is a roundish white spot, and on each side of the neck a longitudinal band of the same. About the middle of the neck is a ring, and at its lower part a curved band of white, margined with black. The fore part of the back is light purplish-blue, the hind part darker, the rump black all round, with a white spot on each side at the base of tail. The scapulars are for the most part white; the wing-coverts, alula, and primary-coverts, are purplish-blue; quills dusky-brown, with reddish-brown shafts; the tips of the secondaries, and outer webs of the inner, white; the tail is brownish-black, tinged with grey; the fore part of the breast is purplish-blue, its hind part and the abdomen brownish-grey, the sides light red." The description is Macgillivray's, and probably taken from an adult American example. It will give a very good idea of the very remarkable variegated and bizarre appearance of this handsome bird.

The female is a singular contrast to her partner, and very plainly dressed, the general plumage a sober brown. There is a rather obscure white patch on the forehead, also one on each side behind the eyes, like finger marks.

The male has a very remarkable trachea. I am unable to give any information regarding its call; it is said to be a very silent Duck, which quite bears out what I have before said, that the birds with the most remarkable of these organs exhibit the least vocal powers.

Family—ANATIDÆ.

COMMON EIDER DUCK.

Somateria mollissima, LINN.

THE breeding range of this valuable Duck in Europe extends as far north as Franz Joseph Land, and other Arctic islands; its most southern nesting haunt is the coast of Northumberland and the collection of rocks and small islets, called the Farne islands, which lie a few miles to the eastward off that coast, and where it is fairly numerous and in recent years increasing. In this locality it is known as St. Cuthbert's Duck, and I see no reason to doubt that these Farne Island birds are the descendants of those which the Saint, 1,200 years since, tended and loved so well during his solitary life on the islands. When in 1827, under the direction of Canon Raine, the tomb of St. Cuthbert was opened in Durham Cathedral, the bones in the inner coffin were wrapped in costly robes embroidered with water fowl, which Mr. Raine believed represented the Eider Duck. Let us hope that these historical birds, so intimately connected with the early life of England, will be well cared for and protected in the centuries to come, as they are at the present time.

The Eider Duck nests in several localities on the coasts and islands of Scotland, being especially numerous on Colonsay, and around Mull and Iona, and the Outer Hebrides; also in the Orkneys and the Shetlands, St. Kilda, the Færoes, Iceland, and on the coasts of Norway; in many of these northern localities it breeds in a semi-domesticated state and protected by very stringent laws. In the autumn of 1896, I saw thousands of Eider and their young dusky broods in the Straits and Sea channels, (the Skjærgaard), between Bergen and the North Cape, and usually in close propinquity to the fishing villages. In Spitsbergen, which lies far beyond any protected area, I was told the Eider Duck has decreased owing to frequent molestation and the shooting of the old birds in the summer months, as well as the persistent plunder of the eggs and down.

The Common Eider nests plentifully on the coast of Greenland, as far north as Thank-God Harbour, (lat. 81°, 38' N.), where Dr. Coppinger procured both this and the King Eider, in July, 1876. According to Kumlien it breeds abundantly on the western shores of Cumberland Bay. On the north coast of British America



COMMON EIDER DUCK ♂ ♀

it is replaced by the Pacific Eider, (*Somateria v. nigrum*), and on the Labrador coast by another distinct species, (*S. dresseri*). It has not been observed on the coasts of Eastern Siberia. Mr. H. L. Popham found them, but in no great numbers, near the mouth of the Yenisei, how much further eastward it ranges is uncertain.

The Common Eider, twenty years since, was numerous on the North Frisian Islands, Sylt and Amrum, and large numbers of eggs were gathered for consumption. It is a frequent visitor off Heligoland in winter, in flocks of twenty to fifty, composed mostly of grey birds and an occasional white male; these may come from Sylt which, on the European coast, is the most southern nesting place. In winter a few visit the south and south-east coasts of England and the opposite coast of the Continent. According to Dr. Giglioli it has twice occurred as a wanderer to Italy, and an adult male on May 7th, 1859, at Trau, near Spalato, in Dalmatia. A few winter every year on the coast of East Prussia.

In high northern latitudes, Eider farming, as it is called, is a lucrative occupation, and every care is taken to protect the birds. The various islands on the coast where these Ducks resort are rented from the Crown. The eggs are gathered for consumption, but the valuable production is the celebrated Eider down, the lightest, warmest, and most elastic material in the world. The nests are made of dead grasses and dry plants, mixed with seaweed, and the pale olive and sometimes dark green eggs, after the full complement is laid, are buried in the down from the breast of the sitting bird. This, when incubation commences, becomes loose and is easily detached from the bird's breast. The nests are placed in nooks and corners of the rocks, in some slight hollow, or amongst sea-loving plants and heather, and not unfrequently at the foot of a wall or the side of a building. The sitting birds are so tame that I have sometimes stooped and stroked their backs, the female not leaving the nest but turning her head and opening her bill, with a make-believe attempt to bite.* The eggs are both light and dark green, and large; usually four to five, I have found seven and heard of nine in a nest, and ten and sixteen when the nest is used by two birds, a not unfrequent circumstance. Sometimes the nests are placed in very exposed situations, on bare flat rocks. The colour of the female is partly protective, and I have more than once almost trodden on the close sitting bird. The male takes no part in incubation, but they keep together in the vicinity at sea, and before assuming the eclipse dress are very conspicuous objects in their handsome and very distinct plumage of brown, black and white, suffused with rich buff, and relieved by the pale green patches on the nape. Old males are in full plumage early in the year.

* Mr. A. Trevor-Battye, ("Ibis" 1897, p. 585) says, "If, however, an Eider (or for that matter a Long-tailed Duck) is driven hurriedly off her eggs she *invariably* squirts over them a stinking fluid."

The down in which the eggs are bedded is entirely supplied from the breast of the female, it is dusky-brown or mouse-colour, with whitish centres, so elastic that a tightly compressed handful will fill an ordinary sized hat. The down taken from a dead bird is said to have lost its elasticity.* Two pounds is amply sufficient to make a quilt for a double bed. The nests are stripped three times, but the first gathering is superior to the second and third, and the yield of cleaned down during the season is about a quarter of a pound to a nest; the third taking is left till the last clutch of eggs laid by the duck are hatched off. The market value is from fifteen to even thirty kroner a pound; I paid twenty shillings a pound for cleaned Eider down, at Bergen, this year, (1896). Incubation lasts twenty-eight days; when the young are hatched the mother leads them at once to the sea, and may often be seen floating low with her downy darlings on her back; and the duties of incubation being completed, she soon resumes all her natural wildness and shyness of man. The old males separate altogether from the females and young after the breeding season.

Mrs. Peary, ("My Arctic Journal"), on July 2nd, 1891, at the Duck Islands, just before entering Melville Bay, gathered forty-three pounds of Eider down in five hours. The boat crew also took 960 eggs, only 150 of which were found good. The numbers were three to six in each nest. The down was found of the greatest value and use in the extreme cold of the long and dreary arctic night. The eggs are considered a great delicacy, but they have a strong taste and are not equal, I consider, in flavour to those of the Guillemot, yet they prove a very desirable addition to the food supply of Arctic explorers. The greatest enemies of the young Eider are the large predatory Gulls. Dr. Hayes, in the "Open Polar Sea," says:—"Near the Littleton Island of Captain Inglefield, we saw a number of Ducks, both Eiders and Hareldas. A rugged little ledge, which I named Eider Island, was so thickly colonized that we could hardly walk without treading on a nest. We killed with guns and stones over two hundred birds in a few hours; it was near the close of the breeding season. The nests were still occupied by the mother birds; but many of the young had burst the shell, and were nestling under the wing, or taking their first lessons in the water-pools. Some, more advanced, were already in the ice-sheltered channels, greedily waiting for the shell-fish and sea-urchins, which the old bird busied herself in procuring for them. Near by was a low and isolated rock ledge, which we called Hans Island. The Glaucous Gulls, those Cormorants of the Arctic seas, had made it their peculiar homestead; their progeny, already fully fledged and voracious,

* Saxby ("The Birds of Shetland") says there is no difference, and that the contrary is merely the invention of dishonest dealers. Macgillivray goes further and thinks the down from a dead bird superior in elasticity.

crowded the guano-whitened rocks; and the mothers, with long necks and gaping yellow bills, swooped above the peaceful shallows of the Eiders, carrying off the young birds, seemingly just as their wants required. The Gull would gobble up and swallow a young Eider in less time than it takes me to describe the act. For a moment you would see the paddling feet of the poor little wretch protruding from the mouth; then came a distension of the neck as it descended into the stomach; a few moments more and the young Gulls were feeding on the ejected morsel."

Eiders have been successfully reared in the Shetlands and the Hebrides, the eggs having been carefully placed under domestic poultry, and Saxby says, the ducklings thrive well upon the usual food of the foster parent, but they always greedily enjoy a meal of small periwinkles or young crabs.

Mr. W. H. St. Quintin, of Scampston Hall, Yorkshire, has been a successful breeder of Eiders, some very interesting particulars of which he has communicated to Sir R. Payne-Gallwey, ("Letters to Young Shooters," 3rd Series, p. 173). One old Duck has nested since 1889, laying every year usually three and once four eggs; and then he mentions the very extraordinary fact "that for several seasons, and for all I know always, my old Eider sits the whole twenty-eight days without leaving the nest!" Food and water, specially arranged, were placed near her, but never known to be touched, and were finally removed altogether.

The food of the Eider consists of mussels, all sorts of shell-fish, particularly periwinkles and cockles, crabs, the great spider-crab, star-fish. The crabs swallowed are often of considerable size, measuring two inches across the carapace, the stomach also often contains sand and gravel. The Eider is not generally considered a delicacy, but Mr. Graham, the sportsman-naturalist, formerly of Iona, considered them better eating than most other maritime Ducks; they seem, he says, "to feed almost entirely on sea-weed, browsing at the bottom in deep water."

The cry of the female is a harsh croak; the male is a very silent bird. In "Science Gossip," Dec., 96, there is a very interesting paper on the Eider Duck as observed by the author, Mr. Robert Godfrey, in the Firth of Forth, when wandering on the dunes by night, or in the dim light of morning, he has heard a strange moaning cry coming up from the sea; by the full light of day he heard the same moaning from the flocks of Eider floating on the sea. This moan resembled "*ah-woe-o-a-woo*," and there was another note often repeated "*whew-whew-whew*." The former cry is much like the song of Harelda.

The Eider is a very heavy, clumsy-looking bird, with a big head; on the wing, however, it progresses with great rapidity, it is also a good diver and even keeps underneath for a considerable period when on the feed. From the shortness of the tarsi it is a very poor walker on land.

The adult male has "the frontal angles of the bill very narrow and, though fleshy, little elevated; the head black above, with a medial white band; the hind part of the cheeks and nape pale green; the throat, hind neck, back scapulars, smaller wing-coverts, and inner secondary quills, white; the breast, sides, abdomen, and rump, black; the fore-neck cream-coloured; tail of sixteen feathers."—(*Macgillivray*). In fact the colours in the full plumaged male Eider seem reversed when compared with other Ducks—white above, black below. The weight is five to six lbs. Males are four years in obtaining the full plumage.

The female is nearly equal in bulk to the male; the plumage is plain and inconspicuous, of various shades of brown, and shewing much variation from brownish-black to yellowish-red.

Family—ANATIDÆ.

KING-EIDER.

Somateria spectabilis, LINN.

THIS exceedingly beautiful Duck is a well-known circumpolar species, which in high northern latitudes, to some extent, replaces the last. It has occurred on several occasions on the coast of the British Islands, and for a considerable period of time, till the offers of head-money by greedy collectors of home examples has sealed its doom, otherwise I might have been able to record its nesting in some part or other of our northern lands.

In 1884, Mr. C. Dixon saw two pair, males and females, in company with the common species, swimming daily together off St. Kilda, and had not the slightest doubt they were nesting on the precipitous Island of Doon. The fact, however, of their appearance in pairs, and the date being the second week in June, makes this statement very inconclusive. A pair were observed off the Farne Islands, in May, 1880, and, I was told, seen occasionally in that locality for at



KING-EIDER ♀ ♂

least two years subsequently. Saxby never met with it in Shetland, and although occasionally occurring in the Færoe Islands it is not known to have nested. Mr. Bullock told Colonel Montagu (as recorded in the Supplement to his Dictionary, published in 1813), that he had found this bird breeding in Papa Westra, one of the Orkney Islands, in the latter part of June, and that it laid six yellowish white eggs, rather less than those of the Eider Duck.

The King-Eider is not known to breed in Iceland, neither on Spitsbergen, but it has long been known as a visitor to the latter country. In Novaya Zemlya, however, it nests commonly, but is the rarest of the two species, and breeding earlier in the year. In 1895, Mr. H. J. Pearson saw nearly two hundred males together at the western entrance to Kostin Schar, but although very diligent search was made over many of the islands off the mainland, not a single clutch of eggs were taken, ("Ibis," 96, p. 222). On Kolguev, Mr. A. Trevor-Battye says it is, after the Long-tailed Duck, the most abundant species, and he did not find the Common Eider there.

On the mainland of Europe it breeds on the Kanin Peninsula. Captain Wiggins told the late Mr. Seebohm that the King-Eider nested in great numbers on a large island in a bay, near the mouth of the Yenisei. Dr. Bunge met with it on the Great Liakoff Island, and the nest and eggs were found, and between the 20th and 26th of July, flocks of females were seen.

Mr. E. W. Nelson, ("Cruise of the *Corwin*"), says it is very abundant on the Aleutian Islands in winter, and some remain to breed, and in summer along the Siberian coast of Bering Sea and the north-eastern shore of Siberia, but on the Alaska side of the Straits it is very rare. About Port Barrow it was found very abundant, and increasing in numbers as they proceeded north. On the Siberian side, near Cape Wankarem, on August 5th, the natives brought off large numbers, killed with slings, as related under Steller's Eider. These latter and the King-Eider formed the bulk of the flocks of Eider seen.

Mr. John Murdoch, U.S. Army, ("Report on the Expedition to Point Barrow, 1881-3), found the most abundant bird was the King-Eider, flights of thousands passing still further northwards, from the latter part of April, comparatively few remaining to breed in the neighbourhood of the settlement. On the return migration, in autumn, the numbers are not nearly so great.

In Greenland the King-Eider nests sparingly between 67° and 73°, but north of that is much more numerous. Colonel H. W. Feilden, during the Arctic Expedition, 1875-6, in the end of June, found several flocks of males and females near Floeberg Beach, (lat. 82° 27' N.); subsequently several nests were found with fresh eggs.

Sir J. Richardson says it is purely a sea Duck, and was never known by him to frequent fresh-water, and only partially migratory, moving as far as to get access to open sea-water. Males in flocks alone, and females and young together, are seen far out on the Atlantic, where the number of crustaceans and other marine animals supply an abundant source of food. In winter, in America, it is a casual visitor to the Great Lakes and New Jersey.

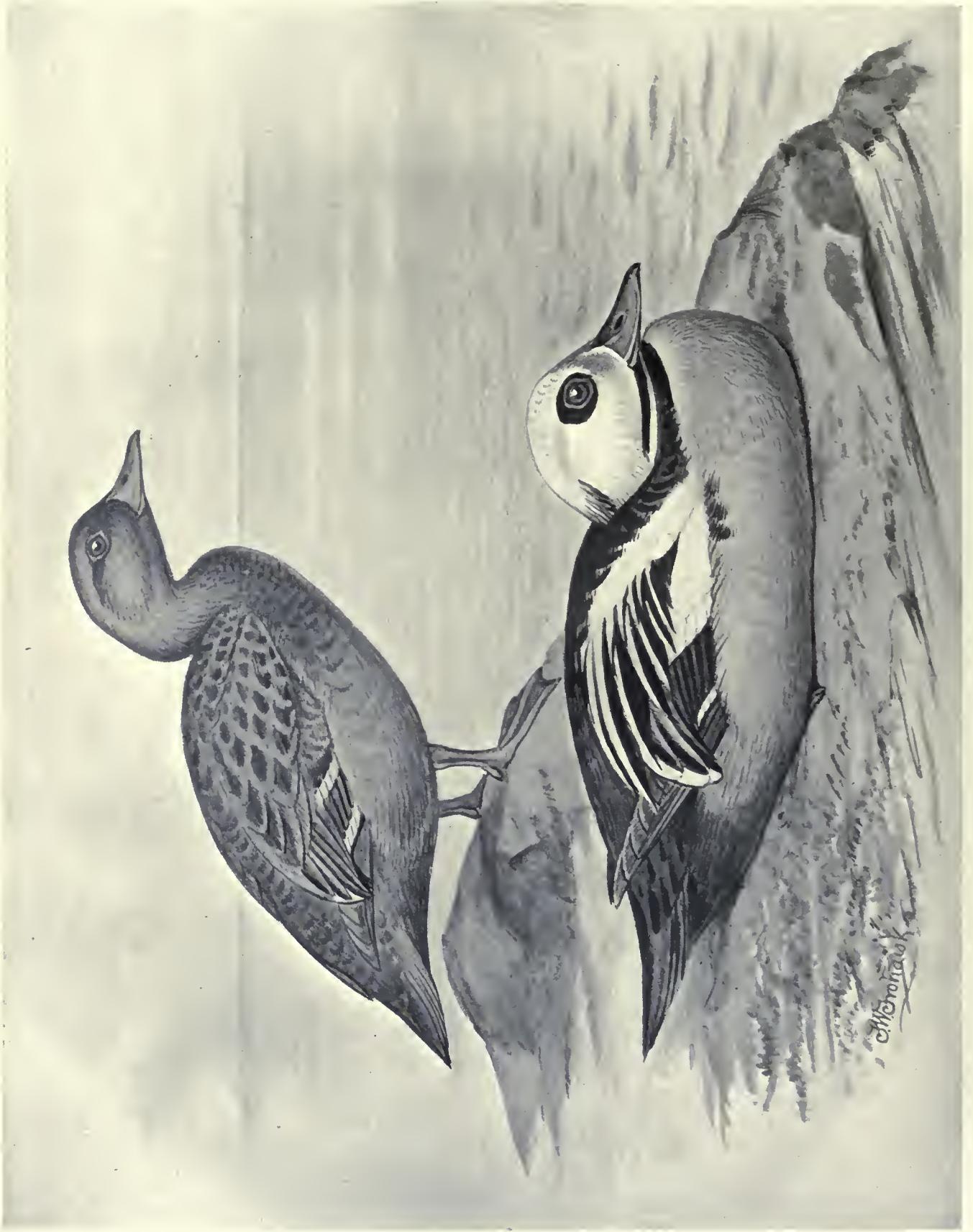
The King-Eider has been once obtained in Heligoland, a young male, shot on the 11th of January, in 1879. The most southern record is the English Channel. On December 12th, 1892, a fine male was got near Dugort, Achill Island, on the west coast of Ireland, ("Zool." 94, 151).

The food of the King-Eider is the same as that of *S. mollissima*. The stomachs of those killed during the Arctic expedition, in Polaris Bay, were generally found to contain shrimps. One, an old female, killed off Hunstanton, in November, 1890, contained remains of a star-fish, found abundantly on the mussel-scaups, and presumably *Ophiura albida*, of Forbes.

The nest resembles that of the Common Eider, and the eggs, six in number, are covered with similar down. The colour of the eggs, as given by Bullock, are a yellowish-white, they are also described as a greyish-green. Like the males of other Ducks they moult the whole of their quills at once. Mr. G. Gillett, ("Ibis," 1870, p. 309), writes:—"in Matthew's Straits," (Novaya Zemlya), "on the 6th of August, I saw several of these birds in small flocks, all apparently immature males. I shot two specimens; their wings were entirely destitute of quill feathers, so that they could not fly; but they dived in a wonderful way, and were very difficult to get. They were apparently full grown; but were dark brown on the head and back, and blackish in places. The protuberance on the bill was of a rich orange, shading off on the bill itself to a pinkish flesh colour; the irides dark."

The King-Eider, although clumsy in appearance and heavy, is a rapid flyer. I have no knowledge of its call; should it, however, resemble that of a closely allied species, *Somateria v-nigrum*, it is as the cooing of doves, ("Ibis," 1878, 435).

In the adult male the beak is orange-yellow, with a large and prominent orange coloured protuberance, almost level with the top of the head, at the base; legs and feet also orange, and irides yellow; the crown and nape pearl or bluish-grey. Those delicate blue-grey oval patches so frequently inserted into the borders of Eider down coverlets and quilts, sold in the Norwegian fur shops, are all taken from the head and nape of the King-Eider, and I have often been surprised at the very large number of old male King-Eiders which must be sacrificed to supply the demand. The cheeks are pale green; the lower part of the back is black and



STELLER'S EIDER ♀ ♂

not white as in *S. mollissima*; the curious elongated innermost secondaries are black, in the Common Eider these are yellowish-white. These peculiar feathers, although found in other *Somateria*, are absent in Steller's Eider. There is a black chevron-shaped mark under the chin; fore-neck white; breast a creamy-buff; the rest of under parts intense black, with a white spot on each side on the flank.

The female is smaller and redder in plumage than the Common Eider. In both the male and female the feathers on the centre of upper mandible reach as far forward as the nostrils, and extend beyond those on the sides of the bill; the reverse is the case in the Common Eider. In *Somateria v-nigrum*, the feathering on the bill is the same as in *S. mollissima*.

In the "eclipse" dress the male Eider, in this and the preceding, is so altered as to be scarcely recognizable; the whole bird being nearly coal black. It is said to be very good eating. The adult male and female are beautifully figured in Lord Lilford's "Coloured Figures of the Birds of the British Islands."

Family—ANATIDÆ.

STELLER'S EIDER.

Somateria stelleri, PALL.

THIS most beautiful Duck was originally described by the Russian traveller and naturalist, Pallas, (1769), and named by him after its discoverer, Steller, who obtained it on the shores of Kamtschatka. Steller's Eider, or Western Duck as it was formerly named in error, inhabits the Arctic and Subarctic coasts of the Northern Hemisphere, and its breeding range extends from the Varanger Fjord, in the west, to Bering's Straits and Sea. It is recorded on the Prybilov and Kurile Islands, some wintering on the latter. It is very common both in Northern

Alaska and about Unalashka, on the Aleutian chain, but there is no evidence of its presence along the American coasts of the Arctic seas; examples have, however, been met with as far east as Cumberland Sound, Baffins-Land, on the southern side of Davis Straits, probably an isolated colony. In 1878, an adult male was shot in Disco Bay, North Greenland.

Great flocks visit the open waters of the Varanger Fjord in winter.* It is everywhere a strictly marine species, feeding on shell-fish and crustaceans.

According to Professor Collett, it never breeds west of the Murram coast, which is the north-west corner of Russia, between Norway and the White Sea. This is scarcely correct as there are eggs in the British Museum taken near Vardo.

Dr. A. Bunge found Steller's Eider in flocks, during the summer of 1866, on the Great Liakoff Island, ten degrees east of the Lena delta, between 73° and 74° N. lat.

Dr. Von Middendorff has recorded it abundant on the Taimyr Peninsula, and nesting on the tundras. The Vega expedition brought back skins from Bering's Straits. Elliott considers it can only be regarded as a rare straggler to the Prybilov Islands. Great numbers appear to frequent the north coast of the Alaska Peninsula in the summer, but it is not included by Adams in his list of "Birds seen at Michalaski." Mr. E. W. Nelson, ("Cruise of the *Corwin*"), says that on the north coast of Siberia they found them excessively numerous. Considering the absurd and fictitious value set by home collectors on an English killed example of Steller's Eider, it is somewhat curious to hear of their extraordinary abundance in these distant Arctic seas. Mr. Nelson says:—"flocks of thousands were found about Cape Wankarem during our stay there, the first of August, 1881, and in company with an equal number of King-Eiders and a few of the Pacific Eiders, were seen passing out and in each evening, to and from the large estuary back of the native village. This village was built upon the spit, cutting this estuary from the sea at this place, and lay directly in the track of flight followed by these Eiders as they passed to and from the sea. As these flocks passed back and forth the birds were being continually brought down by the slings thrown into the midst of the passing birds by the natives; yet notwithstanding this, the birds continued from day to day the entire season to pass and re-pass this place. Their heedlessness in this respect may be accounted for from the fact that these people were without guns of any kind, and were thus unable to frighten them by the noise of the discharge. The birds were easily called from

* In August, 1896, I was four times over the waters of the Varanger Fjord, and to and fro in the Jar Fjord, close to the Russian frontier, without meeting with Steller's Eider. It was probably too early in the season, although according to Pastor Soumerfeldt, of Naseby, it is seen all through the year in the Varanger.

their course of flight, as we repeatedly observed. If a flock should be passing a hundred yards or more to one side, the natives would utter a long peculiar cry, and the flock would turn instantly to one side and sweep by in a circuit, thus affording the coveted opportunity for bringing down some of their number. These flocks generally contained a mixture of about one-twentieth of the number Pacific Eiders, and the remainder about equally divided of Steller's and the King-Eiders. At times the entire community of these birds, which made this vicinity their haunt, would pass out in a solid body, and the flock thus formed exceeded in size anything of the kind I ever witnessed.

The first night of our arrival was calm and misty, the water having that peculiar glassy smoothness seen at such times, and the landscape rendered indistinct at a short distance by a slight mistiness. Soon after we came to anchor before the native village, this body of birds arose from the estuary a mile or two beyond the native's huts, and came streaming out in a flock which appeared endless; it was fully three to four miles in length, and considering the species which made up this gathering of birds, it was enough to make an enthusiastic ornithologist wild with a desire to possess some of the beautiful specimens which were seen flying by within gunshot of the vessel. A little later in the evening the natives brought off a considerable number of the birds which they had killed with their slings, and during our stay at this place, the following day, we saw large numbers of them killed with these implements, and a few were obtained with our guns. This portion of the Siberian coast appears to be the grand summer resort of this Eider, as the Aleutian Islands form its wintering grounds. One of the remarkable facts in the history of its distribution, however, is shewn in its total absence on the opposite American coast of the Arctic where the surroundings appear to be almost identical with those found on the Siberian shore, yet for all the thousands of these birds seen on this latter coast, not one was noted on the American shore, although the King-Eider occurs equally numerous upon both sides of the Arctic."

Steller's Duck is said to be not uncommon in some parts of the Baltic in the winter, probably migrating to and fro over the land from Russian Finmerk. Mr. E. Hartert says, that between 1840-50, it was not very rare on the Baltic coast of East Prussia, and many were shot near Pillau and Danzig, but only on the sea. It has occurred four times at Heligoland; three young grey birds were obtained in the winter of 1844-5, and a young male in transition plumage, which I have seen in Mr. Gätke's collection, was procured on February 11th, in 1855.

There are only two records for the British Islands, both on the east coast of England, an adult male in nearly perfect plumage, at Caistor, in Norfolk, on

February 10th, 1830, and Filey Brigg, Yorkshire, on August 15th, 1845, ("Zoologist," 1846, p. 1249), a male assuming the winter plumage.

Dr. Von Middendorff, (I quote from Yarrell's "British Birds," ed. iv., vol. 4), "describes the nest of Steller's Eider as cup-shaped and lined with down, placed in the moss of the flat 'tundras'; the eggs, seven to nine in number, of a pale greenish-grey colour; average measurements 2.2 by 1.6 in." A nest found by Mr. Dall, on the flat portion of Amaknak Island, Unalashka, on May 18th, 1872, was built between two tussocks of dry grass, and the depression was carefully lined with the same material. About the nest the standing grass was pressed together so as entirely to conceal it; it contained a single egg of a pale olivaceous cast; no down or feathers had yet been added, ("Water Birds of America," Vol. II, p. 68).

This species is said rarely to be seen in company with other Ducks, excepting the King-Eider, *Somateria spectabilis*, and sometimes the Pacific Eider, *S. v-nigrum*. It is said to feed chiefly on shell-fish, and its habits resemble those of the Eider. Except in the breeding season it is gregarious.

"In the adult male the bill is brownish-black; the irides pale brown; round the eye a ring of black; between the beak and the eye, nearly meeting across the forehead, a patch of pale green; on the occiput a band of pale green, with black ends; crown, cheeks, and part of the neck behind, white; below the white on the neck there is a collar of bluish-black, which ends in a broad stripe, passing the whole length of the middle of the back and upper tail-coverts, this latter portion tinged with raven-blue; the wing-primaries and tail-feathers brown; the secondaries in part white, with a dark blue outer web forming a rich speculum; the terminal portions white; each inner secondary feather white on the inner web, rich blue on the outer web, and curved downwards towards the end; wing-coverts white; scapulars elongated and, like the inner secondaries, with the narrow inner web white, the broader outer web rich blue; chin and throat rich bluish-black; below the broad collar is a narrow band of white, the colour extending over the sides of the neck to each wing; just below the point of the wing, some of the white feathers have black at the tip, forming a dark patch; middle of breast and belly rich chestnut brown, passing off into a buff-colour on the front, sides, and flanks; vent and under tail-coverts dark brown; legs, toes, and other membranes, black." The above elaborate description of the adult male in nuptial plumage, taken from "Yarrell's British Birds," Vol. IV., (*Saunders*), will give some idea of the richness in colour and exceeding beauty of this Duck.

The female is a strange contrast to her mate, and has no fine clothes to boast of—dark-reddish and blackish-brown, with a good many bars and spots of



COMMON SCOTER ♂ ♀

black about the neck and breast; two white bars on the wing. Both the male and female are excellently illustrated by Mr. A. Thorburn, in Lord Lilford's "Coloured Figures of the Birds of the British Islands."

Family—ANATIDÆ.

COMMON SCOTER.

Ædemia nigra, LINN.

THE Common Scoter, or Black Duck, is an exceedingly plentiful species on the whole of the Atlantic seaboard of Europe, but scarce in the Mediterranean. It is also abundant in some parts of Western Asia.

Great numbers, presumably non-breeders, remain off the coasts of the North Sea throughout the summer months. Some years since, on the 20th of June, for many miles between Dunkirk and Ostend, and on the Dutch coast, with a strong north wind and heavy sea, I passed through immense numbers of these Ducks, the sea in every direction, as far as could be seen from the bridge of the steam-boat, being covered with their vast flocks. The wind had been blowing heavily from the north for some days.

The Common Scoter is a very numerous species on the Lincolnshire coast in the winter, and the breeding portion of the community are late in leaving in the spring. I have seen them in the first week of May, off the Humber, in flocks of adult males and females swimming in pairs, and in some years quite up to the end of the month; these are birds going northward to breed, and have no reference to the many left behind, changing from the immature dress during the summer to one resembling the adult. At first, early in the year, we see them with the grey cheeks and throat of the first plumage,* and the under parts more

* Young males begin to assume the black dress in January and February.—H.A.M.

or less mottled, and by the end of June they acquire a dress resembling or approaching the adult, the female having a lighter or more chocolate-brown tint than mature birds, and the males a greyer or duller look, and not the beautiful glossy black of maturity. These summer flocks contain about an equal proportion of males and females. In July I have, when yachting, seen flocks of old male Scoters on the coast in the adult dress, and no females amongst them.

Writing of the coast of Merionethshire, Mr. G. H. Caton Haigh says (*in litt.*), "The Scoter is a very abundant Duck and seen in large flocks all the year round. Those that spend the summer are in adult plumage, though non-breeding birds. The periods of migration are September and April, and during this latter month large flocks, which I am convinced are of this species, pass over at night, and the somewhat plover-like whistle of the male may be heard almost incessantly as flock succeeds flock in rapid succession. The direction of flight is N. or N.E., and the movement never begins till after dusk. They are called by the Welsh 'cwm Ebril'—dogs of April, from a supposed resemblance to the sound of dogs hunting, and many will not believe the sound proceeds from birds. The Scoter never enters the estuaries except in very rough weather, and then only single birds."

The Scoter is a winter visitor to the Shetlands, but in very small numbers. It is also a very rare bird in the Orkneys, and cannot be considered common in the Outer Hebrides, and in the Inner Islands is said not to be uncommon in the neighbourhood of Tiree, where it has probably bred.* The Black Scoter is not rare on the eastern side of Scotland, it is plentiful at the mouth of the Moray Firth, and in some numbers to the south, as far as the mouth of the Tweed, more particularly off the estuaries of the Tay and Forth, yet the numbers are comparatively small when compared with the vast flocks of thousands which congregate between both shores of the North Sea, south of Flamborough Head to the chops of the Channel.

The Common Scoter nests sparingly in several localities in Northern Scotland. It is not known to nest anywhere in Ireland, but in winter is fairly abundant in the north, about the great marine loughs and bays, but rare in the south of that country.

In very severe winters, when the Baltic is frozen, and the great bay of Friesland, up to Sylt, a continuous field of pack ice, then the Scoter is seen by myriads, both the Common and Velvet, off Heligoland, and many are obtained both by gun and nets, set near the islands in shallow water.

* Mr. P. Anderson writes: "A pair of Common Scoters (*Edemia nigra*) had a nest in Tiree this year. . . . There were five young birds, and both old birds attended them." (*Ann. Scottish Natural History*, 1897, p. 252).

The breeding range of the Common Scoter extends from Iceland across the whole of Northern Europe and Asia, at least as far as the valley of the Ob, in which region Dr. Otto Finsch got the young in down in 1876, and found the species not uncommon on the tundra lakes.*

According to Mr. Gillett, and also Th. Von Heuglin, the Common Scoter was frequently observed by them in Novaya Zemlya and Waigats Island. Messrs. Alston and Harvie-Brown saw immense numbers in the White Sea, in July. It passes down the Volga on migration in the autumn, and probably winters both on the Caspian and Black Sea. Canon Tristram found it on the coast of Palestine in winter.

The Common Scoter is, however, rare in the Mediterranean. Dr. F. H. H. Guillemard records one off the Cyprus shore in March, in 1888. Professor H. H. Giglioli only knows of one authentic capture in Italy, an adult male in November, 1830. He adds that two adult males at Verona are said to be Italian, ("Ibis," 1881, p. 215). It was seen off the Albanian coast by Lord Lilford. In the western Mediterranean a few were seen and recorded by Col. Irby, at Santander, in May and June, and large numbers, chiefly young birds, in November. Mr. Howard Saunders saw one specimen in the Malaga market, in January, 1868. I mention these few facts to shew the great scarcity of the Common Scoter on the southern coasts of Europe.

In some seasons it is very common about the Straits of Gibraltar, from the middle of November to the middle of March; on the coast of Portugal from August to March and April. Immense flocks occur on the south side of the entrance to the Douro, and Mr. W. C. Tait says he found the tail feathers much frayed, probably from striking the sand or stones at the sea bottom when tearing off shell-fish, or when turning to rise, ("Ibis," 1887, p. 378).

On migration, which invariably takes place at night, Scoters have been known to cross a great extent of land. A few years since a lost and bewildered flock flew against the lamps and factory windows of a manufacturing town, in North Yorkshire, and numbers were picked up; these were supposed to be travelling from west to east. Numbers probably pass by the Volga, and the tributaries of that great river, from Arctic Russia to the Caspian. There are also suggestions of an overland route from the southern extremity of the North Sea, near Dunkirk, to the Gulf of the Lion and the mouths of the Rhone.

* In the "Zoologist," 1892, pp. 151-228, Mr. Charles Fowler and Mr. Anderson, (Curator of the Chichester Museum),—also "Zoologist," 93, p. 151,—record, on what seems fairly satisfactory evidence, the nesting of the Scoter in Earnley marshes, near Chichester. The male bird was shot, and seven young were seen only just able to fly. The question is would the male bird have been with the young? Mr. Anderson's independent experience, already cited, supports this view.

The only note of the Scoter I am acquainted with is a soft musical whistle, *peu-peu-peu*, which I can understand on a dark night, sounding aloft, might easily be taken, and in all probability would, for some species of Plover or Wader.

Quoting from Yarrell's "British Birds," (Ed. IV., Vol. IV., p. 474), "The call-note during the breeding season is said by Faber to resemble the syllables *tii-tii*, *tii-tii*, on the part of the male, the female responding with a harsh *re-re-re-re-re*."; this latter is probably the ordinary grating call-note. Have birds a special migration note used exclusively on that occasion? During a strong migration on a dark night in autumn, I have frequently been completely puzzled by the notes of passing migrants, and any attempt to name the particular travellers becomes the merest guess work.

The food of the Scoter is the same as the Eider Ducks, various marine mollusca and crustaceans. I have found the stomachs crammed with coarse fragments of mussel shells. They feed over the same grounds as the Scaup, and may often be seen in company with those Ducks. They are excellent divers, and I have timed them when feeding to remain under from thirty-five to fifty seconds. In the act of diving the body is thrown suddenly forward and the tail extended fan-like; on one occasion, within the Humber, I timed the average immersion as forty seconds. In 1896, Scoters were unusually early in arriving on the Lincolnshire coast, thousands having come by the second of September. I saw great numbers of females, and well advanced young, off the Norwegian coast, in the middle of August. The males forsake the females as soon as incubation commences, and when the young are hatched the female conducts them to the water, when the little things are fatigued, swimming low to take them on her back. The nest is described as formed of grass and aquatic plants, and the eggs, buried in greyish down, from six to ten in number, of a deep yellow-brown.

Mr. Wolley says, writing from Muonioniska, (Hewitson's "Eggs of British Birds," Vol. II., p. 422), "It breeds late in the season, in islands of rivers and lakes, and in tussocky parts of marshes, often year after year frequenting the same place. The flocks of Scoters generally hold themselves away from the shores, but are much less wild than when away at sea in the winter. The name by which they are called here means, in English, 'Sea-bird.' It is very pretty to see this child of the ocean—more of a fish than a fowl, as our Roman Catholic ancestors held it to be—come to enjoy the holiday season of love in a sunny lake or river. The notes of a number of them together have a wonderfully sweet effect."

Indeed I cannot well imagine a greater change for our Sea-Duck, after nine months of ceaseless tossing to and fro on a grey ocean wilderness, swept by winds cold, cruel, and pitiless, in contrast with the three months of Arctic sunshine and



VELVET SCOTER ♀ ♂

warmth, in the lovely flower-bedecked tundra, with its network of bright little lakelets and sparkling streams, a veritable paradise for wild birds of all sorts, from the Grey Goose to the far-travelled Blue-throat.

The flesh of the Scoter is considered worthless for the table, so that it is not a common object of pursuit by legitimate wild-fowl shooters. Some numbers are, however, destroyed in their winter quarters for "Sport," by a class who seem never satisfied unless killing something.

The colour of the adult male is intense glossy black, with a greenish tinge; there is a conspicuous protuberance at the base of the bill; a patch of orange in centre of upper mandible, including nostrils; irides hazel brown; legs and feet dusky black. The trachea in the male is without the peculiar dilatations found in the Surf and Velvet-Scoters, and only differ from that of the female in having the bronchi larger. The weight of an adult male is 2-lbs. 10-oz. to 2-lbs. 14-oz. The adult female is brown, paler on cheeks and sides of neck.

The American Scoter, *Edemia americana*, is said to differ from *Æ. nigra*, in having the bill broader, the gibbosity less elevated, wider, and the orange patch extends from the frontal feathers to the nostrils. Macgillivray, however, after examining several specimens, was unable to discover any essential difference between the two.

Family—ANATIDÆ.

VELVET-SCOTER.

Edemia fusca, LINN.

THIS species, although occasionally met with on the east coast of England, can scarcely be regarded as a common Duck. The fact, too, that they keep far out at sea even in the roughest weather, and are seldom seen near land, causes it to be considered a rarer bird than it really is.

Some years since, in my yachting days, I seldom came across a flock of the Common Scoter, in Boston and Lynn Deeps, and off the Norfolk coast, without seeing a pair or two of Velvet Ducks amongst them, distinguishable at a glance by their white speculum. I have rarely obtained it within the estuary of the Humber, although it is occasionally met with off the coast, near the Spurn, and on the Lincolnshire side.

The Velvet-Scoter, although a strictly marine bird, has been seen and obtained much more frequently inland and on fresh water than its congener.

This Duck has not been found nesting in Iceland, it is a chance visitor to Greenland; one, in the Copenhagen Museum, was got near Godthaab. It nests generally across Northern Europe, and in Asia its range extends probably further east than *Æ. nigra*. Messrs. Alston and Harvie-Brown observed large flocks on the south shore of the White Sea, in July. Dr. O. Finsch found it abundant on the Polar river on which Obdorsk is situated, and got the young in July, and Dr. Theél observed it in lat. 69° and $69\frac{1}{2}^{\circ}$ in Siberia. Mr. R. Swinhoe found it exposed in the China markets and purchased an adult male, and was surprised at its hugely muscular stomach full of thick bits of bivalve shells. It is not uncommon in Japan, in winter, near Yezo, and is also a winter visitor to the Yangtse Basin, where it meets the American form, *Æ. americana*. According to Mr. E. W. Nelson, it is one of the twenty old world birds known to occur in Alaska.

Returning to Europe, the Velvet-Scoter has once been obtained in Færoe. At Heligoland it occurs in winter under the same condition as *Æ. nigra*, and in equally enormous and incalculable numbers. Mr. E. Hartert, ("Birds of East Prussia," Ibis, 92, p. 519), thinks of the two Scoters this is the most common during the winter on the sea coast and Haffs. It visits Transylvania in winter; and in Italy, at the same season is not unfrequently obtained, both adult and immature, from the Adriatic; with this exception it does not appear by any means common in the Mediterranean. It is said to be met with singly in Lower Egypt in the winter.* In the western Mediterranean, Lord Lilford found it at Santander, three or four being seen and one shot on November 21st. It is very rare in Sardinia, and there is a single specimen in the Museum at Cagliari, and has also been recorded from Valencia. Colonel Irby did not meet with it in the Straits.

Velvet-Scoters are said to winter on the Caspian, and it occurs on migration in Turkestan. The only example known to Herr K. G. Henke was a dead bird from a salt lake on the Kirghiz Steppes, ("Ibis," 82, p. 229).

* Mr. A. J. Cholmley met with a pair on the western coast of the Red Sea, in January, 1896, ("Ibis," 97, p. 200).

With regard to its distribution on the shores of the British Islands, the Velvet-Scoter is only an occasional visitor to the Shetlands after southerly gales; it is a common winter species in the Orkneys, and they have been observed in the middle of summer. On the western coast of Scotland and the islands it is not common, but plentiful on the east coast,—a distribution which is suggestive of its line of migration and absence as a nester in Færoe and Iceland. Mr. Robert Gray, (“Birds of the West of Scotland,” p. 381), says that off Dunbar he has seen hundreds of both species on the water, within two hundred yards of the shore. Mr. Abel Chapman considers on the Northumberland coast Velvet-Scoters are far less numerous of the two species, although a small company or two of half-a-dozen birds may generally be met with in the same localities as the Common Scoter.

During and after heavy weather it is not uncommon on the Norfolk coast, numbers having been driven towards the land, and at such times it has also frequently occurred inland. The majority of those obtained are immature birds, (“Birds of Norfolk,” vol. iii., pp. 196-7). The Velvet-Scoter occurs off every part of the south coast, but never in large flocks, and usually in company with the common species.

Mr. Haigh considers it is a rare bird on the Welsh coast, he has only met with it once; it is, however, occasionally seen in company with flocks of the Common Scoter. Messrs. Macpherson and Duckworth, (“The Birds of Cumberland”), consider it a rare casual visitor to the English side of the Solway, but more plentiful on the Scotch side.

In Ireland, Sir R. Payne-Gallwey considers the Velvet-Scoter comparatively rare on the coasts, when he has met with them it has always been at some distance at sea. “The fishermen,” he says, “have convinced me they have not unfrequently met with this bird in small bunches of five or six, far out at sea, and where the Common Scoter would not be likely to be found.” This quite bears out what has already been remarked as to its habits, on the east coast.

There is strong probability, from the evidence, (“A Fauna of the Moray Basin,” vol. ii., p. 116), that the Velvet-Scoter has occasionally nested in Northern Scotland. On June 14th, 1876, Mr. J. J. Dalglish and Mr. J. A. Harvie-Brown observed a pair a little way off the shore, at the head of Loch Scridain, on the west coast of Mull.

Messrs. Seebohm and Harvie-Brown found this Scoter on the tundras of the Lower Petchora, but only succeeded in taking one nest, this was under a creeping, matted, dwarf birch—no doubt *Betula nana*, which is so common on the tundra,—it was far from water, and contained eight eggs and a good supply of down.

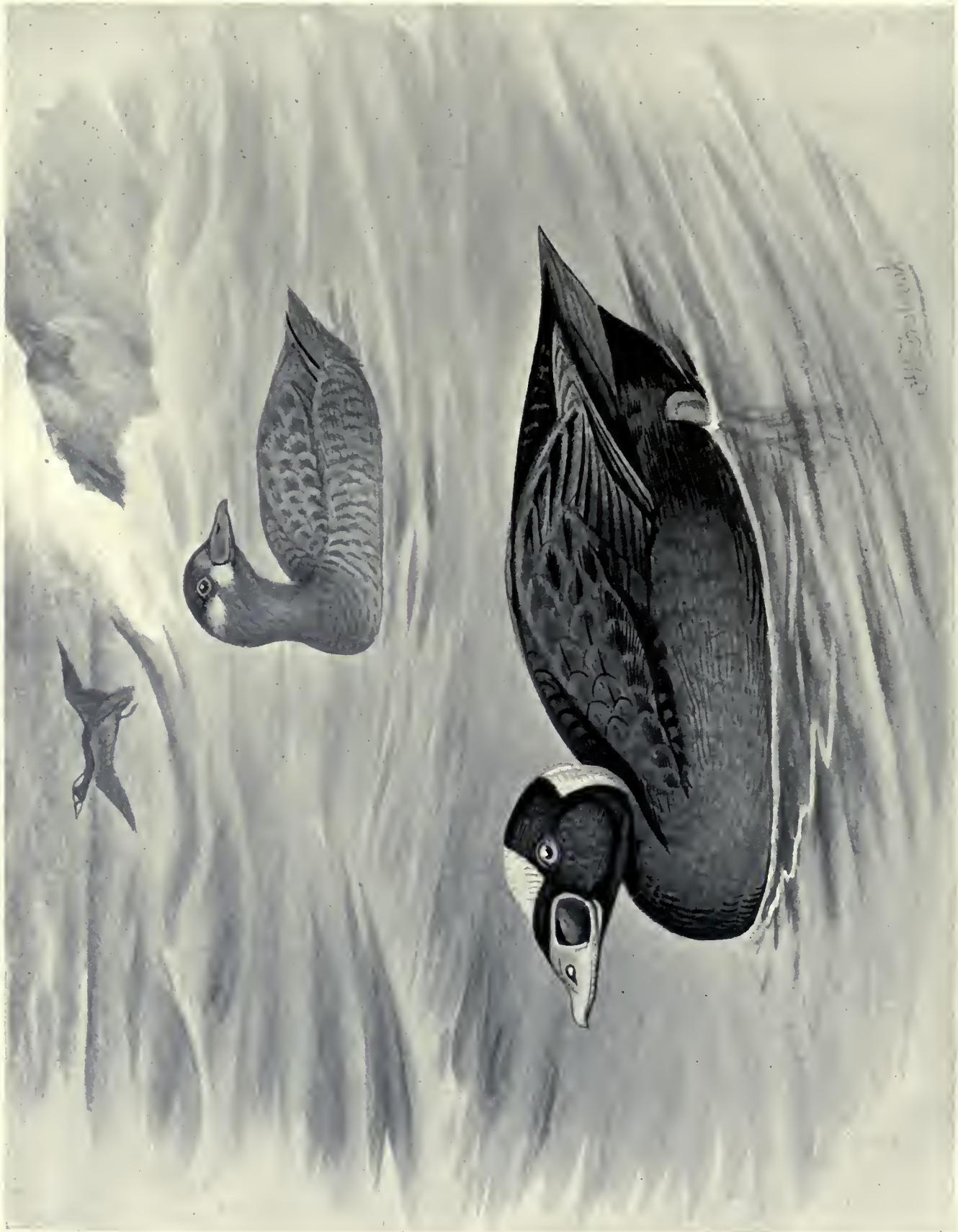
The American representative of the European Velvet-Scoter is *Æ. velvetina*, a

slightly smaller bird, the feathers on the forehead extending much more over the bill, making it appear shorter, and there is no black line across the central portion of the mandible, extending from the nostrils to the nail. The differences are slight but permanent.

When feeding, Velvet-Ducks keep near the same spot, and when drifting with the tide beyond their ground, rise and fly back, and again recommence. On the wing the adult male very much resembles an old Black Grouse. Their food appears to be exclusively shell-fish, and they are probably not quick enough to catch fish, they remain immersed from one to three minutes. The shell-fish on which it feeds are torn from the bottom and swallowed entire, and subsequently broken into fragments in the strong muscular stomach. I have been astonished to see the small size of the fragments, so that it is not easy to decide what they are, perhaps the breaking up process is assisted by some strong solvent, of the power of which we have little knowledge. Macgillivray says they live mainly on bivalve mollusca, of the genera *Maetra*, *Tellina*, *Solen*, *Mytilus*, *Cardium*, in some cases he has found the gizzard filled with *Donax trunculus* exclusively. Mr. Gray has taken quantities of a species of *Donax*, with a very strong shell, which had been broken into fragments. The contents of the stomach, he says, are so much bruised, that it is not easy to make out the species which it prefers, and only the thicker-shelled mollusca are distinguishable, and even these are smashed into small pieces. We must examine the gizzard of a shell-eating Duck if we wish to realize the power of the strong lateral muscles, and the strength of the two grinding plates of the gizzard in reducing thick-shelled mollusca to little better than a pulp, and this without injury to the organ itself.

As might naturally be supposed from the nature of its food, the flesh of this Duck is coarse, rank, and fishy. Mr. Gray says, some people think fresh earth will remove the strongest flavour natural to a fish-eating bird, and recommends anyone desirous of trying a Scoter to bury it, *and leave it there*.

Everything, as I have before said, depends on the nature of the food, and even a Scoter might be made palatable if fed on proper diet. Mr. Gätke says, ("Birds of Heligoland"), that on one occasion a ship stranded and went to pieces on the long southern extremity of the dune. The cargo, which consisted of small grey horse beans, was carried by the current along the sea bottom far out to the east. The Ducks, (chiefly Scoters), came by thousands and remained on the spot where, at the depth of about ten fathoms, this rich food was spread. All the birds obtained from this quarter were literally enveloped in fat which, unlike its normal condition, was very white and palatable. The birds had not a trace of the fishy taste peculiar to these Ducks, and specially pronounced in old males.



SURF-SCOTER ♂ & ♀

I have known the same on the Lincolnshire coast when grain ships have been lost, the Ducks coming by thousands to the locality to feed, where they will continue as long as any food is to be got.

The adult male Velvet-Scoter is rich glossy black, with purple reflections. There is a white spot behind the eye, and the wing speculum, or bar, is large and pure white; bill orange, black on nostrils; tubercles black, also a line round margins of upper mandible; irides pale brown; tarsi and feet dull orange, darker on webs.

The female is brown, lighter underneath; a smaller white bar on the wing, and a dull white spot on the ear-coverts which, however, is very conspicuous at a short distance; there is another at the base of the upper mandible. The weight (according to Yarrell) is, male $4\frac{1}{2}$ lbs., female 3 lbs.

The trachea is quite unlike that of the Common Scoter; there is a hollow bony dilatation about a third of the way above the bronchi, and at the upper part, below the superior larynx, is another enlargement, the inner tube of the trachea having an opening on each side which communicates with this cavity. I have no means of knowing how nearly the call-notes of this species resemble or differ from those of *C. nigra*. Seebohm gives it as a harsh "ker-ker," and this, as far as I know, in no way resembles the call of the Common Scoter.

Family—ANATIDÆ.

SURF-SCOTER.

Edemia perspicillata, LINN.

THE Surf-Scoter is a maritime species peculiar only to America, where it ranges over a considerable portion of the Continent. It is found both on the Pacific and Atlantic side, also on the great lakes of the interior.

In the spring it migrates northward to breed, and according to Professor Reinhardt it occasionally visits Greenland. It is reported by Mr. MacFarlane as common near Fort Anderson and on the Lower Anderson River, and to be very abundant on the sea coast about Franklin Bay, and in all probability it frequents, in the breeding season, the whole of the mainland coast of America fronting the Arctic ocean. Mr. Nelson says it is the least numerous of any of the Scoters on the shores of Bering's Sea, but it is common at St. Michaels, Norton Sound, each autumn and spring. During the cruise of the *Corwin* several were seen during the last week in August on the north-east Siberian shore, and on the rocks about Cape Wankarem.

On the Pacific coast its range extends as far south as California, and on the Atlantic side to Florida and the Gulf, gradually extending its journey southward in the autumn, according to the severity of the season or for a better supply of suitable food in the warmer southern waters.

The Surf-Scoter occurs from time to time as a visitor to the British Isles, but the occurrences have been chiefly on the western side of the country, from Devon and Cornwall in the south, to Northern Scotland and the Hebrides, also at least eight times on the Irish coasts.* In the Orkneys it appears to be not unfrequent in the winter in company with Velvet-Scoters, (Yarrell, ed. iv., vol. iv., pp. 482-3). The late Dr. Saxby does not include it in his "Birds of Shetland," but refers to the statement, (as mentioned by Yarrell), made by Mr. T. H. Dunn, that he saw an adult male on Rona Voe, in June, 1847. It is impossible to give all the occurrences in Great Britain, but there is no doubt this bird is not nearly such a rarity as was supposed.

Besides the British Islands, the Surf-Scoter has occurred as a straggler to the Bermudas, Heligoland, the Færoes and the coasts of Scandinavia, Germany and France, and has been taken in Switzerland. There is a beautiful adult male in the Bergen Museum, labelled Hjellefjord, September 23rd, 1893.

The authors of "American Water Birds," (vol. ii., p. 101), say:—"From September to April the Surf Duck is common on the whole Atlantic coast, from Nova Scotia to North Carolina, its presence apparently being regulated as much by the abundance of its food as the severity of the weather. Until mid-winter the flocks gradually move southward, their food being more abundant in southern waters, and after February gradually find their way back. In April a general migration northward becomes very perceptible, and by the end of that month the

* Since this was written, Mr. R. Warren, on December 19th, 1896, met with an adult male and female Surf-Scoter in the Moyne Channel, Killala Bay, the female he shot and winged the male, which was subsequently obtained by a friend on January 18th, 1897. There is a graphic account of the chase of the wounded male by Mr. Warren, in the "Zoologist," 1897, pp. 84-5.

immense procession of this very abundant species has passed beyond the Bay of Fundy, towards its breeding places, only the crippled, immature, or superannuated individuals having been left behind; and these remain unmated in the more southern latitudes through the whole summer."

The general term by which all the Scoters are known in America is "Coots." In New England the Surf Duck is "Skunk-head Coot," and also the "Hollow-billed Coot,"—"Grey Coot" also for the young and female.

Dr. Cooper describes it as a most abundant species in the winter along the whole of the Pacific coast, being seldom molested or shot; many attain to a great age, and linger along the southern shores in great flocks. Long wet seasons are particularly fatal to them, as they appear very delicate and particularly subject to the influence of weather, becoming thin and blind, and eventually are found dead along the beaches, or drift in helplessly to the wharves and piers.

Audubon, who found them nesting in Labrador, says:—"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 Duck'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-and-a-half-eighths 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 uniform pale yellowish or cream colour."

Mr. MacFarlane, who found it breeding in considerable numbers on the Lower Anderson River, says the nest is not to be distinguished from that of the Velvet-Scoter. One found on June 25th contained eight eggs; it was placed on a ridge of ground at the foot of a dry stunted pine, and was made of dark-coloured down and quite concealed by the lower branches of the tree. All the nests found were in the same style and pattern, the number of eggs five to eight, uniform ivory-white, with a slight tinge of pink.

Their food consists of small fish and shell-fish, and their flesh is coarse and fishy, and of no value in a culinary sense. During incubation the males appear to separate from the females and form separate flocks.

I know of no reason why this species should be specially designated the Surf-Scoter, for it frequents the same sort of water as its congeners, floating as buoyantly as a cork in the heaviest sea, and is a most expert diver, seeking its food at great depths.

In the adult male "the upper mandible is orange-red, with the margins

yellowish-grey, and on the protuberance on each side at the base a large square patch of black, margined with orange-red, unless in front, where there is a patch of greyish-white; the lower mandible flesh-coloured, with the margins darker; the iris yellowish-white; the tarsi and toes are orange-red; the webs dusky; the claws black; the plumage is deep black, glossed with blue, of a lighter tint beneath; on the top of the head is a roundish patch of white, and on the hind neck a larger elongated patch of the same." "Length to end of tail 20 inches; wing from flexure $9\frac{3}{4}$; bill along ridge $1\frac{1}{2}$."—(*Macgillivray*).

The female is considerably less than the male, and the base of the bill much less protuberant. The general colour brownish-black, lighter underneath.

The specific name *perspicillata* has probable reference to the two black patches on each side of the bill.

Family—ANATIDÆ.

GOOSANDER.

Mergus merganser, LINN.

THE Goosander is known to breed in several localities in the North of Scotland, independent of this it is only a winter visitor to the British Isles, where it is much more of a fresh-water than a marine species. In the districts on the east coast, with which I am best acquainted, there can be no doubt it is much the commonest of the two Mergansers within the Humber and its tributaries; when, however, we come to the open sea and the Lincolnshire coast, the Merganser (*Mergus serrator*) is the most plentiful. Mr. Haigh says, on the section of the coast between Tetney Haven and Saltfleet, he has met with the Goosander much less frequently than the Merganser. Mr. F. Boyes, of Beverley, in "The Field," February 20th, 1897, remarks:—"I have shot wild-fowl on our river (the Hull)



GOOSANDER ♀ ♂

W. Brewster

for thirty years, and in all that time have never seen a Merganser, but Goosanders are common in hard weather." On the broads and lakes of Norfolk also the Goosander is much the commonest of the two.

The summer range of the Goosander extends across the whole of Northern Europe and Asia, and in the former Continent as far south as the Swiss lakes, where it is known to have nested. It is very rare in Færoe, and Müller records only one instance of its capture there. It nests in Iceland and in many parts of Scandinavia, sometimes on the ground, and sometimes in a hole of a tree. Mr. H. J. Pearson met with two pairs, in 1895, in Russian-Lapland, several pairs in Kolguev, and a number of old birds in Novaya Zemlya, but no nests or young were found. Messrs. Alston and Harvie-Brown met with it near Archangel, but it is not common there. Mr. Hartert says it breeds plentifully in the southern and eastern parts of East Prussia, and that the eggs are deposited in large hollow trees, and are laid from the end of April to the middle of May, and is found also in the winter season. It nests also regularly in Denmark. The Goosander does not breed on the Pamir, but at a lower elevation, *ascending* after the breeding season in July. In Europe it winters from the Baltic to the Mediterranean, and is then found in Southern Spain; in Sardinia, however, it is the rarest of the three European Mergansers; there is one specimen in the Museum at Cagliari. According to Mr. C. A. Wright, it has once occurred in Malta; is not uncommon in Turkey, and occasionally seen on the Bosphorus. Mr. C. G. Danford found it on the Euphrates in winter. In the Caucasus it occurs on migration, and winters on the shores of the Black Sea; at Astrakhan commonly in autumn and winter; at Gilgit frequents the mountain streams in winter, and is found also at this season throughout Northern India and in China, the Corea and Japan.

Mr. F. W. Styan, ("Ibis," 1891, p. 498), reports it as very common in the Lower Yangtse Basin; in the thick water of the river they dive under for food, but in the clear mountain streams they paddle on the surface with only the beak and eyes immersed, and when they see their prey down they go.

The Goosander is well-known in the Orkneys, where it is a regular winter visitor, but is very rarely observed in the Shetlands. It is of very rare occurrence in the Outer Hebrides, nor, although common on the coast, has it been yet recorded as nesting anywhere on the Inner Islands; but when we come to the mainland of Scotland the case is very different. The joint authors of "A Fauna of Argyll and the Inner Hebrides" say, "we know it to have bred all along the west watershed, as well as on the eastern slope of the backbone of Scotland, from near Eddrachillis, in Assynt, to Loch Awe, and we will not be surprised now at any time to learn positively of it further still to the westward." In fact our authors

consider it one of the most rapidly advancing amongst breeding species of *Anatide* in Scotland. Accounts from other parts of the Scotch Highlands shew that the Goosander is a rapidly extending breeding species. In Ireland the Goosander is an annual winter visitor, but in very limited numbers and chiefly to fresh-water.

Mr. Haigh, writing of the coast of Wales, with which he is well acquainted, says:—"in some winters the estuaries are sometimes visited by small flocks, almost always including some old males in the beautiful black and cream-coloured plumage. At other times they are scarce, and I often pass several years without seeing one. In diving, these birds and the Mergansers do not appear to use their wings as the diving Ducks invariably do, in this respect resembling the Grebes and the Cormorant."

At Heligoland, Herr Gätke says the Goosander is rarely seen in mild winters, or at most a blue-grey young or female; on the other hand, in very severe weather, beautiful old males appear in fairly large numbers, and are more abundant than the females or young.

In the Humber the Goosander is much more numerous in some years than others, this was the case in the winter of 1886-7, in one case five were killed at one shot from a flock of twelve. In 1893-4-5, the occurrences in my note book of old males have been in January or early in February. I have occasionally seen Goosanders in very severe weather on the "beck" in this parish, and once killed an adult male which, on falling, threw up two trout fresh and clean, evidently just swallowed, one was seven the other five inches long. Macgillivray mentions sixteen trout taken from the stomach of one killed on the Tweed, in 1838.

Much doubt existed amongst the early ornithologists in connection with the male, female, and young of the Goosander. The female, known as the Dun Diver, was rightly considered by Pennant to be the female bird; Colonel Montagu, however, made a distinct species of it under the name of Dun Diver. The females and young also of this and *Mergus serrator* have frequently been confused.

The American Goosander can only be considered a sub-species of the present, the adult males have the black colour of the greater wing-coverts exposed so as to form a distinct bar across the wing; the females and young of the two races are practically not to be distinguished; the habits of the two are alike. The American bird breeds across the whole of the northern parts of the country, from the Great Lakes northward, but has not been recognized as occurring in Greenland. The Goosander, by preference, makes its nest in the hole of some rotting tree, failing this it will nest on the ground. In the Highlands a nest has been found in a hole in a large dead pine, twelve feet from the ground, also in hollows and under roots of trees. The down is lighter than that of the Ducks,

being greyish-white; the eggs eight to twelve, of a creamy-white; incubation lasts twenty-eight days.

The Goosander feeds exclusively on fish, its long, narrow, serrated bill, with the teeth sloping backwards, being admirably adapted for seizing and holding slippery prey. It is a most expert diver, and can remain immersed a considerable time, and is never more at home than in a shallow stream in pursuit of the little brown trout. The note of the male is harsh, that of the female is said to resemble a low whistle.

The adult male Goosander, (which is probably three, if not four, years in getting the full plumage), is a most beautiful bird, with decided dark and light contrasts. The crest on the head is full and thick, a glossy-black, shot with green and purple; fore part of back, some of the scapulars and primaries, black; the secondaries and wing-coverts pure white, without any black bar as in the American bird; lower back, rump and tail, ash-grey; the bill vermilion, with black nail; eyes red; tarsi and feet orange; the lower neck, breast and under parts, cream-white, suffused with pink: this colour is very evanescent, and soon disappears in the dead bird. An old male will weigh four pounds; the finest I ever saw measured was $26\frac{1}{2}$ inches in length over all.

The adult female has a conspicuous crest which projects from the occiput. Head and throat, also crest, light chestnut; chin white; lower parts white, with a buff tinge; upper parts bluish-ash colour; there is a broad white band on the wing; the bill, tarsi, and feet, duller than male. The trachea in the female is simple, in the male it has one or two dilatations, and an enormous labyrinth at the lower end which is partly bone and partly membrane. The legs are short and placed far behind, and it is not only an admirable diver, but can make very good progress on land, moving easily and gracefully. The local name on the east coast is "Saw-bill." In drawings and illustrations, the Mergansers should be represented with a nearly straight outline for the back, like the Divers, and not curved like a Duck.

The old Lincolnshire spelling of the name was Gossander. Michael Drayton, in the *Polyolbion*, says:—

"The Gossander with them, my goodly fens do show,
His head as ebon black, the rest as white as snow."

Goosander is "Goose-Duck," for the derivation of the word see Professor Newton "A Dictionary of Birds," Part II., p. 371.

Family—ANATIDÆ.

RED-BREASTED MERGANSER.

Mergus serrator, LINN.

THE Red-breasted Merganser is more of a marine species than the preceding, and has also a much more extended range. It is a winter visitor to England, but resident in some numbers and breeding in many parts of Scotland and Ireland. The Merganser is common all the year round in the Shetlands and many nest there on those parts of the coast which are not too rocky and precipitous, and from what Saxby has said it must be an increasing species in the islands; in the Orkneys, too, it is common and resident; it is also fairly plentiful in all suitable localities in the Outer and Inner Hebrides, but only a very rare visitor to St. Kilda. Resident and breeding in Færoe: Colonel Feilden noticed it sparingly distributed through those islands; also nesting in Iceland. In Scandinavia it is exceedingly common. Von Heuglin found the Merganser on Waigats Island, mixed with flocks of the Long-tailed Duck and Black Scoter. At the end of June, in 1884, Mr. Chapman saw several hundred Mergansers in a flock on the Tana fjord. It is a very common bird in the neighbourhood of Archangel in summer. In East Prussia, according to Mr. Hartert, it is not so common as the Goosander; it breeds in the district, and the eggs are placed on grassy islands, and not in hollow trees.

In the winter the Merganser visits the open waters of Central and Southern Europe; the Swiss and Italian Lakes. It occurs on the coast of Portugal in December, January and February, also Southern Spain, leaving in spring for the north. Colonel L. Howard Irby says it is found in some winters in considerable numbers in the Bay of Gibraltar. In Sardinia common in winter, and off the west coast of Corsica from November to January, also to the coasts of Turkey it is a common visitor. In Transylvania it is much the rarest of the two in winter, the Goosander being fairly common on the rivers of that country. Colonel Shelley (1872) does not include it in the birds of Egypt, although it is now known to visit that country, also the lakes of Algeria. Canon Tristram obtained it on the river Kishon, and Mr. Holland at Ain Musa, in the peninsula of Sinai.

In Asia its breeding range extends across the whole of the northern part of



RED-BREASTED MERGANSER ♂ & ♀

the Continent, but not higher than the limit of the forest belt. In the winter it is a rare visitor to the Astrakhan district, and passes through the Caucasus on the autumn migration, where it is not uncommon in small flocks in November. It visits the Persian Gulf, and in the east, China, Japan, and the Loo-choo Islands, where an example was shot on February 26th, 1892. The Merganser is not known to visit India.

The American Merganser cannot be separated from the old world species; the two are in every respect identical. It nests across the whole of that Continent from E. to W., and from lat. 45° N. The limit of its northerly range, however, seems uncertain; but it is said to be partly a resident in Greenland, and to breed quite generally both in the north and south of that country. Mr. E. W. Nelson considers it the commonest species of Sheldrake—the American name for the Merganser—on both shores of Bering's Sea; it nests on St. Lawrence Island, and on both the American and Siberian coasts, on the former being not only common but abundant. Dall found it on the Aleutian Islands. In the winter the Merganser goes as far south as the most southern states and the Bermudas.

Returning to Great Britain, Mr. G. H. Caton Haigh considers the Merganser "an exceedingly common bird on the Welsh coast, frequenting the estuaries in flocks of from three and four to one hundred. They are most abundant on the spring migration, which takes place in March and April, a few remaining into May. Their food consists of small fish, particularly flounders, shrimps and crabs, the last named, if small, are swallowed entire, but if large the bird breaks off the legs before swallowing. The Merganser appears unable to crush the shell as the Divers do; it is a quick and graceful diver, keeping the wings shut;* the usual length of time under water is fifteen to twenty seconds. The note of the female is a harsh quack uttered once generally when frightened, I never heard the male utter any sound."

I know of no more beautiful sight than to watch a party of Mergansers on the feed. I have seen them in water perfectly smooth and in a heavy sea; every motion is instinct with life, grace, and imperceptible action. In diving they seem slightly to elevate the front of the body, as if gathering impetus, and then disappear instantly without any apparent effort or troubling of the water. They rise to the surface as easily as they go down, and if a fish has been captured it is brought up cross-ways in the bill, adjusted, and swallowed. In a heavy sea they

* Mr. Haigh has had unusually good opportunities, on a rocky shore, of watching the Merganser fishing in perfectly clear water, so as to note the position of the wings. On the other hand, Macgillivray says when fishing "they shoot along under the water, with partially out-spread wings." Saxby also, writing on the same subject,—“When watching the Merganser diving, I have observed that it invariably uses its wings as well as its feet.” The probability is that all are right, and that it varies the wing action according to the strength of the tide or current and the depth of water.

dive through the advancing wave, coming out on the other side and riding buoyantly as a cork, as if born to rule the waves. Like the Goosander, the Merganser is capable of making very fair progress on its feet, and in this respect is very superior to the waddling diving Ducks.

That excellent observer and out-door naturalist, the late Mr. Graham, of Iona, writing of the Merganser, says:—"a very pretty sight they make in some rock embosomed creek, a party of some half-dozen, including one splendid male. At one time they float upon their own reflections imaged in the dark blue water; then, as if by word of command, they all leap down together into the depths below. After a minute's interval, up they pop to the surface, emerging with great buoyancy. They are now a little scattered, so they converge upon their gallant admiral, whose bright, parti-coloured plumage is further set off by the rich, soft shades of chestnut which form their own colouring. They advance with great swiftness through the water, without any visible effort or motion of any part of the body; the long slender neck is kept erect and motionless, except to turn the head and long coral bill gracefully round, as the bird looks about, suspicious of lurking danger."

Saxby says:—"when Mergansers are feeding in water too shallow for diving, they are not very easily distinguished at a distance, owing to their habit of keeping the head almost constantly submerged, leaving nothing in sight but the back." On discovering a fish they dive instantly, without having raised the head for breath; on making a capture the fish is swallowed when brought to the surface, the bird then raises the fore part of the body, flaps its wings, and takes a drink of salt-water, raising its bill like a common fowl.

In very severe winters the Merganser visits the sea round Heligoland in large numbers, fifty to one hundred, and often much more, in a flock. Mr. Gätke says, these flocks are nearly all old males with double tufts on their heads. The females and young birds approach nearer the island and do not congregate into companies like the males, but dive about for food apart from their fellows. The Heligolandish name means "Necklet-seacock," as distinguished from "Yellow-seacock," the Goosander.

The nest of the Merganser is placed on the ground, generally, but not always, near water; it is well concealed in long heather or grass, with a foundation of coarse dead herbage, and lined with feathers and whitish down from the bird's breast. The eggs are from six to nine, cream coloured or light buff, sometimes with an inclination to green. In Norway the nest is not uncommonly placed under the shelter of a young spruce, where the lower branches sweep the ground. In Shetland, Mr. Saxby says, the Merganser when nesting seems to prefer something in the form of a roof, or under a rock, a rabbit burrow, a crevice in an old

loose wall. The rich reddish cream colour of the eggs is, he says, in some strongly tinged with green.

Their food consists of small fish, from both salt and fresh-water, shrimps, marine worms, and crabs. Mr. E. W. Gunn, of Ipswich, took from the stomach of an adult male, shot on January 16th, 1889, at Walton-on-the-Naze, twenty-three sprats, three inches long, and one small whiting, packed like sardines in a tin. In the west of Scotland and the Isles, the local Gaelic name has reference to their partiality for sand-eels on which they chiefly feed.

The adult male has the filamentous double crest, the head and upper neck, black, with green and purple reflections; rest of neck white, with a band of black running down behind; lower neck with a deep belt of reddish-brown, splashed and spotted with black; rest of lower parts, including breast, cream-white, tinged with buff; lower neck, behind and fore part of back, black; lower back a light ash-grey, undulated with black; there is a tuft of feathers at the shoulder, white, broadly edged with black; inner scapulars black, the outer white; speculum white, crossed with black; bill orange-red; irides red; tarsi and feet orange. Length twenty-two inches; weight two to three lbs.

The female closely resembles the female Goosander, but is quite one-third smaller. Sir R. Payne-Gallwey says, the female of the Goosander has the throat white, and in the Merganser this is reddish. The female Merganser has the back brown, instead of blue-grey, as in the Goosander.

After examining a series of skins of the Merganser, for the purpose of this work, in my friend Mr. Caton Haigh's collection, I have come with him to the conclusion that the male bird does not get his full adult plumage and *double crest* till late in the fourth year.

The trachea is very largely dilated at its lower extremity in the male; that of the female is uniform throughout its length.

The flesh is rank and fishy, and unpalatable even to a hungry man; Mergansers are, however, seldom shot, since they rank among the wildest and shyest of water-birds. A local name on the east coast is "Sawbill"; this is the usual sobriquet of the species in Western Scotland; but in Shetland the bird is known as the "Herald-Duck."

Family—*ANATIDÆ*.

SMEW.

Mergus albellus, LINN.

THIS handsome little Duck is much the rarest of the three European Mergansers on the east coast of England; in severe winters, the females and young of the year are fairly common, but the adult male a rare bird and seldom obtained. The few I have seen have almost invariably been shot in fresh-water or well within the Humber.

The Smew breeds nowhere in Great Britain or the Islands, nor in Færoe, Iceland or Greenland, nor does it nest anywhere in Norway and probably nowhere nearer to the west than Russian Lapland, where Wolley first discovered the eggs. Seebohm and Harvie-Brown saw many pairs near Habariki, on the Lower Petchora, and the eggs were brought to them by the natives. According to Mr. Henke it is common near Archangel, breeding in hollow trees. Seebohm found it on the Yenisei, but it is absent from Mr. Popham's list of birds seen on that river in 1895. Mr. N. A. Severtzow closely examined a pair through his binoculars, at the end of August, on the Boolum-kul, in the Pamir-Alichur, and concluded it probably bred there, ("Ibis," 83, p. 77). Judging from its winter distribution it probably nests across Asia as far north as the limits of the forest belt. It is recorded as common near Astrakhan in summer, and nesting in trees, ("Ibis," 82, p. 230).

In the Caucasus it is only recognized as a winter visitor, but is not common. In Turkestan it occurs both in winter and also on passage. Colonel Swinhoe had three specimens shot near Kandahar. It visits Japan, Corea, China, and Northern India in winter. Mr. F. W. Styan found it common on the Lower Yangtse Basin, especially in March, when they arrive from the south, which is suggestive of a further southern extension of its winter range. In Europe its winter quarters extend over the whole of the British Islands. In East Prussia it is not rare up to April. In Transylvania in large flocks up to the middle of March; it is known there as the "North Pole Diver." Common on the inland waters of Macedonia in winter, but no adult males. A well-known visitor to the Swiss Lakes in the same season, and also to Southern Spain. Colonel Irby says it occurs in some



Chukrohawk

SMEW ♂ ♀

years about the Straits in immature plumage. It is not uncommon in Sardinia in winter, and has been obtained in Corsica. Although scarce on the African side it is generally distributed in the Mediterranean, reaching these southern waters, like other northern nesting Ducks, by one or other of the three chief great lines of migration of the *Anatidæ*, namely—the valley of the Rhone into the Gulf of the Lion, East Prussia to the head of the Adriatic, and the line of the Volga and Don to the Black Sea, in which latter locality it is very common in winter.

The Smew is an extremely rare visitor to the Shetlands, and appears almost equally uncommon in the Orkneys. It is not uncommon on the west coast of Scotland and along the line of the Inner Hebrides, and has also been seen in summer. On the east coast of Scotland it is much more frequently met with. The Rev. H. A. Macpherson considers it a rare winter visitor to the Lake district. Sir R. Payne-Gallwey says, the Smew is an uncommon visitant to Ireland, but not so unfrequent in the extreme north of the country, where the fowlers know it by the name of the "White Wigeon," "Weasel Wigeon," this latter refers to the small head of the female and its chestnut colour. On the Lincolnshire coast it is called the "Smee," "Weasel-head." Mr. Swainson gives "White Nun" as a local name in Ireland, but I have not heard it applied to this Duck anywhere in England.

On the south coast of England the Smew is fairly common in most severe winters, the females and young, however, largely predominating.* At Heligoland the adult is of extremely rare occurrence, but in 1847, with persistent S.E. winds during the latter half of December and throughout January, an unusual number of Smews occurred along with enormous numbers of other *Anatidæ*, notably *Mergus serrator*.

We are indebted to the late Mr. John Wolley for the first discovery of the breeding of the Smew in Arctic Europe. This he accomplished after four years of unremitting enquiry and labour in the wilds of, then little known, Lapland. Mr. Wolley's death, at the early age of thirty-six, was a great loss to ornithologists, and there is no doubt had he lived he would have done splendid work and risen to the very highest position possible in his special study. It was on the 30th of July, 1857, when he received from his agent the butter-box containing the skin of the female Smew, and three of the precious eggs wrapped in tow; subsequently he obtained other eggs, specimens of the down, and full particulars of the nesting habits. The nest was placed in a rotten birch stump; the down pale in colour; the eggs much resembling those of the Wigeon in size, but more flattened at the

* In the late summer of 1897, a pair of adult Smews were seen on the Devon coast by Dr. Elliot, of Kingsbridge, and recorded by him in the "Field" Newspaper; this is the only proved case of *M. albellus* visiting Western Europe at this season.

small end and less of a yellow tinge about them. A full account of this most interesting discovery will be found in "Yarrell's British Birds," (Ed. IV., Vol. IV., pp. 501-6), extracted from Wolley's notes in the "Ibis" for 1859.

The Smew is a very expert diver, it flies with great rapidity, and is a very shy bird and difficult to approach in the open. I have, however, in very severe winters, flushed it inland in narrow marsh drains, where it could by no possible means have avoided the approach of an enemy. It feeds on various crustacea, small fish, water insects, and vegetable matter. I once found in the gizzard of an old female Smew a mass of fine vegetable fibre, quartz stones, and a feather. In the stomach of one which Mr. Boulton, of Beverley, had, were five small roach, from three to five inches long.

The occurrence of a handsome adult Smew is always an interesting circumstance with ornithologists; its beautifully contrasted plumage of black and white seen on the wing on our coast, against the dark back-ground of a lowering storm-cloud, is one of those incidents that are remembered long afterwards. In the "Zoologist," 1864, p. 8962, Mr. Boulton has recorded three adults obtained near the city of York early in that year; and in the winter of 1871, six adult males were obtained in January, in Norfolk.

The Smew is not known to occur on the American Continent.

The adult male has the head white, with a full crest, and on the fore-part of each cheek a greenish-black patch; a band of the same colour on each side of the occiput; the back black in front and grey behind, a transverse black line in front before the wing; primaries and coverts brownish-black; secondary quills and coverts black, tipped with white; some of the scapulars margined with black; the rump, tail, and markings on flanks, grey; all the rest of the plumage white. Bill, tarsi, and feet, bluish-grey, webs darker; irides red. Length $17\frac{1}{2}$ inches; weight about $1\frac{1}{2}$ lbs. The trachea in the male differs very materially from those of the two preceding species.

Adult females are less than the male; the head, crest, which is much smaller, and back of neck, chestnut; there is a black patch on the fore part of the cheek as in the male, the throat white. The head and neck in the female are very slender, and with the colour suggest the local name "weasel head." The hybrids between this and the Goldeneye have already been mentioned under the head of the latter species.

Family—ANATIDÆ.

AMERICAN HOODED MERGANSER.

Mergus cucullatus, LINN.

THIS very charming water bird is a purely American species, inhabiting the greater part of the northern Continent, and occurring only casually in Europe. It breeds plentifully in the States and throughout British North America, extending its range as far as Alaska on the west. Sir John Richardson found it plentiful on all the lakes and rivers in the fur country, and it is said to have occurred accidentally in Greenland.

The Hooded Merganser has occurred on several occasions in Great Britain, between the dates 1829 and 1870, Mr. Harting, ("Handbook of British Birds"), has put fifteen on record, but some of these occurrences are perhaps doubtful ones. In Ireland, Sir Ralph Payne-Gallwey was specially fortunate in shooting three—one pair in the severe frost of 1878, in Cork Harbour, and another in yet more severe weather, in 1881, on the north coast of Kerry. Sir Ralph says from what he saw of those he shot they fly faster and with a more darting motion than other Mergansers, which quite bears out the description given by American authors.

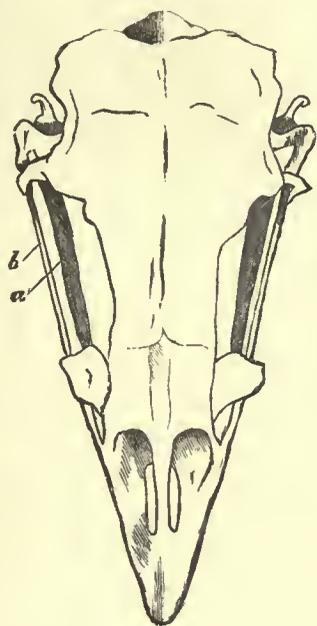
In "Sporting Days," Mr. John Colquhoun, describes his meeting with three on May 5th, 1853, near one of the islands on the Firth of Forth, he had just emptied his gun at a drake Eider when, "before I could rise from my hiding, three little sea-fowl swam rapidly into view from the bay. They never saw me, and seemed more surprised than frightened, never attempted to fly. The leader had a hood like a Hoopoe, and in the centre of the hood a white star, the Hooded Merganser! It was a tempting and mortifying moment to watch the little trio, within such fair distance at first, quickly paddle out of reach before I was 'shotted.'" Attempts have been made to discredit this record, but Mr. Colquhoun was far too good a naturalist to mistake the Hooded Merganser for any other species at gun-shot range, and I consider his interesting observation may be thoroughly relied upon.

ORDER COLUMBÆ.

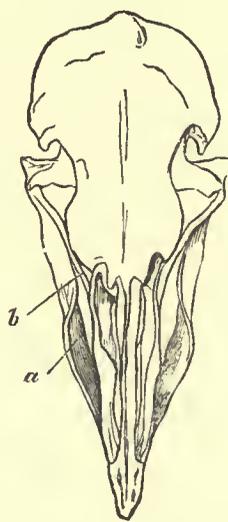
THE Columbine Birds, or Pigeons, though formerly grouped with the Game Birds, are exceedingly well defined, differing in a very marked manner from all other groups. The species are very numerous, probably approaching four hundred in number, and are found all over the world except in the Arctic regions.

The Fruit Pigeons, which are very abundant in the Tropics and Australia, are not found in any part of Europe, and therefore do not call for any description in the present volume. In Great Britain we have four birds belonging to the family *Columbidae*; three of these belong to the genus *Columba*, namely—the Wood-Pigeon, *C. palumbus*; the Stock-Dove, *C. anas*; and the Rock Dove, *C. livia*; and one migratory species belonging to the genus *Turtur*—*T. communis*—the Turtle-Dove. In some works on British Birds, the Passenger Pigeon, *Ectopistes migratorius*, has been included, but it is a very rare straggler from North America, and has no claim to be considered as a British bird. The birds of the family are remarkably distinguished by the character of the bill, and the mode of feeding the young, which has been mis-stated by almost every writer. The lower mandible is much broader than the upper towards its base, a formation which has a distinct reference to the habits of the bird. The young are born in an exceedingly immature condition, and are fed for the first few days exclusively on a peculiar secretion from the crops of the parent birds, which is only produced at the period of hatching. This is a soft curdy substance which may be termed “pigeon’s milk.” It is not, as erroneously stated by Seebohm, semi-digested food, but a distinct secretion, nor is it, as he says, eaten by the young from the open mouth of the parent. When feeding the young bird plunges its beak, which is open, deeply into the mouth of the parent bird, which by a violent muscular effort throws up

from the crop the secreted soft food, which is received into the lower spoon-shaped mandible of the young. It is singular that this remarkable mode of nourishing the young should have been overlooked by almost every naturalist who has written on the subject, although it is familiar to every boy who keeps pigeons. It is not even mentioned by Macgillivray, and the feeding is erroneously described even in the most recent works. The distinction in the formation of the lower mandible in the fowl and the pigeon is shewn in the engraving of the skulls seen from above.



SKULL OF FOWL, SHEWING NARROW
LOWER MANDIBLE. *a*



SKULL OF PIGEON, SHEWING SPOON-SHAPED
LOWER MANDIBLE. *a*

The Pigeons lay but two eggs, which usually, but not always, produce birds of opposite sexes. The young, when hatched, are usually covered with a profusion of yellow down, which character has been made the basis of a separate classification by some authors, not knowing that some varieties of the domestic Pigeon are hatched perfectly naked.

Seebohm, in his "British Birds," states that there can be no doubt that in a wild state Pigeons moult twice in the year. This is in opposition to what has been written by all previous authors, and is certainly quite untrue of domestic Pigeons, even of those that are kept in the most natural conditions.

W. B. TEGETMEIER.

Family—*COLUMBIDÆ*.

THE WOOD-PIGEON.

Columba palumbus, LINN.

THE Wood-Pigeon, in consequence of a patch of white feathers on the side of its neck, has received the inaccurate and absurd name of the Ring-Dove, which causes it to be confounded with other species. It is a common resident throughout Great Britain and Ireland, breeding generally throughout the country, and having its numbers enormously increased, in the autumn, by migration from the Continent. This bird, which is also called the Cushat, or Cushie Doo, is the largest and best known species in Great Britain. It breeds early in April, usually selecting tall trees, particularly those of the fir tribe. The eggs are always two in number, and both birds incubate. The food of the Wood-Pigeon is entirely vegetable. When present in large numbers it is one of the most destructive birds to the farmer, devouring large quantities of cereal grain and leaves, especially those of clover and turnip. The capacity of the Wood-Pigeon for food may be regarded as almost unlimited. In default of grain or clover it eats beech masts and acorns. The late Mr. Cecil Smith took seventy-seven beech masts out of the crop of one specimen. Another authority found two-hundred-and-seventy-two, and from a third specimen Mr. Joseph Sadler extracted over one-thousand grains of corn. The valuable investigations into the food of these birds what have been undertaken by the Agricultural Society of Scotland, prove that their food almost exclusively consists of the leaves and seeds of agricultural crops.

The late Lord Lilford, one of the most practical of all English naturalists, writing of this species, says: "I have examined the contents of the 'crops' of the Wood-Pigeon in every month of the year, and from my investigations have come to the conclusion that the *lesser celandine* is about the only weed that they consume in any considerable quantity. How far this particular taste may be beneficial to the agriculturalist I cannot say, but there is no doubt that these Pigeons consume an enormous amount of corn of all sorts, besides a quantity of 'green stuffs,' and are on the whole detrimental to the farmer. The voracity and stowage capacity of the Wood-Pigeon are marvellous. I know of an instance in which seventy-two full-sized acorns were taken from the crop of one of these species, and I have



WOOD PIGEON ♂ ♀

myself taken eighty-seven horse-beans and some fragments of turnip-tops from another. My views about this bird are that it should be strictly protected between March and August, but shot down to the utmost during the rest of the year. No better sport can be found in England than shooting Wood-Pigeons in a breeze of wind, as they career over a small opening in a wood or thick plantation, and their flesh, if properly treated, is, in my opinion, excellent."

Thus it appears in the experience of this most eminent ornithologist that the Wood-Pigeon is not the "unmitigated scoundrel" that has been represented, but a bird with much utility and beauty to counteract the amount of damage that it effects.

The damage effected by this species is greatest in the autumn and winter, when they collect together in large flocks amounting to many hundreds in number, which are largely increased by migration from the Continent. These flocks roost in the larger branches of tall trees, from whence they depart at daybreak to the cultivated fields. They pair early in the spring and separate in pairs for nesting purposes, rearing usually two and sometimes even three broods in the course of the year. The nest is usually built near the borders of a wood, although sometimes in the middle of a thick forest, and, as the bird has become tamer, in tall trees near human habitations. The nest, as built by the bird for itself, is a very poor structure of twigs, so loose that the eggs may generally be seen through from below. Both birds collect the materials, but it is said that the female is the sole architect. In many cases the old nest of a Jay, a Crow, or a Squirrel is made use of. The Wood-Pigeon is not capable of being domesticated in the same manner as the Rock-Pigeon, and it is with some difficulty that the young are reared, even if the eggs of the bird are put in the nest of the domestic Pigeon.

Of late years a great change has come over the habits of this bird in England. Although it was known as having existed in a tame condition in the Gardens of the Tuilleries, in Paris, it was regarded as one of the wildest of our large native birds. Since, however, its protection in towns, it has become exceedingly tame, and may now be seen in considerable numbers in the London parks, and even in such places as the Temple Gardens and those of the Law Courts, etc. The flesh of the bird is very palatable, and large numbers of them find their way to the markets.

The general colour of the plumage of the Wood-Pigeon is bluish-grey; the neck is emerald-green, with a metallic gloss, and on each side of the neck is a large patch of white. The length of the Wood-Pigeon is seventeen inches, the female being a little smaller and duller in colour. The weight, from eighteen to twenty-six ounces. The young attain their full size during the first year,

and like all birds that have a powerful flight, their first plumage, which is grown in the nest, is as powerful as the second, and is not moulted until the autumn, but before the first moult they have no white on the sides of the neck.

Family—COLUMBIDÆ.

THE STOCK-DOVE.

Columba anas. LINN.

THE Stock-Dove, though found in many parts of England, is more local in its distribution than the Wood-Pigeon. It was said not to occur in Scotland or in Ireland, but to be confined to the Midland and Eastern counties; but, as Mr. Howard Saunders states, its range northwards is rapidly extending, and whereas its breeding in Stirlingshire was considered remarkable a few years ago, it is now known to have nested in the sand-hills along the Moray and Dornoch Firths, and has even reached the Orkneys; and in Ireland, at the present time, it is resident in the north-east.

In its habits it very much resembles its larger relative, the Wood-Pigeon, but is lighter on the wing, and forms its nest, not on the branches of trees, but in rabbit burrows, in hollow trees, or under thick furze bushes. Like its congener it feeds on grain, seeds, acorns, and beech mast, and where numerous is a considerable pest to the farmer. The Stock-Dove offers a good example of the changes in locality that often characterize birds. It has increased very much in the western counties, and the late Mr. Cecil Smith stated that it was twenty times more numerous in Somersetshire than it was a quarter of a century ago. Its young are valued for the table and are ready in the month of June, the warreners, in the rabbit warrens where they abound, keeping dogs trained to discover the burrows in which the Doves breed.



STOCK-DOVE ♂ ♀

The Stock-Dove is resident in the same district throughout the year, being generally found in all well-timbered parks, from whence it may be seen flying to the neighbouring fields. It possesses the most admirable powers of flight, not only being very quick on the wing, but capable of threading its way through the trees with such rapidity that it is a more difficult bird to shoot than even the Wood-Pigeon, being a very wary bird that takes flight on the least alarm.

It may occasionally be seen with the farm-yard Pigeons gathering the grains of corn which have been left exposed after harvest-time. Unlike the Rock-Dove, it perches in trees with great facility, and may be observed in the breeding season, running along the branches after its mate, with its tail spread out after the fashion of the common domestic Pigeon. It is singular that it occasionally nests in hollow trees in the branches of which may be seen the nests of the Jackdaw, which is generally regarded as a bird destructive to the eggs of other species. Like the other birds of the genus, it lays only two eggs which are incubated the usual period of eighteen days, the young being born in a very immature condition, and remaining in the nest until well able to fly. The eggs, however, are not pure white, but pale creamy in colour, by which they may always be distinguished from those of the Wood-Pigeon or the Rock-Dove.

The general bluish or brownish-grey of the Stock-Dove distinguishes the bird from the following species, which has a white rump and two well defined dark bars on the wings, and the absence of white on the neck, and the smaller size distinguish it from the Wood-Pigeon. The length of the Stock-Dove is about thirteen-and-a-half inches, the female being somewhat smaller. The weight about thirteen ounces.

The name of Stock-Dove is unfortunate, it is usually taken to signify that the bird is or was regarded as the original stock of our domestic Pigeon, which is an erroneous supposition; but Mr. H. Saunders states that it refers to the habit of the birds nesting in the "stocks" of trees, like the German name "Hohltaube" or Hole-Dove.

Family—*COLUMBIDÆ*.

THE ROCK-DOVE.

Columba livia, GMELIN.

THE Rock-Dove, or Blue-Rock of our fanciers and Pigeon shooters, is undoubtedly one of the most familiar of all birds in its wild or domesticated conditions. It is important to us as being unquestionably, without any intermixture with other species, the origin of all our domesticated varieties of Pigeons. These, as distinctly shown by Darwin, whose investigations into this species I had the honour of assisting for many years, are capable of reverting to the precise colouration of the plumage of the wild Rock-Dove, and, moreover, if a number of distinct varieties are bred together, the mongrel progeny always shows a tendency to revert to the original characters; moreover, no allied species, such as the Stock-Dove or the Wood-Pigeon, is capable of either being domesticated or of producing fertile progeny with the Blue-Rock. The natural habit of the Rock-Dove is in the deep caves and fissures which abound in many parts of our coasts, more particularly in Scotland and Ireland, but the species has become so far domesticated as to breed under any suitable conditions that it may find far inland; semi-domesticated birds often associating with those that are truly wild. The Blue-Rock extends through Spain, Italy, Asia Minor to India. In that country, however, the local race which prevails differs from that of Europe in having a blue croup or rump, whereas the European wild birds have always a patch of white on the lower part of the back.

The Rock-Dove rears its young preferably in dark and gloomy caves upon the coast. The nests are merely a few stalks or straws laid on a shelf on the rock. Two eggs are laid which require eighteen days for incubation, and the young at first are exclusively fed with the curdy secretion previously mentioned. Their growth is remarkably rapid, they being fed, after the first week, with food which is brought in the crops of the parents, but which is not, as usually stated, semi-digested, inasmuch as it is thrown up by the old birds as soon as it is collected, the crop having not the slightest digestive power, nor secreting any digestive juice, this function being performed by the organ which is called the proventriculus, a glandular secreting structure intervening between the true crop and the gizzard. It is needless to say that the Pigeons, being for the most part



Rock-Dove ♂ ♀

grain-feeding birds, have to fly considerable distance from the sea coast, its natural habitat, in search of food. In a wild state it often performs exceedingly long flights for this purpose, becomes acquainted with a tract of country over which it flies, and returns home with unflinching certainty. Mr. Seebohm describes the Rock-Dove as sitting on the ledges of the cliffs and dashing out of the caves to pass inland to distant pastures. He says that it often travels enormous distances to its feeding grounds, and that the Rock-Doves at St. Kilda visit the Hebrides daily in search of food, a distance of about seventy miles. To the capability of taking these long flights in various directions, according to the locality of the food, may be traced the homing faculty of the domesticated Pigeon, which is not as usually stated a particular instinct, but is dependent on the knowledge of the locality by the bird itself.

The littoral character of the Wild Pigeon is singularly evidenced in its intense liking for salt or salt water, which is retained by all the domesticated varieties. If salt is not supplied to them, they are in the habit of eating mortar of our dwellings, and doing considerable damage to the roofs, which may be entirely prevented by supplying a mixture of salt and old mortar. It is greatly to the advantage of the health of the birds.

The food of the Blue-Rock consists, as in the other species of the genus, of grain and pulse, mixed, however, with seeds of grasses and weeds. It is probable that the wild species, like those that are semi-domesticated, pair for life. Many of the habits of the Rock-Dove are identical with those of the domestic Pigeon. Its note is the same. The pronounced courtship of these birds is identical. The male is seen running round his mate, swelling out the throat, drooping the wings, brushing the ground with his extended tail, and repeating his amorous coo. If the hen flies away a short distance the cock flies after her, and again repeats his antics, each bird then taking the beak of the other in its own and bringing their heads together, which is strongly suggestive of human kissing. Neither in a wild or domesticated state does the Rock-Dove perch upon trees, in this respect differing from all the other birds of the group. Incubation is performed by both sexes, but the relative hours in which the two birds occupy the nest has rarely been noted. The female has, as may be expected, by far the greater part of the work to do. The male bird usually comes to the nest about nine or ten o'clock in the morning, and takes his turn till about one or two, all the other hours of the twenty-four being occupied by the hen. The soft food, which has been so repeatedly alluded to, is involuntarily secreted by both sexes by the eighteenth day. If the eggs do not hatch, the birds will not sit for more than a single day longer. The presence of this soft food cannot be got rid of, and being obviously

of great inconvenience to them, consequently they readily take to young birds from other nests, even if several days older, if placed in their own, thus manifesting the strong desire to exercise the maternal instinct which is exhibited by many of the *mammalia*, such as cats and dogs that are deprived of their own young.

The colouration of the Rock-Dove is well-known. The plumage may be generally described as blue, with strongly marked black bars across the wings, and another at the termination of the tail, and a distinctly marked white croup or rump, at least in the European races. When bred in confinement, great variations of colour, form, and size occur, and these, by careful selection, can be propagated by the breeder so as to raise the great variety of races with which Pigeon fanciers are familiar.

To naturalists, the most interesting of these is undoubtedly that known as the Homing Pigeon, which, beyond being larger in size, of varied colours, and somewhat more massive in the head and beak, does not differ greatly from the wild original. Its powers of flight have, however, been developed by selection to the highest possible degree, only the strongest and swiftest of the birds being bred from, the others being lost in their training, so that an imitation of the process of natural selection has resulted in the production of birds capable of taking extremely long flights, combined with a very high velocity. During the year 1897, many birds in competition have raced from Thurso, the extreme north of Scotland, a distance exceeding five hundred miles, and this has been accomplished by them in one day; others have also come from the Shetland Islands, a still greater distance.

The flight of the Homing Pigeon is perhaps the only one which has been accurately measured for long distances. When there is no wind, it may be taken possibly to average nearly forty miles per hour, the pace for long distances varying as the wind is in favour of or against the progress of the bird. The possession of any distinct "homing instinct," as it is called, is repudiated by all intelligent fanciers. The birds have to be made acquainted with the contour of the country over which they have to fly, and are trained in gradually increasing stages, or there would be no certainty of their return to their homes. Moreover, they cannot fly in a fog or mist, and never arrive at their home after eight o'clock in the evening. This homing faculty is often confounded with migratory instinct, which is hereditary in the birds possessing it, and has no relation whatever to the trained flight of a Homing Pigeon, which is quite destitute of any migratory instinct whatever.



TURTLE DOVE. ♂

Family—*COLUMBIDÆ*.

THE TURTLE-DOVE.

Turtur communis, SELBY.

THE Turtle-Dove is a summer migrant, common in the southern but rarer in the northern counties of England. It is less frequently seen in Ireland and Scotland. On the Continent it is generally distributed throughout the temperate portions of Europe, and in the north of Africa within ten degrees of the Equator. It seldom arrives in England before May, and, after nesting, departs early in September. Stragglers occasionally occur in mid-winter; the Rev. H. A. Macpherson identified a male Turtle-Dove, shot in Cumberland, on December 21st, 1894.

Like many other birds, the Turtle-Dove is extending its range. Lord Lilford, in his "Birds of Northamptonshire," states that it was entirely unknown in his neighbourhood in his school days, but since then, has gradually become a regular and sometimes abundant summer visitor to the district, and the country people are now well acquainted with the "little brown Dove."

It usually nests in willows or hawthorn bushes, at very various heights from the ground, and lays two white eggs, like the rest of the family. These eggs are very small in size and somewhat singular in shape, both ends being almost equally pointed; their small size, scarcely more than an inch in length, distinguishes them from those of any other British species of Pigeon.

The Turtle-Dove is readily distinguished from all other British Columbæ by its very much smaller size.* The length of the adult male is about eleven-and-a-half inches, and the female is still smaller. Like the larger Wood-Pigeon it has a light patch on each side of the neck, but the general colour of the bird may be described as lavender and chestnut-brown. The centre tail feathers are brown, the others slaty-grey, and broadly tipped with white, the outside pair being white on the outer web. In the young the neck patches are entirely absent. The legs and feet are crimson.

* A specimen of the Oriental Turtle-Dove, (*Turtur orientalis*), was shot near Scarborough, on the 23rd of October, 1889. It was exhibited before the Zoological Society by the late Mr. Seebohm, on behalf of Mr. James Backhouse. This species is easily distinguished from the common Turtle-Dove by the band at the end of the tail feathers, which is bluish-grey, instead of white.

The Turtle-Dove is often kept in confinement, and readily hybridizes with the other species of the genus, and in a large aviary, where it has the power of flight, can be readily induced to breed with the White-collared Dove, *Turtur risoria*, which is so frequently kept in confinement.

All authors regard the Turtle-Dove as rather beneficial than injurious to the farmer, as the crops are almost invariably filled, not with grain, but with the seeds of weeds, and occasionally small snails and caterpillars may be found among the vegetable matter. During the season of migration it may be frequently seen resting on the rigging of vessels, in the Mediterranean, or the Bay of Biscay.

ORDER PTEROCLETES.

THE Sand-Grouse constitute a remarkably distinct group, allied to the gallinaceous birds, the Pigeons and the Plovers, but distinctly separated from each. The family contains two distinct genera. The better known Sand-Grouse belong to genus *Pterocles*, of which there are about fifteen distinct species, two of which, the *P. arenarius*, the Black-tailed Sand-Grouse, and the *P. alchata*, the Pin-tailed Sand-Grouse, inhabit the south of Europe, but have not been known to occur in England. The other genus is that which has been named *Syrrhaptes*, of which only two species are known, both of which are inhabitants of eastern and central Asia. One species, Pallas' Sand-Grouse, an inhabitant of the deserts of North China, has on more than one occasion visited Europe, and even extended into Great Britain in large numbers. These birds are remarkably distinguished from all others by the form of the foot, the three toes being united together into a single pad, as indicated by the name *Syrrhaptes*, signifying, sewn together. This remarkable structure is shewn in the following engravings, which represent the upper and under surfaces of the foot of the *Syrrhaptes paradoxus*, Pallas' Sand-Grouse. The birds of the genus are also remarkable for the extreme elongation of the central tail and first primary wing feathers.

FOOT OF PALLAS' SAND-GROUSE.



UPPER SURFACE.



UNDER SURFACE.

Family—*PTEROCLIDÆ*.

PALLAS' SAND-GROUSE.

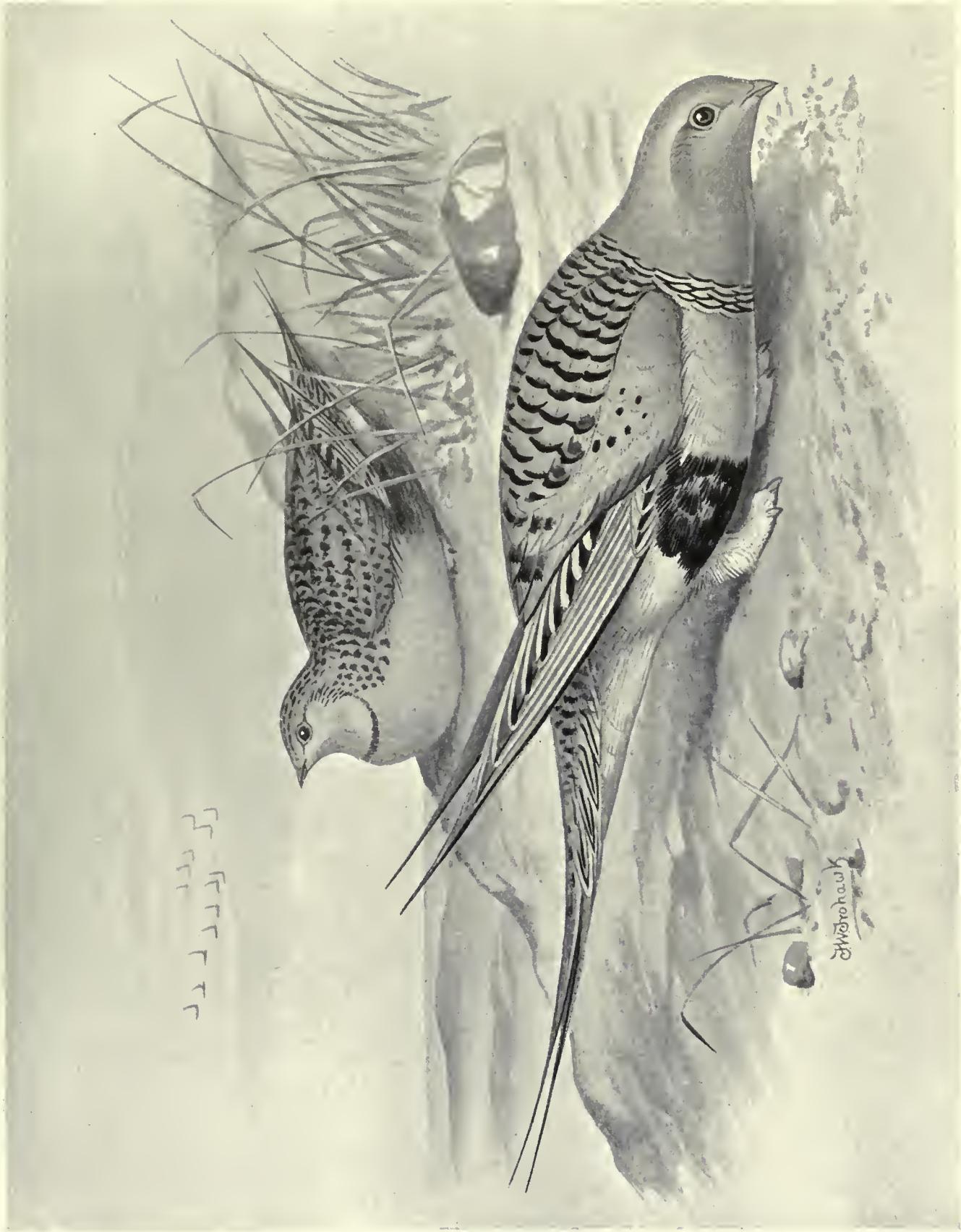
Syrrhaptes paradoxus, PALL.

PALLAS' Sand-Grouse was a bird unknown to British ornithologists as a native until the year 1863, when large flocks of these birds passed from Central Asia across Europe, and some hundreds crossed the North Sea to the shores of England, and continued their westerly flight until some even reached the Atlantic coast of Ireland, and others were shot in the Shetland and the Færoe Islands, almost all being ruthlessly destroyed.* Twenty-five years after a still larger migration of these birds took place, in all probability some thousands reached our shores, and they attracted so much attention that a special Act of Parliament was passed for their protection, but not without the ignorant obstructiveness of some members who insisted on the operation of the Act being delayed for some months, which gave an opportunity for all the birds to be exterminated.

The habits of the bird in its native deserts was admirably described by Colonel Prjevalski. They migrate from north to south, according to the season, in flocks of countless thousands, feeding mainly on the seeds of a plant allied to our common goosefoot, they also feed on the smaller grasses and the tender shoots of the desert plants. They fly with extreme rapidity, and on the wing so closely resemble our ordinary Golden Plover, that they have frequently been shot in mistake for them. The call-note, however, of the Sand-Grouse is singularly unlike the plaintive whistle of the Plover, and consists of a loud chuckle, which has been variously rendered. Prjevalski describes it as *truck-turuk, truck-turuk*, while Dr. McRury calls it a sharp cry, something like *whirk, whirr*, and Captain Dunbar Brander renders it as *chak, chak*.

When breeding they construct no nest, but deposit the eggs upon the sand, there being usually three in each nest. Some idea of their numbers may be inferred from the fact that the late Consul Swinhoe described their migration into China in severe winters, and said the market at Trietsin was literally glutted with them, and they could be purchased for a mere nothing, the natives catching them

* This Sand-Grouse was first made known to science by Pallas, who described it from an imperfect specimen obtained by a Russian, named Nicol Rytsekof. Pallas therefore figured the bird without representing the long central tail feathers.



PALLAS' SAND-GROUSE. ♀ ♂

in clap nets, sweeping the ground from snow, and strewing it with small beans, when a large flock would descend into the snare, and might be taken at one fall of the net. Those killed in England were found to have fed on the seeds of weeds, such as the chick weed and the common grass weed, *Poa annua*. The Rev. H. A. Macpherson, ascertained that, during the earlier portion of their stay, these birds fed principally on the seeds of clover, turnip, and rye. Later in the year they glutted themselves on the seeds of the corn spurrey, (*Spergularia arvensis*). In confinement, these Sand-Grouse thrived upon canary seed, and, losing their timidity, became delightful pets.

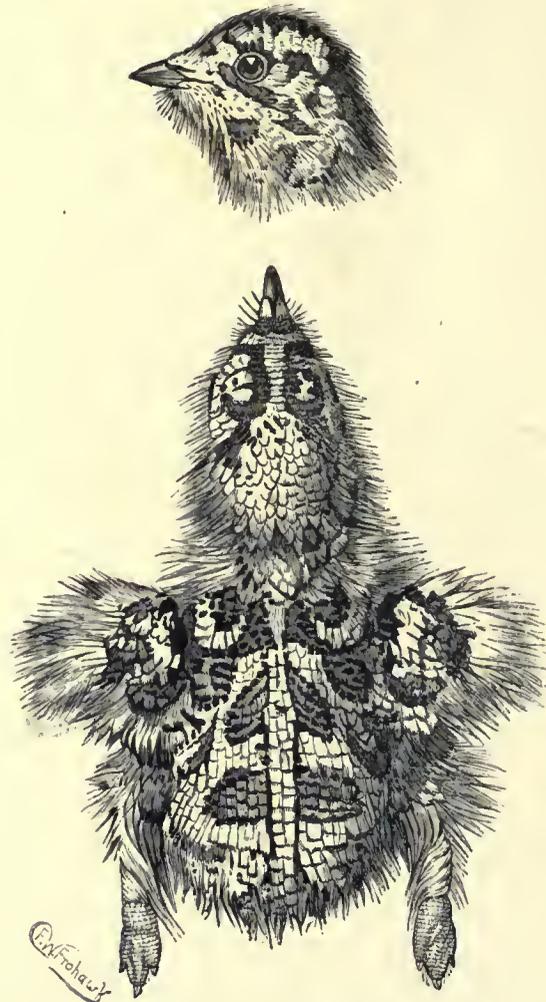
The general colour of the plumage may be described as sandy, barred with black or brown, the head being a rather brighter orange. There is a narrow band of black-edged feathers on the breast, and a darker and broader one across the abdomen, and the back is marked with black and dark bars. The tail is formed of sixteen feathers, the central pair of which is exceedingly elongated and pointed at the tip. The extreme length of the male is about fifteen inches, the female being somewhat smaller and duller in colour, and the weight of the bird is from ten-and-a-half to eleven ounces. The legs are very short and covered with buff feathers to the extremity of the toes, which are so closely bound together that the name *Syrrhaptes*, signifying sewn or stitched together, was given to the genus. The engravings show both upper and under surface of the foot, the toes being connected by a leathery pad, covered with warty prominences, such as is found in no other bird ever seen in Great Britain. The eggs are dull olive, with dark brown spots, and thus well protected from observation when laid on the sand.

The birds during their stay in this country laid repeatedly, and in some instances hatched their young, one of which, possibly the only example that ever came in a fresh state under the notice of a competent naturalist, was delivered to Professor Newton, in August, 1889. This was described by him in the minutest detail in the "Ibis" for 1890. Before the bird was skinned he sent it to Mr. Frohawk, who made for the "Ibis" the exceedingly admirable drawing of the young bird, which I have much pleasure in reproducing. The distinction between the young of the Sand-Grouse and that of any other English species is well marked, and the extraordinary character of the feet is admirably shown in the drawing of the dead chick. As the bird had been dead some hours, the expression of the head must be regarded as being somewhat imaginary. It may be interesting to know that the lighter ground is cream colour, and the darker rich brown.

The cause of the migration of this species, in large numbers, and at distant intervals, is entirely unknown, although it has been suggested that it arises from their greatly increasing numbers, as they breed in the desert in countless thousands,

and their flight is so rapid that they are not subject to destruction even by the fast flying hawks and falcons of the district.

It is to be regretted that these birds visiting Great Britain were all ruthlessly destroyed*; they appeared to manifest no desire to return to their original habitat. Being capable of withstanding the winters of North China, they would not have suffered from the cold of our winters, and they would have proved a most interesting addition to our British Fauna. Their flesh, when cooked, proved to be good, though not of remarkable excellence.



NEWLY-HATCHED CHICK OF PALLAS' SAND-GROUSE.

* The destruction of Sand Grouse in 1888 mainly took place in the summer months. The Rev. H. A. Macpherson has adduced evidence to show that many of these birds lingered, in favourable situations, until the approach of winter, when they were observed to migrate away ("The Visitation of Pallas' Sand Grouse to Scotland, in 1888," p. 37). A few birds remained in Scotland until the autumn of 1889.

ADDENDA.

AMERICAN SWAN. *Cygnus americanus*. } Both these Swans have been
TRUMPETER SWAN. *Cygnus buccinator*. } recorded as having occurred in a
wild state in Great Britain; the evidence, however, is doubtful and anything but
conclusive, and I have thought it better to omit any notice of them in these
chapters.

Those who are interested in the subject will find full particulars of the supposed
occurrences in "Yarrell's British Birds," Vol. IV., Ed. IV., p. 322.

PINK-FOOTED GOOSE. *Anser brachyrhynchus*.—The arrival of these Geese in
this season, (1897), in Lincolnshire, has been the earliest on record. On September
18th, a skein of seventy, flying from the coast towards the wolds, passed over
Brackenborough Hall, near Louth. In Yorkshire, Mr. F. Boyes, of Beverley,
records in the "Field," October 2nd, p. 537, that a small gaggle appeared on the
wolds on the 9th of September. The Rev. Murray A. Mathew says, (*in litt.*),
that the Pink-footed Goose is almost unknown in the south-west of the British
Isles, and that the White-fronted Goose is the common species.

RED-CRESTED POCHARD. *Fuligula rufina*.—A male Red-crested Pochard was
shot on the 9th of October, 1897, on Littlewater tarn, near Haweswater, in
Westmoreland. It was taken to Mr. L. E. Hope, of Penrith, and examined in
the flesh by the Rev. H. A. Macpherson, who purchased it and presented it to the
Carlisle Museum.

WHITE-EYED DUCK. *Fuligula nyroca*.—For a most interesting account of the
nesting of this Duck in Slavonia, see Mr. W. Eagle Clarke's Field-notes, ("Ibis,"
1884, pp. 136-147).

END OF VOLUME FOUR.

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