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HISTORY
OF
BRITISH BIRDS,
INDIGENOUS AND MIGRATORY.



OF

BRITISH BIRDS,

INDIGENOUS AND MIGRATORY :

INCLUDING

THEIR ORGANIZATION, HABITS, AND RELATIONS;
REMARKS ON CLASSIFICATION AND NOMENCLATURE;
AN ACCOUNT OF THE PRINCIPAL ORGANS OF BIRDS, AND
OBSERVATIONS RELATIVE TO PRACTICAL
ORNITHOLOGY.

ILLUSTRATED BY

NUMEROUS ENGRAVINGS.

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OF THE LITERARY AND PHILOSOPHICAL SOCIETY OF SOUTH CAROLINA, ETC.

VOL. IV.

CURSORES, OR RUNNERS.
TENTATORES, OR PROBERS.
AUCUPATORES, OR STALKERS.
LATITORES, OR SKULKERS.

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1852

TO HER MOST GRACIOUS MAJESTY

THE QUEEN,

THIS

HISTORY OF BRITISH BIRDS,

TO WHICH HER MAJESTY HAS BEEN GRACIOUSLY

PLEASED TO EXTEND HER PATRONAGE,

IS DEDICATED,

WITH THE MOST PROFOUND RESPECT,

BY HER MAJESTY'S

MOST FAITHFUL SUBJECT,

AND MOST DEVOTED SERVANT,

WILLIAM MACGILLIVRAY.

PREFACE.

As the wounded bird seeks some quiet retreat, where, freed from the persecution of the pitiless fowler, it may pass the time of its anguish in forgetfulness of the outer world; so have I, assailed by disease, betaken myself to a sheltered nook, where, unannoyed by the piercing blasts of the North Sea, I had been led to hope that my life might be protracted beyond the most dangerous season of the year. It is thus that I issue from Devonshire the present volume which, however, contains no observations of mine made there, the scenes of my labours being in distant parts of the country.

So many years have elapsed since the publication of the third volume, which ended the series of Land Birds, that those interested in the completion of the work must have despaired of ever seeing more of it. Unexpected events, however, are of daily occurrence; and I now have the prospect of presenting to those in whose eyes the previous volumes have found favour the volumes containing the WADERS and the SWIMMERS, which will conclude the series.

In this, the fourth volume, are contained the Orders of the CURSORIAL, TENTATORIAL, AUCUPATORIAL, and LATITORIAL Birds,—including all the British Waders, or Shore Birds, amounting to seventy species. The descriptions are in all respects similar to those of the Land Birds. It may be hoped that they will be found more correct, as, having mostly been written twelve years ago, they have benefited by the many opportunities of improving them that have occurred. It had been intended to confine this volume to

the Waders ; but by this arrangement it was found that the last volume, should all the Swimming Birds be referred to it, would be disproportionately large ; and thus there is included in the present a portion of the first order of that series—the two families of the *Anserinæ* and *Cygninæ*, Geese and Swans, containing fourteen species ;—the entire number described being thus eighty-four. The fifth volume will contain eighty-six.

It is well that the observations from which these descriptions have been prepared were made many years ago, when I was full of enthusiasm, and enjoyed the blessings of health, and freedom from engrossing public duties : for I am persuaded that now I should be in some respects less qualified for the task, more, however, from the failure of physical than of mental power. Here, on the rocky promontory, I shiver in the breeze which, to my companion, is but cool and bracing. The east wind ruffles the sea, and impels the little waves to the shores of the beautiful bay, which present alternate cliffs of red sandstone and beaches of yellow sand, backed by undulated heights and gentle acclivities, slowly rising to the not distant horizon, fields and woods, with villages and scattered villas, forming—not wild nor altogether tame—a pleasing landscape, which in its summer and autumnal garniture of grass and corn, and sylvan verdure, orchard blossom and fruit, tangled fence-bank and furze-clad common, will be beautiful indeed to the lover of nature. Then, the balmy breezes from the west and south will waft health to the reviving invalid. At present, the cold vernal gales sweep along the channel, conveying to its haven the extended fleet of boats that render Brixham, on the opposite horn of the Bay, one of the most celebrated of the southern fishing-stations of England. High over the waters, here and there, a solitary Gull slowly advances against the breeze, or shoots athwart, or with a beautiful gliding motion sweeps down the aerial current. At the entrance to Torquay are assembled many birds of the same kind, which, by their hovering near the surface, their varied evolutions, and mingling cries, indicate a shoal, probably of Atherines or Sprats. On that little pyramidal rock, projecting from the water, repose two

dusky Cormorants ; and, far away, in the direction of Portland Island, a Gannet, well known by its peculiar flight, winnows its exploring way, and plunges headlong into the deep. But neither time nor place are favourable to the observation of the Wading tribes, although the country around supplies the greater number of those found in Britain.

It is not until disabled that the observer of the habits of wild animals becomes sensible of the happiness he has enjoyed, in exercising the faculties with which his benign Creator has endowed him. No study or pursuit is better adapted for such enjoyment, or so well fitted to afford pleasures not liable to be repented of, than Natural History. Is there any ordinary occupation or profession—Law or Medicine, Mathematics, Greek or Latin, or Engineering, or Fighting, or Commerce, Trade or Farming—that tends more to bring a man into sensible relation to his Maker ? Yet how often have I heard persons, lay and clerical—but not one of them having the least taste for the study of nature, whether as a mere science, or as a part of theology—insinuate, and lament, that naturalists forget all regard to God in the study of His works, and hint that they themselves, ignorant of what they consider it of no importance for them to know, have wisely chosen the good part. How different is the feeling of a pious man who has studied nature ! And are there not at least as many pious men among naturalists as in any other class of people ?—and are not those who have carefully studied the works of God better qualified to join intelligently with the Psalmist in giving Him the glory due to His excellent power and wisdom, than those who superciliously sneer at beetles and birds' skins, skeletons of alligators, and scales of fishes ? May this magnificent study, second to none but Theology, daily gain more favour in the eyes of the public ; and be the time not distant when observers shall arise capable of giving greater accuracy and precision to our knowledge of British Birds. While the world endures—be it a thousand years or ten millions of centuries—the works of God will never be fully comprehended by man ; and thus, there is delightful occupation in view for all time. I have exercised the faculties given me upon them, and if men of more intellect, and having better opportunities,

been obtained of late years. Of these it is necessary to give some account, though I may be held excusable for not entering into minute details respecting them. They are all "stragglers" from distant regions, chiefly from the south of Europe.

1. *Vultur fulvus*. *Griffon Vulture*. Of the family of the Vulturinæ, and the typical genus Vultur, which is characterized by having the bill strong, moderately compressed; the upper mandible with the sides convex, the tips decurved and pointed, the nostrils large, oblong, oblique, near the edge of the cere; the lower mandible with the sides nearly erect, the tip obtuse, but thin-edged; the feet very strong; the tarsus reticulated with small scales; the anterior toes webbed at the base, the third toe very long; the claws arched, moderately compressed, acute; the head and neck covered with short down; the wings very long and broad; the third and fourth quills longest.

The species here noticed has the bill pale yellowish-grey; the cere bluish-black; the feet bluish-grey; the claws black; the head and neck covered with white down; the upper parts light yellowish-brown; the primary quills and tail-feathers blackish-brown; the lower parts light reddish-brown, paler anteriorly. Male about 40, female 48 inches in length.

It is said to inhabit Turkey, Greece, and other European countries, as far north as France and Germany, and to occur in various parts of Africa. An individual, caught by a young man on the rocks near Cork Harbour, in the spring of 1843, came into the possession of Lord Shannon, who had it carefully stuffed, and presented it to Mr. R. Ball, for the collection in Trinity College, Dublin.

2. *Aquila nævia*. *Spotted Eagle*. Tail slightly rounded not extending beyond the wings; plumage reddish-brown, lighter on the head, neck, tarsus, and inner part of tibia; quills and tail-feathers blackish-brown. Young with the plumage dark chocolate-brown, feathers of the upper parts tipped with a crescent of pale yellowish-brown, the upper parts with pale spots. Male about 23, female 26 inches in length.

It inhabits chiefly the southern countries of Europe, but extends as far north as the Baltic, and has been found in

various parts of Asia and Africa. A bird of this species was shot, in January 1845, on the estate of the Earl of Shannon, in the county of Cork. It was described by Mr. R. Davis, jun., of Clonmel, in a letter to Mr. Thompson, as "a miniature of the Golden Eagle, about a third less than a male of that species; except the tail-coverts, and some spots on the wing-coverts and breast, it is entirely of a deep glossy blackish-brown." Another bird of the same species had been killed in the same place a few days before.

3. *Cuculus glandarius*. *Great Spotted Cuckoo*. Feathers of the head elongated, acuminate, forming a decumbent crest of a dark-grey colour; upper parts greyish-black, the feathers of the wings and the tail-coverts tipped with white; the tail long, graduated, dark greyish-brown, tipped with white, the medial feathers lighter.

Inhabits northern Africa and the south of Europe, occasionally extending into Germany. An individual, pursued by Hawks, had flown into a hole in a stone wall, and was caught by two persons in March, 1842, in the island of Omagh. It is now in the Museum of Trinity College, Dublin.

4. *Ceryle Alcyon*. *Belted Kingfisher*. The genus *Ceryle* differs little from *Alcedo*, the bill being only stouter, and the general form more robust; the wings long, pointed, with the second and third quills longest; the tail short and even.

The celebrated Belted Kingfisher of America is about twelve inches in length, crested, with the upper parts, cheeks, and a broad belt across the fore part of the breast, light blue, the shaft of each feather darker; the lower parts white; a small white spot before the eye, and another on the lower eyelid; quills black, primaries barred with white at the base, and having the inner web of that colour for half its length, secondaries broadly edged with light blue, dotted and tipped with white, and having the inner web barred with the same; tail-feathers dusky, edged with blue, barred and tipped with white. Female with the sides, and a band across the middle of the breast light red.

Two individuals have been met with in Ireland, as recorded by Mr. Thompson. One of them was shot by Frederick A. Smith, Esq., at Annsbrook, county of Meath, on the

26th of October 1845. The other was shot by the game-keeper of Mr. Latouche of Luggela, county of Wicklow, and is now in the collection of Mr. Warren.

5. *Progne purpurea*. *Purple Martin*. Progne differs from *Hirundo* chiefly in having the bill stouter, and in some other unimportant distinctions, not appreciable without a comparison of specimens representative of the various genera into which the *Hirundinæ* have latterly been divided.

The Purple Martin has the wings as long as the deeply-emarginate tail; the plumage silky, shining, purplish-black, with steel-blue reflexions; the quills and tail-feathers brownish-black; the tarsi and toes purplish-black. The female has the lower parts light grey, streaked with black. Length $7\frac{1}{2}$ inches.

Generally distributed in North America, where it is as great a favourite as our Window Martin is in England. Wilson, Audubon, and Nuttall have given full and interesting accounts of its habits. The latter author says:—"This beautiful species, like many others of the family, seeks out the dwellings of man, associating himself equally with the master and the slave, the colonist and the aboriginal. To him it is indifferent whether his mansion be carved and painted, or humbled into the hospitable shell of the calabash or gourd. Secure of an asylum for his mate and young while under the protection of man, he twitters forth his gratitude, and is everywhere welcomed to a home. So eager is he to claim this kind of protection, that sometimes he ventures hostilities with the Blue-birds and domestic pigeons, whom he often forces to abandon their hereditary claims. Satisfied with their reception and success, like so many contented and faithful domestics, they return year after year to the same station. The services of the Martin in driving away Hawks and Crows from the premises he claims are also important inducements for favour: he has even the courage to attack the redoubtable King-bird, when his visits are too familiar near the nest. At the approaching dawn the merry Martin begins his lively twitter, which, continuing for half a minute, subsides until the twilight is fairly broken. To this prelude succeeds an animated and incessant musical chatter-

ing, sufficient, near the dwelling, to awaken the soundest sleeper. His early vigils are scarcely exceeded by the domestic cock: the industrious farmer hears the pleasing call to labour, and associates with the favourite bird the idea of an economical, cheerful, and useful guest. In the Middle States, from the 15th to the 20th of April, the Martins begin to prepare their nest, which is usually made of green or dry leaves, straws, hay, and feathers, laid in considerable quantities. The eggs, pure white, are from four to six, and without spots. They rear two broods in the season. Several pairs also dwell harmoniously in the same box. The male, very attentive to his sitting mate, also takes part in the task of incubation; and his notes at this time have apparently a peculiar and expressive tenderness. The food of the Martin is usually the larger winged insects, as wasps, bees, large beetles, as the common *Cetonia* or goldsmiths, which are swallowed whole. His flight possesses all the swiftness, ease, and grace of the tribe. Like the Swift, he glides along as it were without exertion. Sometimes he is seen passing through the crowded streets, eluding the passengers with the rapidity of thought; at others he sails among the clouds at a dizzy height, like something almost ethereal."

It is stated by Mr. Yarrell, in the second edition of his valuable *History of British Birds*, that, according to information received from Mr. Frederick M'Coy, of Dublin, a female of this species had been shot near Kingstown, and placed in the Museum of the Royal Dublin Society. He further informs us that, "during the first week of September, 1842, two other examples of this same species were shot by Mr. John Calvert, of Paddington, at the Kingsbury Reservoir;" one of them a young bird of the year, the other an old male.

6. "*Turdus aurigaster. Gold-vented Thrush.*" This species, which appears to be now generally referred to the genus *Turdus*, presents, in my opinion, a much greater deviation from that group than *Petrocincla*. The differences in its bill and feet, and its style of colouring, are, I think, quite sufficient to sanction its removal to another group.

The bill is considerably widened at the base, with the

ridge prominent; the tarsi short, much compressed, very thin-edged behind; feathers of the forehead and crown slightly elongated; bill and feet black; head blackish-brown; neck, back, wings, and tail uniform umber-brown; throat and fore-neck clove-brown; the breast lighter, passing into dull-white; the feathers under the tail bright yellow. Length about 8 inches.

Mr. Thompson states that, by the kindness of Dr. Burkitt of Waterford, who has a collection of birds killed in Ireland, he exhibited an individual of this African Thrush to the Natural History Section of the British Association, held at Cork in 1843. It was shot by a country lad at Mount Beresford, three miles and a half from Waterford, and is the only individual known to have occurred in Europe. Mr. Yarrell has figured and described the identical specimen in the Supplement to his *British Birds*, and in the second edition of that work.

7. *Petrocincla saxatilis*. *Common Rock-Thrush*. The genus *Petrocincla*, allied to the Thrushes, properly so called, and the Saxicolinæ, especially the Vitifloræ, is characterized by a rather slender, compressed bill, the upper mandible with the ridge narrow, the notches obsolete, the tip very small, and slightly decurved, the lower mandible straight, with the tip acute; tarsus rather stout, short, compressed, anteriorly with a long plate and four scutella; lateral toes about equal; claws slender, arched, much compressed, acute; short bristles at the base of the bill; wings rather long, the third quill longest; tail short, even, or slightly emarginate.

The species inhabit the rocky and stony parts of the mountainous districts of the southern and middle divisions of Europe.

Petrocincla saxatilis has the head, neck, and fore part of the back greyish-blue, the scapulars tinged with brown, the rest of the back white; the upper tail-coverts dark brown; the wings and two middle tail-feathers dark brown, the other tail-feathers and the lower part of the body light chestnut-red. Length 8 inches.

Mr. Yarrell has figured and described a specimen obtained "on the 19th of May, 1843, by Mr. Joseph Trigg, who shot

it at Therfield, near Royston, in Hertfordshire, while it was sitting on an ash-tree in the evening. It inhabits the mountainous tracts of the south of Europe.

8. *Alauda cristata*. *Crested Lark*. Feathers of the head elongated, acuminate, erectile; bill slightly arched; hind claw straight, longer than the toe; upper part of the head light yellowish-brown, streaked with dusky; hind neck and ear-coverts dark brown; back and wing-coverts brown, each feather with a medial dusky patch; quills chocolate-brown, middle tail-feathers light brown, the rest dusky, the outer two light red at the end; throat white; fore neck, breast, and sides pale yellowish-brown, streaked with darker; the rest of the lower parts plain yellowish-white; bill and feet yellowish-grey. Length nearly 7 inches.

In the Dublin Penny Journal of February 27, 1836, is a notice, signed J. W. R., of a specimen shot by the writer near Taney, a few weeks before. Another, subsequently killed in Sussex, is described by Mr. Yarrell. The species is said to occur in most countries of Europe, from the Baltic to the Mediterranean, as well as in North Africa, Egypt, and Anatolia.

9. *Alauda brachydactyla*. *Short-toed Lark*. Bill straight; hind claw straight, not longer than the toe; upper parts light reddish-yellow, streaked with deep brown; throat, and a band over the eyes, pure white; breast and sides pale red; abdomen reddish-white; the two middle tail-feathers blackish-brown, bordered with deep red, the next three on each side bordered and tipped with light red, the next reddish-white on the outer web, the outermost nearly all of that colour, but more reddish toward the end; bill and feet light brown. Length nearly 6 inches.

As stated by Mr. Yarrell, an individual taken at Shrewsbury is the only known British representative of this species, which is said to inhabit Spain, Italy, and the south of France.

10. *Agelaius phœniceus*. *Red-winged Marsh-Blackbird*. The birds of the genus *Agelaius* somewhat resemble Starlings in appearance and habits. They have the bill much stouter, however, shorter than the head, conical, tapering to an acute

point. They are gregarious, granivorous, and, being extremely numerous, often inflict great injury on the crops. The genus belongs to America, and, with others, is part of the extensive family of the Icterinæ, to which systematic writers have assigned different stations in their arrangements.

The "Red-wing," or "Red-winged Starling," of North America, is about nine inches in length; its plumage glossy black, the smaller wing-coverts scarlet, their first row yellow, at the tip whitish. The female is much smaller, with the upper parts dark brown; some of the smaller wing-coverts tinged with red; wings and tail blackish-brown, the feathers margined with brownish-red, the first row of small coverts and secondary coverts narrowly tipped with whitish; a yellowish-brown band over the eye; lower parts longitudinally streaked with dusky and whitish; the fore-neck tinged with dull carmine.

Very abundant in North America, by the ornithologists of which country its habits have been fully and pleasantly described. In vol. I. of the Zoologist, the Rev. Richard Lubbock informs us that a male, said to have been accompanied by another, was shot near Rollesby Broad, Yarmouth, and came into the possession of J. H. Gurney, Esq., in a fresh state, in June 1842. Mr. Yarrell mentions another individual shot among the reeds at Shepherd's Bush, a swampy situation about three miles west of London, on the Uxbridge Road.

11. *Perdix petrosa*. *Barbary Partridge*. This species has been admitted into the British Fauna, because an individual was found dead at Edmondthorpe, about six miles from Melton Mowbray, in Leicestershire, in April 1842. Mr. Yarrell has figured and described this specimen, it having been lent him by Mr. Thomas Goatley, of Chipping Norton, Oxfordshire.

The Barbary Partridge has the bill, the bare space around the eyes, the tarsi, toes, and claws red; the sides of the head bluish-grey; its upper part and the hind-neck chestnut-brown; the neck with a broad collar of the same, spotted with white; the back and tail greyish-brown; the wing-coverts edged with light red; the primary quills

brownish-black, their outer web greyish-brown; the fore-neck bluish-grey; the breast buff; the sides barred with black, white, and chestnut; the rest of the lower parts reddish-yellow. Length 13 inches.

It inhabits Turkey, Greece, Calabria, Spain, and France, and is also extensively distributed in Africa.

12. *Hemipodius Andalusicus*. *Andalusian Hemipode*. The genus *Hemipodius* is composed of small birds of the family of the *Perdicinæ*, few of them so large as the Common Quail, and is more particularly characterized by being destitute of hind toe, and by having the wings of moderate length, very broad, the primary quills much incurved, the outer three longest, and the tail very short, its feathers decurved, not stronger than the coverts which conceal them.

The Andalusian Hemipode has the upper parts brown, barred with brownish-black and yellowish-white; the head with a longitudinal light red band; the wing-coverts yellowish-brown, toward the end paler, with a dusky spot; quills and tail-feathers greyish-brown; throat white; fore-neck pale chestnut; lower parts yellowish-white; sides barred with semi-lunar brown spots. Length about 6 inches.

An individual was shot, in November 1844, by the game-keeper on the Cornwell estate, in Oxfordshire, about three miles from Chipping Norton, as indicated by Mr. Thomas Goatley in the *Annals of Natural History*, Vol. XIV. It was figured and described by Mr. Yarrell in his *Supplement*. Mr. Goatley also states that another had since been killed near the same spot by the same person, but was not preserved.

Several other species are stated to have occurred, especially—

Acanthylis caudata. *Australian Spring-tailed Swallow*.

Sylvia luscinioides. *Savi's Warbler*.

Sylvia turdoides. *Great Sedge Warbler*.

Sylvia Hippolais, Temm. *Melodious Willow-Wren*.

Regulus modestus. *Dalmatian Kinglet*. Mr. Gould, in his *Birds of Europe*, has introduced a new species of *Regulus*, of which he had seen only a single specimen, a male, shot in Dalmatia. Mr. J. Hancock, Newcastle, met

with a bird apparently of the same species, on the coast of Northumberland, in September, 1838. His description, in *Ann. Nat. Hist.* II. 310, is as follows:—"Length $4\frac{1}{16}$ in.; breadth $6\frac{1}{2}$ in.; length from the carpus to the end of the wing $2\frac{1}{16}$ in.; tail $1\frac{1}{16}$ in.; the bill from the gape to the tip nearly $\frac{7}{16}$ in., and from the tips of the feathers, which extend to the extremity of the nostrils, $\frac{1}{4}$ in.

"The whole of the upper plumage is greenish-yellow; on the centre of the crown of the head is a streak of paler; a light lemon-coloured streak extends over the eye from the base of the bill to the occiput; a short streak of the same colour passes beneath the eye, and a narrow band of dusky passes through the eye and reaches the termination of the auriculars. The under parts pale yellow; the ridge of the wing bright lemon colour; wing feathers dusky, edged with pale yellow, becoming broader on the secondaries; two conspicuous bands of lemon colour cross the coverts; the wings reach to within three quarters of an inch of the end of the tail. Bill brown, with the under mandible paler at the base; mouth yellow; legs and toes brown, with the under surface of the toes inclining to yellow; claws brown.

"Its manners, as far as I had an opportunity of observing them, were so like those of the Golden-crested Wren, that at first I mistook it for that species. It was continually in motion, flitting from place to place in search of insects on umbelliferous plants, and such other herbage as the bleak banks of the Northumberland coast affords. Such a situation could not be at all suited to the habits of this species; and there can be little doubt that it had arrived at the coast previous to or immediately after its autumnal migrations."

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INTRODUCTORY OBSERVATIONS.

THE birds which now come to be described have not inaptly been named Grallatorial; for, although some are not remarkable for the elongation of their legs, and several have those members short, yet by far the greater number present a form which suggests the idea of their being elevated upon stilts. But the names of Waders and Littoral, or Shore Birds, by which they have also been designated, although applicable to many of them, are not correct in a general sense, there being among them some which, so far from frequenting water, reside in arid wastes, on dry heaths, or cultivated fields, and others which are habitually addicted to swimming. Some species are remarkable for their extreme speed on foot, while, on the other hand, the merely rudimentary structure of their wings disables them from flying. Of these birds, the Ostriches and Cassowaries, however, we have no representatives in Britain. Others run and fly with equal celerity, manifesting in all their actions the greatest activity. Of these birds, the legs, always slender, are often extremely elongated, but in many cases of moderate length or short. The genera *Himantopus*, *Recurvirostra*, *Numenius*, *Totanus*, *Actitis*, and *Limosa*, afford examples of the former; while *Charadrius*, *Cursorius*, *Glareola*, *Tringa*, and *Streptilas* are of the latter kind. Rails, Gallinules, Coots, and Jacanas, being peculiarly fitted for making their way among thick grass, reeds, and sedges, growing in watery places, run with great speed, although their tarsi are not

often long, but are less expert at flying, and are with difficulty raised. Others, again, the Herons, Bitterns, and Storks, having very elongated legs, and very ample wings, are less active, many of them searching quietly for their prey, or remaining in a fixed position until it approaches them in the water.

The food of these birds is various, and their alimentary canal is correspondingly modified. They mostly swallow the objects fitted for affording them nourishment entire. Those which live on worms, insects, small mollusca and crustacea, have the mouth and œsophagus narrow, and the stomach muscular; while those which prey on fishes, frogs, and other reptiles, have a dilatable mouth, a very wide œsophagus, and a membranous stomach. None of them are furnished with a crop, and none are purely phytophagous, although several approach in form and habits to the Gallinaceous birds.

If among the Grallatores any birds represent, by analogy or similitude of structure and habits, the Raptores, it must be the Herons; among which are some, as the Adjutant Stork, which differ little in their omnivorous propensities from the Vultures. These birds differ from the rest in having the œsophagus much wider, and in form and structure similar to that of the fish-eating Palmipedes, the stomach in a degree membranous, like that of the rapacious land birds, without lateral muscles, or strong epithelium; the intestine extremely slender, and the anterior extremity of the large intestine, or rectum, furnished with a lobe, or sac, but destitute of the two lateral cœca which occur in most birds of all the families. They form a group very clearly defined, although not unconnected with others, and, if long legs and wading habits be peculiarly characteristic of the Grallatores, they are certainly entitled to typical pre-eminence. But there are various ways of viewing birds, and analogies are never wanting to support preconceived theories. Any of the other families might in fact be assumed as equally typical. But supposing the Raptores typical of the Aërial Land Birds, the Cantatores of the Perching Land Birds, and the Divers, Guillemots, and other allied species of the Natatorial Birds, the Herons seem to be their analogues among the Grallatorial Birds.

It is very remarkable that while the young of some birds are blind at birth, and remain in the nest until they are fully fledged, those of other birds have their eyes open, and presently leave the nest, being able to run about, and having the instinct of concealing themselves in suitable places. Of the former kind are Vultures, Hawks, Owls, Shrikes, Swallows, Flycatchers, Goatsuckers, Thrushes, Woodpeckers, Finches, Pigeons,—in short, all the Aërial and Terrestrial Birds, excepting the Gallinaceous families or Rasores. Among the Grallatores, the Herons and Ibises, and some allied species, alone remain in the nest until fledged; and among the Sea Birds, the Pelicans, Cormorants, Gannets, Divers, Guillemots, Auks, and allied genera. The young birds which are at once capable of seeing and running are those of the Pheasants, Grouse, Partridges, and other Rasores; the Bustards, Cranes, Plovers, Snipes, Rails, Gallinules,—in short, of all the Grallatores except the Herons and Tantali; the Gulls, Terns, Albatroses, Petrels, or all the fish-eating swimming birds, except those which dive or plunge after their prey; and lastly, the young of the whole tribe of Swans and Ducks. Now, here are two series distinct from each other, and we have in the fact a principle of arrangement, to which little attention has been paid, although it is well fitted for the purpose. Certainly no two groups having the opposite characters spoken of can form part of a natural family, and they who have attempted to unite the powerless-younged Pigeons with the active-younged Partridges, have failed in showing that they possess common characters. Yet, as in the other circumstances which distinguish groups there are various gradations, analogy would lead us to expect the same in this case; so that a group, intermediate in characters between two or more groups, may in this respect resemble that to which it is otherwise least allied.

The mode of nestling, and the form, colouring, and number of the eggs, have not, perhaps, been sufficiently attended to in constructing groups. None of the Grallatorial tribes form very elaborate nests, and most of them merely scrape a cavity, in which they place a few straws. The Herous and Tantali construct a large flat nest, either in trees or on the ground.

The Gallinules and Rails also form, on the ground, a very bulky nest; but the rest are content with making a shallow cavity in the sand or gravel, and either leaving it unfurnished, or rudely garnishing it with twigs, straws, or moss. Very many species, those especially of the families of Pluvialinæ, Totaninæ, and Scolopacinæ, lay four pyriform spotted eggs, of which the pointed ends meet. Those of the family of Rails and Gallinules lay from five to ten or more ovate or oblong spotted eggs, resembling those of various partridges and grouse. The eggs of the Tantalinae or Ibises are also oblong and spotted, but fewer. The Herons and birds of allied genera have from two to four broadly elliptical eggs, generally of a greenish-blue colour, sometimes white, rarely spotted.

I am not aware of a single character common to all the Grallatorial birds. The same may be said of the Natatorial, and indeed of the Aërial and Terrestrial groups. Supposing we look to the bill for characters, we find it excessively long in the Curlews and Godwits, and shorter than the head in some Crakes and Sand-Plovers; conical in Herons, cylindrical in Snipes; extremely robust in Storks, extremely slender in Stilts and Avocets; straight, decurved, recurved in different species; rigid in some, flexible in others. In like manner the tibia is bare to a great extent in Storks and Herons, feathered to the joint in Woodcocks and some Bitterns; the tarsus extremely long in some, short in others; the toes very long or very short, three or four in number; the claws long and slender, or short and broad. The wings are very long and very broad, very long and narrow, extremely diminutive, so as to be incapable of raising the bird from the ground; rounded or pointed, spurred, knobbed, or plain on the carpus. The tail may be short or long, rounded, wedge-shaped, even, or emarginate, of ten or twelve feathers. Every organ differs in the same manner. The tongue is short, extremely short, or the reverse; the gullet narrow or wide; the stomach membranous or very muscular; the intestine short or excessively long, of moderate width or extremely narrow; the cœca short or long, or wanting altogether. Then what are these Grallatores, and how are they distin-

guished? There is no such order in existence. Groups of too great extent cannot be defined: they are unnatural. All the definitions ever given of the Grallatores are incorrect and inadequate. Take, for example, that of M. Temminck:—"Bill of varied form; more frequently straight, very elongated-conical, compressed; seldom flat or depressed. Feet slender, long, more or less bare above the knee; three toes before and one behind, the hind toe articulated at the level of the fore toes, or higher." The systematic Ornithology which tolerates formulæ so vague as this stands much in need of a reform-bill.

Instead of adopting a single order of Grallatores, I arrange the birds so called by authors into four distinct orders—Cursores, Tentatores, Aucupatores, and Latitores. The species of these orders that reside in or visit a small portion of the globe, so limited and insulated as Britain, are not so numerous as to represent all the genera. Some even of the larger groups are entirely wanting with us. Yet the number is by no means inconsiderable, as it amounts to about seventy species, the forms and habits of which will afford ample materials for a volume. With many of these birds in the living state I am personally unacquainted, they being of very rare occurrence with us; but of others I have studied the habits under very favourable circumstances, and with not a little ardour.

As in the other volumes, I present short distinctive characters of the groups to be described, to enable the student to refer a bird which he may obtain to its order in the system. Immediately following the general account of each family will be found a synopsis of the genera and species, intended for a similar use.

HISTORY
OF
BRITISH BIRDS
INDIGENOUS AND MIGRATORY.

XIII. CURSORES. RUNNERS.

XIV. TENTATORES. PROBERS.

XV. AUCUPATORES. STALKERS.

XVI. LATITORES. SKULKERS.

ESSENTIAL CHARACTERS OF THE ORDERS.

ORDER XIII. CURSORES. RUNNERS.

BILL of moderate length, rather stout, straight or nearly so, compressed toward the end, opening to beneath the eyes, and having the nasal sinuses large. Mouth rather wide. Tongue fleshy, tapering, pointed. Œsophagus of moderate width; proventriculus bulbiform; stomach with strong lateral muscles, dense and rugous epithelium; intestine of moderate length and width, with large or moderate cœca. Legs generally long, and slender; tibia bare to a great extent; tarsus long, generally reticulate all round, but sometimes anteriorly scutellate; toes short or moderate, thickish, flattened beneath, the anterior spreading, and webbed at the base; the hind toe wanting, or small and elevated; claws short, obtuse. Plumage moderately developed, the feathers with a large plumule; wings slightly developed in one family, but usually large, generally pointed, though varying in form; tail short.

ORDER XIV. TENTATORES. PROBERS.

Bill longer than the head, very slender, somewhat cylindrical, generally flexible and elastic. Mouth very narrow. Tongue slender, triangular, tapering to a point. Œsophagus narrow; proventriculus oblong, or bulbiform; stomach roundish, elliptical, or oblong, with strong lateral muscles,

large tendinous spaces, and dense, hard, longitudinally rugous epithelium ; intestine of moderate length, rather narrow ; cœca rather long, cylindrical, or oblong. Legs long or moderate, slender ; the tibia bare to a great extent, but sometimes feathered to the joint ; tarsus slender, generally scutellate ; toes of moderate length, slender, the anterior webbed at the base, the hind toe very small and elevated, or wanting ; claws small, compressed, arcuate, mostly rather acute. Plumage generally soft, on the upper parts somewhat compact, the feathers with a rather large downy plumule ; wings long, acute, the first quill generally the longest ; some of the inner secondaries much elongated, narrow, and tapering ; tail short.

ORDER XV. AUCUPATORES. STALKERS.

Bill large, generally conical, mostly pointed, sometimes subcylindrical or flattened at the end. Mouth wide, and very dilatable. Tongue trigonal, acute. Œsophagus very wide ; stomach generally a large rounded sac, with the walls thin, but sometimes moderately muscular, the epithelium thin, or thick, soft, and rugous ; intestine very long and narrow, without cœca in one family, but in the other with small cœcal appendages. Legs long, slender ; tibiæ bare to a large extent ; tarsus mostly scutellate in front ; toes four, large, the hind toe on the same level as the rest. Plumage generally lax, the feathers elongated ; wings large and broad ; tail short.

ORDER XVI. LATITORES. SKULKERS.

Bill of moderate length, generally rather short, sometimes elongated, rather strong, compressed. Mouth narrow. Tongue slender, trigonal, tapering. Œsophagus of moderate width, without crop or remarkable dilatation ; proventriculus oblong ; stomach with very large distinct muscles, and thick rugous epithelium ; intestine of moderate length and width ; cœca long. Legs of moderate length, stout ; tibia bare to a con-

siderable extent ; tarsus large, compressed, anteriorly scutellate ; toes very long, slender, free, the hind toe very small ; claws generally long, little arched, or straight, compressed, acute. Plumage blended, but firm ; wings short, or moderate ; tail very small.

Although the *Struthioninæ*, or Ostriches, have been included in the above definition of the *Cursors*, it is not certain that they do not belong to the *Rasores*. Many authors consider them as forming an order of themselves, containing only five,—or, if the New Zealand Kivi be included,—six species. The other orders are perfectly natural, insomuch that the student cannot fail to recognise any one of their members, provided he pay due attention to its external form and digestive organs.

XIII. CURSORES. RUNNERS.

THOUGH all the birds which belong to the Grallatorial series, the Storks and Herons excepted, are remarkable for their peculiar adaptation for speed of foot, those which seem to me to constitute the present order are pre-eminent in this respect. Three natural groups or families, easily distinguishable, insomuch that their natural affinity is not very readily perceived, agree in possessing this character, however much they may differ in other circumstances, especially with respect to flight.

The most remarkable of these families, that of the *Struthioninæ* or Ostriches, in some respects allied to the Rasorial families, is composed of very large birds, having the neck and feet elongated, the bill short, the tibia bare below, the tarsus very strong, the toes short and stout, the hind toe always, and in one species the second toe, wanting. The African Ostrich, *Struthio Camelus*; the Indian Cassowary, *Casuarus Emu*; the American Nandu, *Rhea Americana*; Darwin's Nandu, *Rhea Darwinii*; the Emeu of New Holland, *Dromiceus Novæ-Hollandiæ*, are all the species known of this family, singular chiefly on account of the merely rudimentary state of the wings, and the corresponding modifications in the formation of the sternum and clavicles. Being thus incapable of flying, these birds might perhaps constitute an order by themselves; but in that case the Penguins, which yet to many seem not entitled to such distinction, ought to be separated from the diving sea-birds. However, as none

of the Struthioninæ occur in Britain, it is unnecessary that they should particularly engage our attention.

The *Gruinæ*, or Cranes, large birds of which some resemble Herons and others Bustards, are furnished with large and broad wings, elongated legs, with rather short, stout anterior toes, and a diminutive elevated hind toe. Only a single species comes under our notice, formerly not uncommon, but now scarcely ever met with.

The *Otinæ*, or Bustards, which are in some respects allied to the Struthioninæ, and to the *Perdicinæ* or Partridges, as well as to the *Pluvialinæ* or Plovers, are large, or of moderate size, with ample, rather concave, somewhat rounded wings, and have a correspondingly vigorous flight, although in ordinary circumstances most of them make little use of it. Of this family four species occur in Britain, all of them very rare. The general characters of the *Cursores* seem to be somewhat as follows:—

The body is ovate, somewhat compressed, large or moderate; the neck very variable in length; the head rather small, ovate, rounded above; the bill of moderate length, straight or nearly so, compressed towards the end, with the point of the upper mandible somewhat declinate and obtuse, the nasal sinus large. The tongue is of moderate length, tapering, acute; the œsophagus of moderate width, with the walls thick; the proventriculus bulbiform, that is, not wider than the rest of the œsophagus, but having a belt of large glandules which gives it a greater breadth; the stomach a muscular gizzard, with strong lateral muscles; the epithelium dense and rugous; the intestine of moderate length and width; with two moderate, or rather large, nearly cylindrical cœca. The tibiæ are bare to a great extent; the tarsi long, reticulate all round, in a few instances scutellate anteriorly; the toes short or moderate, thickish, flattened beneath, the anterior spreading, the outer two more or less webbed at the base; the claws short and obtuse. Number in this, as in many other instances, affords no character; for, not to mention the Ostrich, which has only the third and fourth toes, as is shown by their position, and the number of joints, while some have three toes only, the first or hind toe being wanting,

many have also a hind toe, which however is always small, and more or less elevated, so as scarcely to touch the ground. The plumage is moderate, the feathers having a large plu-mule, varying generally from a third to a half of their length, but in the Ostrich group so large that the feathers might be described as double. The wings and tail vary, as in every large group.

All the species feed on insects and worms, and occasionally on vegetable substances, their digestive organs being adapted for both sorts of food. They nestle on the ground; laying from three to five eggs. The males are larger than the females, and sometimes differently coloured, at least in part. The general moult takes place in autumn, the partial moult in spring. Many of the species are migratory, those which in summer reside in the colder or temperate regions moving southward in autumn.

GRUINÆ.

CRANES AND ALLIED SPECIES.

THE birds of which this family is composed are of large size, slender form, and elegant proportions. They have some external resemblance to Herons; but their structure, especially that of their digestive organs, their general habits, and food, indicate little affinity to those birds, and show that they claim a much closer alliance to the Ostriches on the one hand, and the Plovers on the other. They may be briefly characterized—their extreme scarcity with us rendering it inexpedient to present an extended description—as having the body large and compressed; the neck long and slender; the head rather small and oblong; the bill about the length of the head, straight, depressed at the base, compressed toward the end, the nasal sinuses extending to half its length, the tip rather obtuse; the nostrils subbasal, lateral, oblong, or roundish. The legs are long and slender; the tibiæ bare at the lower part; the tarsus somewhat compressed, anteriorly scutellate; the toes rather long, the hind toe short and somewhat elevated; the claws obtuse. The plumage is full, and rather compact; most of the species are ornamented with elongated plumes on the fore part of the neck, or the hind part of the back; the wings are broad and convex, the inner secondaries elongated and decurved; the tail generally short and rounded.

These stately and handsome birds are chiefly inhabitants of warm climates, but some of them perform long migrations. They feed on insects, mollusca, reptiles, seeds, and other

vegetable productions. They nestle on the ground, and lay few eggs. The young, unlike those of the Herons, are active from the first.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. GRUS. CRANE.

Bill longer than the head, stout, straight, tapering, compressed, obtusely pointed. Tarsus very long, slender, with numerous curved, anterior scutella; toes rather short. Wings very large, the inner secondaries much elongated, and curved downwards; tail short, rounded, of twelve feathers.

1. *Grus cinerea*, *Grey Crane*. Fore part of the head and loreal spaces bare, bluish black; crown bare, bright red; plumage ash-grey; a band of dull white from the eye down the side of the neck.

GRUS. CRANE.

ON account of their large size, the elongation of their tibiæ and tarsi, and the straight, tapering, compressed form of their bill, the Cranes have by most authors been associated with the Herons, which they further resemble in their general aspect. But they differ from these birds in several essential respects, as will presently be shown. The body is large, ovate, and little compressed; the neck very long and of moderate thickness; the head ovate, and much rounded above.

Bill much longer than the head, stout, straight, tapering, compressed, pointed; upper mandible with the dorsal line straight, until near the end, when it is convexo-declinate, the ridge rather broad and nearly flat for about two-thirds of its length, then convex, the sides sloping, the edges strong, sharp, straight, notchless, the tip narrowed, thin-edged, rather obtuse; nasal groove large, half the length of the bill, filled by a bare membrane, with a deep broad groove at its fore part; lower mandible with the angle very narrow and extending to the middle, the dorsal line ascending, almost straight, the sides of the crura concave, the ridge rounded, the sides toward the end convex, the edges sharp and strong, the tip narrow, thin-edged, rather obtuse; gape-line straight, commencing opposite the base of the ridge, and much anterior to the eyes.

Mouth very narrow, altogether unlike that of the Herons; palate convex, with three longitudinal anterior series of strong, compressed, horny papillæ, those of the middle ridge largest; upper mandible internally moderately concave, with a prominent median line; lower mandible more deeply con-

cave, with two ridges on each side. Tongue rather long, emarginate and papillate at the base, trigonal, acute; œsophagus rather narrow; stomach a very strong gizzard, having powerful lateral muscles, and a dense rugous epithelium; intestine of moderate length, rather narrow; two oblong cœca. Trachea moderately flattened, curved and entering a cavity in the sternum, whence it is reflected before passing into the thorax; bronchi wide.

Nostrils linear, direct, in the fore part of the nasal groove. Eyes of moderate size, eyelids bare. Aperture of ear small, roundish. Feet very long; tibia bare for about a fourth of its length, covered all round with hexagonal scales; tarsus very long, slender, moderately compressed, with numerous broad, curved scutella before, small elongated hexagonal scales on the sides, and larger scales behind; toes four; the first very small, and elevated; the anterior toes rather short, stout, scutellate above, papillate and somewhat flattened beneath; the second a little shorter than the fourth, which is connected with the third by a short basal web. Claws short, decurved, little compressed, rather obtuse, the third with an inner thin entire edge.

The greater part of the head bare, or sparsely covered with hair-like feathers. Plumage in general soft, but imbricated; the feathers with moderate down-plumules; those of the neck small, oblong; of the body broad and abruptly rounded, of the hind part of the back oblong. Wings very long and ample, with about thirty-five quills; primaries decurved, strong, attenuated on the inner web; the third longest, but scarcely exceeding the second and fourth, and very little longer than the first; the inner secondaries longer than the primaries when the wing is closed, curved outwards, and with their filaments loose toward the end; some of the secondary coverts similarly decomposed. Tail short, rounded, of twelve feathers.

The Cranes are migratory birds, which breed in the northern regions of both continents, and betake themselves to the temperate or warm climates in winter. They live in flocks, run with great celerity, and have a rapid and extended flight. When migrating they advance in lines,—con-

tinuous, angular, or undulated. Their cry is a loud clear trumpet-like sound. They frequent marshy plains, the margins of lakes and rivers, as well as fields and dry wastes; feeding chiefly on vegetable substances, but occasionally also on insects and reptiles. Although they bear some considerable resemblance to the Herons and Storks, they are clearly not of that family, but more allied to the Bustards and Plovers; their very muscular stomach and double cœca being sufficient to separate them from the former birds. Besides, their young are able to run with great celerity while yet covered with down. They are said to nestle on the ground, and to lay two or three eggs.

GRUS CINEREA. THE GREY CRANE.

COMMON CRANE.

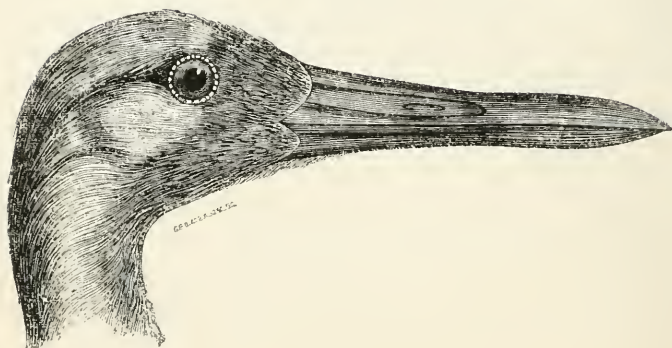


FIG. 1.

Ardea Grus. Linn. Syst. Nat. I. 234.

Ardea Grus. Lath. Ind. Orn. II. 674.

Crane. Mont. Orn. Diet.

Grue cendrée. Grus cinerea. Temm. Man. d'Orn. II. 567.

Grus cinerea. Common Crane. Flem. Brit. Anim. 97.

Common Crane. Grus cinerea. Selb. Illust. Brit. Ornith. II. 4.

Grus cinerea. Common Crane. Jen. Brit. Vert. An. 185.

Grus cinerea. Bonap. Comp. List of Eur. and Amer. Birds, 46.

Upper part of the head and loreal spaces bare, or sparsely covered with black hairs; bill greenish-black, greyish-yellow toward the end; plumage ash-grey; fore part of neck and a triangular patch on the nape dark grey; primary quills greenish-black.

MALE.—The Grey Crane, which is nearly as large as the White Stork, has the body ovate, little compressed; the neck very long, but of moderate thickness; the head ovate, and much

rounded above. The bill is nearly twice as long as the head, rather stout, straight, much compressed, tapering to a rather obtuse point; the upper mandible with the ridge rather broad and flat, the nasal sinus large, of great length, and filled by a bare membrane; the lower mandible with the angle extending as far as the middle and very narrow, the ridge convex; the edges of both sharp but strong, and the tips narrowed but rather thin-edged and somewhat obtuse. The gape-line, which is straight, commences far before the eyes; and the mouth is narrow, measuring scarcely an inch across.

The nostrils are linear, ten-twelfths of an inch long, near the middle of the bill, in the fore part of the nasal membrane. The eyes are of moderate size, or rather small, their aperture being eight-twelfths. The opening of the ear is very small, being only a quarter of an inch in diameter. The feet are very long, and slender, but strong. The tibia, which is covered with hexagonal scales, is bare for three inches and a half; the tarsus is covered behind and on the sides with scales, but anteriorly with forty broad decurved scutella. The first or hind toe is very small, a little elevated, with twelve scutella; the second with twenty-two, the third thirty-eight, the fourth twenty-eight; the second toe a little shorter than the fourth, but with its claw longer. The claws are small, conical, decurved, little compressed, acute; the first smallest, the third largest, and with a dilated inner edge.

The forehead and loreal spaces are thinly covered with blackish hairs; the upper part of the head also bare, papillate behind, and with some blackish hairs. On the nape the feathers are pointed, on the cheeks and throat linear, on the neck oblong, gradually enlarging downwards; on the body broad, narrower on the hind part of the back. The wings are very long and of great breadth; the third quill longest, the second and fourth scarcely shorter, the first an inch shorter; the outer primaries decurved, narrowed, and pointed; the secondaries very broad, some of the inner curved outwards, loose at the margin, and exceeding the primaries, when the wing is closed, by about four inches; some of the inner secondary coverts are also curved and decomposed. The tail is short, and rounded.

The bill is greenish-black, tinged with red at the base, and with more than an inch of the tips greyish-yellow, or horn-colour. The bare skin on the head is red, the iris brownish-red, the feet and claws black. The general colour of the plumage is light ash-grey; a triangular elongated patch on the neck very dark grey; the whole fore part blackish-grey. The alula and primary quills, with their coverts, are greyish-black, with brown shafts; the secondaries of the general grey colour, tinged with dusky at the end, and white at the base, as are their coverts. The tail-feathers are similar to the secondaries, and, like them, have the shafts white.

Length to end of tail 46 inches; bill along the ridge $4\frac{1}{4}$; wing from flexure 21; tarsus $9\frac{1}{4}$; third toe 3; its claw $5\frac{1}{2}$.

FEMALE.—The female is similar to the male, but smaller.

HABITS. No specimen of this bird having been obtained in any part of the country in which I have resided, I have been obliged to take my descriptions from preserved skins. Its habits, as observed on the Continent, are as follows:—“About the end of spring, the Cranes are seen advancing northward, in flocks, arranged in lines or triangles, although, as they frequently fly by night, their passage is only known by the loud clear cries which they emit at intervals. They generally keep at a great height, fly in a sedate manner, alight in the temperate parts of Europe only to feed or rest for a short time, and proceed to the most northern regions, where they pass the summer. Although they ascend to a great elevation, and sustain a very extended flight, they do not rise from the ground without some difficulty, but run a few steps, unfolding their wings, before they take their spring. They fly in bands, and observe a regular order; form a triangle in the air when the atmosphere is tranquil; keep close together when the wind is violent or contrary; and arrange themselves in a circle to struggle against the tempest. It is usually by night that they travel. One of them, who may be regarded as the leader, frequently emits a loud cry, which is repeated by all the rest. When they have

alighted, whether for food or for sleep, one of them acts as sentinel, takes note of what is going on, and gives warning by a cry the purpose of which is understood by his companions, the whole flock taking to flight should there be apparent danger. They nestle in the low grounds and marshes of the northern tracts, and lay only two eggs. The young, it is said, while yet unfledged, can run with such speed that a man cannot overtake them, and they are fed by their parents until they have grown up, and are able to fly.”
—*Valmont Bomare*.

The flesh of this bird is said to be firm and tough, although it was held in estimation by the Romans, who fattened it in their aviaries after putting out its eyes. In England, where the species was formerly abundant in the fen districts, its flesh appears to have been much esteemed. Although Cranes are said to have formerly bred in the fens, they are now of extremely rare occurrence in England, not so many as half-a-dozen individuals being recorded as having been killed there within these forty years. Dr. Fleming, in his *History of British Animals*, records its occurrence in Shetland:—“A small flock appeared, during harvest, in 1807, in Tingwall, Zetland, as I was informed by the Rev. John Turnbull, the worthy minister of the parish, who added that they fed on grain.” Mr. J. Wolley gives an account of one that frequented Shetland for several months in the summer and autumn of 1848, and states that several years previously one was shot in South Ronaldsha, one of the Orkneys. Mr. Dunn, in his *Ornithologists' Guide to Orkney and Shetland*, says:—“This bird is an occasional visitor in severe winters or stormy weather: two examples were shot in Shetland in the interval between my first and second visits—1831 and 1833.”

YOUNG.—According to M. Temminck, “the young, before their second autumnal moult, have no bare space on the top of the head, or rather have it scarcely perceptible. The blackish-grey colour of the fore part of the neck and the nape does not exist, or is merely indicated by longitudinal spots.”

REMARKS.—Perhaps the nearest approach to the bill of the Crane is to be seen in that of the Turnstone, which might be described almost in the same terms, but, of course, presents differences. It is also constructed similarly to that of *Cedrenemus*, *Charadrius*, and other genera of the same group, to which its affinity is further indicated by the narrowness of the throat. However much the Cranes may seem to resemble Herons, on account of their large size, and, in some degree, their colours, they are in reality more allied to the Ostriches or the Plovers. The account given by Mr. Audubon of the American Crane confirms this opinion. It often, he says, digs in the dried mud for the large roots of the water-lily; in winter resorts to the fields, in which corn, pease, and sweet potatoes are planted, feeding on the grains and roots; and in the wet fields seizes on water insects, toads, and frogs, but never, he believes, on fishes. Water lizards, young alligators and snakes, cray-fish, and small quadrupeds are also eaten by it. In captivity, it becomes gentle, and feeds freely on grain and other vegetable substances.

OTINÆ.

BUSTARDS AND ALLIED SPECIES.

ALTHOUGH in some families of birds there is little diversity of size, in others a Patagonian and a Bushman, giant and dwarf, stand side by side, magnitude not being a measure of affinity. Some of the Otinæ are large and stately birds, while others scarcely excel a starling or thrush. In external appearance, they seem allied to the *Perdicinæ* and the *Pluvialinæ*, having the plumage and colouring of the former, and somewhat of the form of the latter.

Their body is ovate, large, and not much compressed; the neck long, and rather slender; the head of moderate size, or rather small, somewhat compressed, and convex or rounded above. The bill shorter than the head, moderately stout, nearly straight, or considerably arched, depressed at the base, compressed toward the end; the upper mandible with the ridge narrow, the nasal sinuses large, and filled by a membrane, which is feathered at the base, the edges partially inflexed, the tip narrow; the lower mandible has the angle long and narrow, the edges sharp and direct, the tip narrow; the gape-line little arched, and commencing before the eyes. The mouth is of moderate width, or rather narrow; the tongue trigonal, fleshy, tapering; the œsophagus rather narrow; the proventriculus bulbiform; the stomach with large muscles and dense epithelium; the intestine of moderate length and width; the cœca long and obtuse.

The nostrils are oblong, or linear, direct, slightly operculate, nearly basal. Eyes rather large. Aperture of ear large.

The legs are long, rather slender; tibia bare to a considerable extent; tarsus long, reticulated; toes short, margined, flattened beneath, with short basal membranes, the hind toe generally wanting; claws short, arched, convex, obtuse.

The plumage is moderately developed, compact, with large plumule; the wings large, pointed; the tail short, of twelve or more feathers.

The Otinæ inhabit chiefly the desert plains of the warmer parts of the Old Continent. They are as remarkable as the Ostriches for their great speed of foot, though, having wings of ample size, they have a correspondingly strong and sustained flight. Most of them feed on vegetable substances, insects, and other smaller animals. The males are larger and handsomer than the females. The nests are formed on the ground; the eggs are not numerous; and the young, covered with down, run from the first.

Four species occur in Britain; all of them very rare there, though the Great Bustard was formerly numerous.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. OTIS. BUSTARD.

Bill shorter than the head, moderately stout, depressed at the base, compressed toward the end, the tip narrowed, but obtuse; the gape-line little arched. Nostrils nearly basal, linear-oblong, direct; nasal sinuses large, feathered at the base. Legs long, rather slender; tarsus reticulated; toes three, short, marginal, with short basal webs; claws convex, obtuse. Wings long, broad, rather pointed, the third quill longest; tail short, of more than twelve feathers.

1. *Otis Tarda*. *Great Bustard*. Tail of twenty feathers. male about forty-four inches long.

2. *Otis Tetrax*. *Little Bustard*. Tail of sixteen feathers. Male about eighteen inches long.

GENUS II. CURSORIUS. COURSER.

Bill somewhat shorter than the head, slender, rather broader than high at the base, compressed toward the end; the gape-line gently arched. Nostrils sub-basal, oblong, in the fore part of the rather short sinuses. Legs long, slender; tarsus anteriorly scutellate; toes three, short, the outer two connected by a narrow basal membrane; claws small, slender, acute. Wings long, narrow, acute, the first and second quills about equal; tail moderate or short, of twelve obtuse feathers.

1. *Cursorius Europæus*. *Cream-coloured Courser*. Pale brownish-yellow, lighter beneath; a triangular black spot on the nape; two bands, a white and a black, from the eye to the occiput.

GENUS III. GLAREOLA. PRATINCOLE.

Bill short, moderately stout, broader than high at the base, compressed toward the end; the gape-line considerably arched. Nostrils basal, oblong, oblique. Legs of moderate length, very slender; tarsus reticulated; hind toe very small; lateral toes very short, the middle toe much longer, and connected with the outer by a basal membrane; claws slender, compressed, acute, that of the middle toe very long. Wings very long, narrow, acuminate; tail rather long, forked, of twelve feathers.

1. *Glareola Pratincola*. *Collared Pratincole*. Tail deeply forked; wings very long; upper parts greyish-brown, tail-coverts white; throat pale reddish-yellow, margined with two bands, the inner white, the outer black.

OTIS. BUSTARD.

The Bustards may be said to be in external appearance intermediate between the Partridges and Plovers. They look like Gallinaceous birds of which the legs are elongated, the toes shortened and reduced to three. Their body is ovate, large, little compressed; the neck long and rather slender; the head of moderate size, ovate, somewhat compressed.

Bill shorter than the head, moderately stout, or rather slender, nearly straight, broader than high at the base, compressed toward the end; upper mandible with the dorsal line straight for half its length, then declinate and convex, the ridge narrow to beyond the nostrils, the nasal sinus large, and filled by a membrane, which is feathered at the base, the edges sharp, inflected for half their length, then direct, the tip narrowed but blunt; lower mandible with the angle long and narrow, the dorsal line slightly ascending and nearly straight, the sides of the crura sloping a little outwards and nearly flat, the edges sharp and direct, the tip narrow but blunt; the gape-line little arched.

Upper mandible internally with three prominent lines, lower more deeply concave. Nostrils linear or oblong, direct, slightly operculate, nearly basal. Eyes rather large. Aperture of ear of moderate size. Feet long and rather slender; tibia bare for a third of its length, covered all round with oblong scales; tarsus long, reticulated with oblong, sub-hexagonal scales; toes three, short, scutellate above, marginate, flattened beneath, spreading, with short basal webs. Claws short, depressed, convex, arched, thin-edged, obtuse.

Plumage moderate, compact; feathers narrow on the head

and neck, ovate on the body. Wings long, broad, rather pointed; the third quill longest, the second little shorter, the first as long as the fifth; the outer quills narrowed toward the end. Tail short, of more than twelve feathers.

It is difficult to decide as to the precise position of the Bustards. Some authors refer them to the Rasores, others to the Grallatores; and it is obvious enough that in some points they resemble both groups. Their internal structure alone can settle the question; and as I have had no opportunity of making myself acquainted with it, I must leave the Bustards as I have found them.

Although furnished with large wings, these birds on ordinary occasions make little use of them; yet their flight is strong and sustained. They run with great speed, squat on the ground to avoid their enemies; feed on vegetable substances, worms, and insects; form a slight and rude nest among the herbage, and lay from three to five or more spotted eggs.

OTIS TARDA. THE GREAT BUSTARD.

- Otis Tarda. Linn. Syst. Nat. I. 264.
 Otis Tarda. Lath. Ind. Ornith. II. 658.
 Great Bustard. Mont. Ornith. Dict. and Suppl.
 Outarde barbue. Otis Tarda. Temm. Man. d'Ornith. II. 506.
 Otis Tarda. Great Bustard. Flem. Brit. Anim. 115.
 Great Bustard. Otis Tarda. Selby, Illustr. Brit. Ornith. I. 442.
 Otis Tarda. Great Bustard. Jenyns, Brit. Vert. Anim. 174.
 Otis Tarda. Bonap. Comp. List, 44.

Male about forty-six inches long; in summer with a tuft of slender elongated feathers directed backwards on each side of the throat; the head, neck, part of the breast, secondary and some of the smaller wing-coverts bluish-grey; a longitudinal black band on the head; upper parts reddish-yellow, spotted and barred with black; tail white at the base, then light yellowish-red, with two black bands; lower parts of the body white, Female with the grey of the head and neck darker; the dark band on the head lighter, the gular tufts wanting, otherwise coloured like the male.

MALE IN SUMMER.—This species, which is the largest of our indigenous birds, sometimes, according to Montagu, weighing as much as thirty pounds, has the body very large and full, the neck rather long and of moderate thickness; the head ovate, somewhat compressed, and considerably rounded above. The peculiarities of its internal structure I am unable to describe, not having had an opportunity of examining a recent specimen. It is said, however, to have a large subcutaneous gular pouch, communicating with the throat, and supposed by some to be inflated with air, while

others think it is intended for carrying water. On each side of the throat, and extending upwards in the direction of the ear, is a bare space of a bluish-black colour. The bill is short, stout, nearly straight, rather broader than high at the base, compressed toward the end; the upper mandible with the dorsal line straight for nearly half its length, toward the end convex, the nasal sinus large and feathered; the edges sharp, direct, with a slight sinus close to the rather obtuse tip; the lower mandible with the angle rather long and of moderate width, the dorsal line ascending and slightly convex, the sides nearly erect, the edges direct, the tip narrowed but rather blunt; the gape-line slightly sinuate and arched.

The nostrils are large, oblong, in the lower and fore part of the sinus. The eyes rather large. The aperture of the ear rather large. The legs are rather long, and slender; the tibia bare for about two inches; the tarsus somewhat compressed, covered ~~all~~ round with hexagonal scales, of which the anterior are larger; the toes very short, thick, three, the inner considerably shorter than the outer, all marginate, flattened beneath, connected by basal membranes, of which the outer is larger; the middle toe with twenty scutella; the rest scaly at the base, scutellate toward the end. The claws are short, strong, convex, decurved, obtuse.

The plumage is full and compact; the feathers on the head and neck oblong, rather short; those on the upper parts ovate, with large plumules. On each side of the throat, at the base of the bill, is a tuft of stiffish feathers with disunited filaments, directed backwards and downwards, and about six inches in length. The wings are of moderate length and breadth, concave, with thirty quills; the primaries stiff, decurved, narrow; the third longest, the second half-an-inch shorter, and exceeding the first by an inch; the secondaries broad and rounded; some of the inner narrowed and elongated. The tail is short, rounded, of twenty rather firm, broad, rounded feathers.

The bill is pale yellowish-brown, darker on the ridge. The iris hazel; the feet light brown, as are the claws. The head and upper neck all round are light greyish-blue. On

the upper part of the head is a longitudinal brown band. The elongated mystachial feathers white. The lower part of the neck anteriorly is pale yellowish-red; the fore part of the breast pale greyish-blue, fading into white, of which colour are the other lower parts, excepting the sides of the lower neck and body, which are light yellowish-red barred with black, each feather having two subterminal unequal bars, and generally several spots. The tail feathers are similar, but tipped with white, and having the base of that colour. The outer wing-coverts, secondary coverts, and inner secondary quills are white, the former tinged with grey; the primary quills brownish-black, with the shafts white.

Length to end of tail from 40 to 48 inches.

FEMALE IN SUMMER.—The female is much inferior in size to the male, generally weighing only ten or twelve pounds. There are no elongated feathers on the sides of the head. The bare parts are coloured as in the male. The upper part of the head is yellowish-red, barred with black; the fore neck greyish-blue, without any red at its lower part; the colouring of the other parts as in the male; but the black markings on the back and tail more numerous.

Length to end of tail about 35 inches.

HABITS.—The Great Bustard, which is said to have been numerous on the heaths and downs of the southern and eastern parts of England, is now so rare that years pass without the occurrence of one being noticed. Formerly it appears to have been a common object of sport, and to have been hunted with greyhounds; one might think only when moulting, for it might be judged from the size of its wings that it is capable of a much longer flight than would suffice to withdraw it from any danger to be apprehended from dogs. But a French author informs us that “when the Bustard is chased it runs with great speed, flapping its wings, and sometimes goes several miles at once without stopping; but as it rises on wing with difficulty, and only when aided by a favourable wind, and besides never perches, nor indeed can do so, whether on account of its weight or of its wanting the

hind toe, with which it might grasp the branch and keep itself there, it has every thing to fear, and the dogs can start it, and even sometimes seize it when it is not far from the ground." It being now so rare in England, it does not appear that any ornithologist has had an opportunity of observing its habits there, so as to present a continuous account of them. I have not so much as seen an individual alive, and therefore all I can do is to compile from the notices given in various works a short history, for the accuracy of which I cannot be held responsible.

In France and Germany, where Bustards are numerous, they reside on the heaths and plains, as well as in large cultivated fields, after the breeding season forming at first small flocks, and afterwards larger. In April they pair and disperse, some alleging that they are polygamous, while others merely state that after incubation has commenced the males desert the females. As all seem agreed on this latter point, there can be no truth in the supposition that the gular sac of the male is intended for the purpose of furnishing the female and young, in the breeding season, with water, which, in general, is only to be procured at a distance upon the dry and extended downs they inhabit. Indeed, Bewick states that one which was kept in a caravan never drank. Being extremely timid; they cannot be approached without much pains, but are taken with snares, sometimes by means of dogs and hawks, or shot by persons dressed in the guise of horses or cows. They feed on green vegetable substances, seeds, roots, insects, reptiles, and even small quadrupeds and young birds, using a quantity of pebbles or gravel to aid digestion. The male pays court to the female by strutting and expanding his tail, like a Turkey, and inflating the skin of his throat, which assumes a purple tint. The nest is a hollow in the ground, in an open part, or among corn. The eggs, two in number, are nearly three inches in length, two inches and two-twelfths in breadth, of an ovate-elliptical form, pale olive-brown, blotched with greyish-brown. They are deposited in the end of May or beginning of June, and are hatched in about thirty days. The young, at first covered with greyish-yellow down, spotted above and on the sides

with black, presently leave the nest, and accompany their mother. When they are fledged, the different families unite into flocks, and are joined by the males. It does not appear that this species is migratory, as it occurs in Germany and France, and has been seen in England, during winter; but in time of snow it leaves the open grounds, and betakes itself to the cultivated fields, where, attracting notice by its great size, it is more liable to be surprised and shot. Its flesh is held in great estimation on the Continent, where it is often exposed for sale in the markets. It occurs in Spain, Italy, and all the south-eastern parts of Europe; but its distribution in Asia and Africa has not been traced.

The extensive plains of Wiltshire, on which Bustards were formerly numerous, seem to have latterly been entirely deserted by them; and the county of Norfolk appears to be the only district in which they now permanently reside, although in greatly diminished numbers. In Sussex, Cambridgeshire, and Lincolnshire they are also now and then met with. In the Yorkshire wolds, which they used to frequent in considerable numbers, none, I believe, have been seen for several years. The only district in Scotland where it has been recently seen is the low tract in Morayshire between Elgin and the sea. As it is not permanently resident there, it must come from a great distance, so that its powers of flight must be considerable. According to the Rev. Mr. Gordon, in his *Fauna of Moray*, "one was shot near Oakenhead, in 1803, by the late William Young, Esq., of Burghead; another was taken a few years ago at Inchbroom, by Charles Barclay, Esq."

OTIS TETRAX. THE LITTLE BUSTARD.

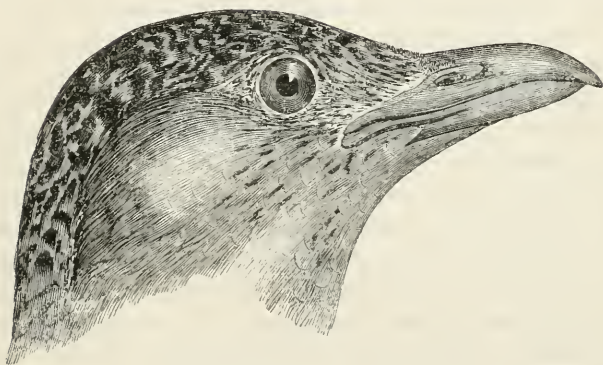


FIG. 2.

Otis Tetrax. Linn. Syst. Nat. I. 264.

Otis Tetrax. Lath. Ind. Orn. II. 659.

Little Bustard. Mont. Orn. Dict.

Outarde Canepetière. Otis Tetrax. Temm. Man. d'Orn. II. 507.

Otis Tetrax. Flem. Brit. Anim. 115.

Little Bustard. Otis Tetrax. Selb. Illustr. Brit. Ornith. I. 447.

Otis Tetrax. Little Bustard. Jen. Brit. Vert. An. 175.

Otis Tetrax. Bonap. Comp. List. 44.

Male about eighteen inches long; in summer with the upper part of the head and the nape pale reddish-yellow variegated with brownish-black, throat and sides of the head light greyish-blue, a narrow ring of white on the neck, succeeded by a broad collar of black, below which anteriorly are a half ring of white and another of black; upper parts pale reddish-yellow, transversely undulated with black; edge of the wing, alula, outer secondary coverts, basal part and tips of the quills and tail feathers, together with all the lower parts of the body, white. Female with the head, neck, upper

latter colour, the lateral feathers gradually becoming more white, and losing one of the black bands.

Length to end of tail 18 inches; bill along the ridge 1, along the edge of lower mandible $1\frac{4}{12}$, wing from flexure 10; tail $4\frac{1}{4}$; bare part of tibia 1; tarsus $2\frac{8}{12}$; inner toe $\frac{9}{12}$, its claw $\frac{4}{12}$; middle toe $1\frac{2}{12}$, its claw, $\frac{5}{12}$; outer toe $1\frac{1}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The female, which is about the same size, differs in having none of the blue or black so conspicuous on the neck of the male. The upper part of the head, its sides, and the neck all round, are pale reddish-yellow, variegated with dark brown, each feather having a broad median longitudinal band, and several transverse bars. The throat is yellowish white, the upper parts are variegated as in the male, but with the markings larger, and many of the feathers having a large black patch in the middle, toward the end. The wings and tail as in the male, but with the white less extended and barred with black. The lower parts are yellowish white, the feathers of the breast and sides with transverse black lines; the lower tail-coverts with the shafts black, and some bars of the same colour.

MALE IN WINTER.—At the end of autumn the black, white, and gray feathers on the head and neck are changed for others variegated with yellow and black; so that in winter the male resembles the female, but with the markings finer.

HABITS.—The Little Bustard is said by various authors to inhabit the countries bordering the Mediterranean; to be common in the southern parts of Europe, where it resides all the year; but to become rare as we proceed northward, individuals being very seldom seen beyond the Baltic. In Britain, it ranks merely as a straggler, although it has been killed in England at all seasons. Whether migratory or not with us, it has never been known to breed in the country, and Mr. Yarrell remarks that males in the summer plumage, as above described, have not been met with. In Cornwall,

Devonshire, and many of the eastern districts, individuals have been obtained. In the north of England it becomes extremely rare, and in Scotland is scarcely ever seen. The only specimen obtained there, in so far as I can learn, is a female which Mr. John Adamson informs me was shot on the 6th of March, 1840, near St. Andrew's. "It was first seen among turnips, on the farm of Burnside. When raised, it took a short circular flight, with outstretched neck, like a duck, and again settled in an adjoining ploughed field, where it was found with some difficulty as it sat close. It gave a peculiar chirping cry on rising. It was in fine condition, weighing twenty-eight ounces, and on being prepared was placed in the museum of the St. Andrew's Literary and Philosophical Society."

This species is said to be remarkably shy and vigilant, to run with great celerity, and to fly well, although on ordinary occasions it seldom rises on wing; to feed on worms, insects, herbs, and seeds; and to nestle among the grass or corn, laying from three to five glossy green eggs. Mr. Yarrell states that they are two inches in length, an inch and a half in breadth; the colour of one in his collection, uniform olive-brown, although he has seen some slightly clouded with patches of darker brown. The same author informs us that in a specimen killed at Harwich, "the stomach contained parts of leaves of the white turnip, lungwort, dandelion, and a few blades of grass. The flesh had the appearance and flavour of that of a young hen Pheasant." Others say it is dark, but of an exquisite flavour.

In France, where this species is common, it arrives in April, and departs in September. It is said to be polygamous, the male assuming a station, and attracting the females by his cries. The eggs are deposited in June, and the young, which follow their mother like those of a domestic fowl, and conceal themselves by squatting under the apprehension of danger, are not able to fly until the middle of August.

CURSORIUS. COURSER.

THE species, few in number, which constitute this genus, are of small size and slender form, with the neck rather short, the head oblong and little elevated in front. Bill somewhat shorter than the head, slender, tapering, nearly straight or a little arched, a little broader than high at the base, compressed toward the end; upper mandible with the dorsal line straight for two-thirds of its length, then arcuato-declinate, the ridge somewhat carinate, the edges sharp, the tip acute, without notch; lower mandible with the angle long and narrow, the dorsal line decurved, the back convex, the edges sharp, the tip narrow, but rather blunt. Tongue slender, emarginate and papillate at the base, flattened above, with a medial groove, the tip thin, narrow, but obtuse.

Nostrils sub-basal, lateral, oblong, in the fore part of the shortish nasal sinus. Eyes of moderate size. Aperture of ear rather large. Legs long, slender; tibia bare for a third, scutellate before, and with two rows of scales behind; tarsus slender, compressed, anteriorly scutellate. Hind toe wanting; anterior toes short, the fourth much longer than the second or inner, all scutellate above, the middle and outer connected by a narrow basal membrane. Claws small, slender, little arched, acute, that of the third toe with a dilated inner edge.

Plumage moderate, soft, and blended; feathers of the fore part of the head very short. Wings long, narrow, and acute; primaries broad and tapering, the first and second about equal; inner secondaries much elongated. Tail short or moderate, slightly rounded or even, of twelve obtuse feathers.

The Coursers are natives of the warmer regions of the

Old Continent, inhabiting chiefly the sandy tracts of the interior. They run with extreme celerity, and have a rapid flight; but their habits are little known. It is perhaps difficult to say whether they ought to be placed with the Bustards or Plovers; yet I think they are more allied to the former, although their small size might lead one to class them with the latter. A very few individuals of a single species have been met with in England.

CURSORIUS EUROPÆUS. THE CREAM-
COLOURED COURSER.

CREAM-COLOURED PLOVER.

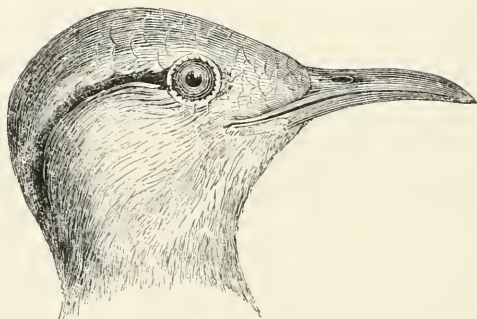


FIG. 3.

Adult with the bill black, the feet yellowish; the plumage pale brownish-yellow, lighter on the lower parts; the fore part of the head reddish, the hind part grey, with a triangular black spot on the nape; two bands, a white and a black, from the eye to the occiput; the primaries black. Young with the upper part of a duller tint, with undulated angular transverse dusky lines.

Cursorius europæus. Lath. Ind. Ornith. II. 751.

Cream-coloured Plover. Mont. Ornith. Dict.

Court-vite isabelle. *Cursorius isabellinus* Temm. Man. d'Ornith. II. 513.

Cursorius isabellinus. Cream-coloured Courser. Flem. Brit. Anim. 112.

Cream-coloured Swift-foot. *Cursorius isabellinus.* Selby Illust. Brit. Ornith. II. 217.

Cursorius isabellinus. Cream-coloured Courser. Jenyns. Brit. Vert. Anim. 176.

Cursorius Europæus. Bonap. Comp. List. 45.

MALE.—This species is somewhat inferior in size to the Golden Plover, and of a more slender form, having the body

rather elongated, the neck shortish, the head of moderate size, and oblong. The bill is rather shorter than the head, slender, depressed at the base, compressed toward the end, considerably arcuate, acute. The feet are long; the tibia bare to the extent of an inch, scutellate anteriorly; the tarsus compressed, with fifteen anterior scutella; the toes short, the inner with nine, the second with twenty-six, the third with twelve scutella; the outer much longer than the inner, and connected with the third by a narrow basal membrane. The claws are small, slender, little arched, acute, that of the middle toe with a dilated, somewhat notched inner edge.

The wings are nearly as long as the tail when closed, narrow, and pointed; with the primary quills broad, but tapering, the first and second about equal; the secondaries short, slightly incurved, the inner very long. The tail is short, slightly rounded, of twelve soft, rounded feathers.

The bill is dusky; the feet yellowish. The general colour of the plumage is light yellowish-brown, approaching to cream-colour; the lower parts paler, and fading behind into whitish. The occiput and part of the nape ash-grey, with the tips of the feathers black; the fore part of the head light red. From over the eye to the occiput is a white band, and below it a band of black. The primary quills are brownish-black; the secondaries cream-coloured, with a dusky patch toward the end, and the tips white; but the inner without dark colour. The lower wing-coverts and axillar feathers are blackish-brown. The tail is rufous, all the feathers, except the middle, with a black patch toward the end, and tipped with white.

Length to end of tail 10 inches; wing from flexure $6\frac{3}{4}$; tail 3; bill 1, along the lower mandible $1\frac{1}{4}$; bare part of tibia 1; tarsus $1\frac{1}{2}$; inner toe $\frac{5}{12}$, its claw $\frac{2}{12}$; middle toe $\frac{9}{12}$, its claw $\frac{3}{12}$; outer toe $\frac{6}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female resembles the male in colour.

HABITS.—It is said to inhabit various parts of Africa, and especially Abyssinia. Individuals have occurred in Italy, Spain, Switzerland, France, and Germany; but in the latter

more northern countries it is to be considered an extremely rare straggler. In England not more than four specimens have been obtained. The first of these was shot on the 10th of November, 1785, near St. Albans, in East Kent, the seat of William Hammond, Esq., who presented it to Dr. Latham. "He first met with it running upon some light land; and so little fearful was it, that after he had sent for a gun, one was brought to him, which, having been charged some time, did not readily go off, and in consequence he missed his aim. The report frightened the bird away; but, after making a turn or two, it again settled within a hundred yards of him, when he was prepared with a second shot, which despatched it. It was observed to run with incredible swiftness, and, at intervals, to pick up something from the ground; and was so bold as to render it difficult to make it rise from the ground, in order to take a more secure aim on the wing. The note was not like any kind of Plover's, nor, indeed to be compared with that of any known bird." Montagu states that one was shot, in North Wales, in 1793, by Mr. George Kingstone, of Queen's College, Oxford, a very accurate ornithologist. Mr. Atkinson, in his *Compendium*, mentions a third that was shot near Wetherby, in April, 1816; and Mr. George T. Fox, in the third volume of the *Zoological Journal*, records a fourth, shot on the 15th of October, 1827, in Charnwood Forest, in Leicestershire, and now in the possession of the Rev. T. Gisborne, of Yoxall Lodge, Staffordshire. The Wetherby bird was seen on a piece of dry fallow ground, running very swiftly, and making frequent short flights, and that of Charnwood Forest was represented by the person who shot it as uttering a cry with which he was unacquainted. Both were easily approached, as was the first recorded. From these circumstances I think it appears to resemble the Little Bustard more than the Plovers in its habits. Its nest and eggs have not been described; but the young in their first plumage are marked in the manner of the Sandpipers.

YOUNG.—The general colour of the upper parts is like that of the adult, but tinged with grey, and the feathers

having a submarginal dusky grey line at the end. The white and black lines from the eye to the occiput are much narrower, the black spot on the nape wanting; the primary quills are margined internally with reddish-yellow; the lower parts as in the adult, but with angular dusky lines on the sides.

GLAREOLA. PRATINCOLE.

THE birds of this genus, all of small size, and remarkable for their very long and pointed wings, forked tail, and slender feet, have puzzled the systematist to such a degree that some have placed them among the Rasores, others among the Plovers, and a few among the Swallows. M. Temminck refers them to his order Alectorides, consisting of the genera Psophia, Dicholophus, Gypoggeranus, Glareola, Palamedea, and Chauna. The small hind toe often present in the order of Cursoriæ has been productive of much confusion,—those persons who take some artificial, often insignificant character, as a string on which to run their genera, having separated the three-toed from the four-toed Grallatores, the Plovers from the Lapwings, for example, and the Glareolæ from the Cursorii. The present genus, I think, must take its place next to Cursorius. But to determine its affinities it would be necessary to examine its digestive organs, which I have not had an opportunity of doing. The body is rather full, ovate, compact; the neck short; the head rather small, ovato-oblong, and little elevated in front.

Bill short, moderately stout, somewhat arcuate, wider than high at the base, compressed toward the end; upper mandible with the dorsal line straight for a short space, then arcuato-decurvate, the nasal sinus wide and feathered, the ridge narrow, the edges sharp and inflected toward the end, without notch, the tip rather acute; lower mandible with the angle of moderate width, the dorsal line slightly decurved, the edges sharp and inflected, the tip acute; the gape-line arched, and commencing beneath the eyes, so that the mouth is wide, and in no respect resembles that of the Plovers.

Nostrils basal, lateral, oblong, oblique. Eyes large; upper eyelids feathered, lower bare. Aperture of ear rather large. Legs of moderate length, very slender; tibia bare at its lower part, not at all "feathered to the knee" as M. Temminck alleges; tarsus moderate, slender, reticulated; hind toe very small, a little elevated; lateral toes very short, the outer a little longer, the middle toe much exceeding the rest, and connected with the outer by a basal membrane. Claws slender, slightly arched, compressed, acute; that of the middle toe very long, with the inner edge thin, and somewhat pectinate.

Plumage moderate, soft, rather compact; the feathers ovate or elliptical; those on the fore part of the head moderate. Wings very long, narrow, taper-pointed, very similar in their digital part to those of the Swallows, but differing in the cubital portion; the quills twenty-five; primaries tapering, very long, stiff; the first longest, the rest rapidly decreasing; outer secondaries incurvate, broad, obliquely emarginate; inner moderately elongated. Tail rather long, forked, of twelve feathers.

The Pratincoles, of which only a few species are known, are inhabitants of Africa and the warmer regions of Asia, the Indian Islands, and Australia. One species is also extensively distributed in the southern and eastern parts of Europe, and sometimes makes its way even to England. They are said to run with great celerity, fly with extreme rapidity, feed on insects and aquatic worms, and reside in marshy places, and by the sides of lakes and rivers.

Authors are far from being agreed as to the systematic location of this genus. "It will be observed," says Montagu, "that Linnæus placed this bird with his Hirundines, to which, in some particulars, it has considerable affinity, though its bill and legs certainly constitute characters sufficiently distinct to remove it from thence; but why it has been taken from the land division, and placed amongst the water birds, we are unable to discover." "The continuator of Shaw's *Zoology*," M. Temminck remarks, "says that the pratincoles or glareolæ have not the slightest affinity to the water or river birds, but that they are more related to the swallows;

because, says he, they have the same wings and tail; an argument worthy of a compiler. It is useless to refute at length this error. I have been in Hungary in the vast marshes of lakes Neusidel and Balaton, surrounded with some hundreds of these birds, and I can assert that they have nothing of swallows but the celerity of flight, with which the Skimmers, Terns, Lestres, and Petrels, are also endowed in the highest degree." Many other opinions succeed; but to settle all disputes as to the affinities of the Glareolæ, it is only necessary to inspect the intestinal canal of a single specimen. The birds to which they might be or have been assimilated, namely, the Swallows, Goatsuckers, Grouse, and Sandpipers, have digestive organs well characterized. Mr. Gould, who might have settled the question, still remarks:—"I have for many years questioned the propriety of placing the Pratincoles in the same group with the Plovers, or even in the same order, believing them as I do to be a terrestrial form of the Fissirostral birds. Linnæus placed them near the Swallows, and I think he was right in so doing; and Mr. Blyth, one of the most philosophical of ornithologists, entertains, I believe, the same opinion; but as nearly all other writers have placed them with the Charadriadæ, I have adopted their view of the subject, and have accordingly placed them in that group." Mr. Thompson, also, places it at the head of the Plovers.

GLAREOLA PRATINCOLA. THE COLLARED PRATINCOLE.

AUSTRIAN PRATINCOLE.

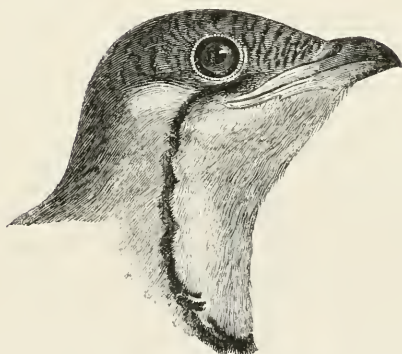


FIG. 4.

Tail deeply forked; wings nearly as long; upper parts greyish-brown; tail-coverts white; throat pale reddish-yellow, margined with two narrow bands, the inner white, the outer black; lower wing-coverts deep brownish-red.

Hirundo Pratincola. Linn. Syst. Nat. I. 345.

Glareola austriaca. Lath. Ind. Ornith. II. 753.

Glareola torquata. Austrian Pratincole. Flem. Brit. Anim. 94.

Austrian Pratincole. Mont. Ornith. Dict. Suppl.

Glaréole a collier. Glareola torquata. Temm. Man. d'Ornith. II. 500.

Collared Pratincole. Glareola torquata. Selby, Illustr. Brit. Ornith. II. 213.

Glareola Pratincola. Collared Pratincole. Jen. Brit. Vert. Anim. 216.

Glareola Pratincola. Bonap. Comp. List. 45.

MALE.—The Collared Pratincole is about the size of the Dotterel Plover, and in form bears a considerable resemblance to a Swallow. Its body is compact; the neck rather

short; the head rather small, ovato-oblong, rather depressed in front. The bill is short, rather stout, compressed toward the end, arcuate, and pointed; the nasal groove rather wide and feathered; the gape-line arcuate, and commencing under the eyes. The nostrils oblong, oblique, in the fore part of the nasal groove. The eyes large. The feet are of moderate length, very slender; the tibia and tarsus reticulate; the former bare for five-twelfths of an inch. The first toe is very small, somewhat elevated, with five scutella; the inner with fifteen, the third twenty-two, the fourth eighteen; the outer longer than the inner, and connected by a small basal web with the middle toe, which is much longer. The claws are somewhat arched, slender, pointed; that of the middle toe very long, with its inner edge somewhat pectinate.

The plumage is rather compact; the feathers ovate, rounded, and of moderate size. The wings are very long, narrow, and pointed, with twenty-five quills; the primaries tapering, the first longest, the rest rapidly decreasing; the outer secondaries obliquely rounded and somewhat emarginate, the inner tapering, but rounded, and of moderate length. The tail is deeply forked, of twelve feathers, of which the lateral are two inches longer than the medial.

The bill is black, at the base carmine-red, as are the margins of the eyelids; the feet dusky-grey. The general colour of the upper parts is greyish-brown, with a tinge of green. The upper tail-coverts white; the tail-feathers white at the base, dark-brown at the end. The quills are blackish-brown, glossed with green, the inner like the back. On the throat is a large patch of pale reddish-yellow, margined by two narrow bands, the inner white, the outer brownish-black, which ascend to the eye; the space between which and the bill is blackish-brown. The sides of the neck, its lower part in front, a portion of the breast, and of the sides of the body are of the same greyish-brown as the back, but paler; the rest of the lower parts white, anteriorly tinged with red. The axillar feathers and middle lower wing-coverts are of a deep brownish-red; the larger and those along the edge of the wing brownish-grey, the latter mixed with white.

Length to end of tail 10 inches ; wing from flexure $7\frac{1}{4}$; tail 4 ; bill along the ridge $\frac{8}{12}$; along the edge of lower mandible $\frac{11}{12}$; tarsus $1\frac{2}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{2}{12}$; second toe $\frac{5}{12}$, its claw $\frac{3}{12}$; third toe $\frac{9}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{6}{12}$; its claw $\frac{3}{12}$.

FEMALE.—The female is similar to the male.

VARIATIONS.—Individuals vary in their tints, both according to age and the season of the year, the moult being said to be double, although the winter plumage differs little from that of summer.

HABITS.—M. Temminck informs us that this species “inhabits the margins of rivers, inland seas, and lakes, of which the waters form large rushy marshes ; lives in the provinces bordering on the confines of Asia, and in the southern countries of that vast continent ; is common on the saline lakes and vast marshes of Hungary ; is a regular or accidental visitant in some provinces of Germany and France, Switzerland, and Italy, but of very rare occurrence in Holland and England. It feeds especially on flies and other winged insects which live among the rushes and reeds, darting upon them with astonishing rapidity, and seizing them both on wing and by running. It nestles among the thickest reeds and tall plants, and lays three or four eggs.”

Montagu states that an individual was shot near Liverpool, on the 18th of May, 1804. It was killed in the act of taking beetles on wing, the remains of which were found in its stomach. This specimen, which was seen when newly shot, by Mr. Bullock, was sent to Lord Stanley’s collection. In 1812, Mr. Bullock had the good fortune to procure another in Unst, the most northern of the Shetland Islands. “When I first discovered it,” he says, in the *Transactions of the Linnean Society*, “it rose within a few feet, and flew round me in the manner of a swallow, and then alighted close to the head of a cow that was tethered within ten yards distance. After examining it a few minutes, I returned to the house of T. Edmondston, Esq., for my gun, and, accompanied by that

gentleman's brother, went in search of it. After a short time, it came out of some growing corn, and was catching insects at the time I fired, and, being wounded only in the wing, we had an opportunity of examining it alive. In the form of its bill, wings, and tail, as well as its mode of flight, it greatly resembles the genus *Hirundo*; but, contrary to the whole of this family, the legs were long, and bare above the knee, agreeing with *Tringa*; and, like the Sandpipers, it ran with the greatest rapidity when on the ground, or in shallow water, in pursuit of its food, which was wholly of flies, and of which its stomach was full." Four other instances of its occurrence in England are mentioned, and one in the south of Ireland.

Although nothing less than an inspection of the internal structure of a bird can determine its relations, when its exterior presents anomalies or combinations of forms indicative of various affinities, the examination of even a prepared skin, which is all I have of the Pratincole, is capable of affording much information. The bill of this bird,—which is short, stout, arched, opening to beneath the eyes, and broad at the base, compressed towards the end, and with the tips of both mandibles narrow, but rather obtuse, the mouth being at the same time wide,—has no relation, even in the least degree, to that of the Plovers, or any of the other probing birds, of which the bill is typically long, slender, straight, compressed, slightly enlarged toward the end, opening far anterior to the eyes, the mouth being also extremely narrow. It therefore belongs to none of these tribes; but in the form of its bill approximates to the Bustards, and is Cursitorial or Gallinaceous. The head rather large and flattened above resembles that of the *Otinæ*, and the large eyes may be theirs as well as of the Plovers. The legs, of moderate length, and slender, resemble those of the *Totatinæ* in form, as do the toes, only the middle toe is proportionally longer; but they also resemble those of some *Otinæ* and Gallinaceous birds. As to the wings, they differ greatly from those of any *Otis*, being very elongated, narrow, and pointed, the primaries somewhat incurvate, and resemble those of a Swift or Swallow; but the secondaries are not few and very short, as

in these birds, being fifteen in number, like those of a *Tringa* or *Totanus*, the inner elongated, but in a less degree than those of the *Probers*. They are certainly not the wings of a *Swallow*; nor do they differ essentially from those of a *Plover*, *Sandpiper*, or other bird of the order to which these belong. The forked tail, of twelve feathers, resembles that of a *Swallow*; but a forked tail, as in the *Kite*, may occur in families of which the tail is generally rounded. The form of the tail, therefore, indicates nothing very particular, but appears from analogy to have relation simply to flight, it being often associated with long, narrow, and pointed wings, as in the *Terns*; though what its action may be I do not understand. The plumage agrees with that of some of the *Rasorial* birds, and with that of some *Cursorial* and *Tentatorial*; so far as regards the structure of the feathers and their plumule, the bird might be of any of these groups. It is decidedly not a *Pluvialine*, *Tringine*, *Totanine*, or *Scolopacine* bird, nor a *Swallow*, nor a *Swift*; nor of any order of *Land Birds*, so called. It may be a *Rasorial*, but is more probably a *Cursorial* bird. The inspection of the exterior, I think, shews nothing more.

XIV. TENTATORES. PROBERS.

INTIMATELY connected with the *Otinæ* on the one hand, and on the other with the *Tantalinae* by the genus *Numenius*, the *Tentatores*, like most very natural groups that have obvious affinities, are not very easily defined. It may be remarked here that, although the *Snipes*, being perhaps more familiarly known than the other genera, are usually considered as typical of this series, which accordingly is frequently named after them, yet the *Godwits* and several other genera in which the bill and feet are very long, seem to me to have a better claim to this distinction. The genera may be grouped so as to form several distinct families, with as much propriety as has been done in the case of the *Cantatores*, in which the *Turdinæ*, *Alaudinæ*, *Motacillinæ*, and others differ very little in any important point of view,—their skeletons and digestive organs being very similar. But as they graduate into each other, and that in a complex manner, so that a particular genus may be closely allied to another genus in the form of its bill, while in the structure of its feet akin to a third genus differing considerably in the bill, I have thought it better here to give the prevalent characters of the entire group.

They are birds of moderate or small size, the largest not exceeding a Pheasant, and the least not so large as a Pipit. The body is ovate, and compact; the neck long or moderate; the head small, ovate, compressed, and rounded above. The bill is seldom shorter, usually longer than the head, slender,

somewhat cylindrical, generally in some degree flexible; the upper mandible with the ridge separated from the very narrow sides by a groove on each side, extending often to the point, which is somewhat blunt; the lower mandible with the angle very long and narrow, the sides grooved, the tip rather acute. The tongue is slender, sagittate and papillate at the base, triangular, tapering to a point. On the roof of the mouth are two or three rows of papillæ, directed backwards. The œsophagus is narrow, with the proventriculus bulbiform or oblong; the stomach oblong or elliptical, with strong lateral muscles and large tendinous spaces, its epithelium dense, hard, with large longitudinal rugæ; the intestine of moderate length, and rather narrow; the cœca rather long, cylindrical, or oblong; the cloaca oblong.

The legs are slender, generally long, often moderate; the tibia scarcely ever feathered to the joint; the tarsus slender, scutellate in front; the toes of moderate length, slender, the anterior spreading and more or less webbed at the base, the first small, elevated, sometimes wanting; the claws small, compressed, arched, acute.

The plumage is generally soft and blended, or somewhat compact; the feathers oblong or ovate, with a rather large down-plumule. The wings are long, of moderate breadth, acute; the first quill generally longest, some of the inner secondaries narrow, tapering, and nearly as long as the outer primaries when the wing is closed. Tail short or moderate, of twelve or sometimes more feathers, and varying in form.

The skeleton is very similar in all the species which I have examined. The cranium is rather small, the part containing the brain short, rounded behind; the interocular septum incomplete, as is a large portion of the base of the skull anteriorly. The jaws are very elongated and slender; the nasal sinus extremely long, extending nearly to the tip, so as to separate the medial from the lateral portions; there is also a groove along the crura of the lower jaw. Taking the Curlew as an example, we find that it has 44 vertebræ, of which 14 are cervical, 9 dorsal, 13 sacral, and 8 caudal. The cervical vertebræ are moderate, with large articulations. The ribs, nine in number, are very slender; the first rudi-

mentary, the second incomplete, and with the last destitute of process. The body of the sternum is of moderate length and breadth, concave, with two deep sinuses behind filled by membrane; the crest extremely prominent, its lower outline a little convex, the anterior concave. The clavicles are rather short and moderately stout; the furcula rather slender, curved, with the angle rather wide and rounded. The scapula slender and arcuate. The humerus moderately long, the cubitus about a fourth longer; two carpal bones; the pollical bone slender and tapering; the two metacarpal bones united at both ends, the inner very slender; the outer digital bone broad, internally thin-edged, the inner very small and curved, the extreme digital bone slender and tapering. The pelvis is large; the ischium united, but leaving a large oblong foramen; the pubes very slender, free unless at the base; the femur of moderate length; the tibia very long, slender; the fibula very slender, partially united, extending to about half the length of the tibia; tarsus nearly square; the hind toe elevated, small, of two phalanges, and a basal bone, the rest of rather short, three, four, and five phalanges.

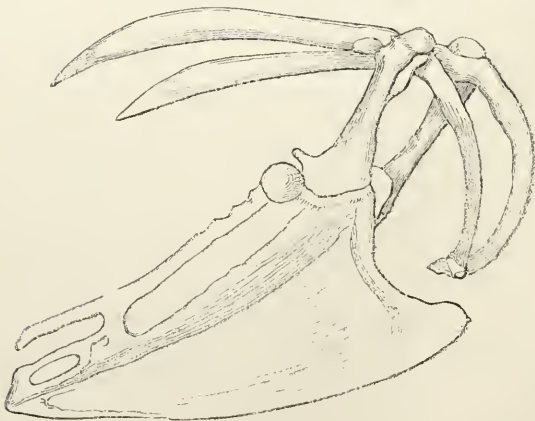


FIG. 5.

The skeleton of the Snipe is very little different, the limbs only being shorter, and the bones proportionally thinner. In it the vertebræ are 43, of which 13 are cervical, 9 dorsal, 13 sacral, and 8 caudal.

Birds of this order occur in all countries. They frequent marshes, the margins of lakes and rivers, and the shores of the sea. Their food consists essentially of worms, and small testaceous mollusca, as well as insects of various kinds, and along with it a quantity of sand is usually found in the stomach, which is a true gizzard, adapted for bruising. The refuse is not disgorged, but passes in a comminuted state through the intestine. Generally speaking, they run with extreme celerity, those which frequent the shores of the sea following the retiring wave, and retreating as the next advances. Very many of them have an almost continued vibrating motion of the body. On being alarmed, they run a short way and take to flight; but some of the shorter-legged species, on apprehending danger, lie close to the ground. They all wade in the water, and for the most part procure their food by thrusting their bills into the soft mud or sand, the extremities of the bill, from the size of the nerves distributed to them, and the delicate skin which covers it, being probably very sensitive. The flight of all the species is rapid, and protracted. They frequently in flying incline the body to either side, the individuals of a whole flock acting thus in concert. Their cries are loud, shrill, and generally reiterated. Most of them are gregarious in various degrees, and migratory, advancing in flocks toward warmer regions as the cold increases. The larger species are extremely shy, vigilant, and, on being alarmed, clamorous; but the smaller, when feeding, being intent on their occupation, often allow a near approach. They nestle on the ground, in marshy places, forming a slight nest in a hollow, and laying four pyriform, spotted eggs, of which the smaller ends are placed together. The young, at first densely clothed with down, are able to run about soon after birth, and conceal themselves by lying flat. When the nest or young are approached, the parents fly about in great agitation, uttering shrill cries, or feign lameness to draw off the intruder. The females are frequently larger than the males; the colours of the plumage in many change with the renewal of the feathers twice in the year; their flesh is generally juicy, and forms an agreeable article of food.

The Pluvialinæ have often been referred to the last order; but in the structure of their skeleton, form of their wings, mode of flying, running, and procuring their food, these birds are most intimately allied to the other families. Nothing is more common than to see species of the two groups intermingled while feeding. On the sea-shore the Dunlins, for example, and Ring-plovers; and in summer, on the moors, the Dunlins and Golden Plovers or Lapwings.

Numerous species occur in Britain. They may be disposed into four principal groups or families, namely, the Pluvialinæ or Plovers, the Tringinae or Sandpipers, the Totaninae or Tatlers, and the Scolopacinae or Snipes; of which the peculiar characters will be very briefly given.

1. **PLUVIALINÆ.** The head roundish, much rounded above; the bill generally about the length of the head, but sometimes longer, and often shorter, straight, or very slightly recurvate, mostly slender, compressed, blunt, the upper mandible with its outline convex toward the end, the nasal groove extending about two-thirds of its length; eyes generally large and prominent; feet long and slender; toes small, rather short, flat beneath, and marginate; sometimes a diminutive hind toe; wings long, narrow, pointed or moderately rounded, the inner secondaries elongated and tapering; tail short, rounded, of twelve feathers.

2. **TRINGINÆ.** The head small, compressed, rounded in front; the bill long, straight, sometimes arcuate, sometimes a little bent upwards, slender, compressed, the nasal groove extending nearly to the end; eyes generally small; feet rather long, slender; toes four, the hind toe very small and elevated, anterior toes of moderate length, sometimes free, generally more or less webbed at the base; wings long, narrow, pointed, some of the inner secondaries much elongated and tapering; tail short, of twelve feathers.

(**PHALAROPINÆ.** The general characters of the Tringinae

and Totaninæ; but the toes broadly bordered, or lobate. The habits more aquatic.)

3. TOTANINÆ. The head small, compressed, rounded in front; the bill very long, straight, mostly in some degree recurvate, very slender, compressed, or toward the end depressed, the tips acute; eyes rather large; feet very long and slender; toes four, the hind toe very small and elevated, or three only, slender, of moderate length, webbed at the base; wings very long, pointed, some of the inner secondaries elongated and tapering; tail short, rounded, of twelve feathers.

4. SCOLOPACINÆ. The head rather small, much compressed, rounded above; the bill very long, straight, slender, compressed until toward the end, when it becomes more or less enlarged; eyes rather large; tarsi short; toes four, the first very small and elevated, the anterior long, slender; wings long or moderate, rather broad, but pointed; the inner secondaries generally much elongated, sometimes moderate and rounded; tail short, of from twelve to twenty-four feathers.

Among the most remarkable traits in the character of the Grallatorial tribes is the manner in which they protect their nests and young from predacious animals, of which man is probably the most mischievous. Although the employment of stratagem or dissimulation is neither peculiar to them, it being equally exhibited by many of the Rasorial species, nor yet general, it being little observable in the Aucupatorial or Latitorial tribes, it is more obvious to the observer and carried to greater perfection in the Tentatorial Order than in any other. But, to form a correct idea of it, we ought to take a general view of the means employed by birds in defending their progeny. We may confine ourselves to the British species, they being sufficiently numerous to furnish facts capable of leading to correct notions on this interesting subject.

Now, on examining the habits of the Raptorial Birds, we find that they never employ stratagem in defending their

nests, but use open force. This is in accordance with their organization, they being supplied with very efficient weapons, in their sharp and curved bills and claws, and with means of rapid locomotion in their powerful wings. The Peregrine Falcon instantly attacks any suspected bird, such as a Raven or Hooded Crow, that approaches the cliff on which its nest is built, but pays no attention to those which it acquits of hostile intentions. It will even assail, and, if necessary, strike at the Sea Eagle or the Golden Eagle, which it knows to be destructive birds, although it does not appear that they ever attack that vigorous and watchful bird or meddle with its nest. Some of the smaller hawks, especially the Merlin and the Sparrow-Hawk, are equally ready to drive off intruders. Birds of this tribe, when excited by the screams of their young, or even when simply seeing their nests invaded, fearlessly attack man himself, of whom, in other circumstances, they have a salutary dread. Vultures, it is said, are less courageous, and we have none to make observations upon; and Owls, being of nocturnal habits, are in a great measure removed from our inspection, although it is known that they occasionally make a vigorous defence.

The Insessorial birds are less efficiently armed, and yet many of them display the greatest courage in defending their nests. The larger species, especially the Raven, the Hooded Crow and the Carrion Crow, have strength and spirit enough to drive off Gulls, Hawks, and all other birds of which they are suspicious. I have often seen two Ravens sally forth to meet or pursue an Eagle that happened to come within a quarter of a mile of their nest, and so annoy him as make him glad to get away from them as soon as possible. Yet, when Eagles and Ravens nestle in the same rock, or range of cliffs, they live quite peaceably together. There are among the smaller species many, such as the Titmice, Thrushes, and Swallows, that make a vigorous defence of their nests; but very many others merely keep flying around and evincing their anxiety by frequent cries. When a pair of birds attempt to seize upon the nest of another pair, of a different species, the latter, if not able to make an efficient defence, attract by their screams numerous individuals of their

own kind, which attack or annoy the intruders. It might be supposed that the situation of the nest would in some measure determine the mode of defence, and that the owners of those placed on the ground would, if feeble, use stratagem to decoy intruders away. Few of them, however, shew this kind of instinct otherwise than, when very closely approached, by flying off close to the ground, in a cowering or fluttering manner, as if disabled. The Pipits, for example, act in this way, which, however, seems the effect of fright, rather than an attempt to draw attention to themselves, and thus save their charge. I have seen a pole-cat eating the young ones in a lark's nest, while the parent birds, and some others of the same species, attracted by their cries, were hovering over it and vociferating loudly, but without venturing to attack it, or attempting to decoy it away. But, we know very little of the defensive habits of birds except with reference to ourselves; and in most cases their courage and cunning are of little avail in preserving either themselves or their progeny from our tyranny. Although the Raven is the largest and strongest bird of this group, and can protect himself from all our native birds and quadrupeds, he sometimes employs dissimulation when man is the aggressor, and I have seen one, after I had long been endeavouring to find a way to its nest in a maritime cliff, and to shoot itself, fly to a distance, and on an elevated place flutter and roll over, as if expiring in agony.

The Deglubitorial, or smaller thick-billed birds, seldom employ either force or cunning in defence of their nests; but merely hover about, emitting cries, or stand silent in the neighbourhood.

Most of the Rasorial birds, however, evince great anxiety for the safety of their eggs or young; and many of them, especially the Partridges, feign lameness, and use other stratagems to withdraw from their charge the attention of intruders, whether canine or human. They have, at the same time, great boldness on such occasions, and will often attack crows, weasels, or other destructive prowlers. The Pigeons merely flit about at a safe distance, or even fly off altogether.

The habits of the Cursorial birds are little known ; but those of the Tentatorial are patent to the observation of all who traverse our fields and moors, or have occasion to visit the sandy shores of the sea. The Lapwing, the Golden Plover, and the common Ring-Plover, fly up to an intruder, keep hovering over and around him, or alight, and manifest the greatest anxiety and anger. The males sometimes, but generally the females, will move crouchingly to some distance, and flutter on the ground, as if mortally wounded, limp as if one of their legs were broken, or shew a fractured or dislocated wing, hanging or whirling about in a most surprisingly simulative manner. The object of all this pretended distress is obviously to withdraw the attention of men, dogs, polecats, weasels, foxes, crows, or other animals from their nests, and attract it to themselves. If you come up to one of these birds fluttering apparently in extreme agony, it will not cease its display of suffering until you are very near it, when it will limp away with drooping wings, keeping so little ahead that you feel sure of catching it ; but gradually as it removes from the nest, it revives, and when it has drawn you far enough to render it difficult for you to find again the spot whence you were enticed, it will fly off exultingly, emitting perhaps a merry note, as if conscious of the success of its stratagem. The unsophisticated bird, "pure from the hand of nature," and with morals uncontaminated, actually practises deceit. It sees an enemy approaching its young ; it feels alarmed for their safety, and, knowing that it has not strength to drive off the aggressor, it essays to mislead and bewilder him. Knowing that the intruder has a propensity to seize or destroy even a poor little innocent bird, it runs away a little, and then shews a broken leg and a shattered wing, as if it said, "See, how easy it is for you to catch me, when I can neither run fast nor fly at all." Then it pretends to try to rise on wing, and falls over on one side, but is up again, and limps along. "Come, you may be quite sure of me if you follow. No need of salt ; but if you have some, you see how easy it is to put it on my tail." So the chace commences, and soon ends in disappointment to the pursuer, who cannot help laughing at

himself. The Greenshank and Redshank, as well as most of the Totaninæ, act differently. They come clamouring up from a great distance, wheel, and plunge, and glide, screaming and scolding without intermission, alarm all the timid animals within at least a quarter of a mile around, and the nearer you approach their nest, the more extravagant are they in their rage. Perhaps the object of this kind of proceeding is to intimidate their ordinary enemies, such as hawks and small quadrupeds; but it certainly tends to betray their secret to man, who might pass by unconscious were they to remain quiet and keep out of sight.

As to the Herons, they could defend themselves from most birds, were they active enough; but a crow or a jackdaw will sometimes carry off an egg from an uncovered nest, while other Herons are by, and if they attempt to catch the thief, they only make fools of themselves. The Skulkers, such as Coots, Water-hens, and Rails, are never bold enough to face an enemy of any vigour, as a Polecat or Weasel, but keep running or swimming about. When their young are with them, however, they manage much better: for when an alarm-click is uttered by the mother, all the chicks scatter about, dive, and in some concealed place each puts up its head just far enough to be able to breathe, and the parent bird does the same; or they get among the thick reeds and equiseta, where they are secure enough; or squat among the herbage.

I do not think that any British bird uses stratagem or deceit for any other purpose than that of protecting its eggs or young. It is alleged that the Jay and the Butcher Bird imitate the cries of various birds with the view of alluring them to destruction; but this object is merely conjectural, whatever may be their motive for the mimicry. "The Flusher, *Lanius Collurio*," Mr. Rennie says, "is said to lure small birds within its beat by mimicking their notes;—a feat of ingenuity not borne out by any observation we have been able to make, though our attention has been for five summers directed to this point, in a district where the species abounds. We have, on the contrary, ascertained that the Flusher utters no call that has the most distant

resemblance to that of any other bird, its usual note being a harsh, disagreeable screech."

Some persons have moralized on the cunning of birds. They cannot believe that they should naturally possess any instinct leading them to acts such as in men are accounted evil. But a rational being, and an instinctive animal, have no moral affinity. Why should not animals use stratagem in defence of themselves or their young? Is cunning a greater crime than murder? And yet who finds fault with an eagle for tearing a lamb to pieces, but the shepherd and his master; or with a lion for devouring a Bosjesman or a Dutch Boor, but other Bosjesmen and Boors, who may dread the same fate? If a myrmoleon digs a pit, and lies in wait to seize and devour the unhappy insect that has fallen into it, do not men—moral men—make pits to entrap elephants, hyenas, wolves, and other beasts? Who blames the fisher for his practices, although his whole art is a piece of mean deceit? He lets down into the dark sea a web of cord, and persuades the silly herrings that there is nothing in their way. He busks a pointed and barbed hook, casts it on the water, and says to the trout,—there's a nice fat fly for you! He impales a sprawling frog, and letting it down the stream pretends to attend to the comfort of the hungry pike, who is not insensible of his good fortune until he feels the steel points thrilling his pneumo-gastric nerves. The hunter and the sportsman have at least the qualities of boldness and openness; but the angler is a mere cheat.

It is certain, however, that perfect candour and openness are never practised among men. It would even appear that they consider the exercise of these qualities impracticable, or conducive to serious detriment; and, in polished societies especially, dissimulation is really viewed, even by the most respectable persons, as a necessary defence from the injuries to be looked for from every one around. No merchant, speculator, or tradesman discloses his schemes to his kind neighbours, for he knows that some among them would endeavour to turn such knowledge to his own account; and all important schemes are kept as profoundly secret as possible, unless publicity be essential to their success. Every

man suspects every other ; hence, a promise is nothing without witnesses. Who would lend his best friend a hundred pounds, without interest and good security ? An honest and candid man cannot thrive among the traders and mammon-worshippers of this Christian country. He is esteemed a simpleton, a fool, an imbecile. If you are candid, and determine to remain so, expect not to be rich. They who differ from you in politics or religion will not allow your cherished virtue to be of any merit. Your neighbours will prey upon you, when you are well off ; and when you are poor, should any of them lend you a hand, he will, with the other, take your watch from you. They say, “ After all, honesty is the best policy,”—which means, they know nothing at all of honesty ; for it has nothing to do with policy.

The tricks of birds are very blameless compared with those of men. The most amusing instance of cunning in a bird, and of gullibility in an ornithologist, that I know, is of the Lapwing, and some persons who have made a great matter of it. That bird has a habit of very gently and quickly patting its little feet on the ground, as it stands looking around. The object of this movement is said to be to cause the worms to emerge from their holes. Those in the neighbourhood, sensible of a commotion in the ground, imagine it to be caused by the poking of a mole, to escape the voracity of which they suddenly emerge upon the surface, to be instantly seized by the cunning and expectant Lapwing. Other birds pat the ground precisely in the same manner, but certainly not with such an object. Gulls, when resting on the sands, and not thinking of food, I have often seen performing the same act. As to the Lapwing, its weight is so small that its slight pattings could not cause any great earthquake ; and, on the other hand, if you stand still and observe the heavings of the ground caused by the progress of a mole, you never see the worms in its course coming to the surface.

PLUVIALINÆ.

PLOVERS AND ALLIED SPECIES.

THE birds of which this family is composed have a manifest mutual resemblance, but with differences sufficient to indicate generic distinctions, such as may in most instances be readily appreciated. *Ædienemus* appears to lead directly from *Otis* of the preceding family, which is allied, on the one hand, to the *Perdicinæ*, and on the other to the *Struthioninæ*, or *Ostriches*. Most of the species are three-toed, and when a hind toe exists, it is always diminutive, and elevated above the level of the rest. *Vanellus* has a hind toe, and a broader form of wing, but otherwise is very similar to *Pluvialis*, one of the species of which, having also a hind toe, has been separated to form a genus to which Cuvier has given the name of *Squatarola*. Other Plovers constitute the genera *Eudromias*, *Dotterel*, and *Hiaticula*, *Ring-Plover*, more distinguishable by differences in the mode of colouring than by any structural character. The genus *Charadrius* of Linnæus, however, I divide into only two: *Pluvialis* and *Charadrius*. *Strepsilas* and *Ostralegus* are the only other British genera. The latter, most intimately allied to the former, has a more elongated bill, and leads to the family of *Scolopacinae*.

These birds are generally of small size, and many of them are very diminutive, although some are rather large. In general, they have a moderately full, or rather slender body, of an ovate, somewhat compressed form; slender legs, rather

long, or of moderate length; long wings; a rather short neck, and a roundish head, which is always elevated and rounded in front, like that of the Pigeons.

The bill is generally about the length of the head, in some cases longer, and frequently much shorter, straight or very slightly recurvate, slender, tapering, compressed, blunt; the upper mandible with its outline straight and slightly declinate for half or more of its length, then convex or bulging towards the end, the nasal groove extending about two-thirds of its length; the lower mandible with the angle moderately long and narrow, the dorsal outline ascending and a little convex. Both mandibles are internally moderately concave; the posterior aperture of the nares is oblongo-linear, margined with acute papillæ; the palate soft with conical papillæ. The tongue is short or of moderate length, fleshy, narrow, emarginate and papillate at the base, flattish above, its tip entire. The mouth is extremely narrow: the œsophagus narrow, of nearly uniform diameter; proventriculus oblong, with oblong glandules. The gizzard is large, elliptical, compressed, its muscles very large and distinct; its cuticular coat tough, with prominent transverse rugæ. The intestine is slender, of moderate length; the cœca rather long, and subcylindrical.

The eyes are generally large and prominent; the eyelids densely feathered. The nostrils are sub-basal, lateral, linear, of moderate length, in the long, bare, basal membrane. The aperture of the ear is roundish, and of moderate size.

The feet are long and slender; the tibia bare at its lower part; the tarsus long or moderate, a little compressed, reticulated or anteriorly scutellate; the toes small and rather short, flat beneath and marginate; three before, spreading; the hind toe wanting, or very small and above the general level. The claws are small, arched, compressed, slender, blunted.



FIG. 6.

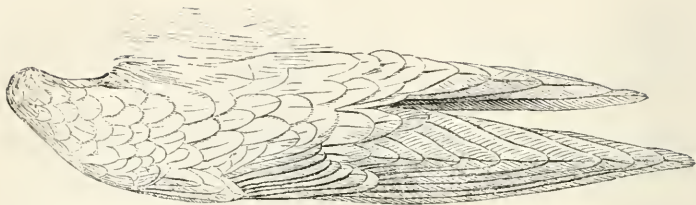


FIG. 7.

The plumage is close, short, and generally blended ; the feathers oblong, rounded, with loose margins ; those on the face very short, on the middle and hind part of the back also short ; the scapulars very long and narrow. The wings are long, narrow, pointed, or moderately rounded, with twenty-five feathers ; the inner secondaries elongated and tapering. The tail is short, even or rounded, of twelve feathers.

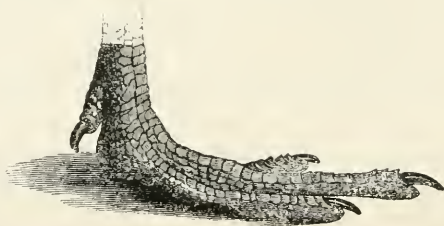


FIG. 8.

The skeleton of the Pluvialinæ bears in some respects a great resemblance to that of the Columbinae, although the differences are also great, especially in the form of the sternum and the length of the feet. Taking the Golden Plover and Lapwing as types, we observe the following characters. The structure generally is rather delicate, the bones being slender or thin. The skull is rather large, oblong, compressed ; with the septum between the orbits very incomplete, having in it two large apertures. The orbits are very large, incomplete below, their upper margins elevated so as to leave a deep groove between them, in which are the two narrow curved depressions for the supraorbital glands. The intermaxillary bones are linear, and separated from the maxillary, which are very narrow, by a vacuity extending nearly to the end. The lower jaw is entire, arched, towards

the end straight and attenuated. The cervical vertebræ are thirteen, the dorsal nine, the lumbar and sacral twelve, the caudal nine. The ribs are nine, the first rudimentary, the second incomplete, all very slender, compressed. The sternum is large, its body of moderate breadth, with the sides parallel, its posterior margin slightly oblique on each side, with a small sinus and smaller foramen; the crest, which extends its whole length, is very high, anteriorly concave. The coracoid bones are moderately stout; the furcula rather narrow, considerably curved, and very slender. The scapula is uniform and pointed. The wings are long; the humerus rather long; the cubitus considerably longer; the hand of the same length as the latter. At the base of the larger metacarpal bone the anterior process is thin and rounded, but in some species is elongated, and covered with a conical horn or spur. Of course, if the tarsal spur of the *Rasores* be analogous to the hallux, the carpal spur of many of the *Grallatoriæ* and *Natatoriæ* corresponds to the pollex. Beyond this process is the slender bone of the first or alular finger; the other two fingers are united; the anterior having a large metacarpal bone, and two phalanges, both of which are more or less flattened and posteriorly thin-edged; the other having a slender metacarpal bone attached at both ends, and a single phalanx united with that of the other. The pelvis is comparatively small, but very wide beneath. The sacrum is quite distinct, not being anchylosed with the innominata, of which the anterior or iliac plate is narrow, rounded, and does not rise above the level of the vertebræ, of which the spinous processes are extremely short. The sciatic foramen is elliptical, the thyroid roundish. The pubes is linear, slightly recurved, and free, or united only anteriorly. The thigh bones are very short and of moderate strength; the tibia very long, slender, roundish, the fibula rudimentary, scarcely extending a third of the length of the tibia; the tarsus rather long or moderate. The toes are slender; the first either wanting, or extremely small and running off above the level of the rest, with two phalanges and a basal bone; the second shorter than the outer, of three phalanges; the third longest, of four; the fourth of five.

The muscular system is moderately developed. The pectoral and other muscles of the wing are rather large. The skin is very thin, and has a considerable quantity of fat adhering.

The digestive organs are adapted for insects, larvæ, worms, small crustacea, and similar objects. No bird that eats entire and live animals has a crop, and thus the Charadrianae pass their food directly to the gizzard, where, with the aid of sand or gravel, it is triturated. Being then delivered to the intestine, it receives the bile and pancreatic fluid. The fœces and urine, being first deposited in the elliptical cloaca, are voided in a semifluid state.

These birds are generally gregarious and migratory, breeding in the northern regions. Their nest is a cavity formed in sand or gravel, generally without any substance intervening between it and the eggs; which are for the most part four, extremely large, pyriform, spotted and clouded with dark brown. The young are born covered with long soft down, run about presently, and squat when alarmed.

The Pluvialinae run with very great speed, by short steps, with the body horizontal, and the head raised. They do not vibrate their body, like the Scolopacinae. Their cries are generally clear, loud, and mellow. Their sight is very acute, and they feed by moonlight as well as by day. They frequent wild and uncultivated moors or pastures, or ploughed fields, or sands, or the shores of the sea or of lakes and rivers; and pick up their food directly, without generally probing for it in the mud, their bills being short and firm.

Their flight is strong, direct, on ordinary occasions sedate; but, when requisite, very rapid, their pinions whistling as they fly. They often move in extended lines, or in various figures, and often perform circular flights before alighting. When little disturbed they are not shy, but on being persecuted they soon learn to distrust their enemies. All the species manifest great anxiety for their eggs or young, feigning lameness to induce intruders to pursue them.

The plumage is changed in autumn; and a partial moult takes place in spring, so that the colours in summer are to a certain extent different, many species assuming black on the

breast. The males and females are generally similar, the former always larger. The young in their first plumage differ from the adult.

Individuals of this family are found in all countries of the globe. In Britain, one species or other may be seen in almost every part, and at every season; but in winter and spring they chiefly frequent the sea-shore and the fields in its vicinity, while in summer they are scattered over the interior.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. *ŒDICNEMUS*. THICK-KNEE.

Bill rather longer than the head, stout, straight, depressed at the base, compressed toward the end; ridge of the upper mandible prominent, straight to the middle, then slightly arched and declinate, the tip rather acute; gape-line straight, commencing under the anterior angle of the eye; nasal sinuses large; nostrils linear-oblong, medial, direct. Legs long, slender; tibio-tarsal joint large; tarsus reticulate with hexagonal scales; toes three, short, with short basal webs; claws short, convex. Wings of moderate length, pointed; tail short.

1. *Œdicnemus crepitans*. *Stone Thick-knee*. Bill pale-yellow at the base, black at the end; feet yellow; head and upper parts pale reddish-yellow, streaked with brown.

GENUS II. *PLUVIALIS*. PLOVER.

Bill nearly as long as the head, rather slender, straight, compressed; upper mandible with the dorsal line straight for two-thirds, then bulging a little, or arcuate, at the end, the tip narrow, but rather obtuse; gape-line straight; nasal groove long and rather wide; nostrils small, linear, sub-basal, pervious. Legs of moderate length, very slender; tarsus

covered with hexagonal scales ; toes rather short, slender, the outer two connected at the base by a web ; claws rather short, compressed, slightly arched, obtuse. Wings long and pointed, the inner secondaries much elongated ; tail short, nearly even.

1. *Pluvialis Squatarola*. *Grey Plover*. Bill rather stout. A very diminutive hind toe. In winter, the upper parts blackish-grey, spotted with white ; the lower parts greyish-white, streaked with greyish-brown ; axillar feathers greyish-black. In summer, the upper parts black, spotted with white ; the breast black.

2. *Pluvialis aurea*. *Golden Plover*. Bill rather slender. In winter, the upper parts brownish-black, spotted with yellow ; the lower parts pale, variegated with brown, throat and abdomen white, as are the axillar feathers. In summer, the upper parts black, spotted with bright yellow ; fore neck and breast black.

3. *Pluvialis Morinellus*. *Dotterel Plover*. Bill slender. Inner secondaries extremely elongated. The plumage variously coloured, but without spots.

GENUS III. CHARADRIUS. RING-PLOVER.

Bill generally much shorter than the head, rather slender, straight, as broad as high, slightly compressed toward the end ; upper mandible with the dorsal line straight for half its length, then bulging, or arcuate, the tip rather obtuse ; gape-line straight ; nasal groove about half the length of the bill ; nostrils small, linear, sub-basal, pervious. Legs of moderate length, very slender ; tarsus covered with hexagonal scales ; toes rather short, slender ; the outer two connected at the base by a web ; claws rather short, compressed, slightly arched, slender, rather acute. Wings very long, narrow, pointed ; the inner secondaries tapering, extremely elongated ; tail of moderate length, or long, rounded, the two middle feathers somewhat pointed.

1. *Charadrius Hiaticula*. *Common Ring-Plover*. Length about eight inches ; bill half as long as the head ; wings and tail of equal length. Upper parts greyish-brown ; two bands,

a black and a white, on the forehead; a dark brown band under the eye; a white ring including the throat, succeeded by a broader ring of brownish-black; feet orange.

2. *Charadrius Cantianus*. *Kentish Ring-Plover*. Length nearly seven inches; bill more than half the length of the head; wings shorter than the tail. Upper parts light brownish-grey; two bands, a black and a white, on the forehead; hind part of the head light brownish-red; loreal space and a band behind the eye black; the throat and a band crossing the hind neck white; a patch of black on each side of the lower part of the neck; feet dusky.

3. *Charadrius minor*. *Little Ring-Plover*. Length about six inches and a half; bill more than half the length of the head; wings shorter than the tail. Upper parts greyish-brown; two bands, a black and a white, on the forehead; hind part of the head light brownish-grey; a band under the eye black; the throat and a band crossing the hind neck white, succeeded by a brownish-black ring; feet yellowish-flesh-colour.

GENUS IV. VANELLUS. LAPWING.

Bill shortish, slender, straight, compressed; upper mandible with the dorsal line straight for two-thirds of its length, then convexo-declinate to the end, the tip rather obtuse; gape-line straight; nasal groove very long; nostrils small, linear, sub-basal, pervious. Legs of moderate length, or long, very slender; tarsus anteriorly scutellate; toes short, slender, margined, the outer two connected by a basal web; hind toe extremely small; claws short, arched, compressed, slender, obtuse. Wings long, rounded; inner secondaries tapering and much elongated; tail rather broad, rounded or even.

1. *Vanellus cristatus*. *Crested Lapwing*. A recurved occipital crest of linear feathers; upper parts green, lower white; fore part of neck black; tail white, with a broad black band.

GENUS V. STREPSILAS. TURNSTONE.

Bill a little shorter than the head, slightly bent upwards

beyond the middle, compressed until towards the end, the tip depressed and blunted; gape-line very slightly recurvate; nasal groove half the length of the bill; nostrils linear, sub-basal, pervious. Legs of moderate length, slender; tarsus anteriorly scutellate; toes of moderate length, slightly webbed at the base; hind toe very small; claws short, compressed, arched, obtuse. Wings long, narrow, pointed; inner secondaries greatly elongated, and tapering; tail rather short, somewhat rounded.

1. *Streptilas Interpres*. *Collared Turnstone*. In winter, the middle of the back and the lower parts white; the fore neck black; the upper parts blackish-brown. In summer, the upper parts variegated with black and brownish-red.

GENUS VI. HÆMATOPUS. OYSTER-CATCHER.

Bill long, slightly bent upwards beyond the middle, pentagonal at the base, where it is covered by a soft skin, which extends nearly half its length, beyond which it is extremely compressed, in the form of a thin blade, abrupt at the end; gape-line slightly ascending beyond the middle; nasal sinuses long; nostrils linear, sub-basal. Legs long, and stout; tarsus compressed, covered with hexagonal scales; toes three, short, spreading, broadly margined, webbed at the base; claws very small, narrow, obtuse. Wings long, acute; inner secondaries tapering and very elongated; tail rather short, nearly even.

1. *Hæmatopus Ostralegus*, *Pied Oyster-catcher*. Bill vermilion; feet pale purplish-red; plumage black and white.

ÆDICNEMUS. THICK-KNEE.

THE birds which constitute this genus have the appearance of large Plovers, but are at once distinguishable from the species of the genera *Pluvialis* and *Charadrius*, by the greater size of the bill, and especially by the extent to which it opens. In one species that organ is so large as to give the bird somewhat of the appearance of a Heron. This extension of the gape-line might induce us to suspect that the *Ædicnemi* belong to the family of *Otinæ*, but in other respects their bill more closely resembles that of the *Pluvialinæ*. The genus in fact forms the transition from the one family to the other, and has been referred by authors to both. The body is ovate and rather full; the neck rather long; the head rather large, compressed, and much rounded above.

Bill generally longer than the head, stout, straight, about the same height and breadth at the base, compressed in the rest of its extent, and pointed; upper mandible with the dorsal line straight to near the end, when it is gently deflected, the ridge prominent, convex, generally narrowed, the nasal sinus large, covered with a bare membrane, the sides sloping and little convex, unless toward the basal margin, the edges inflected, the tip rather acute; lower mandible with the angle rather long and of moderate width, the lower outline of the crura straight or a little deflected, the dorsal line ascending and somewhat convex, the edges inflected, the tip acute; the gape-line commencing under the eyes, at first ascending, then straight, or slightly recurvate.

Nostrils sub-basal or medial, linear, direct, at the lower edge of the nasal membrane. Eyes large, with the eyelids partially bare. Aperture of ear large. Legs long and rather

slender ; tibia bare for two-thirds, and reticulate ; the tibio-tarsal joint large ; tarsus compressed, reticulate with hexagonal scales ; toes three, short, scutellate, the outer much longer than the inner, and connected with the third by a basal web. Claws small, slightly arched, compressed, rather acute, the inner edge of that of the middle toe a little dilated.

Plumage ordinary, close, rather blended ; feathers ovato-oblong on the upper parts, small and oblong on the head and neck. Wings long and pointed, of twenty-five quills ; the primaries tapering, the second longest, the first a little shorter than the third ; the inner secondaries elongated. Tail graduated, of twelve broad, rounded feathers.

The species of this genus belong to the Old Continent and New Holland. Although the bill of *Œdicnemus longirostris* is so much larger than that of *Œdicnemus crepitans*, and the colours of the plumage are very different, it is not apparently expedient to separate these species ; and therefore I have had an eye upon it in drawing up the above generic character. The *Œdicnemi*, it would appear, frequent arid wastes and dry pastures and heaths ; feed on insects, reptiles, and even small mammalia, probably also on vegetable substances, especially bulbous roots. One species occurs in many parts of Europe, and visits the eastern parts of England in summer.

ŒDICNEMUS CREPITANS. THE STONE THICK-KNEE.

GREAT PLOVER. COMMON THICK-KNEE. NORFOLK PLOVER. STONE PLOVER.
STONE CURLEW. THICK-KNEED BUSTARD.

Bill yellow at the base, black at the end; feet yellow, claws brown; plumage of the upper parts light yellowish-red tinged with grey, longitudinally streaked with blackish-brown; anterior smaller wing-coverts cream-coloured; tips of secondary quills white; primaries black, the outer two with a large white patch about the middle; tail-feathers variegated, except the two middle tipped with black; a band over the eye, loreal space, and an elongated band under the eye, whitish, then a light brown band streaked with dusky; fore part and sides of neck and breast light yellowish-red streaked with dusky; throat, middle of the breast, and abdomen white, lower tail-coverts yellowish-white.

Charadrius Œdicnemus. Linn. Syst. Nat. I. 255.

Otis Œdicnemus. Lath. Ind. Ornith. II. 661.

Thick-kneed Bustard. Mont. Ornith. Dict.

Œdieneme criard. Œdicnemus crepitans. Temm. Man. d'Ornith. II. 523.

Oidienemus crepitans. Common Thick-knee. Flem. Brit. Anim. 114.

Common Thick-knee. Œdicnemus crepitans. Selby, Illustr. Brit. Ornith. I. 250.

Œdicnemus crepitans. Common Thick-knee. Jenyns, Brit. Vert. Anim. 177.

Œdicnemus crepitans. Bonap. Comp. List, 45.

MALE IN SUMMER.—This bird, which is about the size of the Whimbrel, but proportionally stouter, has the body rather full, the neck of moderate length, the head rather large,

compressed, and much rounded above. The bill is much shorter than the head, stout, straight, as broad as high at the base, compressed toward the end, pointed; the upper mandible with the dorsal line straight, for half its length, then gently deflected, the ridge convex, gradually narrowed, the sides convex, the edges sharp and inflected, the tip rather acute; the nasal sinus large and covered with a bare membrane; the lower mandible with the outline of the crura straight, a little deflected toward their junction, the dorsal line ascending and somewhat convex, the edges inflected, the tip acute.

The nostrils medial, linear, in the lower edge of the membrane. The eyes large, as is the aperture of the ears. The legs are long and slender; the tibia bare for a third of its length, and reticulate; the tarsus compressed, covered with hexagonal scales; the toes short, scutellate, the middle toe with twenty-five scutella, the outer much longer than the inner, and connected with the third by a basal membrane, which margins both nearly to the end. The claws are small, compressed, slightly arched, rather acute.

The plumage is moderately full, soft, blended, on the upper parts rather compact; the feathers of the head and neck small, ovato-oblong, of the other parts broad and rounded. The wings are long and broad, of twenty-five quills; the primaries tapering, the second longest, and exceeding the first by a quarter of an inch; the inner secondaries elongated. The tail is rather short, much rounded or graduated, of twelve broad, rounded feathers.

The bill from the base to the middle is greenish-yellow, to the end black. The iris yellow, the bare space around and behind the eye greenish-yellow. The feet are yellow, the claws blackish-brown. The upper part of the head and the hind neck are light yellowish-brown, streaked with black. On the back and wings, the feathers are light brownish-yellow, each with a medial brownish-black streak. The primary quills are black, the first and second with a large white patch beyond the middle; the secondary coverts terminally margined with yellowish-white; the smaller coverts at the anterior edge of the humerus brownish-white. The tail-

feathers mottled with brown and pale reddish-yellow, with more or less white toward the end, and the tips black, unless on the two middle feathers. The loreal space, and a band below the eye, white; below this band is another of brownish-red, finely streaked with dusky; the throat white, the fore part and sides of the neck light reddish-yellow, streaked with dusky, as are the sides and part of the breast; the rest of the lower parts white, with slender streaks; the feathers under the tail yellowish-white.

Length to end of tail $17\frac{1}{2}$; extent of wings 29; wing from flexure $9\frac{1}{2}$; tail $3\frac{3}{4}$; bill along the ridge $1\frac{4}{12}$, along the edge of lower mandible $1\frac{1}{12}$; bare part of tibia 1; tarsus $3\frac{1}{12}$; inner toe $\frac{1}{12}$, its claw $\frac{2}{12}$; middle toe $1\frac{2}{12}$, its claw $\frac{3}{12}$; outer toe 1, its claw $\frac{2}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—The Stone Thick-knee, which has an extended geographical distribution, having been found in various parts of Africa, Asia, and the southern countries of Europe, where it appears to be in part stationary, visits the middle and western districts of the latter continent annually, and appears in England about the beginning of April, sometimes later, but occasionally much earlier. In Britain it does not spread to so great an extent as might be expected from its wide range, but is principally confined to the southern and eastern counties of England, and is said to be especially abundant in Norfolk, on which account one of its most popular names is that of Norfolk Plover. To the northward it has not been observed beyond Yorkshire, and I am not aware of its having been met with in any part of Scotland even as a straggler, although both the Bustards have been seen there. It is not quite a stranger to Ireland, however, as is shewn by Mr. Thompson, in his very interesting work on the Birds of that country. Its mode of life resembles that of the birds just named, as well as of the larger Plovers, insomuch that it has by some been considered a Bustard, and by others a Plover. It frequents waste lands, commons, rabbit-warrens, heaths, and large cultivated fields, keeping at first in small

flocks, which soon separate, when the different pairs make arrangements for the increase of the tribe. The nest is a slight hollow in an exposed place, on the bare ground or turf, or among gravel or pebbles. The eggs, generally two, are ovate, two inches in length, an inch and a half in breadth, greyish-yellow, or pale greyish-brown, spotted, dotted, and streaked with dark-brown and purplish-grey. In form and colour they more nearly resemble those of the Oyster-catcher than of any other British bird. The young, covered with greyish down clouded with brown, run immediately after birth, and conceal themselves by sitting close on the ground.

This bird is shy and suspicious, seldom allowing one to approach within shooting distance. It runs with great rapidity, and has a strong, quick flight, performed by regular beats of its expanded wings. Its cry is a loud clear whistle, somewhat like that of the Golden Plover, and may often be heard at night by those intruding on its haunts. The great size of its eyes seems to adapt it for seeking its food in the dusk and by moonlight, in which respect it resembles the plovers. Insects of various kinds, especially coleoptera, snails, slugs, and worms, are the objects on which it principally subsists; but it is said also to devour reptiles and small quadrupeds. After the breeding season, they collect into small flocks, and in the end of October take their departure.

Mr. Salmon, in his Notice respecting the arrival of Migratory Birds in the neighbourhood of Thetford in Norfolk, (*Mag. of Nat. Hist.* vol. ix. p. 520), gives the following account of the present species:—"The Norfolk Plover, *Ædicnemus crepitans* Temm., is very numerous distributed over all our warrens and fallow lands, during the breeding season, which commences about the second week in April; the female depositing her pair of eggs upon the bare ground, without any nest whatever. It is generally supposed that the males take no part in the labour of incubation: this, I suspect, is not the case. Wishing to procure for a friend a few specimens in their breeding plumage, I employed a boy to take them for me. This he did by ensnaring them on the nest; and the result was, that all those he caught during the day proved, upon dissection, to be males. They assemble

in flocks previously to their departure, which is usually by the end of October; but, should the weather continue open, a few will remain to a much later period. I started one as late as the 9th of December, in the winter of 1834."

The following account of the habits of this bird, as observed in France, will serve to render its history somewhat complete:—"The Great Plover, commonly called the Land Curlew, is the bird that is heard in the country, in the evening, in summer and the beginning of autumn, and which seems incessantly to repeat the word *courlis*, or rather *tarlui*, beginning its cries at sunset, and continuing them all night. This bird is of the Plover genus, and has no other relation to the Curlews than the cry which it utters, and which has obtained for it the name of Land Curlew. This large plover is of the size of a chicken that has attained half its growth, and measures sixteen inches in length, twenty-six inches and a half in extent of wings. The Land Curlews or Great Plovers arrive pretty early in spring. They settle on the dry grounds, filled with stones, among fallows and stubbles, preferring low hills and sloping fields. Crickets, grasshoppers, and other insects form part of their food. During the day these birds keep themselves concealed and couched on the ground; but at sunset they put themselves in action, and are then heard to commence their cries, which they do not cease to repeat during the fine summer nights. When surprised they run with extreme speed; their flight is low, and not very long; they are very wild birds, not easily made up to. The female lays two, or at most three eggs, in the midst of pebbles or gravel, in some depression of the ground, or some hollow which these birds have formed by scraping. It is said that they sometimes have two broods in the year, that incubation continues for a month, and that the growth of the feathers is slow in the young. In fact they are nearly full-grown before they can fly, their wing-feathers not having yet sprouted; but they run in this state with great lightness; and at this age appear as stupid as timid. In November the Land Curlews set out on their journey to warmer climates, and it appears that even in summer they do not advance far northward. As an article

of food, their flesh is held in moderate estimation.”—*Valmont Bomare*.

YOUNG.—According to M. Temminck, “the young have the colours less decided, and are distinguished at once by the very enlarged form of the upper part of the tarsus, and the great size of the joint which corresponds to the knee in quadrupeds. This form of the tarsus is peculiar to the young of the year of all the species of birds that have long slender legs, but is particularly remarkable in the young Œdicnemes.”

REMARKS.—What M. Temminck considers to be the knee is, correctly speaking, the ancle. The generic name Thick-knee is therefore erroneous; but as Thick-acle, the true name, sounds strangely, and is more applicable to a Pelican or Penguin, I must leave matters in this respect as I have found them.

PLUVIALIS. PLOVER.

It having been considered necessary to break up the Linnæan genus *Charadrius*, which, constituted as it was, would now contain a vast number of species, differing in many respects from each other, almost every succeeding author who has treated of the group has proposed an arrangement of his own. To explain all the variations thus introduced, would be to enter into details probably not intelligible to every reader. I shall therefore confine myself to a few remarks. If we take our common Golden Plover, *Charadrius Pluvialis* of Linnæus, as typical, and place around it the species which are most nearly allied, we should first select *Charadrius marmoratus* of Wagler, and, with little less hesitation, *Tringa helvetica* of Linnæus, which, although having a stouter bill, and a mockery of a hind toe, is extremely similar. These birds have the bill nearly as long as the head, the wings acuminate, the tail short and nearly even, the plumage mottled, and the feet rather long. *Charadrius Morinellus*, which comes very near to them, differs in having the inner secondaries more elongated, and the plumage coloured in masses, bands, and streaks. *Charadrius Hiaticula*, *semipalmatus*, *melodus*, *Cantianus*, *minor*, and *Wilsonii*, form a group very intimately allied in form and colouring, smaller than the Golden Plover, with shorter neck and legs, and longer and more rounded tail. One has the bill slender and but half the length of the head, in another it is very stout, and as long as the head; the tail in one is short, in another long, and in a third intermediate. If we take such characters as distinctive of genera, we shall scarcely find three species agreeing together. Then come birds similar in form to a great extent, but yet differing, some having membranous wattles at the base of the bill, one with a bill as

stout as a Heron's, another with long spurs on its wings, some with scutella on the tarsus, and some with scales only, some with four toes even, the wings and tail also varying. Now, we cannot reasonably group all these birds into a single genus, as Wagler has done; nor, on the other hand, can we take very minute characters of which to form genera, otherwise, in most cases, each species will constitute a genus. But, acting upon the principle of associating species evidently related, so as to form groups of moderate extent, and capable of being intelligibly defined, we may, taking the first species described by Linnæus, *Charadrius Hiaticula*, and adding to it all those allied in form, colours, and habits, constitute a genus, to which some give the name *Ægialites*, proposed by Brehm, others *Hiaticula*. Those larger species, with mottled or streaked plumage, somewhat longer legs and neck, including the Golden Plover, may form a genus to which we might leave the Linnæan name *Charadrius*, though we should prefer that of *Pluvialis*, employed by Brisson, Ray, and many other writers. The still larger birds with longer and stouter legs, broader wings, rounder heads, and stronger bills, have by most recent authors been referred to the genus *Œdicnemus*.

The Plovers, thus restricted, form a genus of moderate extent, and of which three species occur in Britain. They are all of rather small size, with the body ovate and rather full; the neck of moderate length; the head rather small, roundish, somewhat compressed, and much rounded above.

Bill nearly as long as the head, straight, rather slender, compressed; upper mandible with the dorsal line straight and slightly declinate for two-thirds of its length, then bulging a little, or arcuate to the end, the nasal groove long and rather wide, the edges slightly inflected, the tip narrow, but rather obtuse; lower mandible with the angle rather long and narrow, the dorsal line ascending and slightly convex, the sides concave at the base, convex toward the end, the edges inflected, the tip narrow, but rather blunt; the gape-line straight. Mouth very narrow, as is the palate, on which are two longitudinal ridges, and anteriorly a double series of large papillæ. Tongue rather long, very narrow,

emarginate and papillate at the base, deeply channelled above, sub-trigonal, pointed. Œsophagus narrow, without dilatation; proventriculus small, with a belt of oblong glandules. Stomach a rather large muscular gizzard, of an elliptical compressed form, with strong lateral muscles, radiated tendons, and dense longitudinally rugous epithelium. Intestine long, and narrow; cœca small, cylindrical, and very narrow.

Nostrils small, linear, pervious, sub-basal, near the margin. Eyes large and full; both eyelids densely feathered. Aperture of ear rather large, roundish. Feet of moderate length, very slender; the tibia long, bare for nearly a fourth; tarsus of ordinary length, anteriorly and laterally covered with numerous hexagonal scales. Toes rather short and slender, three before, in one instance a rudimentary hind toe, the third and fourth connected at the base by a web, all margined and with numerous narrow scutella. Claws rather short, compressed, slightly arched, slender, obtuse.

Plumage ordinary, close, rather blended; feathers oblong. Wings long and pointed, of twenty-five quills; the primaries tapering, the first longest, the rest rapidly diminishing; the outer secondaries short, incurved, and obliquely rounded, the inner tapering and much elongated. Tail straight, slightly arched at the base, rather broad, nearly even, of twelve feathers, of which the two middle are somewhat pointed.

The species of this genus are very widely distributed, and one of them is common to both continents. They form large flocks after the breeding season, and generally betake themselves in cold weather to the shores of the sea or their vicinity. They run with celerity, have a rapid flight, and emit a loud shrill whistle, sometimes modulated. Their food consists of coleopterous and other insects, worms, mollusca, small crustacea, and sometimes berries. The nest is a slight hollow in the ground; the eggs four, pyriform, extremely large, and spotted or clouded. The young run about immediately after birth, and conceal themselves by squatting. The flesh of these birds is excellent, and their eggs delicious. One species is very common in Britain, another breeds there in small numbers, and the third is a winter visitant.

PLUVIALIS SQUATAROLA. THE GREY PLOVER.

BLACK-BELLIED PLOVER. GREY SANDPIPER. BULL-HEAD.

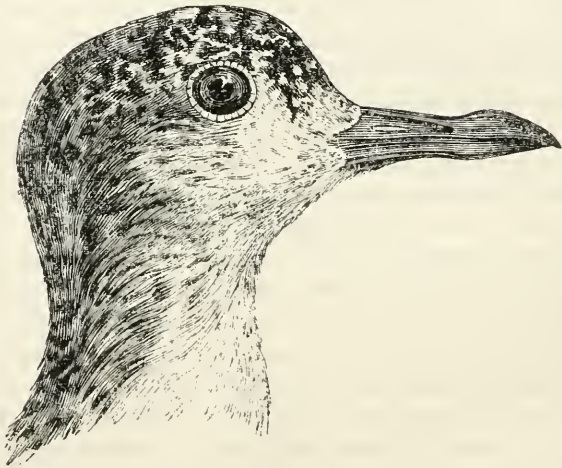


FIG. 9.

- Tringa Squatarola. Linn. Syst. Nat. I. 252. Adult in winter.
 Tringa helvetica. Linn. Syst. Nat. I. 250. Adult in summer.
 Tringa Squatarola. Lath. Ind. Ornith. II. 729. Adult in winter.
 Tringa helvetica. Lath. Ind. Ornith. II. 718. Adult in summer.
 Grey Sandpiper. Mont. Ornith. Dict.
 Vanneau Pluvier. Vanellus melanogaster. Temm. Man. d'Ornith. II. 547.
 Squatarola cinerea. Flem. Brit. Anim. 111.
 Bastard or Grey Plover. Squatarola cinerea. Scib. Illust. Brit. Ornith.
 II. 227.
 Vanellus griseus. Gray Plover. Jen. Brit. Vert. Anim. 181.
 Squatarola Helvetica. Bonap. Comp. List, 46.

Bill rather stout, nearly as long as the head; a very diminutive hind toe. In winter, the upper parts blackish-grey, spotted with white; the cheeks, neck, breast, and sides

greyish-white, streaked with greyish-brown; the axillar feathers greyish-black. In summer, the upper parts black, spotted with white; the fore-neck, breast, and sides black; the forehead, a line over the eye, the abdomen, and legs white. Young dusky-grey above, spotted with white and yellow, greyish-white beneath, the fore-neck and sides streaked with brownish-grey.

MALE IN WINTER.—The similarity of the Grey and Golden Plovers is not less striking than that of the Golden Plover and the exotic species named *marmorata*. The Grey is considerably larger than the Golden, but has the same proportions, is coloured in the same manner, and undergoes the same seasonal changes. It has a stouter bill, however, and is furnished with an insignificant hind toe. These trifling differences some have held sufficient to constitute a genus, which they have named *Squatarola*, while others, overlooking the differently formed wing, have referred it to the genus *Vanellus*. The body is ovate and moderately full; the head of ordinary size, roundish, somewhat compressed, with the forehead rounded. The bill is almost as long as the head, straight, compressed, rather stout; the upper mandible with the dorsal line straight and slightly declinate for more than half its length, then convex, the ridge convex, the nasal groove extending beyond the middle, the edges sharp and direct, the tip narrow but obtuse; the lower mandible with the angle narrow, the outline of the crura slightly concave, the dorsal line ascending and slightly convex, the edges sharp and direct, involute toward the tip, which is rather acute; the gape-line straight.

The mouth narrow; the palate with a double row of papillæ anteriorly. The tongue is an inch in length, slender, emarginate and papillate at the base, grooved above, tapering to a thin horny point. The œsophagus is five inches and a quarter in length, about half-an-inch in width; the proventriculus eight-twelfths broad, its glandules oblong, forming a belt eight-twelfths in breadth. The stomach is a strong gizzard, of an irregular roundish form, an inch and a quarter in breadth, with thick lateral muscles, large radiating ten-

dons, and dense, thin, longitudinally rugous epithelium. The intestine is twenty-eight inches in length, from three-twelfths to two-twelfths in width; the cœca two inches and a quarter in length, their greatest width two-twelfths; the rectum two inches and a half in length.

The nostrils are linear-oblong, narrower before, three-twelfths of an inch long. The eyes large, their aperture three and a half twelfths in diameter. That of the ear three-twelfths. The feet are of moderate length, slender; the tibia bare for three-fourths of an inch; the tarsus roundish, covered with hexagonal scales, and thus differing from that of the Lapwings. There is an exceedingly diminutive hind toe, with five scutella, and a minute claw. The fore toes are connected by membranes of considerable extent, the outer extending as far as the second joint; the inner toe a little shorter than the outer, and with sixteen scutella, the middle toe with thirty, the fourth with twenty-six. The claws are small, slightly arched, slender, and rather acute; that of the hind toe more curved, and so small as scarcely to be observed.

The plumage is close, soft, blended, and slightly glossed; the feathers broad and rounded. The wings are long and pointed, with twenty-six quills; the primaries tapering and narrow, the first longest, the second little shorter, the rest rapidly decreasing; the outer secondaries short, broad, obliquely rounded, and incurved, the inner elongated and tapering. The tail is rather short, and slightly rounded, of twelve rounded feathers.

The bill is black; the iris dusky; the feet greyish-black. The upper parts are blackish-grey, variegated with very numerous white spots, arranged along the margins of the feathers, those on the rump tinged with yellow. The upper tail-coverts are white, with some dusky bars towards the end; and the tail is barred with dusky and white, the greater part of the inner webs of the four lateral feathers being of the latter colour. The primary quills and their coverts are chocolate-brown, slightly margined at the end, and internally, with greyish-white; the shafts of the primaries white toward the end; the outer secondaries similar, white at the base, that colour enlarging inwards; the elongated inner

secondaries like the feathers of the back. The sides of the head, the neck all round, the breast and sides of the body greyish-white, streaked with brownish-grey; the abdomen, lower tail-coverts, and tibial feathers white. The lower wing-coverts are also white, the larger greyish-white; but the axillar are greyish-black.

Length to end of tail $11\frac{1}{2}$ inches; extent of wings 25; wing from flexure $7\frac{9}{12}$; tail $3\frac{1}{2}$; bill along the ridge $1\frac{4}{12}$, along the edge of lower mandible $1\frac{1}{4}$; bare part of tibia $\frac{3}{4}$; tarsus $1\frac{1}{2}$; first toe $\frac{2}{12}$, its claw $\frac{1}{8}$; second toe $\frac{1}{12}$, its claw $\frac{3}{12}$; third toe $1\frac{2}{12}$, its claw $\frac{1}{12}$; fourth toe $\frac{1}{12}$, its claw $\frac{3}{12}$.

FEMALE IN WINTER.—The female is similar to the male, but smaller.

Length to end of tail $11\frac{1}{2}$ inches; extent of wings $23\frac{3}{4}$; wing from flexure $7\frac{4}{10}$; tail $3\frac{4}{10}$; bill along the ridge $1\frac{2}{12}$, along the edge of lower mandible $1\frac{3}{10}$; tarsus $1\frac{3}{12}$; middle toe and claw $1\frac{4}{12}$.

VARIATIONS.—Individuals vary considerably in size, and more especially in the thickness of the bill, which is sometimes very remarkable. Many of the spots on the back and wings are often yellow, of as bright a tint as in the Golden Plover.

CHANGES OF PLUMAGE.—In spring a partial moult takes place, in consequence of which the lower parts become black. The general moult happens in autumn, and is not completed until November.

MALE IN SUMMER.—Not having met with a specimen killed in Britain in its complete summer plumage, I have recourse to one shot at "Igloodik, 23rd June, 1823." The bill and feet are black. The upper part of the head, the occiput, and the back part of the neck above, are ash-grey, mottled with pale brown. The lower part of the neck, the back, the scapulars, and the wing-coverts, are transversely spotted with white and brownish-black, with irregular patches

of pale yellowish-brown, the end of all the feathers white, and the middle generally dark. The primaries are liver-brown, the shafts more or less white, all except the outer four marked with white on the middle and outer webs towards the base; the inner webs of all white, unless toward the end. The secondaries are brownish-grey, tipped with white; the inner pale yellowish-brown, with alternate spots of white and black along the edge. The upper tail-coverts are white, with a few brown marks. The tail-feathers barred with white and dark brown, the latter diminishing laterally, so that the extreme feathers are nearly white. The forehead and a line extending from thence along the side of the neck and breast, to the axillaries, white. The lower surface of the wings, the tibiae, the abdomen, and the lower tail-coverts, pure white; the immediate tail-coverts with a few brown spots near the tips. The rest of the lower surface, that is, the throat, neck, breast, axillaries, and anterior part of the abdomen, brownish-black.

Length to end of tail 12 inches; bill along the ridge $1\frac{1}{4}$; tarsus $1\frac{7}{8}$; middle toe $1\frac{2}{8}$, its claw $1\frac{4}{2}$.

FEMALE IN SUMMER.—The female has the colours lighter. There is more pale yellowish-brown on the upper surface, less brownish-black; the ends of the feathers, instead of being white, are ash-grey; the lateral white line along the neck is sprinkled with brown; the throat is mixed with white; the brownish-black of the breast is lighter, and mixed with white; the axillaries only being as dark as in the male.

Length to end of tail $11\frac{1}{4}$ inches; bill $1\frac{1}{3}$; tarsus $1\frac{6}{8}$; middle toe $1\frac{2}{8}$.

HABITS.—The Grey Plover, which is pretty generally distributed on the Continent of Europe, and is plentiful in some parts of North America, seems to be with us merely an annual visitor, appearing in small flocks in autumn and spring, chiefly along the coast, where it frequents the muddy and sandy beaches, which it searches in the manner of the Golden Plover and Ringed Sand Plover, for worms, insects, and small marine animals. Many individuals remain all

winter with us. Thus I have obtained specimens in December and January, as well as in spring. In that season, however, it seems to be more numerous in England than in Scotland, although nowhere common. Mr. Yarrell says he has "occasionally obtained a specimen in the London market in the full black plumage at the end of May;" Mr. Selby, too, has sometimes met with one or two on the Fern Islands in June, but could never detect any of their young; and Dr. Fleming says he has "reason to believe that it breeds in the high grounds of the Mearns." I have not been able to find any evidence of its breeding there, or in any part of Aberdeenshire; though it visits the coasts of the latter county in autumn.

From the polar regions it extends to Japan, and even to New Guinea and Java. It has been found in Bengal and at the Cape of Good Hope, as well as in Egypt, Italy, Spain, France, Holland, Germany, and Russia. It is remarkable that the individuals which reside in the warmer climates appear to retain the same colours in summer as in winter. M. Temminck says, "those which come from the Isles of Sunda and New Guinea are generally much smaller, and, although received in great number and killed at different periods of the year, there has not come to us a single individual clothed in the beautiful summer plumage; all bearing the winter livery, precisely similar to that of our individuals killed in Europe." Perhaps these small-sized individuals may be of a distinct species, those analogous supposed individuals of the Golden Plover having been found to be specifically different. I have a specimen of the Grey Plover in winter plumage from Bengal, but it is fully equal to our northern individuals. In America, the species is also widely dispersed. Dr. Richardson remarks that "it breeds in open grounds from Pennsylvania to the northern extremity of the continent;" Mr. Audubon, who traced it from the Gulf of Mexico to Labrador, states that in winter most of the migrating individuals pass southward beyond the limits of the United States; but that some spend the summer months in the mountainous parts of Maryland, Pennsylvania, and Connecticut, where they breed. "The nest is merely a slight

hollow, with a few blades of grass. The eggs are four, an inch and seven-and-a-half-eighths in length, an inch and three-eighths in their greatest breadth; their ground colour yellowish-white, tinged with olivaceous, and pretty generally covered with blotches and dots of light brown and pale purple, the markings being more abundant toward the small end. When sitting these birds will remain until they are almost trodden upon. On being started, they fly off a few yards, alight running, and use all the artifices employed on such occasions to induce the intruder to set out in pursuit. The young leave the nest almost immediately after they are hatched, and when two or three weeks old, run with great celerity, and squat in perfect silence when apprehensive of danger. When they are able to fly, several families unite, and betake themselves to the sea-shore, where other flocks gradually arrive, until, at length, on the approach of cold weather, almost all of them begin to move southward. In their habits they are more maritime than the Golden Plovers, which, when migrating, generally advance over the land. The flight of this bird is swift, strong, and well sustained. When roaming over large sand-bars, they move in compact bodies, whirling round, and suddenly veering, so as alternately to exhibit their upper and lower parts. At this time old and young are intermixed, and many of the former have lost the black so conspicuous on the neck and breast in summer. During winter, or as long as they frequent the sea-shore, they feed on marine insects, worms, and small shell-fish; and when they are in the interior, on grasshoppers and other insects, as well as berries of various kinds, on which they fatten so as to become tolerably good eating. This species is known in Pennsylvania by the name of Whistling Field Plover, suggested by the loud and modulated cries which it emits during the love season."

YOUNG.—When about a week old, Mr. Audubon has represented the young as having the bill and feet dull greenish-brown; the iris brown; the general colour of the downy covering pale brownish-yellow, mottled with dusky; a whitish ring round the eye; the tail with a black band,

the rump whitish, the primary quills dusky, the outer edges of the secondaries whitish. When fledged, he says the bill is greyish-black, the feet bluish-grey; the upper parts brownish-black, spotted with white, some of the spots yellow; the wings and tail as in the adult, but the latter tinged with grey, and having eight dark bars on all the feathers; the fore part and sides of the neck, and the sides of the body, greyish-white, mottled with brownish-grey; the axillary feathers brownish-black; the rest of the lower parts white.

REMARKS.—By more recent writers this bird is variously named *Squatarola cinerea*, *Squatarola grisea*, *Vanellus melanogaster*, and *Vanellus griseus*. But *Squatarola*, being a barbarous name, is scarcely admissible. Moreover the bird is a Plover, in despite of its rudimentary hind toe. As to *Vanellus*, it can be referred to that genus only by those who consider a hind toe as its most essential characteristic, and overlook the reticulation of the tarsus, and the different form of the wing. In naming it *Pluvialis Squatarola* I have invented nothing, the former being the old generic name applied to the group to which it belongs, and the latter being the specific appellation used by Linnæus and others. Literally translated, *Pluvialis* is Plover, and thus the nomenclature is so far perfect. Is it not strange that they who make it a *Squatarola* in mongrel Latin, should call it a Plover in plain English, thus giving it the same generic name that they apply to birds of what they tell us is quite a different genus?

In another individual, a male, examined in Edinburgh, in January, 1841, the measurement of the digestive organs were as follows:—Tongue ten-twelfths long; œsophagus four inches and a half; belt of glandules ten-twelfths; stomach an inch and five-twelfths long, an inch and two-twelfths in breadth; intestine two feet eleven inches in length; cœca three inches and a quarter; rectum two inches. The stomach was moderately distended with slender blades of green *ulvæ*, among which were a few small univalve shells and some bits of quartz.

PLUVIALIS AUREA. THE GOLDEN PLOVER.

YELLOW PLOVER. WHISTLING PLOVER, GREY PLOVER. FEADAG.

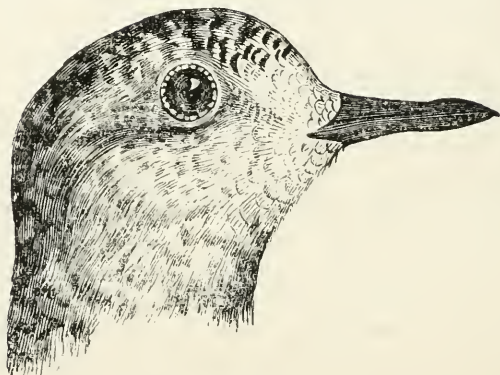


FIG. 10.

- Charadrius Pluvialis. Linn. Syst. Nat. I. 254.
 Charadrius apicarius. Linn. Syst. Nat. I. 254.
 Charadrius Pluvialis. Lath. Ind. Orn. II. 740. Adult in winter.
 Charadrius apicarius. Lath. Ind. Orn. II. 742. Adult in summer.
 Golden Plover. Mont. Ornith. Dict.
 Pluvier doré. Charadrius Pluvialis. Temm. Man. d'Orn. II. 535.
 Charadrius Pluvialis. Green Plover. Flem. Brit. Anim. 113.
 Golden Plover. Charadrius Pluvialis. Selb. Illustr. Brit. Ornith. II. 231.
 Charadrius pluvialis. Golden Plover. Jen. Brit. Vert. An. 177.
 Charadrius Pluvialis. Bonap. Comp. List, 45.

In winter, the upper parts brownish-black, spotted with yellow, the cheeks, neck, and fore part of the breast greyish, variegated with brown; the throat and abdomen white, as are the axillar feathers. In summer, the upper parts black, spotted with bright yellow; the fore neck and breast black; the forehead, a line over the eye, a band bordering the back of the lower parts, and the lower tail-coverts white.

MALE.— The Golden Plover is one of the most beautiful and probably the best known species of its family. In size it is inferior to the Lapwing, which it resembles in form, its body being ovate and rather full, its head of moderate size, oblong, somewhat compressed, the forehead rounded. The bill is shorter than the head, straight, compressed; the upper mandible with the dorsal line straight and slightly declinate for two-thirds of its length, then convex, the sides sloping at the base, convex towards the end, the edges soft and inclinate, the tip narrow and rather blunt; the lower mandible with the angle narrow, the dorsal line ascending and slightly convex, the tip rather acute. The nasal groove is bare, and extends along two-thirds of the length of the mandible.

The nostrils are linear, pervious, sub-basal, three-twelfths of an inch long. The eyes are large, their aperture four-and-a-half-twelfths in diameter. That of the ear of moderate size, being three-twelfths across. The feet are of moderate length, slender; the tibia bare for about half-an-inch; the tarsus of moderate length, rather compressed, covered all round with hexagonal scales; the inner toe considerably shorter than the outer, with eighteen scutella; the middle toe with twenty-five; the outer with twenty. The claws are small, slightly arched, compressed, slender, obtuse.

The plumage is soft, blended, slightly glossed; the feathers generally oblong and obtuse. The wings are long and pointed; the quills twenty-six; the primaries tapering, the first longest, the second a little shorter, the rest rapidly graduated; the outer secondaries are short, broad, obliquely rounded, and inflected, the inner elongated and tapering. The tail is rather short, and slightly rounded.

The bill is black; the iris brown; the feet bluish-grey. The upper parts are brownish-black, variegated with very numerous yellow spots arranged along the margins of the feathers. The upper tail-coverts are barred with brown and yellow; the tail-feathers greyish-brown, barred with yellowish-white, the inner webs of the four lateral but faintly barred. The wings are chocolate-brown, the smaller coverts, secondary coverts, and inner secondaries spotted like the back; the primary coverts, primaries and outer secondaries plain,

slightly tipped and margined with greyish-white, and the shafts of the primaries white toward the end. The sides of the head, the neck all round, breast and sides of the body are light grey, spotted and streaked with brownish-grey; the throat, abdomen, and axillar feathers white.

Length to end of tail $10\frac{3}{4}$ inches; extent of wings $22\frac{1}{4}$; wing from flexure $7\frac{1}{4}$; tail $3\frac{1}{2}$; bill along the ridge 1, along the edge of lower mandible $1\frac{2}{2}$; tarsus $1\frac{8}{2}$; inner toe $\frac{1}{2}$, its claw $\frac{4}{2}$; middle toe $1\frac{2}{2}$, its claw $\frac{6}{2}$; outer toe $\frac{1}{2}$, its claw $\frac{4}{2}$.

FEMALE.—The female is precisely similar to the male, and is very little inferior in size.

Length to end of tail $10\frac{1}{2}$ inches; extent of wings 22; wing from flexure $7\frac{1}{2}$; tail $3\frac{1}{2}$; bill along the ridge $1\frac{1}{2}$; tarsus $1\frac{7}{2}$; middle toe $1\frac{1}{2}$, its claw $\frac{5}{2}$.

VARIATIONS.—The deviations from the ordinary colouring observable in the winter plumage are generally not very remarkable. Individuals, however, sometimes occur that have the brown and black tints pale, and the yellow nearly white. I have seen one, an adult female, having no yellow spots, all the markings being greyish-white. The late Mr. Carfrae, preserver of animals in Edinburgh, had a very beautiful cream-coloured specimen, faintly spotted with pale yellow. Individuals variously patched with white are also sometimes, though rarely, met with.

CHANGE OF PLUMAGE.—The regular annual moult takes place in September and October, and is generally completed by the beginning of November. The partial moult commences by the middle of February, and is completed by the middle of May. In the outer Hebrides, where, in my youth, I used to shoot a good deal on the moors, I observed that the males had their black livery complete by Whitsunday,—old style.

MALE IN SUMMER.—The upper part of the head, the fore part of the back, and the scapulars, are beautifully variegated

with brownish-black and bright yellow, as in winter; the hind part of the back, the upper tail-coverts, and the tail-feathers, greyish-brown, variegated with paler yellow, the lateral tail-feathers barred with white. The middle of the fore-neck and breast is brownish-black, that colour bordered with white; the sides of the neck and body variegated with greyish-yellow and brown; the forehead, a band over the eye, the chin, the abdomen, white, as are the axillar feathers; the lower wing-coverts light grey; the lower tail-coverts white, with their outer webs and tips banded with brown and yellow.

FEMALE IN SUMMER.—The female differs from the male only in having less black on the lower parts.

HABITS.—Many a time and oft, in the days of my youth, when the cares of life were few, and the spirits expansive, and often too in later years, when I have made a temporary escape to the wilderness, to breathe an atmosphere untainted by the effluvia of cities, and ponder in silence on the wonders of creative power, have I stood on the high moor, and listened to the mellow notes of the Plover, that seemed to come from the grey slopes of the neighbouring hills. Except the soft note of the Ring-Plover, I know none so pleasing from the Grallatorial tribes. Amid the wild scenery of the rugged hills and sedgy valleys, it comes gently and soothingly on the ear, and you feel, without being altogether conscious of its power, that it soothes the troubled mind, as water cools the burning brow. How unlike the shriek of the Heron—but why should we think of it, for it reminds us of the cracked and creaking voice of some village beldame of the Saxon race. The clear gentle tones of the Celtic maiden could not be more pleasant to any one, or perhaps much more welcome to her lover, than the summer note of the Golden Plover to the lover of birds and of nature. As you listen to it, now distant, now nearer, and near, and see the birds with short flights approaching as if to greet you, though in reality with more fear than confidence, with anxiety and apprehension, the bright sunshine that glances on their

jetty breasts is faintly obscured by the white vapours that have crept up from the western valley, and presently all around us is suffused with an opaline light, into the confines of which a bird is dimly seen to advance, then another, and a third. Who could represent the scene on canvas or card?—a hollow hemisphere of white shining mist, on which are depicted two dark human figures, their heads surrounded with a radiant halo, and these black-breasted Golden Plovers, magnified to twice their natural size, and gazing upon us, each from its mossy tuft. It is as if two mortals had a conference on the heath with three celestial messengers—and so they have. Presently a breeze rolls away the mist, and discloses a number of those watchful sentinels, each on his mound of faded moss, and all emitting their mellow cries the moment we offer to advance. They are males, whose mates are brooding over their eggs, or leading their down-clad and toddling chicks among the to them pleasant peat-bogs that intervene between the high banks, clad with luxuriant heath, not yet recovered from the effects of the winter frosts, and little meadows of cotton-grass, white as the snow-wreaths that lie on the distant hill. How prettily they run over the grey moss and lichens, their little feet twinkling, and their full bright and soft eyes gleaming, as they commence their attempts to entice us away from their chosen retreats. In the midst of them alight some tiny things, black-breasted too, with reddish backs and black nebs, and neat pointed wings, which they stretch right up, and then fold by their sides. These are Plovers' Pages, which also have their nests on the moor. The mist rolls slowly away, and is ascending in downy flakes the steep side of the corry, whence comes suddenly on the ear the loud scream of the Curlew,—pleasing too, but to the deer startling. The fewer of these birds on the moors after the 12th of August, the better for the deer-stalker; but that day is far distant. Three harts that lay ruminating among the long heath, half-dosing, and flapping away the flies with their long ears, start on their feet; they stretch their sinewy limbs, and curve up their backs, and, having inspected us, and judged us not trustworthy, they move off at a gentle pace, tossing their antlered heads, and

pursue the retreating mist, in which they will presently vanish from our sight. We have no guns, or pistols, and need none. The lover of birds does not kill all he meets with; though there are those who profess to be in raptures with Ornithology, and estimate their progress in it by the extent of their lists of killed and wounded. But there are all sorts of combinations in human nature, and some naturalists are most murderous, while others are so gentle as to grieve when they have heedlessly trampled on a mushroom. We must now, however, descend from the hill, and essay a plain narrative.

The Golden Plover is generally distributed over Britain in the winter season, when it frequents the open plains and ploughed fields so long as the weather remains mild, but betakes itself to the sea-shore and its vicinity when there is frost. In many parts of Scotland, but especially in the Northern Highlands, and in the Hebrides, it is a very common bird. When the weather begins to improve towards the end of spring, the Plovers may be seen flying over the shores or the fields in their neighbourhood, at a great height, in loose flocks, which now extend into a wide front, now form irregular angular lines, move with a quiet and regular flight, frequently emitting their peculiar soft notes, and at times uttering a singular cry, somewhat resembling the syllables *courlie-wee*. These flocks are leaving their winter haunts, and returning to the inland moors, over which they disperse in pairs.

In the beginning of May, should you traverse one of the dreary heaths, you will often hear the plaintive cry of the Plover, mingling, perhaps, with the feeble cheep of the Dunlin, or the loud scream of the Curlew. Before you have advanced to any considerable distance, there may come up and alight on some mossy knoll beside you, a male, clad in his beautiful summer vesture of black and green. You may approach him within ten paces if you are inclined, and in some districts it would be easy for one to shoot many dozens of them in a day at this season. After incubation has commenced, the females seldom make their appearance on such occasions. Whether the males assist their mates at that

time or not, they certainly do not forsake them. The nest is a slight hollow in a tuft of moss, or on a dry place among the heath, irregularly strewed with fragments of withered plants. The eggs, of which the full number is four, are placed, as usual in this genus, with their small ends together. They are much larger and more pointed than those of the Lapwing, being on an average two inches and one-twelfth in length, and an inch and five-twelfths in their greatest transverse diameter. The shell is thin and smooth, of a light greyish yellow, or pale greenish-yellow, or cream colour, irregularly spotted, dotted, and patched with dark brown, and sometimes having a few light purple spots interspersed, the markings larger toward the broadest part. The young leave the nest immediately after they burst the shell, and conceal themselves by lying flat on the ground. At this period, the female evinces the greatest anxiety for their safety, and will occasionally feign lameness to entice the intruder to pursue her. I have several times seen one fly off to a considerable distance, alight in a conspicuous place, and tumble about as if in the agonies of death, her wings flapping as if they had been fractured or dislocated. The eggs are delicious, and the young birds when fledged not less so.

When the young are able to fly, the Plovers collect into flocks, but remain on the moors until the commencement of winter, when they advance towards the pasture lands, and in severe weather betake themselves to the low grounds near the shores. During continued frosts, they feed on the sands and rocky shores at low water, and in general during the winter remain at no great distance from the sea.

When a flock alights at this season on a field, the individuals disperse, run about with great activity, and pick up their food. Sometimes one finds them so tame that he can approach within fifteen yards, and I have often walked round a flock several times in order to force them together before shooting. In windy weather they often rest by lying flat on the ground, and I have reason to think that at night this is their general practice. In the Hebrides I have often gone to shoot them by moonlight, when they seemed as actively engaged as by day, which was also the case with

the Snipes ; but I seldom succeeded in my object, it being extremely difficult to estimate distances at night. The numbers that at this season frequent the sandy pastures and shores of the outer Hebrides is astonishing.

Although occasionally addicted to wading, the Golden Plover evidently prefers dry ground, in which respect it differs essentially in habits from the Totani and Limosæ. It frequently probes the moist sands, and in summer the cowdung on the moors and upland pastures is seen perforated by its bill. In summer and autumn it lives on worms, larvæ, and insects ; in winter and spring chiefly on marine animals, especially mollusca. It affords very delicate eating, being scarcely inferior to the Woodcock, and is in prime condition in September and October.

When searching for food in the pasture grounds, the Plovers run about in a lively manner, pick up an object, a worm, an insect, or a small helix, then perhaps stand still and look around for a moment, and continue their occupation. If disturbed they cease their pursuit, stand with erected neck, and gaze upon the intruder. One here and there stretches out his wings in a perpendicular direction, another utters a loud mellow scream, when suddenly all fly up, and wheel away, often rising to a great height, and performing various evolutions before they alight again. Their flight is beautiful, being direct, sedate, performed by regularly-timed beats ;—the birds sometimes moving in a loose or a dense body, sometimes in a straight or angular or undulated line.

On the first frosty days it is pleasant to watch their arrival from the moors, and see them disperse over the maritime pastures, where, as they are generally hungry, one may frequently obtain several shots. But it is on the flat shores and banks of the Hebrides, on the sands of Uist and Harris, and the Reef of Berneray, that at this season one may be sure of abundant sport. There thousands are often seen, and there it is said upwards of twenty have been killed at a shot. This is possible enough ; but for my own part, I have been content with three, four, or five at a shot, and the greatest number I ever killed was six. When a flock on

wing is fired at, all the birds come sweeping down toward the ground, in a more or less abrupt curve, and then ascending in a gentler sweep resume their course. Frequently, also, should some of them be killed, the rest will wheel round, and come again within shot.

The Plovers of the Hebrides do not migrate: they merely shift from the moors to the shores and back again. In the mainland districts, they act in the same manner; but their flights are there more extended. On the Plain of Corstorphine, near Edinburgh, vast flocks are often seen in winter, which have come from the interior, and in snowy weather betake themselves to the shore at Cramond. Aberlady Bay is also a favourite place of resort. Vast numbers are seen on various parts of the Solway Frith; and all these birds probably remain during the winter.

In England, however, it would appear that the flocks which occur in the southern counties, in winter, migrate far northward in spring. Mr. Thompson says it "is common in suitable localities throughout Ireland, and is permanently resident." What the "natural enemies" of the Golden Plover are I am unable to say, not having seen any animal but man molest it. The Hooded Crow probably devours the eggs and young, whenever he meets with them, and the Raven would be equally unscrupulous. This, however, is mere conjecture on my part. But Mr. St. John has seen the Peregrine Falcon pursue and capture it. "In the plain country near the sea-shore (in Morayshire) the Peregrine frequently pursues the Peewits and other birds that frequent the coast. The Golden Plover, too, is a favourite prey, and affords the hawk a severe chase before he is caught. I have seen a pursuit of this kind last for nearly ten minutes, the Plover turning and doubling like a hare before a greyhound, at one moment darting like an arrow into the air, high above the Falcon's head; at the next, sweeping round some bush or headland—but in vain. The Hawk, with steady, relentless flight, without seeming to hurry herself, never gives up the chase, till the poor Plover, seemingly quite exhausted, slackens her pace, and is caught by the Hawk's talons in mid-air, and carried off to a convenient hillock or stone to be quietly devoured."

YOUNG.—The young are at first covered with a greyish down, of which the tips are yellow. When fledged they are brownish-black, spotted with bright yellow above, and in other respects scarcely different from the adult birds in their winter dress.

REMARKS.—Many of the older writers, observant, not of living birds, but of stuffed skins, considered the Golden Plover in its summer vesture quite a different species from itself in its winter coat; but, as this and other mistakes of a like nature have been clearly exposed by M. Temminck and other writers, it is unnecessary to lay much stress upon them here. The above description is entirely original, my opportunities of examining and observing the species having been excellent. On referring to various writers, I find nothing of any importance to add, excepting what refers to the distribution of the species.

On the continent it is said to extend in summer from Lapland to the southern parts of Europe, and in winter is abundant in the latter. It is also found in various parts of Asia, among others in Northern India; and, it is said, in the South Sea Islands. I have a specimen from Norway in summer plumage, the black of the breast blacker and more continuous than I have seen it in any British individuals.

The obstinacy with which people adhere to exploded errors is really surprising. M. Lesson, in his ill-digested, but yet useful, *Manuel d'Ornithologie*, informs us that the "Pluvier doré à gorge noire, *Charadrius apricarius*, Gm., is considered as a distinct species by some ornithologists, and as the Golden Plover in its nuptial plumage, according to some others, and particularly M. Temminck, who describes it as the adult age of *Charadrius pluvialis*. What would lead one to think that this Plover really forms a distinct species is, that of the thousands of individuals which I have seen in Saintonge, where the Golden Plovers are very common, I have never met with a single individual that had the plumage of the *Apricarius*."

PLUVIALIS MORINELLUS. THE DOTTEREL PLOVER.

Charadrius Morinellus. Linn. Syst. Nat. I. 254.

Charadrius Morinellus. Lath. Ind. Ornith. II. 747.

Dottrel. Mont. Ornith. Diet.

Pluvier Guignard. Charadrius Morinellus. Temm. Man. d'Orn. II. 537.

Charadrius Morinellus. Dottrel. Flem. Brit. Anim. 113.

Dotterel. Charadrius Morinellus. Selb. Illustr. Brit. Ornith. I. 236.

Charadrius Morinellus. Dotterel Plover. Jen. Brit. Vert. An. 178.

Eudromias Morinella. Bonap. Comp. List, 45.

Bill slender, considerably shorter than the head; inner secondaries extremely elongated. In winter, the top of the head dark brown, laterally margined with reddish-white; upper parts greenish-brown, the feathers edged with pale red; forehead and cheeks whitish, streaked with dusky; fore-neck brownish-grey; a transverse band of white at its lower part; breast brownish-red. In summer, the top of the head brownish-black, laterally margined with pure white, of which colour are the forehead and cheeks; upper parts greyish-brown, the feathers edged with red; fore-neck brownish-grey; a double transverse band, black and white, at its lower part; breast bright red; part of abdomen black, Young with the top of the head, and upper parts of the body, dark brown, edged with buff-orange; forehead, band over the eyes, throat, and sides of the face cream-yellow, streaked with greyish-brown; sides of the neck and flanks buff-orange, streaked with dusky; breast pale reddish-grey, abdomen white.

MALE IN SUMMER.—This beautiful bird is considerably smaller than the Golden Plover, which it clearly resembles in form, but with the tail somewhat longer and more rounded, and the inner secondaries extremely elongated. The body is moderately full, the neck of ordinary length; the head

roundish, a little compressed, the forehead rounded. The bill is short, slender, straight, sub-cylindrical; the upper mandible with the dorsal line straight for two-thirds, then convex and declinate, the ridge flattened at the base, the edges a little involute toward the tip, which is rather sharp; the lower mandible with the outline of the crura short and slightly concave, the dorsal line ascending and straight, the edges sharp, involute toward the end, the tip rather sharp; the gape-line straight, the nasal groove extended to two-thirds.

The nostrils are linear, lateral, sub-basal, two-twelfths and a half in length. The eyes large, their aperture nearly three-twelfths. The legs are of moderate length, slender; the tibia bare for half-an-inch; the tarsus slender, roundish, covered all round with hexagonal scales; the outer toe connected at the base with the middle toe by a short membrane; the inner much shorter, with eighteen scutella, the next with twenty-five, the outer with twenty-two; all marginate, and having the soles smoothish and flattened. The claws are short, considerably curved, compressed, slender, bluntish.

The plumage is soft and rather blended; the feathers oblong and obtuse, those of the head short. The wings are long and acuminate; the first quill longest, the second a twelfth and a half shorter, the rest rapidly graduated; the outer secondaries incurved, obliquely rounded, and acuminate; one of the inner secondaries as long as the second quill when the wing is closed. Tail of moderate length, rounded.

The bill is bluish-black; the iris brown; the feet pale brownish-green, the toes blackish-grey, the heel orange, the claws black. The upper part of the head brownish-black; the feathers of the forehead margined with white; a white band extends from the lore, over the eye, to the occiput, where it meets that of the other side; the sides of the head and the throat white, with some dusky specks; the ear-coverts and the neck all round pale greyish-brown. The upper parts are pale greyish-brown, the feathers margined with brownish-yellow; the scapulars and inner secondaries darker and shaded with green. The primary quills and coverts are greyish-brown, the shaft of the first quill white;

the secondaries and their coverts light greyish-brown, the outer margined and tipped with white. There is a broad transverse band or half ring of white, at the junction of the neck and breast, edged above with black, and beneath with an interrupted narrower dusky band. The sides and fore part of the breast are deep yellowish-red; on its hind part is a large patch of black; the abdomen and lower tail-coverts yellowish-white. The tail-feathers are brownish-grey, toward the end dark brown, glossed with green, excepting the two middle tipped with white, the lateral more extensively, and with its outer margin white.

Length to end of tail 10 inches; extent of wings 19; wing from flexure $6\frac{1}{4}$; tail $2\frac{1}{2}$; bill along the ridge $\frac{9}{12}$, along the edge of lower mandible $\frac{1}{12}$; tarsus $1\frac{5}{12}$; inner toe $\frac{7}{12}$, its claw $\frac{3}{12}$; middle toe $\frac{10}{12}$, its claw $\frac{4}{12}$; outer toe $\frac{8}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The colours are similar to those of the male, but paler. The top of the head is deep brown, streaked with yellowish-white; the yellowish-brown of the breast is mixed with white feathers, and the deep brown of the hind part of the breast is nearly supplanted by white. The lower surface of the wings in both is pale grey.

Length to end of tail $9\frac{1}{2}$ inches; extent of wings $18\frac{1}{2}$; wing from flexure $6\frac{2}{12}$; tail $2\frac{7}{12}$; bill along the ridge $\frac{8}{12}$; tarsus $1\frac{4}{12}$; inner toe $\frac{5}{12}$, its claw $\frac{3}{12}$; middle toe $\frac{9}{12}$, its claw $\frac{4}{12}$; outer toe $\frac{7}{12}$, its claw $\frac{3}{12}$.

VARIATIONS.—I have not observed any remarkable variations in adult birds, although I have examined a considerable number of individuals. The above descriptions are taken from two fresh specimens shot near Edinburgh on the 19th of May, 1824, and compared with a pair obtained near Haddington in July, 1835.

HABITS.—The Dotterel makes its appearance in various parts of England and Scotland, at two different seasons of the year; first, on its way northward, in April and May, and again, on its return, in September and October. It does not appear that individuals remain in this country after November.

In the south of England it generally arrives about the 20th of April, in small flocks which pass over the midland and eastern counties, some settling on the northern hills, especially those of Cumberland and Westmoreland; others on the Lammermoor Hills, and the western and middle Grampians. During its sojourn in the southern districts, it frequents the open downs and ploughed fields, where it searches for worms and insects; but for its breeding places it selects the more elevated heaths.

In the parish of Towie, in Aberdeenshire, I met with a very large flock on a low hill, on the 10th of September, 1821, and was assured by a gentleman residing at its foot that they bred on the elevated moors every year. This flock precisely resembled one of Golden Plovers immediately after the breeding season. Not having been molested, the birds merely ran along before us as we approached them. Several, on being first roused, stretched up their wings, as is customary with all the birds of this group, and moved about in a listless sort of way, seeming to entertain little apprehension of danger. On being urged, they rose on wing, but presently alighted in the neighbourhood. It is this insensibility to danger which has procured for them the names of Dotterels and Morinelli, or little fools. It has been alleged, too, that by stupidly looking on, and imitating the gestures of the fowler, they suffered themselves to be driven into the net; but this propensity to imitate is probably imaginary, although it is certain that the bird often runs along with an outstretched wing, which might be supposed to be in imitation of an elevated arm. When shot at they are said often to fly around and over the birds that have been killed or wounded, and to alight in the neighbourhood; but after being harassed, they become more wary, and fly to a distance. In unfrequented parts of Scotland, the Golden Plovers are scarcely more suspicious, inasmuch that one may by walking round a scattered flock drive them into a compact body, before shooting, as I have myself often done.

The only good account of the habits of this bird, derived from the author's own observation, is the following by T. C. Heysham, Esq., published in the *Magazine of Natural His-*

tory, vol. ii. p. 295:—"In the neighbourhood of Carlisle Dottrels seldom make their appearance before the middle of May, about which time they are occasionally seen in different localities, in flocks which vary in number from five to fifteen, and almost invariably resort to heaths, barren pastures, fallow grounds, &c., in open and exposed situations, where they continue, if unmolested, from ten days to a fortnight, and then retire to the mountains in the vicinity of the lakes to breed. The most favourite breeding haunts of these birds are always near to or on the summits of the highest mountains, particularly those that are densely covered with the woolly fringe moss (*Trichostomum lanuginosum*, Hedw.), which indeed grows more or less profusely on nearly all the most elevated parts of this alpine district. In these lonely places they constantly reside the whole of the breeding season, a considerable part of the time enveloped in clouds, and almost daily drenched with rain or wetting mists, so extremely prevalent in these dreary regions; and there can be little doubt that it is owing to this peculiar feature in their economy, that they have remained so long in obscurity during the period of incubation. The Dottrel is by no means a solitary bird at this time, as a few pair usually associate together, and live, to all appearance, in the greatest harmony. These birds do not make any nest, but deposit their eggs, which seldom exceed three in number, in a small cavity on dry ground covered with vegetation, and generally near a moderate-sized stone, or fragment of rock. In early seasons old females will occasionally begin to lay their eggs about the 26th of May, but the greater part seldom commence before the first or second week in June. It would appear, however, from the following facts, that they vary exceedingly in this respect. On the 19th of July, 1833, a perfect egg was taken out of a female, which had been recently killed on Robinson; and on the 26th of May, 1834, I received four Dottrels from Keswick, which had been shot on Great Gavel the day before. In the ovary of one of them I found an egg almost quite ready for exclusion, being a difference of nearly eight weeks. So great a discrepancy in all probability is of very rare occurrence, yet it will subsequently appear that

eggs recently laid, and a young bird, a few days old, were found on the same day, at no great distance from each other. The males assist the females in the incubation of their eggs. How long incubation continues I have not yet been able to ascertain, but I am inclined to think that it rarely lasts much longer than eighteen or twenty days. A week or two previous to their departure, they congregate in flocks, and continue together until they finally leave this country, which takes place sometimes during the latter end of August, at others, not before the beginning of September. A few birds, no doubt, are occasionally seen after this period, but they are either late broods, or birds that are returning from more northern latitudes. This autumn I visited several breeding stations on the 25th of August, and again on the 2nd of September, but in neither instance could I observe a single individual.

“Anxious as I have been for several years past to procure the eggs of the Dottrel, for the purpose of adding undoubted specimens of so rare an egg to my cabinet, as well as to prove beyond all doubt that this bird breeds in Cumberland, yet it was not until the present year that I had the gratification of accomplishing an object which I have had so long in view. After repeated excursions through the lake district, this summer, for the express purpose, I was so fortunate as to obtain their eggs in two different localities, namely, three on Whiteside, contiguous to Helvellyn, on the 29th of June; and two on the 5th of July, on Robinson, in the vicinity of Buttermere. The former had been incubated twelve or fourteen days, the latter were only recently laid, and in both instances the birds were seen to leave their eggs; one, on quitting them, immediately spread out its wings and tail, which it trailed on the ground a short distance, and then went away without uttering a single note. On this day (5th July, 1835), a young bird, a few days old, was also captured.

“Having spent a considerable portion of several days on Robinson, in company with a very able assistant, searching for the eggs of the Dottrel, I had, of course, ample opportunities of observing their manners; and I flatter myself

that the following particulars will be interesting to some of my ornithological readers. On the 3rd of July we found three or four pair near the most elevated part of this mountain, and on all our visits thither, whether early in the morning or late in the afternoon, the greater part were always seen near the same place, sitting on the ground. When first discovered, they permitted us to approach within a short distance, without showing any symptoms of alarm; and frequently afterwards, when within a few paces, watching their movements, some would move slowly about and pick up an insect, others would remain motionless, now and then stretching out their wings, and a few would occasionally toy with each other, at the same time uttering a few low notes, which had some resemblance to those of the common linnet, *Linaria cannabina*. In short, they appeared to be so very indifferent with regard to our presence, that at last my assistant could not avoid exclaiming, ‘What stupid birds these are!’ The female that had young, nevertheless evinced considerable anxiety for their safety, whenever we came near the place where they were concealed, and as long as we remained in the vicinity, constantly flew to and fro above us, uttering her note of alarm.

“As soon as the young birds were fully feathered, two were killed for the purpose of examining their plumage in this state; and we found that after they had been fired at once or twice, they became more wary, and eventually we had some little difficulty in approaching sufficiently near to effect our purpose. The moult appears to commence somewhat early in old birds; a male that was killed on the 25th of July was completely covered with pen-feathers, and the belly, from incubation, almost entirely bare. The stomachs I dissected were all filled with elytra and remains of small coleopterous insects, which in all probability constitute their principal food during the breeding season.

“These birds I understand are getting every year more and more scarce in the neighbourhood of the lakes; and from the numbers that are annually killed by the anglers at Keswick and the vicinity, (their feathers having long been held in high estimation for dressing artificial flies,) it is

extremely probable that in a few years they will become so exceedingly rare, that specimens will be procured with considerable difficulty." The author then gives the names and elevations of the mountains on which they have been known to breed, viz.:—"Hellvellyn, 3055; Whiteside; Whatson Dod; Great Dod; Saddleback, 2787; Skiddaw, 3022; Carrock Fell, 2110; Grassmoor, 2756; Robinson, 2292; Gold Scalp, 1114; Great Gavel, 2925 feet above the sea-level."

"All the eggs found on Whiteside and Robinson, were very similar with respect to colour and markings, but differed a little in size and formation, varying from $1\frac{6}{10}$ to $1\frac{7}{10}$ of an inch in length; and in breadth from $1\frac{1}{10}$ to $1\frac{2}{10}$; the ground colour wine-yellow, varying a little in tint, and all thickly covered with large blotches and spots of different shades of brownish-black, particularly at the obtuse end." The following descriptions of the young are by the same observer.

YOUNG.—"Description of a young Dottrel, a few days old, captured alive on Robinson, July 5th, 1835. Front of the head, throat, a bare space round the neck, and all the under parts covered with a whitish down. Top of the head, occiput, and all the upper parts of the body, dark brown, mixed here and there with buff-orange, and whitish down. The few feathers that have made their appearance on the breast, belly, and flanks, buff-orange, slightly spotted with greyish-brown; a few feathers on the back blackish-brown, edged with reddish-white. Bill black. Irides very dark brown. Legs and toes pale cinereous, slightly tinged with green."

"Description of a young female, three weeks or a month old, killed on Robinson, July 25th, 1835. Forehead, throat, and sides of the face cream-yellow, covered with small spots and fine streaks of greyish-brown. Crown of the head, occiput, and also the feathers on the back, dark brown, all more or less broadly edged with buff-orange. Scapulars and wing-coverts olive-green, deeply edged with reddish-white. Tail the same, finely margined with white, the centre feathers broadly tipped with reddish-white, and the three lateral ones on each side ending in a large irregular whitish spot. Sides

of the neck, flanks, and a broad band above each eye, buff-orange, the former finely streaked with greyish-brown. Breast cinereous, slightly tinged with reddish-white, and marked on each side with large spots of olive-green. Belly white, spotted here and there with greyish-brown. Bill black. Irides dark brown. Legs pale olive-green, soles bright yellow."

The following observations I transcribe from an unpublished Fauna of Aberdeenshire and the neighbouring counties ;—" This beautiful bird arrives about the middle of May in the upland tracts of the counties of Forfar, Kincardine, Aberdeen, Banff, and Moray, and resides there until the end of September, when it migrates southward. It has been met with on many of the hills of this tract through the summer, and great numbers have been killed in early autumn by sportsmen engaged in grouse-shooting ; but its nest does not appear to have been found by any person interested in the habits of birds. Dr. Irving, Old Aberdeen, informs me that he has shot several specimens in August and September on the moors near Tarland. According to Mr. G. Anderson, Inverness, as stated in Mr. Gordon's *Fauna of Moray*, it is ' frequently killed by sportsmen in Strathdearn and Badenoch.' In autumn, when it has collected into flocks, it is excessively fat, and so little apprehensive of danger that the flocks may be easily approached. Toward the end of September, they betake themselves to the lower grounds, and proceed southwards. But there is also a migration from more northern countries, and flocks pass northward in the end of spring. At both seasons they have been met with along the coast, from Montrose to Fraserburgh. The Rev. Mr. Smith says :—" The Dotterel is seen almost yearly, in its progress towards the north, on the links,—as they are called,—which adjoin the Loch of Strathbeg. In May, 1847, I accidentally fell in with a flock upon a piece of ploughed land near to the Old Castle of Federret, in New Deer. I am not aware that it is seen in this quarter (the parish of Monquhitter) during the autumnal migration. It has been shot on a rough piece of unenclosed land near Macduff.' On the 8th of August, 1851, being on

the celebrated mountain of Lochnagar, in the upper part of Aberdeenshire, I came upon a Dotterel, which flew from among some stones, pretending lameness, and hovered around, manifesting great anxiety. I shouted for two of my companions, who had advanced, to come and see it, which they did. Although it was evident the bird had a nest or young ones, as it fluttered and limped when chased, we failed in discovering its charge, and therefore left it. Mr. M'Gregor, Achallader, and Mr. Cumming, Factor to Lord Fife, informed me that though Dotterels still breed on the higher hills in Braemar, they are less frequent now than formerly, when they used to form flocks in autumn on the moors. They are known to breed in other parts of Aberdeenshire, especially in the Strath-Don district; and I have seen a few individuals, in August, in the upper part of Forfarshire.

CHARADRIUS. RING-PLOVER.

THE Ring-Plovers constitute a genus of very considerable extent, although not more than three species occur in Britain. They are all of small size, some of them not exceeding a Brown Linnet, while the largest does not equal the Golden Plover. Although in most respects they agree with the Plovers, properly so called, they differ in others, of which some notice will be taken after giving their general characters. The body is ovate and moderately full; the neck short; the head moderate, oblong, compressed, and much rounded above.

Bill generally much shorter than the head, straight, rather slender, as broad as high, slightly compressed toward the end; upper mandible with the dorsal line straight and slightly declinate for half its length, then bulging or arcuate, the nasal groove about half its length, the edges slightly inflected toward the end, the tip rather obtuse; lower mandible with the angle of moderate length, the dorsal line ascending and a little convex, the sides concave at the base, convex toward the end, the edges inflected, the tip narrow, but rather blunt; the gape-line straight. Mouth extremely narrow, as is the palate, on which are two longitudinal ridges, and anteriorly a few papillæ. Tongue of moderate length, narrow, deeply channelled above, with the edges involute, the base emarginate and papillate, the tip narrow, with a thin horny edge. Œsophagus narrow; proventriculus oblong, with a broad belt of oblong glandules. Stomach a roundish, compressed gizzard, with thick lateral muscles, radiated tendons, and dense longitudinally rugous epithelium. Intestine of moderate length and width; cæca rather small, cylindrical, narrow.

Nostrils small, linear, pervious, sub-basal. Eyes large and full; eyelids feathered. Aperture of ear rather large, roundish. Feet of moderate length, very slender; tibia bare for about a fourth; tarsus of ordinary length, covered with

hexagonal scales. Toes rather short, slender, three, with numerous scutella, marginate, the outer considerably longer than the inner. and connected with the third by a basal web. Claws rather short, compressed, slightly arched, slender, rather acute.

Plumage ordinary, close, rather blended; feathers oblong or ovate. Wings very long, narrow, pointed, of twenty-five quills; the primaries tapering, the first longest, the rest rapidly diminishing; the outer secondaries short, incurved, and obliquely rounded, the inner tapering and extremely elongated. Tail straight, rather broad, of moderate length or long, rounded in various degrees, of twelve feathers, of which the two middle are somewhat pointed.

The species of this genus are very extensively distributed, and some one or other occurs in almost every known region. They frequent chiefly the sandy shores of the sea, lakes, and rivers; but some occur also in the interior, chiefly on dry barren grounds. After the breeding season, they often form large flocks. Their nests are a slight hollow in the sand, sometimes with a few vegetable substances, and their eggs are four, pyriform, extremely large, light-coloured, and dotted or clouded with dusky tints. The young, covered with down, run presently after birth, and conceal themselves by squatting. All the species are very active and lively, run with great celerity, have a very rapid flight, and emit a clear, mellow cry. Their food consists of insects, crustacea, mollusca, and worms. Their flesh is good, and their eggs delicate. One species is common and resident in Britain, another occurs on the sands of the southern and eastern counties of England, and a third has been met with only in one or two instances.

The Ring-Plovers have the body, and especially the wings and tail, more elongated than the Plovers, the neck shorter, and the head proportionally larger. White and grey or brown, in masses, are their predominant colours; and all are broadly banded or ringed on the head and neck. Their lower parts do not become black in spring and summer, as is the case with the Plovers; nor is their plumage ever spotted or striped like theirs.

CHARADRIUS HIATICULA. THE COMMON RING-PLOVER.

RING DOTTEREL. RING PLOVER. SAND LARK. SANDY LAVEROCK. SANDY
LOO. DULWILLY. STONEHATCH. STONE PLOVER. BOTHAG.

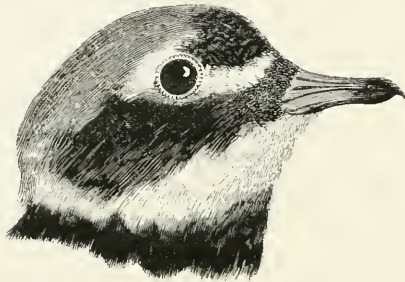


FIG. 11.

Charadrius Hiaticula. Linn. Syst. Nat. I. 253.

Charadrius Hiaticula. Lath. Ind. Ornith. II. 743.

Ringed Plover. Mont. Ornith. Dict. and Suppl.

Grand Pluvier a collier. Charadrius Hiaticula Temm. Man. d'Ornith. II.
539.

Charadrius Hiaticula. Ringed Plover. Flem. Brit. Anim. 113.

Ringed Plover. Charadrius Hiaticula. Selby, Illustr. Brit. Ornith. II. 240.

Charadrius Hiaticula. Ringed Plover. Jen. Brit. Vert. Anim. 179.

Ægialites Hiaticula. Bonap. Comp. List. 45.

Length about eight inches, bill seven-twelfths, half as long as the head, wings and tail of equal length. Adult with the upper parts greyish-brown; the forehead with two bands, a white and a black; a dark brown band under the eye; a ring of white including the throat, succeeded by a broader ring of brownish-black; bill orange at the base, black at the end; feet orange, claws black. Young without the black band on the forehead, the other dark bands lighter, the feathers of the upper parts margined with pale brownish-red, the bill entirely black, the feet dull greenish-yellow, the claws black.

MALE IN WINTER.—This most lively and beautiful little bird, which is a constant resident in Britain, and occurs on all our flat coasts, is of a compact form, having the body moderately full and a little compressed; the neck short; the head rather large, and much rounded above. The bill is about half the length of the head, straight, slightly compressed near the end; its upper mandible with the dorsal line straight and the ridge flattened for nearly two-thirds, then arched and convex, the nasal groove extending to the commencement of the arched part, the edges soft and somewhat inflected, the tip bluntish, but sharp-edged, as is that of the lower mandible, of which the angle is moderate, the dorsal line ascending and somewhat convex.

The nostrils are sub-basal, lateral, linear, two-twelfths long, occupying the middle of the nasal groove. The eyes large, their aperture having a diameter of two-twelfths and a half. The feet are of moderate length and slender; the tibia bare for about a quarter of an inch; the tarsus a little compressed, and covered with hexagonal scales; the toes rather short, flattened beneath, marginate, the outer and middle connected by a basal web extending as far as the second joint of the former; the inner or second with eighteen, the third with thirty, the fourth with twenty-five scutella. The claws are short, compressed, slightly arched, slender, rather acute.

The plumage is very soft, and rather blended; the feathers ovate and rounded. The wings long, pointed, when closed reaching to the end of the tail; the quills twenty-six; the first longest, the second a twelfth shorter, the other primaries rapidly graduated; the secondaries curved inwards and obliquely rounded, excepting the inner, which are very long and taper to a blunt point, one of them reaching to half-an-inch of the end of the first primary in the closed wing. The tail is of moderate length, nearly straight, considerably rounded, the two middle feathers sub-acuminate.

The bill is black at the end, orange in the rest of its extent. The iris brown. The feet orange, the claws black. A band on the forehead, a line over the eye, the lower eyelid, the throat, and a broad band proceeding obliquely backwards

from it so as to encircle the upper part of the neck, together with the breast, sides, abdomen, and lower tail and wing-coverts, all pure white. A broad transverse band over the white of the forehead, a line margining the upper mandible, and proceeding, broader, along the lore under the eye to the ear, and a belt round the lower neck, much broader in front, are brownish-black, the feathers slightly edged with grey. The top of the head, the occiput, a small portion of the upper hind-neck, the back, and the wings are greyish-brown. The quills are dark greyish-brown, of a deep tint toward the end. A bar of white extends across the wing, including the shafts, near the end, of the outer primaries, increasing on the rest, and on the secondaries, so as to occupy the whole length of two of them, and returning outwards along the tips of the quills, but evanescent on the primaries. The tips of the secondary coverts are also white, as are those of the primary coverts, but more narrowly. The inner secondaries are greyish-brown. The tail-feathers are pale greyish-brown, becoming dark brown toward the end, the whole of the outer two feathers, the outer margin of the next two, and the tips of all, white.

Length to end of tail $8\frac{1}{2}$ inches; extent of wings $17\frac{1}{2}$; wing from flexure $5\frac{4}{12}$; tail $2\frac{8}{12}$; bill along the ridge $\frac{7}{12}$, along the edge of lower mandible $\frac{8}{12}$; tarsus 1; inner toe $\frac{6}{12}$; its claw $\frac{2}{12}$; middle toe $\frac{9}{12}$, its claw $\frac{3}{12}$; inner toe $\frac{7}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The female is similar to the male, with the following slight differences:—The white band across the forehead is tinged with brown, the dark band above it, and that along the cheek, are greyish-brown, as is the fore part of the dusky collar.

Length to end of tail $8\frac{1}{2}$ inches; extent of wings 17; tarsus 1; middle toe and claw 1.

VARIATIONS.—Slight differences as to size and colouring are observed. The shafts of all the primaries are sometimes white, unless at the end. The outer tail-feather sometimes has a dusky spot near the tip; the next has more frequently a patch of the same.

CHANGES OF PLUMAGE.—If this species undergoes a partial moult in spring, no difference is produced in the distribution of the colours. In summer, the dark markings are deeper, on account of the disappearance of the greyish tips, and the brownish-grey of the upper parts is paler. Towards autumn, however, the colours become much faded. A male and a female shot at Ythan Mouth on the 26th of May present the following particulars:—

MALE IN SUMMER.—Upper parts light greyish-brown; frontal and cheek bands and collar deep brownish-black.

The tongue slender, tapering, concave above, horny and thin-edged toward the bluntish tip; œsophagus 3 inches long, $\frac{2}{1\frac{1}{2}}$ in width; proventriculus bulbiform; stomach very muscular, $\frac{1}{1\frac{1}{2}}$ long, $\frac{7}{1\frac{1}{2}}$ in its greatest breadth, its epithelium dense and rugose; intestine 16 in length, $\frac{2}{1\frac{1}{2}}$ in its greatest width; cœca $1\frac{8}{1\frac{1}{2}}$ long, cylindrical, obtuse, $1\frac{1}{2}$ from the extremity.

Length $8\frac{3}{1\frac{1}{2}}$; extent of wings $16\frac{1}{2}$; wing from flexure $5\frac{1}{2}$; tail $2\frac{1}{1\frac{1}{2}}$; bill along the ridge $\frac{7}{1\frac{1}{2}}$, along the edge of lower mandible $\frac{8}{1\frac{1}{2}}$; tarsus 1; middle toe $\frac{8}{1\frac{1}{2}}$; its claw $\frac{3}{1\frac{1}{2}}$.

FEMALE IN SUMMER.—Similar to the male; only with the white frontal band, and that over and behind the eye, of less extent; the black collar of a lighter tint; the dark band on the tail narrower.

The œsophagus 3 inches long; stomach $\frac{1}{1\frac{1}{2}}$ in length, $\frac{7}{1\frac{1}{2}}$ in breadth; intestine 16 in length, $1\frac{1}{2}$ in width; cœca $1\frac{8}{1\frac{1}{2}}$, at the distance of $1\frac{1}{2}$ from the extremity. The stomach was filled entirely with remains of small coleoptera and some sand.

Length $8\frac{1}{1\frac{1}{2}}$; extent of wings $16\frac{1}{2}$; wing from flexure $5\frac{1}{1\frac{1}{2}}$; tail $2\frac{1}{1\frac{1}{2}}$; bill along the ridge $\frac{8}{1\frac{1}{2}}$, along the edge of lower mandible $\frac{7}{1\frac{1}{2}}$; tarsus 1; middle toe $\frac{8}{1\frac{1}{2}}$, its claw $\frac{2}{1\frac{1}{2}}$.

I do not find a single new feather in either of these birds.

HABITS.—Were I to describe the manners of this gentle creature under the influence of the delightful emotions which the view of it has often excited in me, I should probably

appear to the grave admirer of nature an enthusiast, or an imitator of other men's musings. Well, let him think as he lists; but yet lives there the man, calling himself an ornithologist, who, quietly strolling along the bright sandy beach just left bare by the retiring tide, and aroused from his pleasing reveries by the mellow whistle of the Ring-Plover, would not gaze with delight on the pleasant little thing that speeds away before him with twinkling feet, now stops, pipes its clear cry, runs, spreads its beautiful wings, glides close over the sand, and alights on some not distant tuft. What are primaries and secondaries, cœcums and duodenums, types and analogies, squares or circles, to him who thus watches the living bird? There is the broad blue sea, on that hand the green pasture, under foot and around the pure sand, above the sunny sky. Frown not upon the cheerfulness of nature; shout aloud, run, leap, make the Sand Lark thy playmate. Why mayest thou not be drunk with draughts of pure ether? Are the gambols of a merry naturalist less innocent than the mad freaks, the howlings, the ravings of sapient men assembled to deliberate about corn-laws, or party zealots upholding their creed by palpably demonstrating their total want of charity?

By the middle of August, the young of this species are able to shift for themselves. After this period small flocks of from five or six to fifteen or twenty individuals, may be seen here and there along the sandy or pebbly shores, chiefly in the neighbourhood of high-water mark, although sometimes also by the edge of the sea. Most of them have nestled on the shores of the ocean, many on those of estuaries, some of rivers and lakes, and a few even on sandy heaths or warrens remote from water. But now they all resort to the sea, especially near the mouths of rivers. They run with great speed, pick up insects, crustacea, small shelled mollusca, and marine worms, along with which they swallow some particles of sand and gravel. Their mode of proceeding differs considerably from that of the *Tringæ*, with which they often associate. The bird stands, suddenly runs forward, picks up an object, stands again, and thus proceeds, somewhat in the manner of the Thrush. It does not probe

the sand or mud with quickly-repeated tappings of its bill, as is the habit of the birds just mentioned; but on the edge of the sea, when the tide is rising or retiring, it is in more constant motion than when on an exposed place. Unless much molested, they are not generally shy; but in the neighbourhood of towns, where they are liable to be frequently shot at, they are seldom disposed to allow a person to approach very near. On the sands they are easily perceived, but among pebbles it is very difficult to distinguish them, insomuch that one may see them flying off from places around him in which he had not suspected any of being. On rising, and while on wing, they now and then emit their very mellow and pleasant note. Their flight is rapid, even, performed by regularly-timed beats, and they glide along, often at a very small height, or ascend, and perform various evolutions before alighting, sometimes all the individuals in a flock inclining to one side, so as to expose now their upper and again their lower surface to the spectator. Frequently when feeding they intermix with Sandpipers, Turnstones, Redshanks, and other species; but in flying they generally keep apart. At high water they repose on the sands or on the pastures, usually in a crouching posture. They are partly nocturnal, and I have often found them searching for food by moonlight. As the autumn advances, they collect into larger flocks, and at the mouths of rivers may often be seen in very numerous bands. During winter and the greater part of spring they continue along the sea-shore, none being then found by the rivers or lakes.

Toward the beginning of April, the flocks break up into smaller parties, and by the middle of that month the birds have paired. As the constant residence of many of them is the sea-shore, and the sands or pastures in its immediate vicinity, they have no preparations to make, nor long journeys to perform, before they commence the absorbing occupations connected with rearing their families. Just above the tide-mark, either in the sand, or among the gravel or pebbles, they scrape a slight hollow, which they often line with fragments of shells, and in which are deposited the four eggs, placed with their small ends together. They are pyriform, with the

large end hemispherical, or a little flattened; their average length an inch and five-twelfths, their greatest breadth eleven-twelfths and a half, their colour greyish-yellow, sparsely covered all over with dots, small spots, and angular linear markings of brownish-black and purplish-grey. On finding the eggs on the beach one can scarcely believe that they belong to so small a bird. The young are capable of running the moment after they leave the eggs, and, when their parents are away, crouch among the stones, but separately. When sitting on her eggs, the female will sometimes remain until a person comes close, when she will run limping along, to entice him to pursue her; but more commonly she quietly leaves the nest, while he is yet at a distance, runs a considerable way in silence, then stops, utters her cry, and endeavours to attract his notice, or flies up to him, and goes off in another direction. No birds manifest more anxiety about their eggs and young. They often come up to within a few yards of a person sauntering in their vicinity, feign lameness, and run limpingly along for some distance. If this does not suffice to entice the intruder, they droop one of their wings, as if it had been broken or dislocated, and shuffle away some yards farther. Then, perhaps, both wings seem broken, and the bird tumbles about in the most surprising manner. If you now run up, it remains in the agonies of death until you are within a few yards, when, suddenly reviving, it starts upon its feet, emits a lively note, runs a little way, springs into the air, and is off at full speed, wheeling from side to side, and joyously whistling as it proceeds. It now makes a very wide circuit, and comes up in your rear, but remains motionless until you pass on. In its attempts to decoy persons from its nest, I have sometimes seen it fly off at once to the distance of a hundred yards or more, spread out its wings and tail, and tumble as if in a fit of epilepsy.

But although by far the greater number of individuals nestle on the sea-shore, and remain there all the year, many are to be found on the pebbly beaches of rivers, such as the Spey and the Dee, and even in the pastures by the sides of muddy or sandy streams in low districts. Sometimes, also,

they are seen by the banks of lakes in the Highlands of Scotland. Mr. Salmon, speaking of the migratory birds of the neighbourhood of Thetford, in Norfolk, says "it is very abundant upon all our warrens during the breeding season, and is the first bird that gives us notice of its arrival in the spring, by its low plaintive whistle whilst on the wing, and garrulous note of satisfaction when it alights upon the ground. These notes are peculiarly pleasing at this early season of the year upon our warrens, where hitherto silence has reigned for several months, only interrupted by the occasional whistle of a flock of Golden Plovers as they sweep past you; but, as the season advances, its notes are too melancholy for the freshness of spring. It commences its nidification very early, as I have found them sitting upon their eggs on the 30th of March. After having reared their offspring, they all take their departure, by the middle of August, for the sea-coast, where they remain throughout the winter."—*Mag. of Nat. Hist.* vol. ix. p. 522.

This species is found on all our sandy sea-shores from one end of the island to the other, and is plentiful in the Shetland and Orkney Isles, as well as in the Hebrides, especially the Outer, whose western coasts are chiefly of shell sand. It remains all winter, but then usually deserts the more exposed parts, and frequents the bays, creeks, and estuaries, scarcely ever at that season going up rivers beyond the tide. It has been supposed to be more numerous with us in winter than in summer, and the alleged increase in the former season has been attributed to the immigration of individuals from more northern countries. This may be correct; yet, if we consider that the birds are scattered in pairs during summer, so that few at a time can be seen along the coast, while many too resort to the interior, and that they collect in autumn and winter into large flocks, causing the species to appear very numerous, although only in particular places, it may well seem difficult to decide.

It occurs in the arctic and northern regions of the Old Continent, and has been seen as far south as the shores of the Mediterranean. In Iceland and Greenland it has also been met with; but the Ring-Plovers found in North America

are all different, although one of them was long considered the same. That species, *Charadrius semipalmatus* of Bonaparte, is extremely similar, differing only in being somewhat less, and in having the toes more palmated. The Ringed-Plover, according to Mr. Thompson, "is common," in Ireland, "at all seasons, except summer, in small flocks around the sandy or gravelly shores; where also a limited number annually breed."

YOUNG.—The young, which at first are covered with very soft down, of a white colour, with dusky grey patches, are, when fledged, as follows:—The bill is brownish-black at the end, paler towards the base, a small portion of the lower mandible flesh-coloured, the iris brownish-black, the feet dull greenish-ochre, the claws black. The colours are distributed as in the adult; but the feathers of the upper parts are margined with light brownish-red, fading to greyish-white, the dusky bands are brownish-grey, that on the forehead is wanting, the broad band on the neck meets but partially in front, a large white space being left below. One shot on the 26th of May has the upper part of the head brownish-grey; a white frontal band; a white collar, the feathers there very soft, almost downy; the dusky collar not of a darker tint than the back; the upper parts light brownish-grey, the feathers all margined with reddish-white, within which is a very narrow dusky line; quills and tail-feathers nearly as in the adult, the white on the wings of less extent. This individual measured 7 inches in length, $15\frac{1}{2}$ in extent of wings.

PROGRESS TOWARD MATURITY.—After the first moult, which commences in the beginning of October, and is not completed until the middle of spring, the young cannot be distinguished from the adult. During this time the base of the bill changes from black to brown, brownish-yellow, and orange; the feet from dull greenish-ochre to light reddish-brown, brownish-yellow, and orange-yellow. The black band on the forehead, and the black feathers which complete the ring in front, are produced in March and April.

CHARADRIUS CANTIANUS. THE KENTISH RING-PLOVER.

KENTISH PLOVER.

Charadrius cantianus. Lath. Ind. Ornith. Suppl. II. 316.

Kentish Plover. Mont. Ornith. Dict. Suppl.

Pluvier a collier interrompu. Charadrius cantianus. Temm. Man. d'Ornith. II. 544.

Charadrius Alexandrinus. Kentish Plover. Flem. Brit. Anim. 114.

Kentish Plover. Charadrius cantianus. Selby, Illustr. Brit. Ornith. II. 243.

Charadrius cantianus. Kentish Plover. Jenyns, Brit. Vert. Anim. 180.

Ægialites Cantianus. Bonap. Comp. List, 45.

Length nearly seven inches ; bill seven-twelfths, more than half the length of the head ; wings shorter than the tail. Adult with the upper parts light brownish-grey ; the forehead with two bands, a white and a black, the hind part of the head light brownish-red ; the loreal space and a band behind the eye black ; the throat and a band crossing the hind neck white ; a large patch of black on each side of the lower part of the neck ; bill black, the lower mandible flesh-coloured at the base ; feet dusky ; claws black. Young without black on the head ; the bands on its sides and the patches on the neck brown ; the feathers of the upper parts margined with whitish.

MALE IN SUMMER.—This pretty little Ring-Plover is considerably inferior in size to the common species, already described, from which it is easily distinguished by its having merely two patches of black in the place of an entire ring of that colour on the neck. It is also of a more slender form, and has the wings shorter than the tail, although otherwise its proportions are nearly the same. The body is ovate, the neck short, the head rather large and ovate, with the front

considerably elevated. The bill is shorter than the head, nearly straight, being shortly recurved toward the end. The upper mandible has the dorsal line straight for nearly two-thirds, then convex; the nasal groove long, the edges toward the end a little inflected, the tip narrow but blunt; the lower mandible with the angle rather long and narrow, the dorsal line ascending and convex, the sides flat at the base, then convex, the edges a little inflected, the tip narrow.

The eyes are large; the nostrils linear; the aperture of the ear roundish and rather large. The legs are of moderate length, and slender; the tibia bare for rather more than half an inch; the tarsus with two anterior rows of scales and six inferior scutella; the inner toe much shorter than the outer, which is connected with the third by a basal membrane; on the second or inner are eighteen, on the third thirty-two, on the fourth twenty scutella; the claws are very slender, slightly arched, much compressed, acute.

The plumage is blended, on the upper parts somewhat compact. The wings are long, reaching when closed to half an inch from the tip of the tail, pointed, the first quill being longest, the rest rapidly decreasing; one of the inner secondaries seven-twelfths shorter than the longest primary; the tail is rounded, with the two middle feathers protruded a little beyond the rest.

The bill is black, with the base of the lower mandible of a dusky flesh-colour; the irides are brown; the tarsi are dusky, the toes darker, the claws black; the forehead and a broad band over and behind the eyes are white; towards the crown of the head is a patch of black; the rest of the head and the hind part of the neck are light brownish-red; the loreal spaces and a band behind the eyes are black; all the lower parts, from the bill to the tail, and a band crossing the neck behind, are white; but there is a patch of black on each side at the bend of the wing; the upper parts are light brownish-grey; the primary quills and their coverts brownish-black; the shafts of the former white for more than half their length, the bases and a small part of the tips being brown. The outer secondaries are chiefly white, with more or less greenish-brown, and their coverts are tipped with white; the

inner secondaries like the back. The two middle tail feathers are dusky, the two outer on each side white, the rest of intermediate shades.

Length to end of tail $6\frac{9}{12}$ inches; extent of wings $14\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail 2; bill along the ridge $\frac{7}{12}$; along the edge of lower mandible $\frac{8}{12}$; bare part of tibia $\frac{7}{12}$; tarsus $\frac{10}{12}$; inner toe $\frac{5}{12}$, its claw $\frac{2}{12}$; middle toe $\frac{8}{12}$, its claw two-twelfths and a half; outer toe $\frac{6}{12}$, its claw $\frac{2}{12}$.

FEMALE IN SUMMER.—The female, which is scarcely smaller, differs in colour chiefly in having the dark parts tinged with brown, and the brownish-red on the head and neck paler.

Length to end of tail $6\frac{8}{12}$; bill along the ridge $\frac{7}{12}$; wing from flexure $4\frac{1}{2}$; tail 2; tarsus $\frac{10}{12}$; middle toe $\frac{7}{12}$, its claw $\frac{2}{12}$.

HABITS.—The Kentish Plover, so named by Latham, who first described it from specimens shot at Sandwich in Kent, and sent to him by Dr. Boys, has been found in various parts of the counties of Kent, Essex, and Sussex, as well as in Norfolk, to the northward of which however it has not been met with; nor has it hitherto been seen on any part of the western coast of Britain, or in Ireland. It is said to be very extensively distributed on the Continent, being found from the northern coasts of Germany to the shores of the Mediterranean. M. Temminck states that it occurs in India and its islands, and Dr. Horsfield found it in Java. Its habits may be supposed to be very similar to those of the Common Ring-Plover; but it does not appear that any person has particularly described them, and I am unable to supply the deficiency. The female is said to lay her four eggs in a slight hollow in the sand. They are, according to Mr. Yarrell, an inch and three-twelfths in length, eleven-twelfths in breadth, of a yellowish-stone colour, spotted, and streaked with black.

YOUNG.—When fledged, the young differ from the adult only in being destitute of the black patch on the head, and in having the loreal spaces, ear-coverts, and patch on each side of the lower part of the neck, dusky brown.

CHARADRIUS MINOR. THE LITTLE RING- PLOVER.

LITTLE RINGED PLOVER. LITTLE RING DOTTEREL.

Petit Pluvier a collier. Charadrius minor. Temm. Man. d'Ornith. II. 542.
 Charadrius minor. Little Ringed Plover. Jen. Brit. Vert. Anim. 179.
 Charadrius minor. Little Ring Dotterel. Gould, Birds of Europe.
 Ægialites minor. Bonap. Comp. List, 45.

Length about six inches and a half; bill seven-twelfths, more than half the length of the head; wings shorter than the tail. Adult with the upper parts greyish-brown; the forehead with two bands, a white and a black; the hind part of the head light brownish-grey; the loreal space and a band under the eye and including the ear-coverts black; the throat and a band crossing the hind-neck white, succeeded by a ring of brownish-black, narrowed behind; bill entirely black; feet yellowish-flesh-coloured; claws black. Young with the dark markings on the head and neck brown; the feathers of the upper parts margined with light red; the base of the bill pale yellowish.

OF this species it appears that only a single individual is recorded as having been obtained in Britain. That individual I have not seen, nor can I procure specimens for description; so that, on this occasion, I am obliged to have recourse to the description and figures given by Messrs. Temminck, Jenyns, Gould, and Yarrell.

MALE IN SUMMER.—The form of this bird is the same as that of the Kentish Ring-Plover, which it nearly equals in size; but in colour it more resembles the Common Ring-Plover. The bill is black in its whole length; the iris

brown; the feet yellowish-flesh-coloured; the claws black. The anterior part of the forehead is white, succeeded by a broad band of black; the rest of the upper part of the head brownish-grey. The loreal space and a band passing under the eye and including the ear-coverts black. A broad collar of white including the throat is followed by another of black, which is broad in front and narrow behind. The upper parts of the body, including the wing-coverts, are greyish-brown; the lower parts pure white. The primary quills and coverts all brownish-black; the outer secondary quills of a lighter tint, and edged with white, as are their coverts, the inner like the back; the outer quill alone with its shaft white. The tail-feathers are greyish-brown, darker toward the end, all excepting the two middle terminated with white, that colour increasing in extent so as to include the whole of the outer feather on each side, with the exception of a dusky spot on its inner web.

Length to end of tail $6\frac{1}{2}$ inches; wing from flexure $4\frac{4}{12}$; bill along the ridge $1\frac{7}{12}$.

FEMALE.—The female has the dark bands on the head and neck of a lighter tint, but is otherwise similar.

HABITS.—According to M. Temminck, this species “more willingly frequents the margins of rivers than those of the sea, occurs as a straggler or in the course of its migrations in Holland, is more abundant in Germany, and in the south as far as Italy. Its food consists of aquatic insects, their larvæ, and small worms. It forms its nest on the beach or in the neighbouring pastures, laying from three to five oblong, whitish eggs, marked with large black dots, and faint spots of greyish-brown.” Mr. Hoy, in Mr. Hewitson’s work on the Eggs of British Birds, says:—“The Little Plover appears to be very rarely found on the sea-coast, but frequents in preference the banks of rivers, where it breeds. It lays its eggs on the sand, not a particle of grass or other material being used. It is very partial to sand banks, forming islands, which are often met with in some of the larger rivers of the Continent. It may also frequently be found during the

breeding season upon those large extents of sand, which are met with at some little distance from the borders of rivers, overgrown in part with a coarse wiry grass." Mr. Hewitson and Mr. Yarrell represent the egg as an inch and an eighth in length, seven-eighths in breadth, pale greyish-yellow, marked with numerous small spots of dark brown, reddish-brown, and pale purplish-grey. A young individual of this species, obtained at Shoreham, in Essex, is said to be in the possession of Mr. Henry Doubleday, of Epping.

YOUNG.—When fledged, the young, according to M. Temminck, have the parts which in the adult are black of a lighter tint; the greyish-brown of the upper parts deeper, and the feathers margined with light red; the base of the bill of a pale yellowish colour.

VANELLUS. LAPWING.

THE Lapwings are very intimately allied to the Plovers, from which they differ chiefly in having a small hind toe, and in the form of the wing, which, in place of being narrow and acuminate, is broad toward the end and rounded. They are beautiful and lively birds, varying in size from that of a Ringed Plover to that of a Whimbrel, and having the body moderately full, the neck of ordinary length, the head rather small, roundish, and anteriorly convex.

Bill shortish, straight, slender, compressed; upper mandible with the dorsal outline straight and slightly declinate for two-thirds of its length, then convexo-declinate to the end, the edges soft and slightly inflected, the tip rather obtuse, the nasal groove very long; lower mandible with the angle rather long and narrow, the dorsal outline ascending and slightly convex, the sides concave at the base, convex towards the end, the edges inflected, the tip narrow but blunt. Gape-line straight. Tongue soft, of moderate length, slender, trigonal, channelled above, pointed. Fauces very narrow. Œsophagus narrow, without dilatation; proventriculus small, its glands oblong; gizzard very large and powerful, its muscles distinct and extremely firm; its cuticular lining rugous; intestine long; cœca moderate, cylindrical.

Nostrils small, linear, pervious, sub-basal, near the margin. Eyes large and full; both eyelids densely feathered. Aperture of ear rather large, roundish. Feet of moderate length or long, very slender; the tibia long, bare above the joint; tarsus of moderate length, or long, anteriorly covered with numerous scutella, laterally reticulated. Toes short, slender, three before, the hind toe extremely small, the second a little shorter than the fourth, which is con-

nected with the third by a basal web, all margined, and covered above with numerous narrow scutella. Claws short, arched, compressed, slender, obtuse.

Plumage ordinary, rather blended. Wings long, rounded, of moderate breadth, with twenty-five quills; the third primary longest, the first and seventh nearly equal; the other three primaries diminish very rapidly; the outer secondaries short and incurved, the inner tapering, and one of them nearly as long as the tip of the wing when it is closed. Tail straight, slightly arched at the base, broadish, rounded or even, of twelve feathers, of which the middle are not acuminate.

The Lapwings and Plovers are similar in most respects, so that they might, without much impropriety, be considered as sections of the same genus, rather than as distinct genera. Their principal differences are these:—The Lapwings generally have longer legs, their tarsus is scutellate instead of being reticulate; their wings are rounded and broad towards the end instead of being very narrow and pointed; their tail is even instead of having the middle feathers longer; they have a hind toe instead of none or an extremely diminutive one. Many Lapwings, now referred to the genus *Lobivanellus*, have fleshy or membranous appendages about the head, and most of them have the metacarpal knob pointed and covered with horn, constituting a spur.

In habits they resemble the Plovers. They belong more especially to warm climates, frequent marshy places, plains, and heaths, as well as the shores of rivers, lakes, and the sea. They feed on insects, crustacea, mollusca, worms, and sometimes seeds; run with great celerity, fly with rapidity, and utter a mellow, sometimes modulated note. The nest is a slight hollow in the ground; the eggs are four, pyriform, extremely large, and spotted. The young run immediately after birth, and conceal themselves among the stones or herbage.

Only one species occurs in Britain, where it is generally distributed.

VANELLUS CRISTATUS. THE CRESTED LAPWING.

PEWIT. PEESEWEEP. TUCHIT. GREEN PLOVER. CUROCHDAG.



FIG. 12.

Tringa Vanellus. Linn. Syst. Nat. I. 248.

Tringa Vanellus. Lath. Ind. Ornith. II. 726.

Lapwing. Mont. Ornith. Dict.

Vanneau huppé. Vanellus cristatus. Temm. Man. d'Orn. II. 550.

Crested or Green Lapwing. Vanellus cristatus. Selb. Illustr. Brit. Ornith.
II. 221.

Vanellus cristatus. Common Lapwing. Flem. Brit. Anim. 111.

Vanellus cristatus. Crested Lapwing. Jen. Brit. Vert. Anim. 182.

Vanellus cristatus. Bonap. Comp. List, 46.

A recurved occipital crest of linear feathers; upper part of head and fore part of neck black; upper parts green, lower white; tail white, with a broad black band.

MALE.—The Lapwing, so named on account of its peculiar mode of flight, is one of the most beautiful of our native birds, and among the most familiarly known of the family to which it belongs. It is considerably larger than the Golden Plover, which it resembles in form, and in many of its

habits. Its body is moderately full, its neck rather short, its head oblong and somewhat compressed, but rounded above, being much elevated in front; its legs slender and of moderate length; its wings very long and broadly rounded. The bill is shorter than the head, straight, gently tapering, rather slender, with the edges a little involute toward the end, the nasal groove extending to two-thirds of the whole length, the tip hard, narrow, and rather obtuse.

The mandibles are internally concave, the aperture of the posterior nares linear and margined with papillæ. The tongue papillate at the base, long, slender, concave above, thin, horny, and involute toward the end, which is obtuse. The œsophagus, which is six inches long, is of moderate width, without dilatation, the proventriculus somewhat bulbiform; the stomach a strong gizzard, an inch and a half in length, its muscles very thick, the epithelium dense, with parallel rugæ. The intestine is twenty-six inches long, nearly uniform in diameter, its duodenal portion a third of an inch across; the cœca, which are cylindrical, and two and a half inches long, are three inches distant from the extremity.

The eyes are rather large, their aperture being four and a half twelfths in diameter. The nostrils linear, three-twelfths long. The aperture of the ear measures four-twelfths across. The tibiæ are bare for about half-an-inch; the tarsus has about twenty-eight anterior scutella, the first toe six, the second twenty, the third twenty-four, the fourth twenty; the claws are short, arched, compressed, blunted; that of the hind toe conical. The carpal knob is blunt, and covered by the skin.

The plumage is very soft, on the neck and lower parts blended, on the upper parts glossy and somewhat silky, but imbricated; on the head short. On the occiput is a recurvate, dependent, erectile, crest of about twenty unequal linear feathers. The wings are very long, of moderate breadth; the first quill is scarcely an inch long, the second three-fourths of an inch shorter than the fourth, which is longest, and about the same length as the eighth. The primaries broad and rounded; the outer secondaries very broad

and obliquely rounded; the inner broad and tapering. The tail is of moderate length, broad, even, or very slightly emarginate, of twelve broad, abrupt feathers.

The bill is brownish-black; the iris brown; the feet dull crimson; the claws black. The whole upper part of the head, including the crest, is black, highly glossed with green and blue; there are some white feathers on the sides of the forehead and over the eyes; the sides of the head and neck white, but a black streak under the eyes; the fore part of the neck and a portion of the breast black, glossed with green and blue; the back, scapulars, and inner secondaries are of a shining brownish-green, some of the feathers with purple, others with blue reflections, the scapulars tipped with yellowish-white; the smaller wing-coverts dark blue glossed with green; the breast and abdomen pure white. The primaries and outer secondaries are bluish-black, the outer four primaries with brownish-white at the end; the carpal and primary lower wing-coverts black, the cubital coverts and axillaries white, as is the basal half of the secondary quills, their white portion, however, not being visible on the upper surface of the wing; the upper and lower tail-coverts are light red; the tail white, with a broad terminal band of black, broadest on the middle feathers, and forming only a spot on the inner web of the outer.

Length to end of tail 13 inches; extent of wings 30; wing from flexure $9\frac{8}{12}$; tail $4\frac{7}{12}$; bill along the ridge 1, along the edge of lower mandible $1\frac{2}{12}$; tarsus $1\frac{11}{12}$; first toe $\frac{3}{12}$, its claw $\frac{2}{12}$; second toe $\frac{10}{12}$, its claw $\frac{3}{12}$; third toe $1\frac{2}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{11}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The female is similar, differing only in having the tints of the head and fore-neck somewhat lighter, and the hind-neck brownish-grey. The crest is also less elongated.

Length to end of tail $12\frac{1}{2}$ inches; extent of wings 29; bill along the ridge 1; tarsus $1\frac{10}{12}$; middle toe and claw $1\frac{4}{12}$.

VARIATIONS.—Albino individuals, of a pure white or cream colour, have been seen, but very rarely. Otherwise the variations are not remarkable.

CHANGES OF PLUMAGE.—The moult commences in June, and is completed by the beginning of November.

MALE IN SUMMER.—In the breeding season, the upper and fore parts of the head, the chin, throat, and part of the breast are black, glossed with blue and green; the nape greyish-brown; the colours of the other parts as in winter. As the summer advances, the green of the back changes to purplish. An individual shot at Ythan Mouth, on the 27th of May, presented no new feathers, except those on the throat and fore-neck. The œsophagus 6 inches long; the gizzard $1\frac{1}{2}$ by $\frac{10}{12}$; the intestine 29 inches long, from $\frac{1}{2}$ to $\frac{3}{12}$ in width; the cœca 3 inches from the extremity, cylindrical, $2\frac{1}{4}$ inches long.

Length $12\frac{1}{2}$ inches; extent of wings $30\frac{1}{2}$; bill 1; wing from flexure $9\frac{1}{4}$; tail 4; bare part of tibia $\frac{9}{12}$; tarsus 2; middle toe $\frac{1}{12}$, its claw $\frac{2}{12}$.

FEMALE IN SUMMER.—The female differs only in having the breast white, and the crest shorter.

HABITS.—The Lapwing is generally distributed, but more numerous in the southern than in the northern parts of the country; it being of very rare occurrence in the extreme north of Scotland and in the Hebrides. On downs, commons, and in uncultivated marshy tracts, it is met with more frequently than in districts entirely subjected to the plough; but often on cultivated land, when the fields are large, it is to be seen in great numbers. After it has reared its young, it forms flocks, often of great size, and remains on the moors, the inland fields, or in their vicinity, until the middle or end of autumn, when it betakes itself to the lower grounds, and occupies the wet plains and large ploughed fields. Its food consists of worms, insects, and occasionally seeds and other vegetable substances. Its gizzard, which is nearly as muscular as that of a gallinaceous bird, is found to contain numerous bits of hard stone, generally quartz, from two-twelfths of an inch in diameter downwards. In searching for food, it walks sedately along, keeping its body horizontal,

and its legs slightly bent, stopping now and then to look around, when, should it apprehend danger from the intrusion of a person walking in the fields, it utters its well-known cry, resembling the syllables *pee-wee*, or *pee-o-wee*, rises on wing, and either flies about or removes to a distance. A large flock, whether on the ground or on wing, is always interesting to the observer of natural objects, who finds amusement where others see nothing but bare fields or barren moors. Its mode of flying is peculiar, for it sedately flaps its broadly-rounded wings, which seem extraordinarily large, partly because of their black colour beneath, as contrasted with the pure white of the body. When proceeding to a distant place, they fly with great speed, usually in an irregular body, but sometimes arranging themselves in lines, and generally in silence, and before alighting they perform various evolutions. On settling, they stand for some time quietly, and look around; and should they perceive no indication of danger, scatter about. Although very shy and vigilant in places that are much frequented, they are not so timorous when unaccustomed to molestation; yet, under all circumstances, they are less easily approached than the Golden Plovers. They can scarcely be said to associate with any other species, although they may be seen in the same field with Plovers, Rooks, and Gulls. In winter they approach the sea-shore, and at low water often betake themselves to the sands or muddy flats, to search for crustacea or mollusca; but they never at any season fairly take up their residence on the coasts. In the northern and part of the middle divisions of Scotland, they migrate southward in winter, part of them remaining only when the weather is mild, or in peculiarly favourable places, such as the shores of the Beaully Firth.

In the middle of March, should the weather be good, they return to the higher grounds and unfrequented pastures. Frequently about this season, however, boisterous weather suddenly comes on, accompanied with snow or hail; and this so commonly happens in the eastern districts of the middle division of Scotland, that the people always expect what they call the "Tuchit's storm," about the time of the arrival of that

well-known bird. Thus Mr. Robertson, in his *Agricultural Survey of Kincardineshire*, says :—"The Green Plover, or Peas-weep, arrives here so very correctly about Candlemas term, that the storm which generally happens at that season of the year goes by its name (the Teluchet storm)." Many of them, however, betake themselves to the vicinity of marshes and moors, in any situation, or to the downs or links, or disperse over the fields. Their nests, which are slightly constructed, being often merely a few straws or blades laid in a shallow cavity, are found sometimes on an exposed slope or level part of the moors, where the herbage is short, sometimes on tufts in the midst of a bog or morass, sometimes on the bare open ground in a field, and, owing to its nature and the colours of the eggs, is not readily perceived. Should one approach it, the female runs off long before he comes up, and both she and the male fly about, now high, now low, suddenly descending and rising, in gentle curves or abrupt windings, and performing a variety of evolutions, sometimes striking their wings so forcibly as to cause a loud noise, and usually emitting their peevish wail. So great is their anxiety, that they will frequently come very near, and may thus be easily shot on such occasions. Should other pairs be in the neighbourhood, some of them will also fly up, and join in the performance. Meanwhile, the female will perhaps steal away quietly to some distance, and run limpingly along, with the most innocently pitiable appearance imaginable, stopping now and then as if to attract your attention, and entice you off in pursuit. Or she may go farther away, and hanging out one or both of her wings, run coweringly along. So excellent is the simulation, that one can hardly refrain from pursuing, even although smiling at his folly. It is needless to state, that no one has any chance of catching one of these lame Lapwings. When a dog approaches their nest, they are still more active in attempting to intimidate or bewilder him, and sometimes will even hit him with one of their wings.

During the whole of the breeding season, even when not disturbed, but acting under the impulse of their natural instinct, they may be seen flying about, hovering, gliding,

slanting, and curving along, shooting through the air with a continuous noise of the wings, or causing an undulated loud hum by flapping them strongly, and at the same time emitting various modifications of their usual cry. This behaviour is, no doubt, analogous to the aerial rambles of the Snipe at the same season. The Golden Plover also exhibits a similar tendency, but it flies more sedately, not indulging in these fanciful freaks, although it utters a cry different from its usual whistle.

The eggs are four, very large for the size of the bird, but much smaller than those of the Golden Plover, and, like them, pyriform, their average length an inch and tentwelfths, their greatest breadth an inch and a quarter, or somewhat less. They are generally pale brownish-yellow, blotched, spotted, and dotted with brownish-black; but their ground-colour varies to greenish-grey, or olivaceous, and the markings are various, being small or large, thickly or sparsely distributed. The young are closely covered with soft down, variegated with greyish-yellow, brown, and black, and leave the nest immediately after exclusion, crouching among the moss or herbage when alarmed. So long as they remain motionless, it is almost impossible to perceive them; but the anxiety of their parents often betrays their place of refuge, for they will fly up, screaming, flapping, and wheeling about. The eggs are considered delicate food, and are sold as such in London; but I am not aware of their being brought to the markets in Scotland. Lapwings themselves are not much inferior to Golden Plovers in this respect, and in winter and spring are not uncommon in the markets of the larger towns south of the Forth. In the north of Scotland, however, the flesh of this bird, which is dark-coloured, and seldom fat, does not seem to be held in much estimation.

YOUNG FLEDGED.—When fully fledged, the young have the bill dusky, the feet dull olive-brown, the iris dark-brown. The crest is as yet short, and the feathers in general are much less compact and glossy than in the adult, but the colour is the same. The sides of the forehead, the cheeks, and the throat are white; there is a black streak under the

eye, and numerous spots of the same between it and the throat. In other respects there is no great difference, only most of the feathers of the upper parts are terminally margined with pale red.

PROGRESS TOWARD MATURITY.—The colours are perfected after the first moult.

REMARKS.—The above account being entirely the result of my own observation of a bird whose habits are easily studied, and of which specimens can readily be procured, I have here to add such particulars as, having escaped my notice, or being beyond my reach, it may yet be interesting to know. The only additional circumstance which I find in Montagu's article on the subject is, that "it runs fast, and has a singular motion of the head, frequently putting its bill to the ground without picking anything up." Mr. Selby repeats this observation:—"it runs swiftly, during which it has a singular habit of stopping suddenly at intervals, and putting its bill to the ground, but without picking up anything;" and adds, "apparently to bring its body, as it were, to a proper equipoise." I have often observed it, both when it stopped after running a little, and on other occasions, to stoop a little forward, and depress its head, presently to raise it again, and sometimes stretch it up a little. The latter author also alludes to its being frequently kept in gardens on account of its devouring slugs, insects, and larvæ; and states that "when thus domesticated, it requires to be fed and protected during the severity of winter, as it is, in such situations, unable to obtain a sufficient supply of its native food." In Ireland, however, where the climate is milder, Mr. Thompson says, "I have known lapwings to be kept some years in gardens (even four or five birds in one garden), during which time they lived wholly on what they could pick up, no food being supplied to them."

According to M. Temminck, it is "nowhere so abundant as in Holland," and other authors give it an extended distribution over Europe and Asia.

STREPSILAS. TURNSTONE.

BILL a little shorter than the head, slightly bent upwards beyond the middle, compressed until towards the end; upper mandible with its dorsal outline slightly concave, the ridge somewhat flattened, but towards the end convex, the sides sloping at the base, afterwards convex, the edges rather sharp and slightly inflected, the tip depressed and blunt; lower mandible with the angle narrow, the dorsal outline ascending and slightly convex, the ridge rounded, the sides sloping outwards and grooved at the base, convex towards the end, the edges a little involute, the tip depressed and blunt. The nasal groove occupies one half of the length of the bill, and the gape-line is very slightly recurvate.

Eyes of moderate size, margins of eyelids papillate. Aperture of ear transversely oblong, of moderate size. Nostrils sub-basal, linear, lateral, perforate, the nasal groove bare. The body is ovate and rather full, the neck rather short, the head oblong, of considerable size, and rounded in front. The feet are slender and of moderate length. Tibia bare for a short space; tarsus rather short, somewhat compressed, anteriorly covered with numerous scutella; toes three before, of moderate length, slightly webbed at the base, the third longest, the second a little shorter than the fourth, the first very small; claws short, compressed, arched, obtuse, that of the hind toe sharper and more curved.

Plumage rather compact above, blended beneath, very short on the fore part of the head and on the middle of the back; scapulars elongated and narrow. Wings long, narrow, pointed; quills twenty-six; primaries tapering, the first longest, the rest rapidly graduated; outer secondaries short, incurved, obliquely rounded with a point; inner greatly

elongated and tapering. Tail rather short, a little rounded, of twelve straight, rather broad and rounded feathers.

This genus is very intimately allied to *Hæmatopus*, agreeing with it in almost every particular, excepting the form of the bill, which, besides being shorter, is depressed, instead of being compressed, at the end. Only one species is as yet known, of which, however, the distribution has been traced to the greater part of Europe, the Cape of Good Hope, various countries of Asia, Australia, and the northern parts of America.

STREPSILAS INTERPRES. THE COLLARED
TURNSTONE.

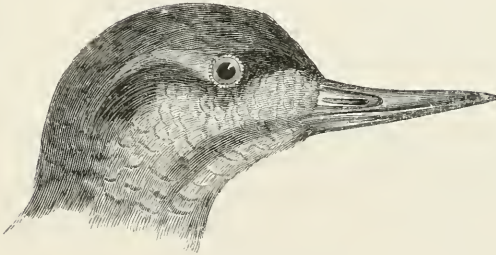


FIG. 13.

Tringa Interpres. Linn. Syst. Nat. I. 248.

Tringa Morinella. Linn. Syst. Nat. I. 249.

Tringa Interpres. Lath. Ind. Orn. II. 738.

Turnstone. Mont. Orn. Dict.

Tourne-pierre a collier. Strepsilas collaris. Temm. Man. d'Orn. II. 553.

Strepsilas interpres. Common Turnstone. Flem. Brit. Anim. 110.

Common Turnstone. Strepsilas Interpres. Selb. Illustr. II. 204.

Strepsilas Interpres. Common Turnstone. Jen. Brit. Vert. An. 182.

Strepsilas Interpres. Bonap. Comp. List, 46.

In winter, the middle of the back and the lower parts white, the fore-neck black, the upper parts blackish-brown. In summer, the upper parts variegated with black and brownish-red.

MALE.—The Turnstone, which obtains its name from a supposed habit of shifting or overturning small stones while searching amongst them for food, is a lively and handsome bird, about the size of the Dotterel. Although so much

smaller, it is very similar to the Oyster-catcher in form, as well as in habits. There being no other species known, it is unnecessary to repeat here those particulars which have been given in the generic character. The tongue is ten twelfths of an inch long; the œsophagus four inches, with an average diameter of three twelfths; the stomach one inch; the intestine eighteen inches; the cœca nearly two inches. On the tarsus are twenty-five scutella, on the first toe six, on the second eighteen, on the third twenty-six, on the fourth twenty-two.

The bill is black, the base of the lower mandible tinged with red, the throat pale flesh-colour; the iris brown, the feet orange, the claws black. The general colour of the upper parts is dark brown, glossed with green and purple, the feathers edged with pale brown, the fore part and sides of the head brownish-white, spotted with black. The throat is white; a band on each side from the lower mandible, the side of the head behind the ear-coverts, and the fore part of the neck black, the feathers slightly edged with whitish; the rest of the lower parts pure white, as are the hind part of the back and the upper tail-coverts, some of the rump feathers, however, being black. The tail is white at the base, brownish-black towards the end, edged externally with light brown, the outer web of the outer and the tips of all excepting the two middle white. The primary quills and coverts are brownish-black, the secondaries more brown; all in their lower part, the outer secondaries at their extremities, and the shafts of the primaries white, of which colour also are the tips of the secondary coverts, and the tertiaries or humerals, together with some of the smaller wing coverts.

Length to end of tail $9\frac{6}{8}$ inches; extent of wings $18\frac{6}{8}$; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; wing from flexure $6\frac{4}{12}$; tail $9\frac{3}{4}$; tarsus $1\frac{1}{2}$; first toe $\frac{3}{12}$, its claw $\frac{2}{12}$; second toe $\frac{3}{12}$, its claw $\frac{3}{12}$; third toe $\frac{1}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{9}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female differs only in having the black parts more tinged with brown.

Length to end of tail $9\frac{5}{8}$ inches; extent of wings $18\frac{3}{4}$; bill along the ridge $1\frac{1}{8}$, along the edge of lower mandible 1.

VARIATIONS.—In adult individuals the only variations that I have observed consisted of a greater or less intenseness of tint.

CHANGES OF PLUMAGE.—The moult commences in September and is completed by the end of November, when the colours are as described above. A partial moult takes place in the beginning of summer, so that during the breeding season the birds present the following appearance :—

MALE IN SUMMER.—The forehead, loreal space, throat, and a patch on the nape, white, as are all the parts described as such above. A narrow band across the forehead, passing under the eye, another from the base of the lower mandible, and the fore part and sides of the neck, glossy black ; the top of the head reddish-white streaked with black ; the fore part of the back, the scapulars, and many of the wing-coverts light chestnut with spots of black, the central part of each feather being of the latter colour.

FEMALE IN SUMMER.—The female is similar to the male, but has the colours less deep, and the white on the neck less pure.

The descriptions of the male and female in winter plumage are taken from two individuals shot by myself in the island of Harris, on the 4th December 1817 ; and those of the birds in summer, from foreign specimens, and an individual shot in Fifeshire in the autumn of 1836.

HABITS.—The Turnstones appear on our coasts in the end of October, and remain until the beginning of May. The latest period at which I have seen them was the 14th of May, on which day (1831) I shot one out of a large flock near Prestonpans on the Firth of Forth. In the outer Hebrides, they frequent the rocky shores in flocks varying from half-a-dozen to twenty individuals, and are not generally shy, but may be easily approached when feeding. Although they eat coleopterous insects, their food consists chiefly of small shellfish, crustacea, and marine worms, which they search for

among the fuci, in the crevices of the rocks, and among the stones and gravel, seldom or never making their appearance on the sands or in muddy places. Their flight is like that of the Oyster-catcher, rapid on occasion, performed by regularly timed beats, often direct, but frequently in semicircular curves. They run about with great celerity, occasionally utter a mellow note, and sometimes associate with Ringed Plovers and Oyster-catchers, although when flying they generally keep apart. Owing to the pure white on their back, the bar of the same colour on the wings, the blackish tint of the upper parts, and the form of their long pointed wings, they present a very beautiful appearance when flying. It is not less interesting to watch them as they are feeding on the shore, when, however, I have not observed them turning over the stones, as it is alleged they do. I have indeed seen them on stony beaches, where frequently Ring Plovers were also engaged in searching for food, and have observed them poking their bills into the spaces between the stones, and extracting small objects from the crevices; and had nearly given up their alleged stone-turning habits as a fable. But Mr. Audubon, in the fourth volume of his Ornithological Biography, relates an actually observed instance of the fact. On a beach in Galveston Island, he and a sailor, carrying the carcass of a deer to the water to be washed, met with four Turnstones. "They merely ran a little distance out of our course, and on our returning, came back immediately to the same place; this they did four different times, and, after we were done, they remained busily engaged in searching for food. None of them was more than fifteen or twenty yards distant, and I was delighted to see the ingenuity with which they turned over the oyster-shells, clods of mud, and other small bodies left exposed by the retiring tide. Whenever the object was not too large, the bird bent its legs to half their length, placed its bill beneath it, and with a sudden quick jerk of the head pushed it off, when it quickly picked up the food which was thus exposed to view, and walked deliberately to the next shell to perform the same operation. In several instances, when the clusters of oyster-shells or clods of mud were too heavy to be removed in the ordinary

way, they would not only use the bill and head, but also the breast, pushing the object with all their strength, and reminding me of the labour which I have undergone in turning over a large turtle, Among the sea-weeds that had been cast on the shore, they used only the bill, tossing the garbage from side to side, with a dexterity extremely pleasant to behold. In this manner I saw these four Turnstones examine almost every part of the shore along a space of from thirty to forty yards ; after which I drove them away, that our hunters might not kill them on their return." The flesh of this bird is not so delicate as that of the Plovers, but rather resembles that of the Oyster-catcher. It has been observed along all the coasts of England, but has never been found breeding in any part of Britain, nor indeed has any credible person seen it there in the summer months. M. Temminck states that it " nestles in the north ; forms a slight hollow in the sand of the shores, and lays three or four eggs of a greyish, olive, or greenish colour, marked with brown spots." This species is very extensively distributed along the coasts of Europe, Africa, Asia, Australia, and America. Mr. Gould remarks :—" If any bird may be regarded as cosmopolite it is the Turnstone, for it inhabits the sea-shores of every part of the globe."

YOUNG FLEDGED.—The young when fully fledged have the upper parts greyish-brown, the feathers darker in the centre ; the throat is brownish-white, the loreal space brownish-grey, and there is no white on the nape ; the fore-neck is dark brown, the feathers edged with whitish, the rest of the lower parts, the back, excepting a band on the rump, a band on the wing, and the tail, excepting a dusky band across it, pure white. The bill is dusky, at the base lighter, the feet light orange. In this state, but with some of the second set of feathers interspersed, the young birds arrive here.

PROGRESS TOWARD MATURITY.—In winter the young have assumed the appearance of the adults as described above, only that their dark tints are lighter.

REMARKS.—M. Temminck is of opinion that this bird moults only once in the year; but, in the first place, I have never met with a single individual killed in winter, that had any red on its plumage; and, secondly, both before their departure and after their arrival individuals of the summer plumage as described above are met with. A specimen killed on Winter Island, on the 14th of June, 1822, is marked as follows.

MALE IN SUMMER.—Bill black; feet reddish-orange, claws black; the upper part of the head white, with broadish longitudinal streaks of greenish-black edged with pale brown. The sides of the head and upper hind neck greyish-white, with faint brownish streaks. A brownish-black band extends across the forehead; a similar band on each side from the base of the lower mandible; these bands unite with a patch of greenish-black occupying the cheek; and from this a band of the same colour proceeds down the neck, enlarging below and meeting its fellow in front, forming a large greenish-black patch on the lower part of the neck and fore part of the breast, and extending backwards to the hind neck, and below to the axilla. The lower part of the hind neck, the scapulars, and the wing-coverts are pale chestnut brown, with irregular patches of greenish-black; the middle and hind parts of the back are white; a broad brownish-black bar across the rump; the tail-coverts white. The tail is white, with a transverse bar of blackish-brown, broadest in the middle, where it nearly includes all the exposed part, except the tip. A spot on the side of the forehead, the throat, and the upper part of the fore neck, the breast, the belly, and the lower tail-coverts, the axillary feathers, and the lower wing-coverts are pure white. The primaries are light blackish-brown, the shafts more or less white, as are the inner edges. A band of white extends across the secondaries, excepting the inner six, which are pale blackish-brown, with large spots of pale chestnut-brown; the secondary coverts are also white.

HEMATOPUS. OYSTER-CATCHER.

BILL long, slightly bent upwards beyond the middle, pentagonal and about as high as broad at the base, where it is covered by a soft skin which extends nearly to the middle; beyond this extremely compressed, and, when viewed vertically, gradually tapering to a point; when viewed laterally, contracting a little from the base to before the nostrils, then enlarging before the nasal groove, and afterwards gradually sloping, but not forming a point, the tips being more or less abrupt. This attenuation of the mandibles is not the original form, but is produced by their being rubbed against hard substances. Upper mandible with the dorsal line slightly declinate at the base, then more or less bent upwards, the ridge broad, convex at the base, gradually narrowing to the tip, the sides at the base sloping, towards the end erect, the edges soft and rounded at the base, rather sharp and hard towards the end; lower mandible with the angle rather long and acute, the dorsal line a little convex, the sides and edges as in the upper mandible. Mouth narrow; upper mandible within flat, the edges projecting but slightly; palate soft, with six rows of conical papillæ directed backwards, three on each side of the nasal slit; lower mandible within but slightly concave. Tongue very short, fleshy, sagittate and papillate behind, flat above, the tip entire. The œsophagus is narrow, dilates a little about the middle, and terminates in an oblong proventriculus, surrounded with oblong glandules. Gizzard large, muscular, oblong, with the muscles distinct, the tendons radiated; the cuticular lining tough, rather thin, with prominent transverse rugæ. Intestine slender, nearly uniform in diameter, with two cylindrical rather long cœca; the cloaca elliptical.

Eyes of moderate size, margins of eyelids bare and papil-

late. Aperture of ear transversely oblong, very small. Nostrils linear, sub-basal, direct, about the middle of the long nasal groove, which is filled with a bare skin. The general form is compact, the body muscular, the neck rather long and thick, the head rather small and oblong, the forehead convex.

Feet long and stout; tibia bare about a third up; tarsus compressed, rounded before and behind, covered anteriorly with hexagonal scales, laterally and posteriorly with scales of the same form but smaller. Toes three before (the first wanting), spreading, short, depressed, covered above with numerous narrow transverse scutella, and having thick broad margins, which, with the very broad flat soles, are covered with roundish papillæ; the second or inner toe shortish, the fourth a little longer, the third considerably longer; outer and middle toes with the margins dilated and united at the base, so as to form a short web; which is also the case with the middle and inner, but in a much smaller degree. Claws very small, very slightly arched, narrow, obtuse.

Plumage soft and glossy, blended, somewhat distinct on the back, on the middle of which it is very short, as well as on the forehead. Feathers of hind-neck very soft and loose; scapulars elongated, narrow. The feathers in general ovate or lanceolate, with a considerable tufty plumule. Wings long, acute; quills thirty; primaries with very strong shafts; the outer fourteen secondaries short, curved inwards and obliquely rounded; the rest narrow, tapering, and some of them elongated so as nearly to equal the first primary when the wing is closed. Tertiaries short. Tail rather short, broadish, nearly even, of twelve straight, broad, rounded feathers.

One of the most remarkable circumstances connected with this genus is the attenuated wedge-like form of the bill, which is produced by attrition, that organ being used for detaching limpets, balani, and other shells from the rocks. In the young bird the bill is not compressed towards the end, and the upper mandible has the tip a little declinate and longer than that of the lower. In this respect the species of this genus resemble those of the genera *Strepsilas* and

Cinclus. The claws also are at first acute, and become blunted by use.

The species greatly resemble each other in form and size. The bill in all is of a vermilion or orange tint, and the colours of the plumage are either black and white, or the former alone. One or other of the species is found in almost every known country. They reside on the sea-shore, and live on mollusca and crustacea. "I believe," Mr. Gould remarks, "that there is no country of the world of any extent, the shores of which are not inhabited by one or other of the numerous species of this genus; but it would seem that all those which exist in the southern hemisphere are totally different from those of the northern."

In Britain, indeed in Europe, there occurs only one species, which is easily distinguished from that of America, although they were confounded by Wilson.

1. *H. Ostralegus*. The head, neck, and back deep greenish-black; the throat often half-ringed with white. Europe.

2. *H. palliatus*. The head and neck brownish-black; the back greyish-brown. America.

The name Hæmatopus, or Bloody-foot, given to this genus by Linnæus, was sufficiently appropriate so long as only the European species was known; but when it is considered that another has the feet flesh-colour, a second pink, and a third white, the generic name becomes quite inapplicable. It might be expedient, therefore, to follow Lesson in having recourse to Brisson's name *Ostralega*, although, as the former author observes, "it is not itself happily chosen, for although several Oyster-catchers live on shell-fish, they do not eat oysters. *Ostralegus*, however, signifies merely shell-gatherer, and in so far is correct enough, although not distinctive, for many birds are shell-gatherers.

HÆMATOPUS OSTRALEGUS. THE PIED OYSTER-CATCHER.

SEA PIE. SEA PIET. PIANET. CHOLLDRICK. TRILLACHAN. TRILLACHAN-
TRAGHAID.

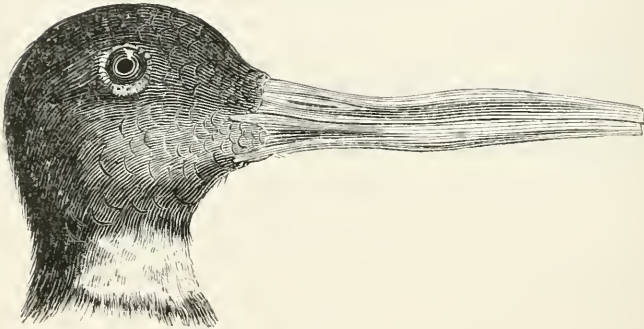


FIG. 14.

Hæmatopus Ostralegus. Linn. Syst. Nat. I. 257.

Hæmatopus Ostralegus. Lath. Ind. Ornith. II. 752.

Oyster-catcher. Mont. Ornith. Dict.

L'Huiterier Pic. Hæmatopus Ostralegus. Temm. Man. d'Ornith. II. 531.

Hæmatopus Ostralegus. Common Oyster-catcher. Flem. Brit. Anim. 115.

Common Oyster-catcher. Hæmatopus Ostralegus. Selby Illustr. Brit.
Ornith. II. 200.

Hæmatopus Ostralegus. Pied Oyster-catcher. Jen. Brit. Vert. Anim. 184.

Hæmatopus Ostralegus. Bonap. Comp. List, 46.

Bill vermilion; feet purplish-red; head, neck, fore part of back, wings, and terminal half of tail black; the rest white.

MALE.—This beautiful and not uncommon bird is nearly as large as the Curlew, of a compact form, rather robust, with a longish neck; rather small, oblong head; stout, though rather long legs; shortish, rounded tail; and wings

reaching when closed nearly to the tip of the latter. The bill is about twice the length of the head, slightly bent upwards, rather stout, compressed, being of greater height than breadth in its whole length, much narrowed toward the tip, which is abrupt, and somewhat wedge-shaped. Both mandibles are grooved for more than a third of their length, at first gradually narrowed, when viewed laterally, toward the middle enlarging considerably, and then gently contracting; the edges sharp, but strong; and the gape-line, which commences far before the eyes, very slightly re-arcuate.

The mouth is very narrow; its roof nearly flat; the tongue short, eight-and-a-half-twelfths long, triangular, emarginate and papillate at the base, thin, fleshy, tapering to a blunt point. The œsophagus seven inches long, at first eight-twelfths in width, but enlarging to an inch and a half, then narrowed half-an-inch. The proventriculus oblong, an inch and a twelfth in breadth, with simple oblong glandules. The stomach, an inch and ten-twelfths in length, and an inch and a half in breadth, has the lateral muscles rather large and distinct, the epithelium rather thin, dense, elevated on its inner surface into rugæ, which are longitudinal, and at the upper and lower parts curiously puckered. The intestine is four feet three inches long, slender, nearly uniform in diameter, its width being three-twelfths and a half. At the distance of three inches and a half from its extremity come off the cœca, which are three inches and a twelfth in length, cylindrical, two-twelfths and a half in breadth. The rectum, not much wider than the intestine, enlarges into a globular cloaca.

The nostrils are sub-basal, linear, four-and-a-half-twelfths long. The eye four-twelfths in breadth. The aperture of the ear nearly of the same size. The tibia is bare for nine-twelfths; the tarsus rather short, stout, and covered with hexagonal scales; the toes three, rather short, broadly marginate, flat beneath; the inner with twelve, the middle toe with twenty-two, the outer with only eight scutella. The claws are small, little curved, rather depressed, and obtuse.

The plumage is glossy; blended on the head, hind neck,

and abdomen; firm and imbricated on the upper parts; the feathers generally oblong and rounded. The wings are long, and acute; the first quill longest, the other primaries rapidly graduated, tapering, and obliquely rounded; the secondaries twenty, the outer fourteen rather short, curved inwards, and obliquely rounded, the rest narrow, tapering, some of them greatly elongated. The tail is rather short, slightly rounded, and repand, the middle and lateral feathers being a little shorter than the rest.

The bill is vermilion tinged with yellow as far as the end of the nasal groove, the attenuated part dull yellow. The iris crimson, the edges of the eyelids vermilion. The feet are pale lake or purplish-red. The head, the neck all round, the fore part of the back, the scapulars, wing-coverts, quills, and terminal half of the tail, are deep greenish-black. The breast, abdomen, sides, lower wing-coverts, middle and hind part of the back, and the upper and lower tail-coverts, are pure white. A broad band of the same colour passes across the wing, including the greater portion of all the secondary quills excepting the inner, and forming two oblong patches, one on the inner, the other on the outer web of the primaries, the outer of these patches being reduced on the first and second quills to a mere line on the shaft; the terminal half of the secondary coverts, and the tips of the inner primary coverts, are white; and there are some white feathers on the outer edge of the wing. A band of white crosses the throat, rising on each side to behind the ears; on the lower eyelid is a greyish-white mark; and there are some minute whitish feathers along the base of both mandibles.

Length to end of tail 17 inches; extent of wings 35; wing from flexure $10\frac{1}{2}$; tail 5; bill along the ridge $2\frac{1}{2}$, along the ridge of lower mandible $2\frac{3}{4}$; tarsus $1\frac{11}{12}$; inner toe 1, its claw $\frac{2}{12}$; middle toe $1\frac{5}{12}$, its claw $\frac{4}{12}$; outer toe $1\frac{2}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female resembles the male in colour, and differs little in size, being however larger. Œsophagus seven inches long; gizzard two inches in length, an inch and three-fourths in breadth; intestine five feet one inch long; rectum three inches and a half; cœca four inches and a half.

Length to end of tail $18\frac{1}{4}$ inches ; extent of wings 36 ; wing from flexure $10\frac{9}{12}$; tail 5 ; bill along the ridge $3\frac{2}{12}$, along the edge of lower mandible $3\frac{4}{12}$; bare part of tibia $\frac{9}{12}$; tarsus 2 ; inner toe 1, its claw $\frac{3}{12}$; middle toe $1\frac{5}{12}$, its claw $\frac{4}{12}$; outer toe $1\frac{2}{12}$, its claw $\frac{9}{12}$.

VARIATIONS.—Considerable differences occur in the size of individuals, and especially in the length and shape of the bill. Slight variations of tint in the black parts are perceptible, the head and neck being more or less tinged with grey, the wings and tail with brown. The presence or absence of white markings on the neck are also remarkable, some birds having two spots on the neck behind the ears, others a band across the throat, others irregular white markings, and many none. The bill varies in length from three inches and a half to little more than two.

CHANGES OF PLUMAGE.—The black of the head and other parts becomes a little faded as the plumage becomes old, but I have not observed any other changes. The partial spring moult spoken of by many authors I have not detected, birds at all seasons occurring with the varieties as to the white marks on the neck mentioned above.

HABITS.—The Sea Pie occurs on all our coasts, on many parts of which it is abundant, but nowhere more so than in the Scottish Islands. After the breeding season it forms flocks, which are frequently very numerous, being composed of from twenty to a hundred or more individuals. At this period they are met with chiefly on the low rocky shores, or at the mouths of rivers, where, at low water, they obtain their food, which consists of patellæ, balani, small bivalve shells swallowed entire, young crabs, and other marine animals. Although frequently seen on extensive open sands, they seem rather to betake themselves thither for security than for the purpose of looking for food. On low pebbly, muddy, or sandy shores, they always prefer the edge of the water, in which they wade, although they also search the exposed parts. They run with great celerity on hard sand,

and walk with ease in soft muddy places, their short, flat-soled toes being well adapted for both purposes. Limpets and balani form their chief food; but, although they have been said by many to eat oysters and other large bivalve mollusca, I have not found such animals in their stomach. The bivalve shells found in their gizzard or œsophagus are generally, when of small size, either entire or merely crushed, but when large are deprived, in a greater or less degree, of their testaceous envelopes. Along with their food they swallow particles of gravel, frequently of considerable size: I have found some a quarter of an inch in diameter. In searching for food they usually keep by themselves, although they sometimes allow the Curlew, Turnstone, and Redshanks to mingle with them; and in their flights they are very seldom accompanied by other species. When it is high water, they betake themselves in flocks to the rocky headlands, or to islands, sometimes also to an unfrequented part of an extensive sandy beach, where they rest until the retiring tide has left their feeding grounds exposed.

While reposing, the Sea Pie stands with its legs quite straight, or uses one leg only, the other being drawn up, the body horizontal, the neck retracted, the head either directed forward, or with the bill buried among the feathers of the back. In this position they present a curious appearance when there is a high wind, as in that case each individual directs his breast toward it, and on a sandy beach or level shore they often stretch out in long lines. When going to sleep, however, it rests on one leg only. In open sandy places, I have seen the flocks crouch. Its flight is strong and steady, performed by regular beats of the extended wings, the neck drawn in and the feet directed backwards, as in the other Grallæ. At all seasons it is very shy and vigilant, seldom permitting one to approach within shooting distance, and with its shrill cries alarming less wary birds. Its alarm note is a single shrill scream, but on some occasions it emits a modulated softened cry of several notes. When wounded so as to be unable to fly, it readily betakes itself to the water, and swims off, sitting light, and moving with considerable speed.

The Oyster-catcher is a permanent resident, and does not seem to extend its flight to a great distance, although after the breeding season is over it collects into flocks, and in winter betakes itself to the estuaries and extended open coasts. In April the flocks break up, and the individuals disperse in pairs. Along the eastern coast of Scotland, few breed on the rocky headlands, the greater number betaking themselves to the rivers, on the stony or sandy beaches of which they form their nests. On the Tay and its tributaries, the Tummel, and the Garry, as far up as Blair Atholl; on the South and North Esks; the Dee, the Don, the Spey, and the Findhorn, as well as many smaller streams, they are seen dispersed from March through the summer and part of autumn. They ascend the Dee as far as Mar Lodge, and the Spey as far as Granton. Once, on a botanical excursion with my class, I found a nest with eggs by the Dee, in the parish of Peterculter. It was merely a slight hollow among the pebbles of the beach.

The eggs, like those of the smaller gulls, are good; but the flesh, which is very dark, and abounds in fat of a yellowish colour, has a disagreeable smell, and rather unpleasant taste. In winter these birds become extremely plump, the skin, the interstices of the muscles, and the internal organs being then often loaded with fat. They are frequently seen in the markets, and are generally sold at two shillings the pair in Edinburgh; but they are greatly inferior to the Curlew and Golden Plover as an article of food.

On the shores of the Hebrides, where I have often found it, the nest is generally a slight hollow among the gravel or pebbles above high-water mark; but when a rocky place has been chosen, a few straws and fragments of plants, sometimes small stones and bits of shells, are brought together. The favourite breeding places are headlands and rocky islands, but the nests are sometimes found on sandy beaches. The eggs are generally three, sometimes four, placed with the smaller ends together. They are of a regular oval form, somewhat narrowed towards the smaller extremity, two inches long, an inch and seven-twelfths broad, of a pale greyish-yellow colour, marked all over with dots,

spots, and blotches of blackish-brown and umber, with some irregular linear markings of the same. The eggs are usually deposited from the tenth of April to the twentieth of May, and only one brood is reared in the season. Although the parent birds evince great anxiety about their eggs or young, they seldom come very near an intruder, but generally keep flying about at a safe distance, uttering their loud shrill cry.

Mr. St. John states that, in the neighbourhood of Forres, they "sit quietly in pairs the chief part of the day on the banks or islands of shingle about the river or on the shore, but resort in the evenings to the sands in large flocks," and that "during the whole of the breeding season they remain in large flocks along the coast, notwithstanding their duties of hatching and raising their young. When all other birds are paired off, they still every now and then collect in the same numbers as they do in winter." This, however, is not a practice with them in other parts of Scotland, and, probably on account of local peculiarities, a great number of sterile individuals, or such as are not breeding, may continue or collect there in summer. Some are, in like manner, to be seen about Ythan Mouth in summer; but generally all along our eastern coast the sea-shore is deserted during the breeding season.

Should one consider the Sea-Pie the most beautiful of our native birds, I could not much censure his taste. When by the silver Dee, gliding rapidly along, amidst corn-fields, pastures, and fragrant birch-woods, you hear a loud and shrill cry, and turning about, see a pair winging their flight up the country, their glossy black and pure white plumage contrasting strongly with everything around, and their long vermilion beaks giving them a strange and foreign aspect, they never fail to rivet your gaze. Equally attractive are they when running about on some grassy meadow, picking up an insect or a slug, then standing, and again advancing with quick short steps, prettily tripping it among the gowans; then emitting their loud alarm-cries, and flying off to a more distant place, or alighting on the pebbly beach. No creature but man seems to molest them; but of his advances they are always suspicious, as good need they have to be.

YOUNG.—The young leave the nest soon after emerging from the egg, and conceal themselves among the stones or herbage, in the manner of those of the Lapwing. At first the head, neck, back, wings, and tail are covered with a mottled down of a dull brown colour, with greyish-white tips. The parts that are to be white have the down greyish-white, tipped with pale brown. The down on the tail is very long, brown above, white beneath. The bill is yellowish-brown to the middle, then greyish-white, the end dusky. The iris blackish-brown. The feet are of a livid grey, the toes darker, the claws greyish-white at the base, light brown at the end. The bill, although much shorter, is of the same general form as in the adult, but it is much less compressed toward the end; both mandibles are pointed, and the upper, which extends a little beyond the other, has the tip slightly declinate. The young do not for many days betake themselves to the rocks or open sands, and therefore must be fed by the old birds, and that plentifully, for towards the period of their being fully fledged they are usually excessively fat. When fledged, the general colour of the dark parts is deep chocolate-brown, the feathers slightly margined with yellowish-red; the breast, belly, greater part of the back, half of the tail, and its coverts, are white. The bill is more tinged with orange, but the feet are nearly as above described,

PROGRESS TOWARD MATURITY.—After the first moult, the black parts of the plumage are tinged with brown, more especially the quills and tail. There is an obscure half-ring of greyish-white across the fore part of the neck, the tips of the white feathers being black. The legs are pale livid grey, the claws brown, whitish at the base; the iris crimson; and the bill as in the adult, but a little more dusky towards the end. It appears to me that the younger birds only have the white marks on the neck, and that these gradually disappear each successive moult, until in very old birds there exist only faint indications of them, the feathers being merely whitish at the base. The chin, which is slightly mottled with white in young birds, becomes at length pure black.

REMARKS.—My opportunities of studying this species have been excellent, as I have very frequently watched it in the Outer Hebrides, where it is plentiful, and where I have often found its eggs and young. All that is recorded above is, therefore, exclusively the result of my own observation. On referring to various works, I find nothing additional of much interest. Montagu states that it “never quits the sea-coast,” and Mr. Jenyns that “it is never found inland.” This is not quite correct, for although it never removes to a distance from water, it is, as I have shewn, sometimes found far inland along pebbly rivers.

This species is common on the shores of most parts of Europe, and is found in Asia and Africa; but its occurrence in America is doubtful, for although Wilson figures it, his description refers to *Hæmatopus palliatus*, which Mr. Audubon has described as the only species met with by him in that country.

TRINGINÆ.

SANDPIPERS AND ALLIED SPECIES.

Who that has often visited the shores of the ocean, wandered along the extended sand-beaches on the margin of which the waves terminate their career in foam and uproar, or visited the muddy estuaries alternately filled and emptied by the periodical floods, has not stood to gaze upon the flocks of tiny birds that were busily picking up their food from the moist ground, or wheeling, as if in sport, their devious flight, now skimming the surface of the water, now rising high above the breakers, and then shooting far off to sea, to visit a distant part of the coast. How often, in visiting a sedgy pool surrounded with marshes, have we been saluted, but in no friendly wise, by the shrill clamour of the long-billed and sharp-winged birds which had placed their nests on tufts too remote to be reached. Again, on the long range of heathery hills that we had traversed for many a weary mile, we have come, very unexpectedly to us, and with no welcome from its occupant, upon the nest of the lonely Curlew, which fluttered from among our feet in silence and terror, until reaching a safe distance, she began to entice us away from her treasure, by displaying a broken wing and shattered leg—taught, in fact, by instinct, to act a palpable untruth. Many pleasant sights have we seen on these solitary rambles—here the four spotted eggs of the Dunlin, so like in colour to the surrounding ground, that you wonder how the eye has distinguished them—here the timid young of the same bird squatted among the short heath—there a flock of Godwits thrusting their long bills into the mud; and, again, the gliding and low flight of the beautiful White-breasted Tatler,

as skimming by the margin of the quiet lake, it emits its shrill and reiterated cries.

Of these birds, and many others all nearly allied, those which constitute the natural family of the Tringinae agree in presenting the following characters. The body is ovate, and compact; the neck long or of moderate length; the head small, compressed, rounded in front. The bill long, straight, blunt-tipped, sometimes arcuate, sometimes a little curved upwards. The mouth is extremely narrow; the tongue slender, trigonal, grooved above, tapering, pointed. Oesophagus narrow, with an oblong bulbiform proventriculus; stomach elliptical or roundish, with very large lateral muscles, radiated tendons, and thin, dense, longitudinally rugous epithelium; intestine long, rather slender; cæca moderate, slender, cylindrical, or oblong.

Nostrils linear, small, pervious, basal. Eyes small. Aperture of ear rather large, roundish. Legs of moderate length or long, slender; tibia bare below; tarsus slender, scutellate; toes four, the hind toe very small and elevated; or three only, of moderate length, generally more or less webbed at the base; claws small, arched, compressed, obtuse.

Plumage moderately full, blended, on the upper parts compact. Wings very long, pointed, with the first quill longest; inner secondaries elongated, one of them nearly as long when the wing is closed. Tail short, of twelve feathers.

The Tringinae, though nearly allied to the Pluvialinae, are easily distinguishable. They have the head smaller and compressed; the bill longer and more slender; the eyes comparatively small, those of the family compared being remarkably large and full. They are much more aquatic in their habits, and a few of them swim habitually and with ease. They are gregarious in winter, often collecting into vast flocks, and searching the shores of the sea for food. They run with great speed, have a rapid flight, and emit loud and rather shrill cries. It is chiefly by probing the sand and the mud that they obtain their food; but they also pick up objects from the surface. Their food consists of mollusca, insects, crustacea, and other animals. Most of the species that continue with us in winter, retire northward in summer.

Their nest is a slight hollow, generally with some fragments of vegetables, and they lay four large pyriform, spotted eggs. Their flesh is savoury, and held in estimation, most of them passing in the markets as snipes.

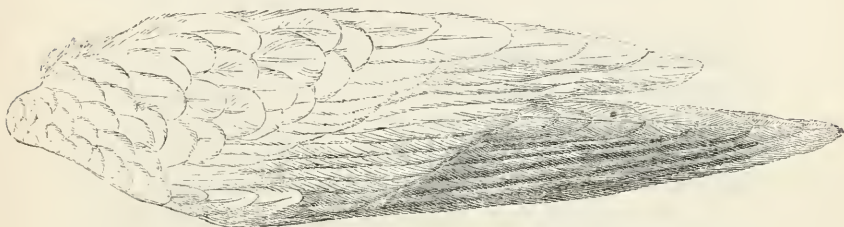


FIG. 15.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. MACHETES. RUFF.

BILL scarcely longer than the head, straight, slender, somewhat flexible, with the ridge convex, flattened toward the end, the nasal groove extending nearly to the end, the tip slightly enlarged, obtuse. Nostrils small, linear, pervious, basal, close to the margin. Legs rather long, very slender; toes four, first very small and elevated, anterior rather long, third and fourth connected by a basal web. Wings long, pointed; tail short, doubly emarginate. The male, in the breeding season, assumes a great development of plumage on the neck, and has the face tuberculated.

1. *Machetes pugnax*. *Common Ruff*. Male, in winter, with the upper parts variegated with brownish-black and light red, the throat and abdomen white, the fore-neck and part of the breast pale reddish-brown, spotted with dark brown. Female similar, but with the upper parts lighter, the lower more grey. Male, in summer, with numerous fleshy tubercles on the face, two occipital tufts, and a very large ruff of elongated feathers on the neck; the colours of

the plumage varying. Female without tubercles or ornamental feathers, the upper parts greyish-brown, glossed with green, the fore-neck and breast paler.

GENUS II. TRINGA. SANDPIPER.

Bill not much longer than the head, nearly straight, slender, soft, and somewhat flexible, with the ridge narrow, but flattened toward the end, the narrow groove extending nearly to the end, the tip slightly enlarged, and obtuse. Nostrils small, linear, pervious, basal, sub-marginal. Legs of moderate length, very slender; toes four, small, the first diminutive and very elevated, the outer two connected by a very small basal web. Wings very long, pointed; tail short, generally doubly emarginate.

1. *Tringa Canutus*. *Ash-coloured Sandpiper*. Bill a little longer than the head, straight, its tip considerably dilated; tail even. In winter, ash-grey above, white beneath, the neck and sides streaked with dusky. In summer, the back glossy black, variegated with brownish red; the fore-neck and breast yellowish-red.

2. *Tringa pectoralis*. *Pectoral Sandpiper*. Bill a sixth longer than the head, scarcely deflexed at the end; tail with the middle feathers pointed and much longer than the lateral, of which three on each side are equal. In winter, the upper parts greyish-brown, streaked with dusky; cheeks, sides, and fore part of neck, with part of the breast and the sides of the body, greyish-white, streaked with dusky, the rest of the lower parts white. In summer, the feathers of the upper parts brownish-black, broadly margined with brownish-red; the rump black; the cheeks, neck, part of the breast, and the sides brownish-grey, with larger streaks of brownish-black.

3. *Tringa rufescens*. *Buff-breasted Sandpiper*. Bill not longer than the head, straight; tail with the middle feathers considerably longer than the lateral, of which three on each side are nearly equal. In summer, the upper parts blackish-brown, each feather margined with greyish-yellow; cheeks, sides, and fore part of neck, with part of the breast and the

sides of the body, light reddish-yellow, streaked with brownish-black; the rest of the lower parts yellowish-white, quills greyish-brown, their inner webs whitish, with transverse curved lines and dots of black; outer tail-feathers edged with white, within which is a black line.

4. *Tringa maritima*. *Purple Sandpiper*. Bill a little longer than the head, slightly decurved at the end; tail with the middle feathers considerably longer, the three lateral on each side nearly equal; tarsus shorter than the middle toe; feet ochre-yellow. Upper parts glossy purplish-black; in winter, the feathers margined with light grey; in summer, margined with light red, and tipped with white.

5. *Tringa Cinclus*. *Dunlin Sandpiper*. Bill a fourth longer than the head, slightly decurved at the end; tail with the middle feathers considerably longer; tarsus an inch long; bill black; feet very dark olive; tail-coverts dusky. In winter, brownish-grey above, streaked with dusky; fore part of neck paler, similarly streaked; throat, breast, and abdomen white. In summer, yellowish-red above, spotted with brownish-black; fore part of neck greyish-white, tinged with red, and distinctly spotted with dusky; a large patch of black on the breast.

6. *Tringa subarquata*. *Curlew-billed Sandpiper*. Bill half as long again as the head, considerably decurved toward the end; tail with the middle feathers slightly longer; tarsus an inch and a quarter long; bill black; feet very dark olive; tail-coverts white. In winter, brownish-grey above, streaked with dusky; fore part of the neck greyish-white, streaked with brownish-grey. In summer, light red above, spotted with black; fore part of neck bright yellowish-red, faintly streaked with dusky; tail-coverts spotted with brown and red.

7. *Tringa Schinzii*. *Schinz's Sandpiper*. Bill about the length of the head, straight; tail with the middle feathers considerably longer; tarsus eleven-twelfths long; bill and feet dusky. In winter, yellowish-grey above, streaked with brownish-black, scapulars edged with light red; tail-coverts white; fore-neck and breast greyish-white, with lanceolate brownish-black streaks.

8. *Tringa platyrhyncha*. *Flat-billed Sandpiper*. Bill half as long again as the head, depressed at the base, tapering; tail with the middle feathers considerably longer than the lateral, which are nearly equal; tarsus an inch long; bill reddish at the base, black toward the end; feet greenish-grey. In summer, the upper parts black, the feathers narrowly edged with light red; upper part of the head blackish-brown, with two narrow light red bands; fore part of neck reddish-white, spotted with brown; the rest of the lower parts white, lateral tail-coverts white, with a dusky spot.

9. *Tringa minuta*. *Little Sandpiper*. Bill about the length of the head, straight, slender, scarcely enlarged at the end; tail doubly emarginate; tarsus ten-twelfths long; bill and feet black. In winter, brownish-grey above, streaked with dusky, the sides of the neck paler, of its lower part tinged with brown; lower parts white; as are the lateral tail-coverts. In summer, yellowish-red above, spotted with brownish-black; lower parts white; lower anterior and lateral parts of the neck reddish-grey, streaked with brown; a dusky loreal band, and a whitish streak over the eye.

10. *Tringa Temminckii*. *Temminck's Sandpiper*. Bill shorter than the head, straight, slender, scarcely enlarged at the end; tail somewhat cuneate, the outer feathers being shorter than the rest; tarsus eight-twelfths long; bill dusky; feet greenish-brown. In winter, deep brown above, streaked with blackish-brown; fore part of the neck and a portion of the breast reddish-grey; throat and lower parts white; lateral tail-feathers nearly white. In summer, the feathers of the upper parts deep black, margined with red; fore part of the neck reddish-grey, finely streaked with black; throat and lower parts white, as are the lateral tail-feathers.

GENUS III. CALIDRIS. SANDERLING.

Bill of the length of the head, straight, slender, soft, and somewhat flexible, with the ridge narrow, but flattened toward the end, the nasal groove extending nearly to the end, the tip a little enlarged, and obtuse. Nostrils small, linear, pervious, basal, sub-marginal. Legs rather short,

very slender; toes three, small, laterally marginate. Wings very long, pointed; tail short, somewhat doubly emarginate.

1. *Calidris arenaria*. *Common Sanderling*. In winter, pale grey above, with dusky lines, white beneath. In summer, variegated above with black and red, beneath red anteriorly, white behind.

GENUS IV. NUMENIUS. CURLEW.

Bill at least twice the length of the head, arcuate, slender, somewhat flexible, with the ridge broadly convex, the nasal groove very long, the tip enlarged, sub-elliptical. Nostrils small, linear, pervious, basal. Legs long, slender; tarsus reticulated, but with a series of short scutella anteriorly for two-thirds of its length; toes rather short, broad and flat beneath. Wings very long, pointed; tail rather short, rounded.

1. *Numenius Arquata*. *Great Curlew*. Length from twenty-three to twenty-eight inches; bill from five to seven inches. Hind part of the back white, with narrow longitudinal dark markings.

2. *Numenius Phaeopus*. *Whimbrel Curlew*. Length from sixteen to nineteen inches; bill little more than three inches. Hind part of back white.

GENUS V. LIMOSA. GODWIT.

Bill about twice the length of the head, straight or slightly curved upwards, slender, considerably flexible, with the ridge convex, flattened at the base and toward the end, the nasal groove extending nearly to the end, the tip slightly enlarged, obtuse. Nostrils small, linear, basal. Legs long or moderate, slender; tarsus scutellate; toes rather short, broad and flat beneath, the outer two connected by a rather large basal web, running out narrow to the end of each. Wings long, pointed, tail short, the four middle feathers a little longer.

1. *Limosa rufa*. *Bar-tailed Godwit*. Bill about four inches long, recurvate, flesh-coloured, dusky toward the

end ; tarsus about two inches and two-twelfths ; feet greyish blue ; tail white, with eight dusky bars.

2. *Limosa Egocephala*. *Black-tailed Godwit*. Bill about three and a half inches long, straight, orange, dusky at the end ; tarsus about two inches and three quarters long ; feet brownish-black ; middle claw serrated ; tail black, white at the base.

GENUS VI. MACRORHAMPHUS. LONGBEAK.

Bill twice the length of the head, straight, slender, subulate, compressed for more than half its length, depressed and scrobiculate toward the end, and a little enlarged there, the tips narrowed but blunt. Nostrils sub-basal, linear, pervious. Legs of moderate length, slender ; toes four, rather small, the first diminutive and elevated, the outer two connected as far as the second joint by a membrane. Wings very long, pointed ; tail short, nearly even.

1. *Macrorhamphus griseus*. *Grey Longbeak*. In winter, the upper parts brownish-grey, spotted with dusky ; the rump and tail white, transversely barred with blackish-brown. In summer, the upper parts variegated with brownish-black and light reddish-yellow ; the lower light yellowish-red, spotted and barred with dusky.

MACHETES. RUFF.

THE bird known in Britain by the name of Ruff, *Tringa pugnax* of various authors, has been separated from the *Tringæ* by Cuvier, to form a genus by itself, bearing the designation of *Machetes* or *Fighter*, in allusion to the combative propensity of the males during the breeding season. The bill in this genus differs in no appreciable degree from that of *Tringa Canutus*; the general form approaches to that of *Limosa*; the legs, and especially the toes, are longer than in *Tringa*, and the latter indicate some approach to the Snipes. Not being acquainted with any other species than *Machetes pugnax*, I must take the generic character from it alone.

Bill scarcely longer than the head, straight, slender, soft and somewhat flexible: upper mandible with the dorsal line straight, slightly declinate for two-thirds, the ridge convex, flattened toward the end, the tip slightly enlarged, obtuse, and a little exceeding that of the lower, the nasal groove extending nearly to the end, and filled by a concave bare membrane; lower mandible with the angle very long and narrow; the sides grooved, the tip a little enlarged and obtuse. Tongue very long, slender, trigonal, channelled above, pointed.

Nostrils small, linear, pervious, basal, close to the margin. Eyes rather small; both eyelids densely feathered. Aperture of ear rather large, roundish. Legs rather long; tibia bare about a third of its length; tarsus rather long, slender, compressed, anteriorly covered with numerous narrow scutella; toes slender, first very small and elevated; anterior toes rather long, inner a little shorter than outer, third not much longer, all with numerous scutella above, laterally marginate; third and fourth connected by a basal

web. Claws small, arched, much compressed, tapering, acute.

Plumage moderately full, soft, and rather blended, on the back and wings distinct. Wings long, pointed; quills twenty-five; primaries tapering, the first longest; secondaries short, incurved, but the inner elongated, one of them nearly as long as the first primary when the wing is closed. Tail short, doubly emarginate, of twelve feathers.

The males, which are polygamous, have the face covered with tubercles, and the neck furnished with a large ruff, during the breeding season.

MACHETES PUGNAX. THE COMMON RUFF.

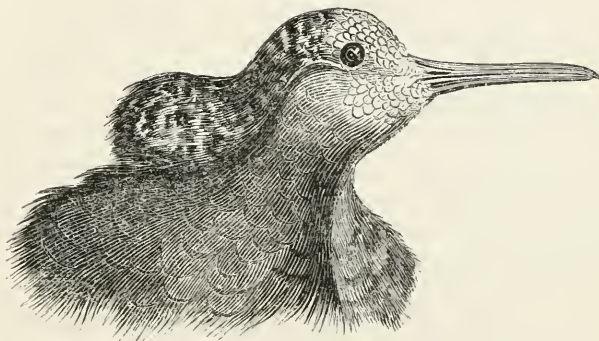


FIG. 16.

- Tringa pugnax. Linn. Syst. Nat. I. 247. Summer.
 Tringa littorea. Linn. Syst. Nat. I. 251. Young.—Lath. Ind. Orn. II. 731.
 Tringa pugnax. Lath. Ind. Ornith. II. 725. Summer.
 Ruff. Mont. Ornith. Dict. and Suppl.
 Becasseau combattant. Tringa pugnax. Temm. Man. d'Orn. II. 731.
 Tringa pugnax. Ruff. Flem. Brit. Anim. 110.
 Machetes pugnax. Ruff. Selb. Illustr. Brit. Ornith. II. 130.
 Tringa pugnax. Ruff. Jen. Brit. Vert. An. 207.
 Machetes pugnax. Bonap. Comp. List. 50.

Male in winter with the bill brown, the feet greenish-yellow, the throat and abdomen white, the fore neck and part of the breast pale reddish-brown, spotted with dark brown; the upper parts variegated with brownish-black and light-red. Female similar, but with the upper parts lighter, the lower more grey, the bill and feet dusky. Male in summer, with numerous fleshy tubercles on the face, two occipital tufts and a very large ruff of elongated feathers on the neck; the colour of the plumage varying in different individuals, and even in the same at different periods of the same season; the bill and

feet orange or yellow. Female without tubercles or ornamental feathers; the upper parts greyish-brown, glossed with green, the fore neck and breast paler; the bill and feet dusky. Young with the lower parts pale reddish anteriorly, white behind; the feathers of the upper parts black, margined with light red.

THIS bird is remarkable for two circumstances connected with its habits, it being polygamous, and during the breeding season extremely pugnacious. Two circumstances relative to its plumage are also peculiar; in spring it acquires an enormous ruff of feathers on the neck and a multitude of fleshy tubercles on the face, which disappear in July; and the colours of the ruff especially, as well as of the body, are so diversified that hardly two individuals can be found precisely alike. As in every other instance, I shall first describe the bird in its winter plumage.

MALE IN WINTER.—The general form of the Ruff is rather slender; the body being moderate, the neck rather long, the head rather small, ovate, somewhat compressed. The bill is of the same length as the head, straight, slender, higher than broad, toward the end depressed; both mandibles laterally grooved nearly to the end, with the edges soft and blunt, the tips a little enlarged and obtuse. The nostrils are linear, small, three-twelfths long, sub-basal, sub-marginal, direct. The eyes are of moderate size; the aperture of the ear roundish and rather large. The legs are rather long and slender; the tibia is bare for an inch, or one third of its length; the tarsus has twenty-eight anterior scutella, and a greater number behind; the hind toe, which is very small, has four, the second toe twenty, the third twenty-eight, the fourth twenty-six scutella; the anterior toes are long, slender, compressed, marginate, the third and fourth connected by a basal web, the second a little shorter than the fourth. The claws are of moderate length, very slender, much compressed, tapering, pointed, arched.

The plumage is soft and rather blended, unless on the back and wings; the feathers generally ovate. The wings

are long, of moderate breadth, pointed; the primaries stiff, tapering, the first longest, the rest rapidly graduated; the inner secondaries tapering and elongated. The tail is rather short, of twelve feathers, of which the four middle are considerably longer.

The bill is brown; the iris hazel; the feet greenish-yellow; the claws black. The throat and fore-neck are white, its lower part and a portion of the breast pale reddish-brown, spotted with dark brown; the rest of the lower parts white. The upper parts are variegated with brownish-black and light red; the feathers having a large patch of the former colour, with a margin of the latter; on the hind part of the back they are greyish-brown, with reddish margins. The smaller wing-coverts are brownish-grey, with their central part dusky; the primary quills and their coverts dark brown, with the shafts whitish; the secondary quills and coverts greyish-brown, with a greenish gloss, and narrowly margined with whitish. The upper tail-coverts are brownish-grey, margined with paler, and having a dusky mark near the end; the tail-feathers brownish-grey, with the shafts whitish; the four middle feathers with dusky markings toward the end.

Length to end of tail 12 inches; extent of wings 25; wing from flexure $7\frac{1}{2}$; tail 3; bill along the ridge $1\frac{5}{12}$, along the edge of lower mandible $1\frac{5}{12}$; bare part of tibia $1\frac{2}{12}$; tarsus 2; first toe $\frac{3}{12}$, its claw $\frac{2}{12}$; second toe $\frac{11}{12}$, its claw $\frac{4}{12}$; third toe $1\frac{2}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{1}{12}$, its claw $\frac{3}{12}$.

FEMALE IN WINTER.—The female resembles the male, but has the dark tints paler, and the lower parts tinged with grey. The bill is black; the feet dusky grey.

VARIATIONS.—The males vary considerably in colour even in winter; but this is chiefly owing to the intermixture of feathers belonging to the summer plumage. After the month of April, the greatest diversity prevails.

CHANGE OF PLUMAGE.—The quills, larger coverts, and tail-feathers are changed in autumn; but the other feathers

are renewed twice in the year. In spring, moreover, a tuft of oblong curved feathers projects from each side of the occiput; and along the sides of the neck anteriorly arise series of elongated, oblong, incurved feathers, capable of being raised so as to form a large ruff. The cheeks, forehead, and space around the eyes become at the same time covered with obovate or oblong papillæ of a yellow colour and fleshy consistence. In June these papillæ disappear, the summer plumage begins to be shed, and by the end of October the winter dress is completed.

MALE IN SUMMER.—Bill yellowish-orange, toward the end brown; papillæ on the head reddish; feet yellow; claws black. The wings, tail, and abdomen, as in winter; but all the other parts varying so as to render a general description impracticable. Thus in an individual before me the occipital tufts are purplish-black; the ruff pale yellow, streaked and variegated with black; in another, the tufts are minutely variegated with light red and black, while the ruff is glossy purplish-black; in another, the tufts and ruff are variegated with reddish-yellow and black; in another they are purplish-black, barred with white; in another almost entirely yellow; in another nearly white. In short, there is no end to the variations of these parts. The neck, breast, and sides are frequently black, glossed with blue and purple; but often also variegated with white and black, or yellow, grey, and other tints. For the most part the hind-neck and back are barred and mottled with brownish-black and light reddish-yellow; the middle tail-feathers usually barred.

FEMALE IN SUMMER.—The female does not acquire any tubercles or ornamental feathers on the head or neck. The bill is black; the feet greenish-grey. The upper parts greyish-brown, glossed with green; the fore part of the neck and breast paler; the rest of the lower parts white.

HABITS.—This species formerly bred in great numbers in the fenny districts along the eastern coast of England; but, owing to the draining of the marshes, and the increase of

population, is now of rare occurrence in those parts. It appears that many of the Ruffs now merely sojourn with us for a short time during their vernal and autumnal migrations. On the east coast of Scotland they usually appear about the middle of September, and depart in about a fortnight; but I have never seen an adult male killed there; the little flocks that occur being young birds and females.

In the end of August, and in September and October, small flocks are sometimes met with along the east coast of Aberdeenshire, especially about Ythan Mouth, and thence to Aberdeen, and in the estuaries of the South Esk and Tay. They seem to pass southward after a very short sojourn. They are also not very unfrequently met with on the shores of the Frith of Forth. From thence, all along the eastern and part of the southern shores of England, they have been met with here and there. The bird is not known to breed any where in Scotland or its islands, and therefore it is more than probable that these flocks have winged their way from Scandinavia, in some parts of which no bird is more common during the summer. We have no facts as to their passage along the western coasts of Scotland and England; but Mr. Thompson states that they occur not unfrequently in Belfast Bay, and sometimes in other parts of Ireland, though not hitherto observed on the western or southern coasts.

Very few now breed in England, and none, in so far as is known, in Scotland or Ireland. They reappear, on their return to the north, in spring, from March to the middle of May; but in smaller numbers. Montagu states in the Supplement of his Ornithological Dictionary, published in 1813, that he made a tour through Lincolnshire to make himself acquainted with the history of this singular bird. He found that, owing to the draining of a large tract of fen, they had become scarcer than they used to be.

“The trade of catching Ruffs,” he says, “is confined to a very few persons, which at present scarcely repays their trouble and expense of nets. These people live in obscure places on the verge of the fens, and are found out with difficulty, for few, if any, birds are ever bought but by those

who make a trade of fattening them for the table ; and they sedulously conceal the abode of the fowlers, so much that by no art could we obtain from any of them where they resided ; and in order to deceive us, after evading our entreaties, gave us instructions that led us quite a contrary direction. The reason of all this was obvious, for after much labour and search, in the most obscure places, (for neither the innkeepers, nor other inhabitants of the towns, could give any information, and many did not know such a bird was peculiar to their fens,) we found out a very civil and intelligent fowler, who resided close to Spalding, at Fengate, by name William Burton, (we feel a pleasure in recording his name, not only from his obliging nature, but for the use of others in similar pursuits,) and strange to say, that, although the man had constantly sold Ruffs to Mr. Towns, a noted feeder, hereafter more particularly noticed, as also to another feeder, at Cowbit, by the name of Weeks, neither of these persons could be induced to inform us even of the name of this fowler. The reason, however, was evident, and justly remarked by Burton, for he obtained no more than ten shillings per dozen, whereas Weeks demanded thirty shillings for the like number he had the same day bought of Burton. The season was far advanced, and we were obliged to buy some at that price of Weeks, for Burton could not then catch us as many as we required.

“At this time we were shown into a room, where there were about seven dozen males, and a dozen females, and of the former there were not two alike. This intrusion to choose our birds, drove them from their stands, and compelling some to trespass upon the premises of others, produced many battles. By this feeder we learned, that two guineas a dozen was now the price of fattened Ruffs ; and he never remembered the price under thirty shilling, when fit for table.

“Mr. Towns, the noted feeder at Spalding, assured us his family had been a hundred years in the trade ; boasted that they had served George the Second and many noble families in the kingdom. He undertook, at the desire of the late Marquis of Townsend (when that nobleman was Lord Lieutenant of Ireland), to take some Ruffs to that country, and

actually set off with twenty-seven dozen from Lincolnshire, left seven dozen at the Duke of Devonshire's, at Chatsworth, continued his route across the kingdom, to Holyhead, and delivered seventeen dozen alive in Dublin, having lost only three dozen in so long a journey, confined and greatly crowded as they were in baskets, which were carried upon two horses.

“Nothing can more strongly evince the hardy constitution of these birds, than the performance of such a journey, so soon after capture, and necessarily fed with a food wholly new to them: and yet a certain degree of care and attention is requisite to preserve, and more especially to fatten them; for out of the seventeen dozen delivered at the castle of Dublin, not more than two dozen were served up to table, doubtless entirely owing to a want of knowledge or attention of the feeder under whose care they had been placed.

“Few Ruffs, comparatively speaking, are now taken in the spring, as the old birds frequently pine, and will not readily fatten. The principal time is in September, when the young birds are fled; these are infinitely more delicate for the table, more readily submit to confinement, and are less inclined to fight. If this plan were generally enforced by the proprietors of fen land, or made a bye-law amongst themselves, the breed would not be so reduced; but there are still some fowlers who make two seasons, and thus by catching the old birds in the spring, especially the females, verify the fable of the Goose and the golden eggs; the destruction of every female in the breeding season is the probable loss of four young.

“The manner of taking these birds is somewhat different in the two seasons: in the spring the Ruffs *hill*, as it is termed, that is, they assemble upon a rising spot of ground contiguous to where the Reeves propose to deposit their eggs; there they take their stand, at a small distance from each other, and contend for the females—the nature of polygamous birds. This hill, or place of resort for love and battle, is sought for by the fowler, who, from habit, discovers it by the birds having trodden the turf somewhat bare, though not in a circle as usually described.

“When a hill has been discovered, the fowler repairs to the spot before the break of day, spreads his net, places his decoy birds, and takes his stand at the distance of about 140 yards or more, according to the shyness of the birds.

“The net is what is termed a single clap-net, about 17 feet in length and 6 wide, with a pole at each end. This, by means of uprights fixed in the ground, and each furnished with a pulley, is easily pulled over the birds within reach, and rarely fails taking all within its grasp; but in order to give the pull the greatest velocity, the net is (if circumstances will permit) placed so as to fold over with the wind. However, there are some fowlers who prefer pulling it against the wind for Plovers. As the Ruffs feed chiefly by night, they repair to their frequented hill at the dawn of day, nearly all at the same time; and the fowler makes his first pull according to circumstances, takes out his birds, and prepares for the stragglers who traverse the fens, and who have no adopted hill. These are caught singly, being enticed by the stuffed birds.

“Burton, who was before mentioned, never used anything but stuffed skins, executed in a very rude manner; but some fowlers keep the first Ruffs they catch for decoy birds. These have a string of about two feet long tied above the knee, and fastened down to the ground.

“The stuffed skins are sometimes so managed as to be moveable by means of a long string, so that a jerk represents a jump, (a motion very common amongst Ruffs, who at the sight of a wanderer flying by will leap or flirt a yard off the ground,) by that means inducing those on wing to come and alight by him.

“The stuffed birds are prepared by filling the skin with a whip of straw tied together, the legs having been first cut off, and the skin afterwards sewed along the breast and belly, but with no great attention to cover the straw beneath. Into this straw a stick is thrust to fix it into the ground, and a peg is also thrust through the top of the head, and down the neck into the stuffing or straw body, and the wings are closed by the same process. Rough as this preparation is,

and as unlike a living bird as skin and feathers can be made, it answers all the purpose.

“ When the Reeves begin to lay, both those and the Ruffs are least shy, and so easily caught, that a fowler assured us he could with certainty take every bird on the fen in the season. The females continue this boldness, and their temerity increases as they become broody; on the contrary, we found the males at that time could not be approached within the distance of musket-shot, and consequently far beyond the reach of small shot.

“ We were astonished to observe the property that these fowlers have acquired, of distinguishing so small an object as a Ruff at such an immense distance, which, amongst a number of tufts or stumps, could not by us be distinguished from one of those inequalities; but their eyes had been in long practice of looking for the one object.

“ The autumnal catching is usually about Michaelmas, at which time few old males are taken; from which an opinion has been formed that they migrate before the females and young. It is, however, more probable that the few which are left after the spring fowling, like other polygamous birds, keep in parties separate from the female and her brood till the return of spring. That some old Ruffs are occasionally taken in the autumnal fowling, we have the assertion of experienced fowlers; but we must admit that others declare none are taken at this season. It must, however, be recollected, that in the autumn the characteristic long feathers have been discharged, and consequently young and old males have equally their plain dress; but the person who assured us that old male birds were sometimes taken at that season, declared it was easy to distinguish them from the young of that summer.

“ It does not appear to be the opinion of fowlers, that the males are more than one season arriving at maturity, because the Ruffs taken in the spring, destitute of the characteristic long feathers, which constitutes their principal distinction, are comparatively few to those possessing the ruff. The opinion, therefore, that those ruffless males are birds of a very late brood of the preceding season, is a reasonable conjecture.

“ The long feathers on the neck and sides of the head, in the male, that constitute the ruff and auricles, are of short duration; for they are scarcely completed in the month of May, and begin to fall the latter end of June. The change of these singular parts is accompanied by a complete change of plumage; the stronger colours, such as purple, chesnut, and some others, vanish at the same time, so that in their winter dress they become more generally alike from being less varied in plumage; but we observed that those who had the ruff more or less white, retained that colour about the neck after the summer or autumnal moulting was effected.

“ The females, or Reeves, begin laying their eggs the first or second week in May; and we have found their nest with young as early as the third of June. By this time the males cease to *hill*. The nest is usually formed upon a stump in the most swampy places, surrounded by coarse grass, of which it is also formed. The eggs are (as usual with its congeners) four in number; these are so nearly similar in colour to those of the Snipe and Redshank, both of which breed in the same wet places, and make similar nests, that some experience is required to discriminate them. They are, however, superior in size to the former, and are known from the latter by the ground being of a greenish hue instead of a rufous white; but individuals assimilate so nearly to each other as not to be distinguished, especially as the dusky and brown spots and blotches are similar. The weight of the eggs is from five drams twenty grains to five drams fifty grains.

“ The weight of the Ruff in the spring, when first taken, is from five ounces and three quarters to six ounces and a quarter; the weight of the Reeves about four ounces. The length of an old Ruff is sometimes as much as thirteen inches and a half; young males about twelve inches. The female measures about ten inches.

“ It is a remarkable character of these birds, that they feed most greedily the moment they are taken; a basin of bread and milk, or boiled wheat, placed before them, is instantly contended for; and so pugnacious is their disposition, that they would starve in the midst of plenty, if

several dishes of food were not placed amongst them, at a distance from each other."

Montagu carried some of these birds with him to Devonshire. Several of them lived in confinement for two and three years, and one for four years. He noticed that their annual changes never varied; every spring produced the same coloured ruff and other feathers; but the tubercles on the face never appeared in confinement.

"We had occasion to remark," he continues, "that although the pugnacious disposition of the Ruff never entirely ceased in confinement, yet it increased with the growth of the long neck feathers in the spring, when the least movement of either from their stand provoked a battle. At other times they would occasionally sleep close to each other, with their heads turned over the wing, and one leg tucked up; but a mess of bread and milk instantly roused the latent spirit for battle, and one bird was so much wounded in the throat in one of these feuds that he died. Their actions in fighting are very similar to those of the Game Cock; the head is lowered, and the bill held in a horizontal direction; the ruff, and indeed every feather, more or less distended, the former sweeping the ground as a shield to defend the more tender parts; the auricles erected, and the tail partly spread; upon the whole assuming a most ferocious aspect. When either could obtain a firm hold with the bill, a leap succeeded, accompanied with a stroke of the wing; but they rarely injured each other."

Mr. Thompson, of Belfast, in his *Natural History of Ireland*, presents a not pleasing battle-scene:—"A relative has mentioned to me, that when he was leaving Rotterdam for London, a few years ago, in spring, a huge basket containing from two to three hundred Ruffs was put on board the steamer. The incessant fighting of these birds proved the grand source of attraction to the passengers during the voyage. Their crib was one great battle-field, in which every individual seemed to be at the same moment engaged, and determined to keep up the warfare as long as life itself lasted. It was a continual battle, and treading down of the wounded and dying. About one half of them were slain

before the vessel reached London. On inquiry of the person who had charge of them, 'Would it not have been better to place them in smaller baskets?' the reply was, that it would have been quite the same as to the fighting and deaths produced."

YOUNG.—The following description of the young in full plumage is taken from two individuals shot on the shores of the Firth of Forth in autumn, and a specimen from Norway. The bill is black; the feet greenish-black. The upper part of the head light red streaked with black; the upper hind-neck duller, with larger and fainter spots; the rest of the hind-neck, the fore part of the back, and the scapulars brownish-black, with light red margins; the feathers of the hind part of the back dusky grey, with dull light red edges. Wing-coverts glossy greenish-grey, black toward the end, and edged with pale reddish-grey; quills dusky, glossed with green, margined with whitish; the inner secondaries edged with light red. Tail-feathers grey, glossed with green, edged with red, the four middle darker, all with dusky markings toward the end. The fore-neck and part of the breast and sides are pale greyish-red, the other parts white.

In September, 1840, I procured two young individuals, a male and a female, which had been shot on the Forth near Stirling.

In both, the tongue was one inch in length; the œsophagus five, the stomach an inch and two-twelfths long, an inch and one-twelfth in breadth; the intestine in the male measured seventeen inches, in the female eighteen; cœca in the former an inch and ten-twelfths, in the latter two inches, their greatest width two-twelfths; the rectum in both two inches and a quarter. The stomach broadly elliptical, compressed, with strong muscles and radiated tendons; the epithelium very thin, dense, elastic, longitudinally rugous, dull yellow. The contents of the stomach were small crustacea, insects, and fresh-water univalve shells, with numerous fragments of quartz, rounded and smoothed, the largest two-twelfths in diameter.

TRINGA. SANDPIPER.

THE Sandpipers are birds of small size, the largest not exceeding the Golden Plover, and resemble in form the Sanderlings, Phalaropes, Snipes, and other genera of the same family, having the body rather full and ovate, the neck of moderate length, the head rather small, compressed, and anteriorly convex.

Bill not much longer than the head, nearly straight, slender, soft and somewhat flexible; upper mandible with the dorsal outline straight, the ridge narrow, but flattened towards the end, the tip slightly enlarged, obtuse, and a little exceeding that of the lower, the nasal groove extending nearly to the end and filled by a concave bare membrane; lower mandible with the angle very long and narrow, the sides grooved, the tip a little enlarged and obtuse. Tongue soft at the base, very long, slender, trigonal, channelled above, pointed. Upper mandible within concave, with a groove on each side, and a central double row of reversed pointed papillæ; lower deeply concave. Fauces extremely small. Œsophagus narrow, without dilatation; proventriculus small, its glands oblong; gizzard very large and powerful, its muscles extremely firm; its cuticular lining rugous; intestine long; cæca moderate, cylindrical.

Nostrils small, linear, pervious, basal, close to the margin. Eyes rather small; both eyelids densely feathered. Aperture of ear rather large, roundish. The feet are of moderate length, and very slender; the tibia long, and bare above the joint; tarsus of ordinary length, anteriorly covered with numerous narrow scutella; toes small; first very small and elevated; second a little shorter than fourth, third not much longer; all with numerous scutella above, laterally margi-

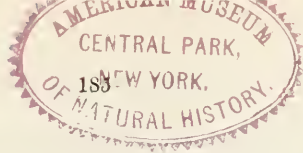
nate; third and fourth connected by a basal web. Claws small, curved, compressed, obtuse.

Plumage moderately full, soft, and rather blended, but on the back and wings distinct. Wings very long, pointed; quills twenty-five; primaries tapering, the first longest; secondaries short, incurved, but the inner elongated, one of them nearly as long as the first primary when the wing is closed. Tail short, of twelve narrowed feathers, generally emarginate.

The Sandpipers inhabit the sandy and muddy coasts of the sea in autumn and winter, often collecting into large flocks, and occasionally associating with Plovers, Sanderlings, and other birds of a like nature. In summer they are scattered over the moors and marshy districts of the northern countries, where they breed, forming a shallow nest on the ground, and depositing four pyriform, spotted eggs. The young run about almost immediately after birth, and squat when in danger. The food is obtained by probing the mud or soft sand with their flexible bill, and consists of insects, worms, and small testaceous mollusca.

The males are considerably smaller than the females, and in some species are distinguished by a difference of colour, or by modification of the plumage. In the same species the colours vary at different seasons, the winter plumage being very different from that of summer, on which account great confusion prevailed in this genus until M. Temminck and some other modern writers accurately defined the variations observed.

The bird popularly known as Sandpiper, is of a different genus, in which are species distinguished by different names. But as every genus ought to have a generic name, vernacular as well as scientific, if the term Sandpiper is to be employed, it must be given exclusively to the genus *Tringa* or the genus *Actitis*. The *Tringæ* are usually called Sandpipers, and many ornithologists give them that name; but if it be appropriated by them, it is evident that it cannot be shared by another genus.



TRINGA CANUTUS. THE ASH-COLOURED SAND-PIPER OR KNOT.

GREY SANDPIPER. RED-BREASTED SANDPIPER. RED SANDPIPER.

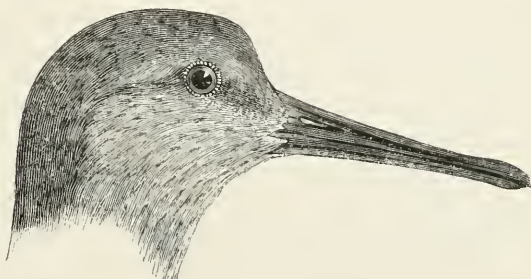


FIG. 17.

- Tringa Canutus.* Linn. Syst. Nat. I. 251. Adult in Winter.
Tringa Canntus. Lath. Ind. Ornith. II. 738. Adult in Winter.
Tringa islandica. Linn. Syst. Nat. I. Addenda. Adult in Summer.
Tringa islandica. Lath. Ind. Orn. II. 737. Adult in Summer.
Red Sandpiper. Mont. Orn. Dict. Summer.
Knot. Mont. Orn. Dict. Winter.
Sandpiper, Ash-coloured. Mont. Orn. Dict. Young.
Becasseau Canut ou Manbèche. *Tringa einerea.* Temm. Man. d'Orn. II. 627.
Tringa Canutus. Knot. Flem. Brit. Anim. 109.
Tringa einerea. Lath. Ind. Orn. II. 733. Young.
Tringa grisea. Lath. Ind. Orn. II. 733. Adult in Winter.
Tringa nœvia. Lath. Ind. Orn. II. 732. In moult.
Knot. *Tringa Canutus.* Selby, Illustr. II. 138.
Tringa Canntus. Jen. Brit. Vert. An. 213.
Tringa Canutus. Bonap. Comp. List. 49.

Bill straight, a little longer than the head, its tip considerably dilated; tail even; tarsus an inch and two-twelfths long. In winter the plumage ash-grey above, white beneath, the neck and sides streaked with dusky. In summer the back glossy black, variegated with yellowish-red; the fore neck and breast yellowish-red. The young grey above, each feather on the back with a double marginal band of black and white.

MALE.—The Knot, which is much larger than the Purple Sandpiper and Dunlin, and inferior in size to the Ruff, presents nothing in its form and structure differing in a remarkable degree from the other species of the genus. The bill is very slightly longer than the head, straight, slender, somewhat compressed; the upper mandible has its dorsal outline straight, the ridge flattened towards the end, the lip considerably enlarged, obtuse, a little exceeding that of the lower, the sides deeply grooved to near the end; the lower mandible has the angle very long and narrow, the sides grooved, the tip enlarged and obtuse. The œsophagus is four and a half inches long, of uniform diameter and narrow; the proventriculus small, with very numerous glandules. The gizzard is very large, its muscles extremely firm, its cuticular lining longitudinally rugous; its length an inch and a half. The intestine twenty-nine inches long, of nearly uniform diameter; the cœca three inches long, with a diameter of two-twelfths; the rectum an inch and three-quarters in length; the general diameter of the intestine four-twelfths.

The head is small, oblong, and compressed; the eyes rather small; the aperture of the ears large, being four-twelfths across. The feet are very slender and of moderate length; the tibia bare for a short space; tarsus anteriorly covered with thirty-five broad scutella; toes small; the first very small and elevated, with six scutella, the second with eighteen, the third with thirty, the fourth with twenty scutella; the anterior toes are very slightly webbed at the base, and rather broadly margined. The claws are very small, curved, compressed, and obtuse.

The plumage is blended; on the back and wings the feathers are distinct and rounded. The wings are very long and pointed; the quills twenty-five; the primaries tapering, the first longest, the rest rapidly graduated; the inner secondaries elongated and tapering, the longest an inch shorter than the first primary. The tail is short, even, of twelve tapering, rounded feathers, the two middle and the outer a little longer, so that the organ is in fact doubly emarginate in a slight degree; the tail-coverts long and narrow.

The bill is greyish-black, the margins at the base reddish. The feet are greyish-blue, the tarsal-joint and soles green; the claws black. The upper part of the head, a band from the bill to the eye, the hind-neck, the fore part of the back, the scapulars, and wing-coverts, ash-grey; the central part of each feather dark-grey, on the scapulars, back and neck reduced to a mere line. The hind part of the back, and the upper tail-coverts are white, with curved bands of black. The primary coverts and quills are greyish-black; the secondaries gradually fading to grey; the shafts of the quills and the tips of the larger coverts white. The tail is light ash-grey. The lower parts are white; the cheeks and fore-neck greyish, and marked with small dark-grey lines; the fore part of the breast and the sides with undulated bands.

Length to end of tail $10\frac{1}{4}$ inches; extent of wings 20; bill along the ridge $1\frac{3}{12}$, along the edge of lower mandible $1\frac{3}{12}$; wing from flexure $6\frac{3}{12}$; tail $2\frac{10}{12}$; tarsus $1\frac{2}{12}$; first toe $\frac{3}{12}$, its claw $\frac{1}{12}$; second toe $\frac{9}{12}$, its claw $\frac{3}{12}$; third toe $\frac{10}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female is similar, but much larger.

Length to end of tail $10\frac{10}{12}$ inches; extent of wings 22; bill along the ridge $1\frac{5}{12}$, along the edge of lower mandible $1\frac{5}{12}$; wing from flexure $6\frac{3}{4}$; tail $2\frac{3}{4}$; bare part of tibia $\frac{8}{12}$; tarsus $1\frac{2}{12}$; first toe $\frac{3}{12}$, its claw $\frac{1}{12}$; second toe $\frac{9}{12}$, its claw $\frac{3}{12}$; third toe $\frac{10}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{3}{12}$.

VARIATIONS.—I have not observed any remarkable variations in the winter plumage of adult individuals.

CHANGES OF PLUMAGE.—Excepting the quills and tail-feathers, the whole plumage is renewed in spring, when the colouring becomes entirely altered. The ordinary moult commences in August, and is complete by the middle of November.

ADULT IN SUMMER.—Not having at hand a British specimen at this season, I take the following description from one obtained in the Arctic regions by the surgeon of a whaler:—

The bill and feet are black ; the head and lower parts are of a delicate light red ; some feathers along the middle of the breast and abdomen white, as are the lower tail-coverts. The axillar and some of the hypochondrial feathers are white, barred with dusky. The upper parts generally are of a beautiful glossy purplish-black, the feathers margined with pale red, and on the hind parts tipped with white, the scapulars and inner secondaries with large spots of red ; those on the rump and the upper tail-coverts white, barred with dusky. The tail-feathers are ash-grey, margined with white. The primaries are greyish-black, their shafts and the outer webs of the inner white ; the secondaries ash-grey, broadly edged with white, except the inner, which are like the back ; the coverts dark grey, edged with greyish-white.

HABITS.—The Ash-coloured Sandpiper appears on our coasts in small flocks in the beginning of September, or even earlier, when the old birds usually retain a portion of the summer plumage. Its flight is rapid, and characterized by the same peculiarities as that of the Dunlin, the birds wheeling off to sea, and performing various evolutions, as they flit along the shore. They run on the sands and muddy flats with great agility, often keeping along the edge of the water, running out when the wave recedes, and again retreating. At other times they are met with in salt marshes, and even in pastures overflowed by the tide. Their food consists of small crustacea, coleoptera, mollusca, and worms. On some parts of our coast they often form very large flocks in winter ; but they are not nearly so abundant as the Dunlin ; nor are they in general so shy as that species, but frequently, when intent on feeding, allow a person to walk up pretty close to them. They are sometimes sold in our markets, and are not inferior in flavour to the Golden Plover. I have seen this species pretty late in summer, and in 1818 shot one at Aberdeen in its red plumage ; but it has not been found breeding with us. M. Temminck states that it breeds in the northern regions, living in summer in the marshes. I have seen the young in its first plumage in Scotland, and have now before me a specimen from Davis Straits, which is marked as follows.

YOUNG.—The bill and feet are greyish-black. The upper part of the head is dusky, the feathers edged with greyish-white; the hind-neck pale-grey, streaked with whitish; the rest of the upper parts ash-grey, each feather with a double margin of brownish-black and white; but the feathers of the rump and the upper tail-coverts white, barred with dusky. The tail-feathers are ash-grey, margined with dusky and white; as are the inner secondary quills, the outer and their coverts grey, edged with white; the primaries blackish-grey, similarly edged. The throat is white; the checks, sides of the neck, its fore-part, and the sides of the body, greyish-white, streaked and barred with grey; the rest of the lower parts white.

REMARKS.—It is unnecessary now to trace all the names given by authors to this species, which, as M. Temminck observes, “is repeated, in the systems, under seven different appellations.” It appears to be generally distributed at different seasons over Europe and North America, moving southward in autumn, and returning in the beginning of summer to the polar regions.

TRINGA PECTORALIS. THE PECTORAL SANDPIPER.

Pectoral Sandpiper. *Tringa pectoralis*. Aud. Ornith. Biogr. III. 601 ;
V. 582.

Becasseau pectoral. *Tringa pectoralis*. Temm. Man. d'Ornith. IV. 397.

Tringa pectoralis. Pectoral Sandpiper. Jenyas, Brit. Vert. Anim. 210.

Bill a sixth longer than the head, scarcely deflexed at the end; tail with the middle feathers pointed and much longer than the lateral, of which three on each side are equal; tarsus an inch and a twelfth and a half long; bill olivaceous, dusky toward the end; feet dull yellowish-green. In winter, the feathers of the upper parts greyish-brown, with a darker medial streak, and pale brownish-grey margins; the wing-coverts lighter; the rump dusky; the primary quills blackish-brown, the first with its shaft white, the secondaries grey edged with white, as are the tail-feathers, except the middle, which are dusky toward the end; cheeks, sides, and fore part of the neck, with part of the breast and the sides of the body greyish-white, streaked with dusky; the chin and lower parts white. In summer, the feathers of the upper parts brownish-black, broadly margined with brownish-red; the rump black; the wings and tail as in winter; the cheeks, neck, and part of the breast and sides brownish-grey, with larger streaks of brownish-black.

MALE IN WINTER.—This species, of which only three individuals have been obtained in England, I describe from American specimens, one of which was preserved in spirits, and another presented to me by Mr. Audubon. The form is ovate and compact, but rather slender; the neck of moderate length; the head rather small, oblong, compressed, and

rounded above. The bill is a little longer than the head, straight, slender, flexible, somewhat tapering or sub-cylindrical, compressed at the base, but depressed toward the end, where it is a little enlarged and very slightly deflexed; the upper mandible with the dorsal line straight, a little decurved at the tip, which is obtusely pointed, the ridge convex, a little flattened toward the end, the nasal groove extending almost to the end; lower mandible with the angle very long and extremely narrow, the dorsal line nearly straight, the sides grooved, the tip a little widened, but tapering to a blunt point.

The mouth is extremely narrow, as in all the species; the upper mandible internally marked with two grooves, and having a central double line of reversed papillæ. The tongue, which is eleven-twelfths of an inch long, is very slender, trigonal, tapering, channelled above, and pointed. The œsophagus four inches and a half long, narrow, with a bulbiform proventriculus; the stomach large, roundish, ten-twelfths in length, nine in breadth, with strong lateral muscles, and dense, thin, longitudinally rugous epithelium. The intestine is eleven inches and a half in length, a twelfth and a half in width; the cœca an inch and a quarter long, one-twelfth in width.

The eyes are rather small. The nostrils basal, linear, pervious, a twelfth and a quarter in length. Apertures of ears moderate. The legs of moderate length, slender; the tibia bare to the extent of seven-twelfths of an inch; the tarsus compressed, with twenty anterior scutella, and a greater number behind. The first toe small, slender, and elevated; the anterior toes rather long and slender, slightly emarginate, separated to the base, and without vestige of webs; the inner with twenty, the middle toe with twenty-five, the outer with twenty-five scutella; the outer and inner toes of about equal length; the claws rather long, slightly arched, compressed, acute, that of the middle toe much larger, with the inner edge dilated.

The plumage is soft, but rather firm, blended on the lower parts, somewhat distinct on the upper. Wings long, pointed, extending when closed a little beyond the tail;

primaries tapering, obtuse, the first longest, the second considerably shorter, the rest regularly graduated; outer secondaries short, obliquely rounded, with a short point, the inner elongated and tapering, the longest about an inch shorter than the tip of the closed wing. Tail of twelve feathers, rather short, the three outer on each side rounded and equal, the rest gradually elongated, the two middle pointed, and exceeding the lateral by half-an-inch.

The bill is olivaceous, becoming brownish-black at the end. The feet dull greenish-yellow, with the claws black. The feathers of the upper parts are greyish-brown, with a darker medial streak, and pale brownish-grey margins; the wing-coverts lighter, and the upper tail-coverts darker. The primary quills and coverts are blackish-brown, with a tinge of grey, the shaft of the first quill and that of the first covert white; the secondaries light brownish-grey, narrowly margined with white; the inner like the feathers of the back. The tail-feathers are light brownish-grey, narrowly margined and tipped with white, the two medial dusky toward the end. A whitish band streaked with dusky extends over the eye; the loreal band brown; a small white space on the throat; the cheeks, sides of the neck, its fore part, a considerable portion of the breast, and the upper part of the sides greyish-white, streaked with dusky; the rest of the lower parts white; axillar feathers, and some of the lower wing-coverts, pure white; those toward the edge of the wing dusky grey, with white margins; the larger coverts grey, as is the lower surface of the quills.

Length to end of tail 9 inches, to end of wings $9\frac{1}{4}$; extent of wings 18; wing from flexure $5\frac{0}{12}$; tail $2\frac{0}{12}$; bill along the ridge $1\frac{3}{12}$, along the edge of lower mandible $1\frac{2}{12}$; bare part of tibia $\frac{7}{12}$; tarsus $1\frac{2}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{2}{12}$; second toe $\frac{0}{12}$, its claw $\frac{2}{12}$; third toe $\frac{1}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{0}{12}$, its claw $\frac{2}{12}$.

FEMALE.—Similar to the male, but somewhat larger.

MALE AND FEMALE IN SUMMER.—The bill and feet as in winter. The feathers on the upper part of the head are

brownish-black, bordered with light brownish-red; a faint whitish line, streaked with dusky, over the eye; the loreal band brownish-black. On the upper parts of the body and wings the feathers are brownish-black, broadly edged with brownish-red; those on the hind part of the back but slightly edged; the middle tail-coverts black, the lateral whitish; the larger wing-coverts paler; the quills and tail-feathers as in winter. The sides of the head and neck, with the fore part of the latter, a portion of the breast, and the sides brownish-grey, streaked with dusky; the other parts white, except some of the lower wing-coverts.

HABITS.—Very little seems to be known of the habits of this species. Mr. Audubon says it is not uncommon along the eastern coasts of the United States in autumn and winter, and Mr. Nuttall describes it as plentiful about Boston. The former of these authors adds:—"I have observed that the flight of the Pectoral Sandpiper resembles that of the Knot, and is firm, rapid, and well-sustained. It skims rather low over the surface of the water or the land, and at times shoots high up into the air, propelling itself with double rapidity and in perfect silence. It runs with great agility, and probes the sand or wet earth, immersing its bill up to the base. I never saw the species in any part of the interior. Its places of resort during the breeding season, and the changes of plumage which it undergoes, are unknown." It does not appear to have been met with on the shores of Europe; but an individual is recorded to have been killed "on the 17th of October, 1830, on the borders of Breydon Broad, an extensive sheet of water near Yarmouth, rather celebrated for the numerous rare birds which have at different times been observed and shot on its banks and waters. The person who killed it remarked that it was solitary, and its note was new to him, which induced him to shoot it. It proved a female on dissection." A second individual is stated to have occurred at the Scilly Islands, and a third on the coast of Durham.

TRINGA RUFESCENS. THE BUFF-BREASTED SANDPIPER.

Tringa rufescens. Vieill. Gall. des Oiseaux. II. 105.

Tringa rufescens. Yarrell. Linn. Trans. XVI. 109.

Buff-breasted *Tringa.* *Tringa rufescens.* Selby, Illustr. II. 142.

Buff-breasted Sandpiper. *Tringa rufescens.* Aud. Ornith. Biogr. III. 451

Tringa rufescens. Buff-breasted Sandpiper. Jenyns, Brit. Vert. Anim. 214.

Tringa rufescens. Bonap. Comp. List, 50.

Bill not longer than the head, straight; tail with the middle feathers considerably longer, the three lateral nearly equal; tarsus an inch and a third in length; bill dull olive-green; feet dull yellowish-green. Plumage in summer blackish-brown above, each feather margined with greyish-yellow; the sides of the head and neck, with the fore part of the latter, a small portion of the breast, and the sides of the body light reddish-yellow, streaked with brownish-black; the throat, breast, and abdomen yellowish-white; quills light greyish-brown, darker at the end, their inner webs whitish, with transverse curved lines and dots of black; the tail with the middle feathers brown, dusky toward the end, and edged with white, the rest gradually paler, edged with white, within which is a black line.

MALE IN SUMMER.—This species, of which two individuals are recorded as having been shot in England, I describe from American specimens. It is very closely allied in form to *Tringa pectoralis*, as well as to the females and young of *Tringa pugnax* of Linnæus, although much inferior in size, and destitute of the ruff which forms so conspicuous a feature in the male of that bird; and is distinguished from all our *Tringæ* by the beautiful markings on the inner webs of its primary quills. The body is rather slender; the neck

of moderate length; the head oblong, compressed, and rounded above. The bill is about the length of the head, slender, straight, flexible, somewhat tapering or sub-cylindrical, compressed, toward the end a little depressed; the upper mandible with the dorsal line straight, very slightly decurved at the end, the ridge convex, the nasal groove extending nearly to the end, the tip obtusely pointed; lower mandible with the angle very long and narrow, the dorsal line straight, the sides grooved, the tip a little widened, but tapering to a blunt point.

The nostrils linear, basal, pervious. Eyes rather small. Legs rather long, slender; tibia bare about a third of its length; tarsus compressed, with numerous anterior and posterior scutella; the first toe small, slender, and elevated; the anterior toes of moderate length, slender; the fourth slightly longer than the second; all slightly marginate, separated to the base, without webs. The claws are rather small, slightly arched, compressed, laterally grooved, rather acute.

The plumage is very soft, blended on the lower parts, somewhat distinct on the upper. The wings very long and pointed, extending slightly beyond the tip of the tail; the first quill longest, the other primaries rapidly decreasing; the secondaries rather short, obliquely sinuate on the outer web at the end, with the inner web rounded, and extending beyond the outer, as in *Tringa pectoralis*; the inner secondaries tapering, acute, one of them extending when the wing is closed to half-an-inch from its tip. The tail is of moderate length, with the outer three feathers on each side rounded and equal, the rest gradually elongated, the two middle pointed, and exceeding the lateral by nearly half-an-inch.

The bill is dull olive, becoming brownish-black at the end. The iris hazel. The feet dull yellowish-green, the claws dusky. The feathers of the upper parts are blackish-brown, margined with greyish-yellow; the wing-coverts lighter; the quills and their coverts light greyish-brown, greenish-black at the end, with the tip whitish, the inner webs whitish and beautifully marked with curved lines and dots of black; the inner secondaries like the feathers of the

back. The two middle tail-feathers are greyish-brown, darker and glossed with green at the end, slightly edged and tipped with white; the other feathers gradually paler, edged and tipped with white, within which is a line of black. The sides of the head, fore part and sides of the neck, with a small part of the breast, and a portion of the sides are light yellowish-red, streaked with brownish-black; the throat paler, as are the rest of the lower parts, and without markings. The axillar feathers white, as are most of the lower wing-coverts; but those near the edge of the wing are black in the centre, and the large coverts are dotted with black. The dark markings of the quills are conspicuous on their lower surface.

Length to end of tail 8 inches; extent of wings 18; wing from flexure $5\frac{3}{4}$; tail $2\frac{9}{12}$; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible 1; tarsus $1\frac{4}{12}$; bare part of tibia $\frac{6}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{2}{12}$; second toe $\frac{9}{12}$, its claw $\frac{2}{12}$; third toe $\frac{9}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{9}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The female is similar in colour to the male, but somewhat larger.

HABITS.—This species is said to be not uncommon on the coasts of Massachusetts, in company with the Pectoral Sandpiper, which it resembles in its habits, as well as in form; and of which, notwithstanding the curious markings on its quills, I cannot help suspecting it to be the young. An individual, described by Mr. Yarrell in the *Linneæan Transactions*, vol. xvi. p. 109, was shot in the beginning of September, 1826, in Cambridgeshire, along with some Dotterels; and another, a female, was killed on the 28th of July, 1832, at Sheringham, in the county of Norfolk.

TRINGA MARITIMA. THE PURPLE SANDPIPER.

- Tringa maritima. Gm. Syst. Nat. I. 678.
 Tringa maritima. Lath. Ind. Orn. II. 731.
 Purple Sandpiper. Mont. Orn. Dict. and Suppl.
 Becasseau violet. Tringa maritima. Temm. Man. d'Orn. II. 619.
 Tringa striata. Purple Sandpiper. Flem. Brit. Anim. 110.
 Purple or Rock Tringa. Tringa maritima. Selb. Illustr. Brit. Ornith.
 II. 150.
 Tringa maritima. Purple Sandpiper. Jen. Brit. Vert. An. 211.
 Tringa maritima. Bonap. Comp. List, 49.

Bill a little longer than the head, and slightly decurved at the end; tail with the middle feathers considerably longer, the three lateral nearly equal; tarsus ten-twelfths of an inch long, shorter than the middle toe; bill dusky, orange at the base; feet ochre-yellow; scarcely any bare space on the tibia. In winter the upper parts glossy purplish-black, the feathers margined with light grey; the head, cheeks, sides, and fore part of the neck light purplish-grey, the sides and lower tail-coverts streaked with the same; the throat, part of the breast, and abdomen white. In summer the upper parts glossy purplish-black, the feathers on the head margined with pale red, on the back with light red and tipped with white, the lower parts white, streaked and spotted with dusky-grey.

MALE.—The Purple Sandpiper is somewhat larger and considerably more robust than the Dunlin, which it very closely resembles in summer, although readily distinguishable on account of its peculiar markings, its shorter tarsus, and its broader claws. In its form it is rather full, the body being ovate, the neck rather short, the head oblong, compressed, and rounded in front. The bill is slender, very slightly arcuate, compressed, tapering, the tips a little enlarged and blunt; the ridge rounded to near the point, where it is flattened.

Internally the upper mandible is marked with two grooves, and has a central double line of reversed acute papillæ. The tongue is very slender, trigonal, tapering, with three papillæ on each side at the base, channelled above, eleven-twelfths of an inch long. The fauces are extremely narrow. The œsophagus is three inches and a quarter in length, very narrow; the stomach a roundish, compressed gizzard, three-fourths of an inch long, its muscles large and distinct. The intestine is fourteen inches long, from two-twelfths to one-twelfth in diameter; the cœca cylindrical, obtuse, an inch and three-twelfths long.

The eyes are rather small, their aperture two and a half twelfths in diameter. The nostrils are linear, a twelfth and a half long. The aperture of the ear measures three and a half twelfths across. The feet are short; the tibia with scarcely any bare space; the tarsus short, covered before and behind with transverse plates, the anterior twenty-eight; the first toe very diminutive, with six scutella; the second with twenty-six, the third with thirty, the fourth with thirty. The claws are short, curved, blunt, much broader than those of *Tringa Cinclus*.

The plumage is very soft and blended; on the upper part glossy. The wings are very long, and reach nearly to the end of the tail; the quills twenty-five, the first primary longest, the second half a twelfth of an inch shorter, the rest rapidly graduated; the secondaries incurvate, except the inner four, which are elongated and tapering. The tail is short, the middle feathers a quarter of an inch longer than the three lateral, which are nearly equal.

The bill is black, its base reddish-orange, especially on the ridge of the upper mandible. The iris is dark brown, the margin of the eyelids white. The feet dark lemon or ochre yellow, the claws black. The head and neck are purplish-grey, the throat, a line over the eyes, and the eyelids, white. The back is brownish-black, glossy, with rich purple reflections, the feathers margined with greyish-white. The primary quills are greyish-black, edged with white, of which colour are the shafts also; the secondaries are white at the base, that colour enlarging so as to include the whole of the

tenth and eleventh, the tips also are white; the inner four glossy black, toward the point greyish. The four lateral tail-feathers on each side are ash-grey, the rest greyish-black, all margined with greyish-white. The fore part of the breast and sides is light purplish-grey, like the neck; the rest of the lower parts white, the sides and lower tail-coverts streaked with grey; the lower surface of the primary quills grey, as are the outer wing-coverts, the inner being white.

Length to end of tail $8\frac{1}{2}$ inches; extent of wings $14\frac{1}{2}$; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{3}{4}$; wing from flexure $5\frac{5}{8}$; tail $2\frac{1}{2}$; tarsus $1\frac{1}{2}$; first toe $\frac{2}{3}$, its claw $\frac{1}{2}$; second toe $\frac{8}{12}$, its claw $\frac{2}{3}$; third toe $\frac{1}{2}$, its claw $\frac{3}{4}$; fourth toe $\frac{8}{12}$, its claw $\frac{2}{3}$.

FEMALE.—The female is similar to the male, but somewhat larger.

Length to end of tail $9\frac{1}{4}$ inches; extent of wings $14\frac{6}{8}$; bill along the ridge $1\frac{3}{4}$; tarsus $1\frac{1}{2}$; middle toe and claw $1\frac{2}{3}$.

VARIATIONS.—The variations exhibited by the plumage in winter are not remarkable; but individuals vary considerably as to size. The greatest length is nine inches, and the bill frequently measures an inch and a quarter, and I have seen one an inch and five-twelfths long.

CHANGES OF PLUMAGE.—The moult takes place in autumn, commencing in July, and being completed by the end of November. In spring it is renewed, excepting the quills and tail, and the summer plumage differs in colour from that of winter. As this species does not remain with us in summer, although individuals have been seen in the country at that season, I am obliged to have recourse to skins of foreign specimens for description.

MALE IN SUMMER.—A male, from Winter Island, shot on the 12th June, 1822, has the whole under surface greyish-white, marked with longitudinal streaks of clove-brown, broadest on the fore-part of the breast; the axillaries white. The upper part of the head is liver-brown, the feathers

margined with light brownish-red; the neck brownish-grey, with darker streaks. The back is glossy purplish-black, the feathers pale yellowish-brown towards the end, and the scapulars tipped with white; the hind part of the back is liver brown, the upper tail-coverts purplish-black, except the three lateral on each side, which are dusky, broadly edged with white. The middle tail-feathers are greenish-brown, the rest ash-grey tinged with brown.

Length to end of tail $8\frac{1}{2}$ inches; wing from flexure $5\frac{1}{4}$; tail $2\frac{7}{8}$; bill along the ridge $1\frac{1}{8}$; tarsus $1\frac{9}{10}$; middle toe $1\frac{1}{10}$.

FEMALE IN SUMMER.—A female, from the same place, is precisely similar.

Length to end of tail 9 inches; bill along the ridge $1\frac{1}{10}$; tarsus $1\frac{9}{10}$.

Individuals, brought from Davis' Straits in 1837, are similar to the above. In this state the Purple Sandpiper bears so close a resemblance to the Dunlin, that the two species might readily be confounded by that vaguely defined or defining sort of person whom the ornithologists are fond of denominating "a superficial observer." The breast however, although spotted, is never black.

HABITS.—Although not extremely rare, the Purple Sandpiper is not very frequently met with. This happens partly because it seldom forms large flocks, like those of the Dunlin and Sanderling, and partly on account of its confining itself, while searching for food, to the rocky parts of the coast. Montagu mentions its occurrence on the coast of Caermarthenshire, near Sandwick, and in Somersetshire; and Mr. Selby states that it is a common bird in Northumberland. Mr. Dunn says it "is very numerous in Shetland and Orkney, appearing early in the spring and leaving again in the latter end of April, about which time it collects in large flocks, and may be found on the rocks at ebb-tide, watching each retiring wave, running down as the water falls back, picking small shell-fish off the stones, and displaying great activity in escaping the advancing sea. It does not breed there."

The following note, which I extract from a journal kept in 1818, contains in brief phraseology, all that I then knew of it as a Hebridian :—“ This is one of the tamest birds with which I am acquainted (rather one of the most unobservant of man), allowing a person to approach within five or even four paces. Mr. Norman Maeneil says he has seen them killed with a tangle (that is by throwing at them a piece of the stem of *Fucus digitatus*). It does not appear that they are numerous here. I have seen them at Northtown, Ensay, and Pabbay, at times in flocks, at other times one by one. They pick up their food quite close to the wave ; hence while searching for it they are in continual motion, running out as the wave retires, and retreating as it advances. I have never seen them on sand.” The individuals described above were shot near Aberdeen on the 14th February, 1817. It also occurs along the Firth of Forth. On the 20th of May, 1831, I saw an individual on the Bass Rock ; but neither on the east coast of Scotland, nor in the Hebrides have I met with any at a later period in the summer.

These birds appear on our coasts in small flocks, about the middle of October, and remain until the end of Spring. They fly in curves, sweeping over the sea when removing from one place to another, and now and then emitting a faint shrill cry, in the manner of the Dunlins, which they also closely resemble in their mode of walking or rather running along the shore, where they search the rocks and fuci for small testaceous mollusca, crabs, and onisci. No instance of their breeding in this country has yet been recorded. Dr. Richardson states that it is common on the shores of Hudson's Bay, where it breeds. The eggs are “ pyriform, sixteen lines and a half long, and an inch across at their greatest breadth. Their colour is yellowish-grey, interspersed with small irregular spots of pale brown, crowded at the obtuse end, and rare at the other.”

YOUNG.—The young when fully fledged resemble the adults in winter, more than those in summer plumage, and are as follows :—The upper part of the head is greyish-black, streaked with pale red ; the hind part and sides of the neck

are dull grey; the upper parts generally are glossy purplish-black, the feathers margined with white and tipped with very faint reddish; those of the hind part of the back, and the upper tail-coverts are greyish-black, the latter tipped with white. The quills are greyish-black, edged with greyish-white, some of the secondaries almost entirely white; the four middle tail-feathers similar, the rest ash-grey, all edged with greyish-white. The lower parts are greyish-white, the fore neck and sides mottled with dark grey, of which there is a central streak on each of the abdominal feathers and lower tail-coverts. The bill is light red at the base, black towards the end; the feet dusky orange, the claws black. This description is from a specimen brought in 1837 from Davis' Straits, and agrees with that given by M. Temminck, according to whom the young in perfect plumage "have the feathers of the top of the head, those of the back, the scapulars, the secondary quills, and the middle feathers of the tail, dull black, all bordered and tipped with pale red; all the wing-coverts tipped with broad white edges; the fore part and sides of the neck longitudinally striped, each feather being margined with grey; large longitudinal spots on the sides and abdomen; base of the bill and feet light yellowish."

REMARKS.—The specific name "maritima" is not happily chosen; but, as it is true, although not distinctive, it cannot with propriety be rejected. *Larus marinus*, *Motacilla flava*, and many other names equally defective, ought yet to be retained, were it for no other reason than to avoid confusion.

M. Temminck states that it is very common in Holland, and occurs in Norway, and on the shores of the Baltic and Mediterranean Seas. Mr. Audubon found it very abundant in the United States, and also traced it in summer to Labrador; while our Arctic travellers describe it as plentiful in Hudson's Bay. The American specimens which I have examined do not differ from those of Europe.

TRINGA CINCLUS. THE BLACK-BREASTED SANDPIPER, OR DUNLIN.

PURRE. STINT. SEA SNIPE. PLOVER'S PAGE. SEA LARK. RED-BACKED SANDPIPER. SCRAILLIG. GILLE-FEADAIG. OX-BIRD. OX-EYE. DORBIE.

Tringa Cinclus. Linn. Syst. Nat. I. 251. Adult in Winter.

Tringa alpina. Linn. Syst. Nat. I. 249. Adult in Summer.

Tringa Cinclus. Lath. Ind. Orn. II. 735. Adult in Winter.

Tringa alpina. Lath. Ind. Orn. II. 736. Adult in Summer.

Tringa ruficollis. Lath. Ind. Orn. II. 736. Young.

Purre. Mont. Orn. Dict. Adult in Winter.

Dunlin. Mont. Orn. Dict. Adult in Summer. Suppl. Both sexes in Winter and Summer.

Becasseau Brunette ou variable. Tringa variabilis. Temm. Man. d'Orn. II. 612.

Dunlin or Purre. Tringa variabilis. Selb. Illustr. II. 153.

Tringa variabilis. Dunlin. Jen. Brit. Vert. An. 209.

Pelidna Cinclus. Bonap. Comp. List. 50.

Bill a fourth longer than the head, and slightly decurved at the end; tail with the middle feathers considerably longer; tarsus an inch long; bill black, feet very dark olive. Plumage in winter brownish-grey above, each feather with a dusky streak; the sides and fore part of the neck, with a small portion of the breast paler, and similarly streaked; the throat, breast, and abdomen, white; tail-coverts dusky; the tail ash-grey, the inner webs of the middle feathers black. In summer the upper parts yellowish-red, spotted with brownish-black; the sides of the head, neck, and body, and the fore part of the neck greyish-white tinged with red, and distinctly spotted with dusky; a large patch of black on the breast. Young with the upper parts variegated with black and light-red; the fore neck, breast, and part of the sides spotted with black; the throat, middle of the breast, abdomen, and lower-tail-coverts white.

The flocks of this species which in winter frequent the sandy shores of the sea, in all parts of Britain, render it one of the best known of its tribe. In summer it is found on the inland moors of Scotland and its islands, where it attracts attention by its frequently mingling with the Golden Plover. It is an active and lively little bird, about the size of the Sanderling, and considerably smaller than the Curlew-billed Sandpiper, which it closely resembles in its winter plumage. Its form is compact, rather slender than robust, with the neck of moderate length, the head rather small, oblong, compressed, and rounded above.

The bill is about a fourth longer than the head, straight until near the end, when it becomes a little decurved, rather higher than broad at the base, tapering; both mandibles laterally grooved nearly to the end; the tips a little enlarged and somewhat flattened. Internally the upper mandible is marked with two grooves, and has a central double line of reversed papillæ. The tongue, which is eleven-twelfths of an inch long, is very slender, trigonal, tapering, with two papillæ on each side at the base, channelled above and pointed. The mouth is very narrow; the œsophagus three inches and one-twelfth long, with an average breadth of two-twelfths. The stomach is large, roundish when filled, compressed, nine-twelfths of an inch long, ten-twelfths in breadth, when empty elliptical, and only seven-twelfths in breadth; its muscles large and firm; the epithelium dense, rugous, and flesh-coloured. The intestine is thirteen inches long, from two twelfths to one-twelfth in width, enlarged considerably before the cœca, which are cylindrical, obtuse, an inch and four-twelfths in length; the rectum an inch and a quarter; the walls of the intestine very thick.

The eyes are rather small, their aperture measuring two-twelfths and a half. That of the ear is round, three-twelfths in diameter. The nostrils are linear, a twelfth and a quarter in length. The legs are slender; the tibia bare for five-twelfths; the tarsus eleven-twelfths and three-fourths long, with thirty anterior scutella; the first toe very diminutive, with seven scutella, the second with twenty-two, the third with thirty, the fourth also with thirty. The claws

are extremely small, very slightly curved, compressed, and blunt.

The plumage is soft and generally blended; the feathers of the head and neck very narrow and oblong, of the back ovate-oblong, and more compact. The wings are very long, with twenty-five quills; the primaries rapidly graduated, the first being longest; the secondaries incurved, excepting the last four, which are elongated and tapering. The tail is short, doubly emarginate, the two middle feathers being considerably longer, and the lateral a little longer than those next to them.

The bill is black, the iris brown, the feet very dark olive, when dry seeming quite black. The general colour of the upper parts is brownish-grey, each feather having a dusky central line; the sides of the head and neck, the fore part of the latter, and the anterior portion of the sides of the body similar but paler. A greyish white streak from the bill over the eye; the throat, breast, abdomen, and lower tail-coverts white. The quills and greater coverts are greyish-black, the former with a part of the shaft and a large portion of the webs white, the outer four excepted, the coverts tipped with white. The feathers of the tail are ash-grey, narrowly bordered with paler, the two middle having their inner web blackish-brown. The upper tail-coverts are blackish, except the three outer on each side, which are white.

Length to end of tail $7\frac{8}{12}$ inches; extent of wings $14\frac{2}{12}$; bill along the ridge $1\frac{4}{12}$, along the edge of lower mandible $1\frac{3}{12}$; wing from flexure $4\frac{8}{12}$; tail $2\frac{2}{12}$; tarsus 1; first toe $\frac{2}{12}$, its claw a half-twelfth; second toe $\frac{8}{12}$, its claw $\frac{2}{12}$; third toe $\frac{10}{12}$, its claw $\frac{2}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female resembles the male in colour, but is considerably larger. In old birds there is scarcely any difference between the males and females, but in younger individuals the males have the markings darker. The following are the dimensions of the digestive organs of the specimen selected for description. Tongue eleven-twelfths long; œsophagus three inches and two-twelfths in length; stomach elliptical, nine-twelfths long, seven-and-a-half-

twelfths in breadth; intestine thirteen inches long, from two-and-a-half-twelfths to one-twelfth in width; cæca an inch and seven-twelfths long.

Length to end of tail 8 inches; extent of wings $14\frac{1}{2}$; bill along the ridge $1\frac{2}{12}$, along the edge of lower mandible $1\frac{2}{12}$; wing from flexure $4\frac{8}{12}$; tail $2\frac{2}{12}$; tarsus 1; first toe $\frac{2}{12}$, its claw a half-twelfth; second toe $\frac{8}{12}$, its claw $\frac{2}{12}$; third toe $\frac{1}{12}$, its claw $\frac{2}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{2}{12}$. Eye $\frac{3}{12}$; ear $\frac{3}{12}$.

VARIATIONS.—Individuals vary considerably in size; males being from seven to eight inches in length, and from fourteen to fifteen in extent of wing; females from seven and a half to eight and a half inches in length, and from thirteen and a half to fifteen in extent of wing. The bill varies greatly in length, measuring in some individuals an inch and one-twelfth, in others an inch and four-twelfths. Individuals vary also in the tints of their plumage, some being more grey than others, and the markings of the fore-neck and sides being more or less decided.

CHANGES OF PLUMAGE.—The moult is generally completed by the middle of November, when the birds present the appearance indicated above. The quills and tail-feathers are not renewed until the next annual moult, but the other feathers are changed in spring and summer. By the middle of May the appearance is as follows.

MALE IN SUMMER.—The bill and feet are as in winter. The quills, tail-feathers, and coverts are also the same. The upper part of the head is variegated with brownish-black and yellowish-red, the margins of the feathers being of the latter colour. The feathers of the back and the scapulars are similarly marked, the latter barred on the edges. A very small part of the throat is white; the sides of the head and neck, the fore part of the latter, and the nape greyish-white, more strongly marked with blackish-brown than in winter; the feathers then being white, with a large brownish-black spot toward the end, their edges fringed with white; the breast black, or variegated with white and black; rest of the lower parts white.

FEMALE IN SUMMER.—The female is similar to the male, but with the black patch on the breast less extended.

A further change takes place, for, like the Ptarmigan, this bird seems to be in moult all the year round. After the end of July, the feathers of the breast, of which the terminal portion is black, are substituted by others having a much smaller portion of their extremity of that colour. In the beginning of September the grey feathers, characteristic of the winter plumage, appear here and there, and by degrees the whole plumage is renewed.

HABITS.—In the end of August or the beginning of September, the Dunlins make their appearance on our shores in flocks, which are of various sizes, from a few individuals to several hundreds. At high water they generally betake themselves to the headlands, or rest on the sands; but when the tide recedes they are all in motion. Their flight is very rapid, being performed by regularly-timed beats of the wings, with occasional intermissions. It is seldom that they fly in a direct course, but even in proceeding from one place to another in search of food they wheel off to sea, and often perform various evolutions before alighting. Now they are seen stretching away over the waves, at one time scarcely discernible on account of the distance and their dusky colour, but next moment glancing in the light, as they simultaneously turn their lower surface to the view. In this respect, however, they are not singular, the Sanderlings and Ring-Plovers exhibiting the same alternate exposure of the upper and lower surfaces, as they wheel over the sea or along the beaches. On alighting the Dunlins stand for a few moments, then disperse, and commence probing the sands, in which they engage with so much earnestness that one may sometimes get quite close to them. On the sands of the Hebrides I have sometimes found them so unsuspecting as to allow me to walk round them at a distance, in order to drive them together before shooting; but in places where they are much disturbed, they are usually very shy. Their food consists of small bivalve testacea, worms, and other diminutive marine animals, as well as coleopterous

insects, in pounding which a great quantity of sand, generally of a black colour, is employed by the gizzard. If it be pleasant to gaze upon the flocks as they sweep over the water, it is not less so to watch them searching the shores. They are seen moving about in a quiet manner, never interfering with each other, but busily picking up the food which comes in their way, or which they discover by tapping or probing, without, however, thrusting their bills deep into the sand or mud. Frequently, keeping along the edge of the water, they are seen to run out as the wave retires, and retreat as it advances on the beach. In still shallow water they may often be seen wading, and it is observable that their bills are just about the length of their tarsi and the exposed part of the tibia; but they never go beyond their depth or resort to swimming, although when wounded, should one drop into the water, it floats buoyantly, and is capable of advancing. Their ordinary cry when on wing is a single shrill peep, and when feeding a softer and less loud note. Very frequently they associate with Sanderlings, sometimes with Ring-Plovers; but although while feeding they may often be seen mingling with Curlews, Redshanks, Godwits, or Oyster-catchers, they separate from these birds when put up, as their mode of flight is different. On sands in the vicinity of towns, or in populous districts, being much persecuted, they become very wary in winter; and the best time for shooting them is during ebb, when they are more keenly engaged in searching for food. Although they frequent the exposed beaches on the coast, they prefer the sands of estuaries, and from September to May are scattered over the whole extent of our shores, but for the most part disappear from the northern parts of Scotland. It may be supposed that multitudes of these birds are of foreign origin, and visit us, like the Woodcock, when their native country becomes too cold for them; but it is probable that a very large proportion is indigenous.

The Dunlins in fact breed in great numbers on the heaths of many parts of Scotland, and its larger islands, where they may be found scattered in the haunts selected by the Golden Plovers, with which they are so frequently seen in company

that they have popularly obtained the name of Plovers' Pages. Sometimes about the middle of April, but always before that of May, they are seen dispersed over the moors in pairs like the birds just named, which at this season they greatly resemble in manners. From this period until the end of August none are to be found along the shores of the sea, instead of searching which, they now seek for insects and worms, in the shallow pools, soft ground, and by the edges of lakes and marshes. The male frequently flies up to a person intruding upon his haunts, and sometimes endeavours to entice him away by feigning lameness.

The nest, which is composed of some bits of withered grass or sedge, and small twigs of heath, is placed in a slight hollow, generally on a bare spot, and usually in a dry place like that selected by the Golden Plover. The eggs, always four, are ovato-pyriform, an inch and four or five-twelfths in length, eleven-twelfths or a little more in breadth, and have a light greyish-green, or sometimes greenish-yellow, or brownish ground, irregularly marked all over with spots and patches of umber-brown and light purplish-grey, more numerous toward the larger end, where they are often confluent. The female sits very assiduously, often allowing a person to come quite close to her before removing, which she does in a fluttering and covering manner.

The young, which are covered with close stiffish down, are variegated with yellowish-grey and dark brown, with the bill dusky, and the feet yellowish-brown. Like those of the Golden Plover and Lapwing, they leave the nest immediately after exclusion from the egg, run about, and when alarmed, conceal themselves by sitting close to the ground, and remaining motionless. If at this period a person approaches their retreat, the male especially, but frequently the female also, flies up to meet the intruder, and uses the same artifices for deceiving him as many other birds of this family. After they are able to shift for themselves, the young remain several weeks on the moors with their parents, both collecting into small flocks, which are often intermingled with those of the Golden Plover, and often in the evenings uniting into larger. They rest at night on the smoother parts of the heath, and

both species, when resting by day, either stand or lie on the ground. When one advances within a hundred yards of such a flock, it is pleasant to see them stretch up their wings, as if preparing for flight, utter a few low notes, and immediately stand on the alert, or run a short way; but at this season they are not at all shy. Towards the end of August, the different colonies betake themselves to the sea-shore. On the large sand-fords of the outer Hebrides, I have at this season seen many thousands at once, running about with great activity in search of food. After a few weeks the hosts break up and disperse, few if any remaining during the winter. On most parts of the sandy coasts of the main land, however, they are then plentiful, and in England are equally so.

The above account of the habits of the Dunlin is entirely the result of my own observation. Besides collecting information and procuring specimens, I have, before penning it, betaken myself to the shores of the Firth of Forth, to observe its manners once more, and procure fresh individuals, of which five, shot by myself on the 11th of October, 1837, are now (the 12th) on my table. On consulting various books, I observe nothing recorded in them that has not occurred to myself. I have, therefore, only to add that the flesh of the Dunlin is dark, and not remarkably good, being much inferior to that of the Snipe; but that the eggs are delicious.

P.S. In the history of a bird many little circumstances occur which few people think it worth while to notice, but which are of the greatest importance, both as illustrative of the habits of the species and as indicative of its affinities. Thus, having at various times collected by observation a number of particulars relative to the Dunlin, and having related them as above, I yet found that some things were wanting, which I might indeed imagine, as others have done in like cases, but which it seemed to me necessary to see with my own eyes. I therefore, on the 9th of September, 1840, walked to Musselburgh, where I was informed that the Sandpipers were very abundant; and having betaken myself to the mouth of the Esk soon after the tide had

turned, was gratified by the sight of a great number of Dunlins and Ring-Plovers. In the first place, I met with two flocks reposing, the one among some thin herbage, composed chiefly of *Glaux maritima*; the other on a slightly elevated part of the sand, just above water-mark. Individuals of both species were intermingled, all lying flat on the ground, and in a crouching attitude, with the neck drawn in. Thus, as I have elsewhere observed, these birds repose during the period of high water in unfrequented places along the shore, and generally, especially if there be a strong wind, in a decumbent posture. On my approaching them, they dispersed, and began to search for food. Presently straggling bands flew in from a distance, and alighted on the shore. The Dunlins on such occasions come gliding on outspread wings, which in alighting they extend and elevate a little. They then run a few steps, and stand a short time, or at once commence their search. These bands were remarkably intent on seeking for food, so that I was allowed to walk up to about fifteen paces from one of them. In this flock of about fifteen, two limped, apparently having had one of their legs damaged by shot, yet they seemed scarcely less active than the rest. Being in a muddy place which probably afforded a good supply of food, they did not run much, but yet moved quickly about, with their legs a little bent, the body horizontal, the head a little declined, and the bill directed forwards toward the ground at an angle of about forty-five degrees. I observed that they seemed in general merely to touch the surface, but also sometimes to introduce their bill into the mud for about a fourth of its length; but this always with a rapid tapping and somewhat wriggling movement, and not by thrusting it in sedately. This flock having flown away, I observed another of about twelve individuals alight at a little distance on the other side of the mill-stream. Being very intent on tapping the mud, they allowed me to approach within ten paces, so that I could see them very distinctly. I was surprised to hear from them a very gentle warble, which was composed of feeble notes somewhat resembling the syllables pee-pee-pee, continually repeated, and with more frequency when the individuals came very

near each other. These notes could not be heard at a greater distance than twenty yards, and would thus be entirely lost to the casual observer. All at once I heard a singular noise, which might be likened to a cough, shrill and feeble as it was, and presently found that it came from one which, having picked up something too large for its gullet, stood endeavouring to swallow it by repeated jerks, at each of which it emitted a sharp wheezing or hissing sound. The rest paid no attention to the distressed bird, which in about three minutes got the morsel down, and resumed its search. While thus busily employed, and quite regardless of me, although so near that I could see their little dusky eyes, and distinguish by its tints one individual from another, a Sandpiper, *Totanus hypoleucos*, came silently gliding over them at the height of not more than three feet. It was beautiful to see how they all rose simultaneously on wing, to the height of from two to four feet; and finding that they had no cause of alarm, immediately re-alight. I now struck my note-book against my hand, when they all rose, but alighted about five yards off, and three of them came within ten paces of me. As nothing more was to be seen, I examined the marks made by them in the mud. Although it was soft, very few footmarks were left; but the place was covered with numberless small holes made by their bills, and forming little groups, as if made by the individual birds separately. Of these impressions very many were mere hollows not larger than those on a thimble, and not half a twelfth of an inch deep; others scarcely perceptible; while a few were larger, extending to a depth of two-twelfths; and here and there one or two to the depth of nearly half-an-inch. On scraping the mud, I could perceive no worms or shells. It is thus clear that they search by gently tapping, and it appears that they discover the object of their search rather by the kind of resistance which it yields, than by touch like that of the human skin.

When searching the beaches on which waves are breaking, and when they are necessarily in very rapid motion, they utter louder, although still faint cries; and by stooping more rapidly seem to jerk up their tail, although it

is seldom raised above the level of the back. None of the birds of this family depress the tail when stooping, and painters err who represent them as doing so. The Ring-Plover flies very nearly in the same manner as the Dunlin, but proceeds in a somewhat different way, as will be seen in my description of the habits of that species.

The Dunlin is most extensively dispersed, being found along the shores of both continents, from the polar regions to the tropics.

YOUNG.—When fledged, the young are as follows:—The bill is black; the iris dusky; the feet dark greenish-brown. The upper parts are variegated with black and light red, as in the adult; and the fore-neck, breast, and part of the sides are spotted with black; the middle of the breast, the abdomen, lower tail-coverts, and throat white. They begin to moult in September, and by the middle of November have acquired the appearance of the old birds at that season; but may generally be distinguished by having the dark spots larger, and the fore-neck rufous.

REMARKS.—Montagu, in the Supplement to his Ornithological Dictionary, expressed his belief, founded on the comparison of individuals at different seasons, that the Purre and the Dunlin of former writers are merely the same bird in its winter and summer plumage. M. Temminck has confirmed this view; and other writers, assuming to themselves much merit in further corroborating the statements of these excellent ornithologists, have chimed in with them. For my own part, having studied the Dunlin before consulting books, I was afterwards surprised to learn that Linnæus and others had considered the summer black-breasted bird as of a different species from the white-breasted one of winter. But my opportunities of observation were much superior to those of the persons alluded to, for the Dunlins bred within a mile of my habitation, and in vast numbers resorted to the sands before it.

There is some reason for thinking that two species occur in Britain, and are confounded under the name of *Tringa*

Cinclus. A male shot in the Pentland Hills in June, 1840, and a female shot at Ythan Mouth on the 17th of May, 1851, besides being of comparatively small size, have less black on the breast, and that copiously intermixed with white, the feathers having only a large spot toward the end. The birds that visit the eastern coasts of Scotland in autumn seem in general much larger; but observations are wanting on this subject.

In September and October the Dunlins are often exceedingly fat, the quantity of adipose matter that covers the abdomen externally, and distends it from within, being truly surprising. In this respect, however, they do not differ from the other species of the genus. I have found minute testaceous mollusca in the stomach of this bird, and frequently small white worms from a quarter to half-an-inch in length, along with mud and mineral particles.

TRINGA SUBARQUATA. THE CURLEW-BILLED SANDPIPER.

PIGMY CURLEW. PIGMY SANDPIPER.

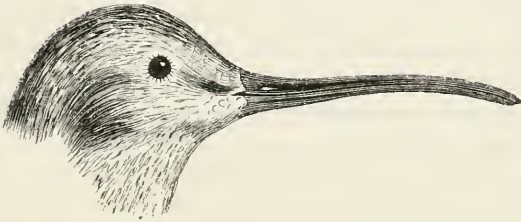


FIG. 18.

- Scolopax subarquata*. Gmel. Syst. Nat. I. 658. Summer.
Numenius africanus. Lath. Ind. Orn. II. 712. Winter.
 Pigmy Curlew. Mont. Orn. Diet. Suppl.
Becasseau cocorli. *Tringa Subarquata*. Temm. Man. d'Orn. II. 609.
Tringa subarquata. Flem. Brit. Anim. 107.
 Curlew Sandpiper. *Tringa subarquata*. Audub. Orn. Biogr. III. 444.
 Curlew *Tringa*. *Tringa subarquata*. Selb. Illustr. Brit. Ornith. II. 158.
Tringa subarquata. Pigmy Curlew. Jen. Brit. Vert. An. 208.
Pelidna subarquata. Bonap. Comp. List, 50.

Bill half as long again as the head, and considerably de-curved at the end; tail with the middle feathers slightly longer than the lateral; tarsus an inch and a quarter long; bill black, feet very dark olive. Plumage in winter brownish-grey above, each feather with a dusky streak; the sides and fore part of the neck, with a small portion of the breast, greyish-white, streaked with brownish-grey; the throat, breast, and abdomen, white; the tail-coverts white, the tail brownish-grey. In summer the upper parts of the body black, mottled and streaked with light red; the sides of the head, the fore part and sides of the neck, and the breast, bright yellowish-red, the neck faintly streaked with dusky; the tail-coverts white, spotted with brown and red, the tail brownish-grey glossed with green. Young with the feathers of the upper parts greyish-black glossed with

green, darker towards the margins, and edged with white; the fore part of the neck pale reddish, faintly streaked with dusky, the rest of the lower parts white, as are the upper tail-coverts, which are very narrowly tipped with dusky.

ALTHOUGH description may fail in conveying a clear idea of the differences between the Curlew-billed and the Black-breasted Sandpiper, these birds are perfectly distinct, and may easily be distinguished by one who has specimens to compare. The present species is considerably larger, with the bill, tarsi, and wings much longer, and in all stages has the upper tail-coverts white, whereas most of them are black in the other species. But, as it can very seldom be obtained for comparison, long-billed individuals of the Black-breasted Sandpiper are liable to be mistaken for it, in the winter season, when the colours of the two species are very similar. The idea of referring birds so closely allied to two different genera, seems to me quite preposterous.

MALE IN WINTER.—Of a rather slender and elegant form, with the body compact, the neck rather long, the head rather small, ovate, compressed, and rounded above. The bill is about half as long again as the head, higher than broad at the base, tapering, compressed, straight for two-thirds of its length, then considerably decurved, but not more so in proportion to its length than in *Tringa Cinclus*. Both mandibles are laterally grooved for three-fourths of their length, with the edges rather thick, the tips slightly enlarged and obtuse. On the roof of the mouth are two series of large, hard, pointed papillæ, directed backwards. The tongue is an inch and a quarter long, emarginate with four papillæ at the base, fleshy for a fourth of its length, then horny, extremely slender, grooved above, compressed and pointed. The œsophagus is three inches and three-quarters in length, three-twelfths in width, uniform; the proventricular portion nine-twelfths long, with oblong glandules. The stomach is elliptical, nine-twelfths in length, seven-twelfths in breadth, with its muscular coat thick, its tendons large, the epithelium dense, flesh-coloured, transversely rugous at

the upper part, longitudinally grooved in the rest of its extent. The intestine is fifteen inches long, from three-twelfths to a twelfth and a half in width; the rectum little enlarged; the cœca an inch and a quarter from the extremity of the gut, an inch and a half in length, cylindrical, scarcely a twelfth in width.

The eyes are small, their aperture measuring only two and a half twelfths. That of the ear is round, and three-twelfths in diameter. The nostrils are linear, a twelfth and a half in length. The legs are slender, and rather long; the tibia bare for eight-twelfths of an inch; the tarsus an inch and a quarter in length, with thirty anterior scutella; the first toe very diminutive, with seven scutella, the second with twenty-two, the third with thirty, the fourth with twenty-eight scutella; the outer toe a little longer than the inner, and slightly webbed at the base. The claws are very small, slightly curved, compressed, and rather blunt.

The plumage is soft and blended; the feathers of the head and neck very narrow and oblong, of the back ovato-oblong, and compact. The wings are very long, extending a quarter of an inch beyond the tail, of twenty-five quills; the first quill longest, the other primaries rapidly graduated; the secondaries are incurved, and obliquely obtuse, excepting the inner five, which are elongated and tapering. The tail is short, doubly emarginate, the two middle feathers being a little longer than the lateral.

The bill is black, with the base of the lower mandible greenish-brown; the iris brown; the feet very dark olive, when dry seeming greyish-black. The general colour of the upper parts is light brownish-grey, each feather with a dark brown central streak; the sides of the head and neck, the fore part of the latter, and a small part of the breast and sides of the body, greyish-white, streaked with brownish-grey, and on the neck tinged with brown. A greyish-white streak extends from the bill over the eye; the loreal space is faintly marked with grey; the throat, breast, abdomen, and lower tail-coverts are white, as are the lower wing-coverts, excepting those margining the wing, which are grey, edged with white. The primary quills and coverts are greyish-

black, the secondary quills paler, the inner grey; the secondary coverts grey, tipped with white; the shafts of the quills are whitish in the middle, and there is a white space at the base of all the quills, increasing inwards; most of the outer secondaries margined with white. The upper tail-coverts are white; the tail-feathers grey, glossed with green, narrowly bordered with white.

Length to end of tail $8\frac{7}{12}$ inches; extent of wings $16\frac{4}{12}$; bill along the ridge $1\frac{6}{12}$, along the edge of lower mandible $1\frac{6}{12}$; wing from flexure $5\frac{5}{12}$; tail 2; bare part of tibia $\frac{8}{12}$; tarsus $1\frac{1}{4}$; first toe $\frac{2}{12}$, its claw $\frac{1}{12}$; second toe $\frac{8}{12}$, its claw $\frac{2}{12}$; third toe $\frac{10}{12}$, its claw $\frac{8}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female resembles the male in colour, but is somewhat larger.

Length to end of tail $8\frac{10}{12}$; extent of wings $16\frac{1}{2}$; bill along the ridge $1\frac{7}{12}$; tarsus $1\frac{1}{4}$; middle toe $\frac{10}{12}$, its claw $\frac{3}{12}$.

MALE IN SUMMER.—In its summer plumage this species is easily distinguished from the Dunlin, the breast being red in the one and black in the other. The bill, iris, and feet are coloured as in winter, but the latter are of a lighter tint. The upper part of the head is black, streaked with light red, the margins of the feathers being of the latter colour; the forehead, sides of the head, and throat are white, with small brown streaks; the sides and fore part of the neck, with the breast and sides, are bright yellowish-red; the lower tail-coverts white, tipped with black. The feathers of the upper parts of the body and the wing-coverts are brownish-black, edged with greyish-white; the scapulars with red spots along the margin; the quills and coverts brownish-black, the coverts tipped with white, as are the outer secondaries; the inner secondaries and scapulars glossed with green. The hind part of the back is brownish-grey; the upper tail-coverts white, barred with red and dusky; the tail-feathers greenish-grey, edged with white.

FEMALE IN SUMMER.—At this season, also, the female resembles the male in colour.

HABITS.—Although this species is very uncommon along our shores, it is probably not of so very rare occurrence as it is generally supposed to be; inattentive observers and sportsmen being apt to confound it with the Dunlin. It arrives in small flocks on the shores of the Firth of Forth, in the beginning of September, and is occasionally met with at the mouth of the Esk at Musselburgh, which is the only place where I have had an opportunity of seeing it alive, and where I have shot it. Generally mingling with the Dunlins, it is hardly distinguishable from them; but when seen apart, is observed to have precisely the same habits as to its mode of searching the sands for food. Its flight is rapid and light; its ordinary cry a shrill scream, differing from the cry of the Dunlin. It searches the mud and sands, walking or running according to occasion, and patting or probing them in search of food, which consists of small worms and other marine animals, along with which it swallows fragments of quartz and other mineral substances. I am not qualified to say more respecting its habits.

Mr. Thompson, of Belfast, represents it as not uncommon there, and considers it as an annual visitant along the whole eastern and southern coasts of Ireland. "September is its favourite month in Belfast Bay. The earliest arrival noted is the 25th of August; before the end of September its departure is occasionally taken, and it rarely remains until the end of October. The numbers vary in different years. In 1838 they were remarkably scarce; an intelligent shooter, always on the look-out, observing them but twice—one on the 3rd of September, and none again until the 23rd of October, when four appeared. In 1845, one only was killed; a few others were heard during the last week of August that year. In 1846, but two were seen until the 10th of October, on which day one was killed; the other had been procured on the 26th of September. In the autumn of 1837, they were more common than usual in the bay, and numbers were shot: a flock of about twenty birds was once seen, and out of a party of eight, six were killed at one discharge. My informant (who has supplied me with many specimens) distinguishes this species from the Dunlin when on the

ground, by its superior size ; in flight, from the lower part of the back being white ; or by its call, which is very different from that of its congener, and is said more to resemble that of the Turnstone than of other shore birds. In 1839, they were more plentiful than ever before known, and arrived before the ordinary time, a couple having been shot on the 2nd of September. On the 7th of that month, a flock of from thirty to forty appeared, and they increased until the 21st, when not less than a hundred were seen in company with a large body of Dunlins, though generally when a number are together they do not associate with other species. Occasionally about fifty or sixty would rise together from one extremity of the flock, and, after flying about for a short time, would alight with the others. The noise produced by their calls, especially, when on wing, was very great, and described to me as a 'kind of chatter,' most unlike the note of the Dunlin. This large body subsequently proved to have been collected together for migration, as they took their departure on that day from the bay, and not one was seen again during the season. The Grallatores generally were particularly abundant in Belfast Bay during the autumn of 1839. In 1840, again, Pigmy Curlews were plentiful, and appeared so early as the 25th of August ; their numbers increased until the 7th of September, and they then nearly all left the bay. An early arrival is generally followed by an early departure. In 1843, flocks consisting of about a dozen birds were observed from the 1st to the 18th of September, when I was informed of the circumstance. They usually keep to the shores of the bay ; but in September and October, 1836, they frequented the river Lagan (within flow of the tide at high water) in flocks. On the 6th of the latter month, I observed nine in company, busily feeding at the edge of the river at Ormeau Bridge ; in the following year, also, they frequented the tidal portion of that river."

Few instances of its occurrence have been noted in England or Scotland, and it does not appear to remain with us in summer. It is very extensively distributed, being found in India, at the Cape of Good Hope, in various parts of Europe, and in North America. M. Temminck states that

on the European continent it occurs on the borders of the sea and lakes, seldom going far inland ; feeds on insects and worms, as well as sea-weeds ; and lays four or five eggs, of a yellowish colour with brown spots.

YOUNG.—Having, while writing this article, a fresh specimen shot on the 12th of September, 1840, at Musselburgh, by Mr. Thomas Fraser, who presented it to my son, I may here describe it, as it appears to be a young bird in its first plumage. The bill is black, the lower mandible tinged with olive-brown toward the base ; the iris dusky brown ; the feet dark olive ; the toes black. The upper part of the head and the nape are blackish-brown, streaked with brownish-white ; from the bill over the eye is a band of greyish-white, minutely streaked with dusky ; the loreal band dusky ; the throat white ; the fore-neck and part of the breast and sides pale yellowish-brown, approaching to cream-colour, the neck being faintly streaked with dusky ; the rest of the lower parts white, excepting the smaller coverts margining the wings, which are greyish-black, with white margins. The sides of the head and neck, with a large portion of the hind-neck, pale brownish-grey, streaked with grey ; the feathers of the lower hind-neck, back, and wings are greyish-black, darker toward the margins, which are white or brownish-white, the scapulars glossed with green. The quills and larger coverts are greyish-black, the latter tipped with white, the former with the shafts white about the middle, their bases white, but not apparent, the extent of that colour enlarging on the inner quills, the tips of the outer secondaries margined with white. The upper tail-coverts and some of the feathers of the rump white, faintly margined with dusky ; the tail-feathers grey, glossed with green, darker toward the margins, but edged with white, the shafts of the outer and part of their inner webs white. It is seen, on dissection, to be a female.

Length $8\frac{7}{12}$ inches ; extent of wings $16\frac{1}{4}$; bill along the ridge $1\frac{1}{2}$, along the edge $1\frac{1}{2}$; wing from flexure $5\frac{4}{12}$; tail $1\frac{1}{2}$; tarsus $1\frac{2}{12}$; third toe $\frac{9}{12}$, its claw $\frac{3}{12}$.

TRINGA SCHINZII. SCHINZ'S SANDPIPER.

- Tringa Schinzii. Bon. Synops. 249; Amer. Ornith. IV. 69.
 Schinz's Sandpiper. Tringa Schinzii. Audub. Ornith. Biogr. III. 529.
 Tringa Schinzii. Temm. Man. d'Ornith. IV. 40.
 Schinz's Sandpiper. Tringa Schinzii. Gould, Birds of Eur.
 Pelidna Schinzi. Bonap. Comp. List, 50.

Bill about the length of the head, straight, with the point slightly enlarged and rather obtuse; tail with the middle feathers considerably exceeding the lateral, which are nearly equal; tarsus eleven-twelfths long; bill and feet dusky. In winter, brownish-black above, the feathers edged with yellowish-grey, the scapulars with light red; first row of coverts greyish-brown, tipped with white; rump white, tail light grey, medial feathers brownish-black toward the end; fore neck and breast greyish-white, with lanceolate brownish-black streaks.

MALE IN WINTER.—This species, of which one individual is recorded as having been killed in England, is here described from American specimens. The body is rather slender; the neck of moderate length; the head oblong, compressed, rounded above. Bill about the length of the head, sub-cylindrical, compressed at the base, the point slightly enlarged and rather obtuse; the ridge narrow and convex, broader and flattened toward the end; the nasal groove extending to near the tip.

Nostrils basal, linear, pervious. Eyes rather small. Legs rather long, slender; tibia bare about a third of its length; tarsus covered before and behind with numerous scutella; hind toe extremely small; the rest of moderate length, slender, slightly margined with rather pointed scales, a very slight basal membrane connecting the outer two; claws

small, slightly arched, acute, that of the middle toe much larger, with the inner edge dilated.

Plumage very soft, blended on the lower parts, rather firm and distinct above. Wings very long, pointed, the first quill longest, the second slightly shorter; outer secondaries incurvate, narrow, obliquely sinuate at the end of the outer web, the inner rounded, and extending beyond the outer. Tail of moderate length, with the outer feathers nearly equal, the medial considerably longer and pointed.

Bill and feet dusky. Upper plumage brownish-black, the feathers edged with yellowish-grey, the scapulars with light red; wing-coverts greyish-brown, first row tipped with white; quills brownish-grey, darker toward the end, the inner primaries and outer secondaries edged and tipped with white; tail-coverts white, often with a dusky spot; tail-feathers light grey, the two middle dusky toward the end; cheeks, fore-neck, part of breast, and sides greyish-white, with lanceolate brownish-black streaks; the rest of the lower parts white.

Length to end of tail 7 inches; extent of wings $14\frac{3}{4}$; bill along the ridge $\frac{1}{2}$, along the edge of lower mandible $\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail $2\frac{2}{2}$; tarsus $\frac{1}{2}$; hind toe $\frac{3}{2}$, its claw $\frac{2}{2}$; middle toe $\frac{1}{2}$, its claw $\frac{3}{2}$.

This species, which has been found along the eastern coast of North America, from Florida to Labrador, as stated by Audubon and others, has been introduced by Mr. Gould into his splendid and costly work on the Birds of Europe, in consequence of his having seen a specimen killed at Stoke Heath, near Market Drayton, Shropshire, and in the possession of Sir Rowland Hill. In the Zoologist, vol. iv. p. 1564, Mr. E. H. Rodd states that two were procured, in the middle of October, 1846, within a few miles of Penzance. Mr. Thompson, in his Natural History of Ireland, vol. ii. p. 297, mentions one "believed, on circumstantial evidence," to have been procured near Belfast.

TRINGA PLATYRHYNCHA. FLAT-BILLED
SANDPIPER.

Numenius pygmaeus. Lath. Ind. Ornith. II 713.

Tringa platyrhyncha. Temm. Man. d'Ornith. II. 616; IV. 403.

Tringa platyrhyncha. Broad-billed Sandpiper. Gould, Bird of Eur. pt. XVII.

Broad-billed Sandpiper. Yarr. Brit. Birds, II. 638.

Pelidna platyrhyncha. Bonap. Comp. List, 50.

Bill half as long again as the head, straight, slightly decurved at the end, depressed at the base, tapering; tail with the middle feathers considerably longer than the lateral, which are nearly equal; tarsus an inch long; bill reddish at the base, dusky; feet greenish-grey. In summer the upper part of the head blackish-brown, with two narrow longitudinal light red bands; the feathers of the upper parts black, narrowly edged with red; fore part and sides of the neck and breast reddish-white, spotted with brown; the rest of the lower parts white; lateral tail-coverts white, with a dusky spot.

THIS species I have never seen alive, nor have I a skin of it; and specimens not being procurable while I write this article, I am obliged to have recourse to the descriptions and remarks of others.

ADULT IN SUMMER.—According to M. Temminck, the “head and occiput are of a blackish-brown colour, intersected by two narrow light red longitudinal bands; a band over the eyes white marked with brown dots; the streak between the bill and the eye of a blackish-brown; sides of the head whitish, streaked with brown; nape grey, longitudinally streaked with brown; feathers of the back and scapulars deep black, all narrowly bordered with light red;

the scapulars further bear on the outer webs a small longitudinal whitish streak; wing-coverts blackish toward the end, tipped with reddish-white; throat, belly, and abdomen of a pure white; fore part and sides of the neck of a reddish-white, variegated with small longitudinal streaks; all the feathers tipped with white; on the sides of the body are some large brown spots, and on the white feathers of the lateral tail-coverts are some lanceolate spots; middle tail-feathers black, edged with light red; the lateral tail-feathers and the quills bordered with pale grey; bill black, but reddish-grey at its base; feet of a greenish-grey." The length about $6\frac{1}{2}$ inches.

YOUNG IN THEIR FIRST PLUMAGE.—“Two longitudinal bands of a reddish-white over the eyes; a brown streak between the bill and the eye; top of the head, back, scapulars, wing-coverts, rump, and the two middle tail-feathers black, each feather being bordered with light red; lateral tail-feathers of a brownish-grey; face, nape, sides of the neck, breast, sides of the body, and lower tail-coverts of a reddish-white, marked with a great number of black longitudinal streaks; throat, middle of the belly, and abdomen white; depressed base of the bill reddish-grey, point black; feet of a greenish-grey. Length 6 inches 4 or 6 lines.”

HABITS.—M. Temminck states that this species extends from the north of Europe to the islands of the Indian Archipelago, and is reported to occur also on the continent of India. He says it is pretty common on the lakes of Switzerland, especially in spring, but has never been observed in Holland; and states that it inhabits the marshes of the north of Europe and America. It is not, however, included among the birds of the latter continent by its ornithologists. Although it has been met with in Germany, France, and Italy, it appears to be of very rare occurrence anywhere, unless during the breeding season in Norway and Lapland, where its habits have been in some measure observed by Mr. Daun, whose account of them is given by Mr. Yarrell, in his *History of British Birds*:—“On its first

appearance it is wild and shy, and similar in its habits to the other species of the genus, feeding on the grassy borders of the small pools and lakes in the morasses. On being disturbed it soars to a great height in the air, rising and falling suddenly like the Snipe, uttering the notes *too-who*, which are rapidly repeated. As the weather becomes warm its habits totally change, skulking and creeping through the dead grass, and allowing itself to be followed within a few yards; and when flushed, dropping again a short distance off. It seems to lay its eggs later than others of this tribe generally. I found the eggs not sat upon on the 24th of June, and the last week in July the young were unable to fly, a period when all other Sandpipers are on the move south. The eggs were of a deep chocolate colour, and its nest, like that of the Snipe, was on a hummocky tuft of grass."

In the tenth volume of the Magazine of Natural History is a notice, by the late Mr. F. D. Hoy, of a specimen of this rare species that was killed in Norfolk:—"The flat-billed Sandpiper, *Tringa platyrhyncha*, and Bécasseau platyrinque of M. Temminck's Manual, was shot on the 25th of May, 1836, on the muddy flats of Breydon Broad. It was in company with some Dunlins and Ring-Plovers. From the season of the year it had probably acquired its summer plumage, and it very closely agrees with the description of the nuptial garb of the species as given by M. Temminck. This bird is rather inferior in size to the Dunlin, but may be always readily distinguished from that species by the peculiar form of the bill, as well as considerable difference in plumage. This specimen was preserved by a friend of mine, who did not notice the sex."

REMARKS.—This Sandpiper, and the Pectoral and Buff-breasted, bear more resemblance to the Snipes, Scolopax, than any of the other species, and might with some propriety constitute a genus by themselves. The present species has, in fact, by some authors been itself made a genus of. On the other hand, it is so like *Tringa Cinclus* as to be liable to be confounded with it, and in description is difficult to be distinguished from *Tringa subarquata*. It is probably not so rare on our eastern coasts as is supposed.

TRINGA MINUTA. THE LITTLE SANDPIPER.

- Little Sandpiper. *Tringa pusilla*. Mont. Ornith. Diet. Young.
 Becasseau échasse. *Tringa minuta*. Temm. Man. d'Ornith. II. 625.
 Minute Tringa. *Tringa minuta*. Selb. Illustr. II. 147.
Tringa minuta. Little Stint. Jenyns, Brit. Vert. Anim. 212.
 Little Sandpiper. *Tringa minuta*. Gould, Birds of Europe.
Pelidna minuta. Bonap. Comp. List, 50.

Bill about the same length as the head, straight, slender, scarcely enlarged at the end; tail doubly emarginate; tarsus ten-twelfths long; bill and feet black. Plumage in winter brownish-grey above, each feather with a dusky streak; the sides of the neck paler, of its lower part tinged with brown; the throat, fore neck, breast, and abdomen, white; the middle tail-coverts dusky, the lateral white; the tail-feathers ash-grey edged with white, the two middle greyish-brown. In summer the upper parts yellowish-red, spotted with brownish-black; the throat, breast, and other lower parts white; the lower anterior and lateral parts of the neck reddish-grey streaked with brown; a dusky loreal band, and a whitish streak over the eye. Young with the upper parts variegated with brownish-black and yellowish-red; the forehead and cheeks brownish-white, the loreal space brown; the lower part of the sides of the neck brownish-grey; the throat, fore-neck, and other lower parts white.

THIS species, which in form and proportions closely resembles *Tringa Cinclus* and *Tringa Schinzii*, although much inferior in size, and somewhat more slender, I have not met with alive, nor even in the entire state after being killed. The following descriptions are therefore necessarily taken from prepared skins.

MALE IN WINTER.—The body, neck, and head are of the usual form. The bill of the same length as the head, straight, slender, rather higher than broad at the base, tapering,

scarcely enlarged at the end; both mandibles laterally grooved nearly in their whole length. Nostrils linear, a twelfth long; eyes small. Legs slender; the tibia bare for four-twelfths of an inch; the tarsus ten-twelfths long, with twenty scutella. The first toe very diminutive, with four scutella, the second with eighteen, the third twenty-six, the fourth twenty; the anterior toes entirely destitute of basal webs. The claws rather long, very slender, compressed, tapering, arched, acute.

The plumage is very soft and blended; the feathers on the back ovato-oblong, and rather compact. The wings are very long, with twenty-five quills; the first primary longest, the rest rapidly graduated; the secondaries incurved, the inner very elongated and tapering. The tail is short, doubly emarginate, the lateral feathers being a little longer than the next, and the middle feathers considerably longer than they.

The bill and feet are black. The general colour of the upper parts is brownish-grey, each feather with a dusky medial line, and the margins somewhat paler; the sides of the head of a lighter grey; those of the neck streaked with whitish, and on its lower part tinged with brown. There is a dusky-grey loral band, and a whitish-grey streak passes over the eye. The throat, fore neck, breast, abdomen, lower tail-coverts, axillars, and lower wing-coverts, are white, with the exception of the coverts along the margin of the wing, which are dusky unless on the edges. The quills and greater coverts are greyish-black, the latter faintly tipped with white. The middle tail-coverts are greyish-brown, the lateral white; the two middle tail-feathers dark greyish-brown, the rest ash-grey, all narrowly edged with white.

Length to end of tail 6 inches; wing from flexure $4\frac{1}{2}$; tail $1\frac{1}{2}$; bill along the ridge $\frac{1}{2}$, along the edge of lower mandible $\frac{1}{2}$; bare part of tibia $\frac{1}{2}$; tarsus $\frac{1}{2}$; first toe $\frac{1}{2}$, its claw a half-twelfth; second toe $\frac{5}{2}$, its claw $\frac{2}{2}$; third toe $\frac{7}{2}$, its claw $\frac{2}{2}$; fourth toe $\frac{6}{2}$, its claw $\frac{2}{2}$.

FEMALE IN WINTER.—The female is similar to the male, but slightly larger.

MALE IN SUMMER.—The bill and feet black. The upper part of the head variegated with brownish black and yellowish-red, the margins of the feathers being of the latter colour. The feathers of the back and the scapulars, are similarly marked, the latter margined with brighter red; the middle tail-coverts and tail-feathers brownish-black, margined with light red; the lateral tail-coverts white, with a medial dusky streak, the other tail-feathers grey, edged with white. The sides of the head and neck are reddish-grey, streaked with brown; the throat white; the loreal band dusky, the streak over the eye whitish. Extending across the lower part of the fore neck in front is a broad band of reddish-grey, streaked with brown. The breast and other lower parts are white.

FEMALE IN SUMMER.—Like the male.

HABITS.—This species, which some have supposed to breed in the Arctic regions, occurs in autumn, winter, and spring, chiefly on the margins of rivers and lakes, in Germany, France, and Switzerland. In the early part of autumn, it is seen, according to M. Temminck, in great numbers, in the salt marshes of Dalmatia. From its not having been found in North America, nor on the north-western coasts of Europe, while it appears to be not uncommon in Italy, and has been procured in India, some have supposed its summer residence to be more probably in the eastern parts of Europe, and in northern Asia. It is, however, as reasonable to suppose that the small flocks seen on the coasts in early autumn may have come from the interior, perhaps no great distance. As the Dunlin breeds extensively on our heaths, the Little Sandpipers seen on the southern coasts of England may be purely indicolous. However, as yet nothing appears to be known respecting the breeding of this species. Mr. Jenyns, and after him, Mr. Gould, describe the egg as an inch and a twelfth in length, nine-twelfths in breadth, reddish-white, spotted and speckled with dark reddish-brown. Although so many specimens have been obtained along the southern and eastern coasts of England, as to induce us to suppose that it may be not very uncommon on our northern shores, it being found in

Scandinavia in summer, no authentic instance of its occurrence in Scotland has hitherto been recorded. It is mentioned, however, as having been observed in the neighbourhood of Montrose; and in January 1849, a small flock, probably of this or the next species, was seen near the mouth of the Don, by my son Paul, who is well acquainted with our shore birds. Several flocks of very small *Tringæ* have repeatedly been seen on the sandy coast of Aberdeenshire. From one of them, an individual was shot by Mr. Peppe, in the autumn of 1841, and presented to me, in a prepared state, by Dr. Dickie, who also informed me that his brother saw a flock, in August of the same year, but failed to secure any. This specimen may be described as follows:—

Bill shorter than the head, straight, slender, black; feet brownish-black. Tail doubly emarginate, the outer tail-feathers on each side being longer than the next. Upper part of the head brownish-black, the feathers margined with pale greyish-red; forehead and a band from it on each side over the eye greyish-white; loreal spaces greyish-brown; hind part and sides of neck pale grey, faintly streaked with darker; feathers of the back, wing-coverts, and scapulars brownish-black, margined with light red, changing to reddish-white toward the end of some of the scapulars; those of the hind part of the back greyish-black, as are the middle tail-coverts; the lateral white. Primary quills and their coverts greyish-black; shafts of the primaries white, as are the outer margins of the inner six; an oblique band of white including the bases of the inner primaries, and extending on the secondaries so as to include the greater part of the ninth, white; the remaining inner secondaries like the scapulars; the tips of the first row of small coverts also white; the two middle tail-feathers blackish-grey, margined at the end with greyish-red; the rest ash-grey, very narrowly margined with white; the outer paler. Throat white; fore-neck and sides of breast reddish-white, the latter variegated with brown; the rest of the lower parts white, some of the feathers on the sides with small faint grey markings; the lower wing-coverts partly dusky; axillar feathers white. It appears to be a young bird in its first autumnal plumage.

Length $5\frac{1}{2}$ inches; wing from flexure $3\frac{8}{12}$; bill $\frac{8}{12}$; bare part of tibia $\frac{4}{12}$; tarsus $\frac{9}{12}$; middle toe $\frac{7}{12}$, its claw $\frac{1}{12}$.

Mr. Thompson marks it "a regular autumnal visitant to Ireland, appearing in extremely limited numbers;" and gives several instances of its occurrence in Belfast Bay, and other parts of that country.

YOUNG.—Two specimens from the south of England, which I have examined, agree with the young in their first plumage, as described by M. Temminck, being as follows:—The bill and feet black. The feathers on the upper part of the head brownish-black, edged with greyish-yellow; the loreal space brownish-grey; the forehead and cheeks whitish, as is a streak over the eye. The hind-neck pale yellowish-grey streaked with brown; the fore part of the neck at the sides similar; the throat and all the lower parts white; the lower marginal wing-coverts alone being dusky, with white edges. The feathers of the upper parts are blackish-brown, edged with yellowish-red, the outer margins of the scapulars reddish-white. The quills are brownish-black, the larger coverts tipped with yellowish-white; the inner secondaries like the scapulars. The middle tail-feathers similar, the rest brownish-grey, edged with white.

It is to the bird in this state that Montagu's description of the Little Sandpiper, in the Supplement to his Ornithological Dictionary, belongs:—"Length about six inches. Bill and irides dusky. The forehead and cheeks round the eyes very pale, nearly white; throat and all beneath white, except across the breast, where it is mixed with light brown; the crown of the head, back, scapulars, and coverts of the wings dusky black, more or less margined with pale rufous, but the margins of some of the scapulars nearly white. These marginated feathers give the bird a spotted appearance. The back of the neck brown, mixed with cinereous; the quills and greater coverts dusky, very slightly tipped with white; the coverts more largely and the primaries externally margined with white, except the two first; the shaft of the first quill white. The middle feathers of the tail are, like the tedials, dusky, bordered with fenuginous; the others cinereous, palest on the margins. The legs dusky."

TRINGA TEMMINCKII. TEMMINCK'S
SANDPIPER.

Tringa Temminckii. Leisler. Temm. Man. d'Ornith. II. 622.

Tringa pusilla. Flem. Brit. Anim. 112?

Tringa Temminckii. Temminck's Tringa. Gould, Birds of Eur. pt. XVII.
Temminck's Stint. Yarr. Brit. Birds, II. 647.

Tringa Temminckii. Selby, Illustr. II. 144.

Pelidna Temmincki. Bonap. Comp. List, 50.

Bill a little shorter than the head, slender, scarcely enlarged, but a little decurved at the end; tail feathers graduated; tarsus eight-twelfths long; bill dusky, feet greenish-brown. Plumage in winter deep brown above, each feather with a blackish-brown central space; fore part of the neck and a portion of the breast reddish-grey; throat and lower parts white; lateral tail-coverts white; outer tail-feathers externally white. In summer the feathers of the upper parts deep black, margined with red; fore part of the neck reddish-grey, finely streaked with black; throat and lower parts white, as are the lateral tail-feathers.

THIS species, the most diminutive of those which occur in Britain, is distinguishable from the last, not so much by its smaller size as by its somewhat wedge-shaped tail and much shorter tarsus.

ADULT IN WINTER.—The form and proportions as in the other small species. The bill somewhat shorter than the head, straight, slender, rather higher than broad at the base, tapering, scarcely enlarged at the end; both mandibles laterally grooved nearly in their whole length. Nostrils linear, a twelfth long; eyes small. Legs very slender; the tibia bare for four-twelfths of an inch; the tarsus eight-twelfths

long; anterior toes rather long, slender; claws moderately arched, rather acute.

The plumage very soft and blended; the feathers on the back ovato-oblong, and rather compact. The wings very long, with twenty-five quills, the first primary longest, the rest rapidly graduated; the secondaries incurved, the inner very elongated and tapering. The tail is short, with the middle feathers elongated and tapering, the outermost feather on each side shorter than the next.

The bill is black; the feet greenish-brown. The feathers of the upper parts blackish-brown, bordered with reddish-brown; the sides of the head and neck pale-grey; the fore part of the neck pale brown, streaked with dark brown; chin and lower parts white, as are the axillar feathers; primaries dusky-brown, with white shafts; outer secondaries greyish-brown, tipped with white; the elongated inner secondaries like the back. Tail-coverts dusky-brown, as are the middle tail-feathers, the rest ash-grey, the outer three on each side nearly white.

Length to end of tail $5\frac{8}{12}$ inches; wing from flexure $3\frac{1}{2}$; bill $\frac{7}{12}$; bare part of tibia $\frac{5}{12}$; tarsus $\frac{8}{12}$; middle toe $\frac{7}{12}$, its claw $\frac{2}{12}$.

IN SUMMER.—According to M. Temminck, all the feathers of the upper parts deep black in the middle, with a broad border of a deep red; forehead, fore part of the neck and breast reddish-grey with very small longitudinal black spots; throat lower parts and lateral tail feathers pure white, the two middle feathers of the tail blackish-brown, bordered with deep red.

HABITS.—Very little has to be stated under this head. It is said to breed in the arctic regions; M. Nilsson says on the shores of the seas of northern Europe, but this is very improbable. It is seen on its vernal and autumnal migrations in Germany, France, and Switzerland. Specimens have been received from India and its archipelago. No doubt it runs, flies, feeds, and breeds very much in the manner of several other *Tringas*; but, although a probable

history of it could be made up from analogies, ornithologists are obliged to confine themselves to facts, and thus are sometimes accused by popular writers of a decided want of imagination. These people are ignorant of the use of that faculty, which, however, may be applied with advantage to every branch of natural history, though certainly not in supplying the lack of observed facts.

Specimens have been obtained in Cornwall, Devonshire, and here and there all along the eastern coast of England as far north as Yorkshire; and Mr. Heysham, of Carlisle, states their occurrence in Rock-cliff salt marsh. Scotland has hitherto yielded none, and, according to Mr. Thompson, Ireland as yet boasts of only one, "shot by W. Purdon, Esq., at a fresh-water pool close to the town of Tralee, and the one bird only was seen."

CALIDRIS. SANDERLING.

THIS genus is formed of a single species, which in all respects agrees precisely with the genus *Tringa*, and might stand next to the Dunlin, had it not been deprived of its hind toe. The presence or absence of this member seems to be of very little importance in the economy of the Waders, as no appreciable difference exists in the mode of walking of the Sanderling and Dunlin, or of the Golden and Grey Plovers.

Bill of the length of the head, straight, slender, soft and somewhat flexible; upper mandible with the dorsal line straight, the ridge narrow, towards the end flattened, the tip a little enlarged, obtuse, and somewhat exceeding that of the lower, the nasal groove extending nearly to the end, and filled by a concave bare membrane; lower mandible with the angle very long and narrow, the sides grooved, the tip a little enlarged and obtuse. Tongue very long, slender, trigonal, channelled above, pointed. Upper mandible within concave, with a double row of reversed pointed papillæ; lower deeply concave. Fauces extremely small. Œsophagus narrow, without dilatation; proventriculus small, its glands oblong; gizzard large and muscular; its cuticular lining rugous; intestine long; cœca moderate, cylindrical.

Nostrils small, linear, pervious, basal, close to the margin. Eyes small; both eyelids feathered. Aperture of ear rather large, roundish. Feet rather short, very slender; tibia bare at its lower part; tarsus with numerous anterior scutella; toes small, first wanting, second a little shorter than fourth, third not much longer, all with numerous scutella above, laterally marginate. Claws small, curved, compressed, obtuse.

Plumage moderately full, soft, and blended; but on the back and wings rather compact. Wings very long, pointed;

quills twenty-five; primaries tapering, the first longest; secondaries short, incurved, but the inner elongated, one of them not much shorter than the first primary when the wing is closed. Tail short, of twelve narrowed feathers, and somewhat doubly emarginate.

The only species of this genus known to me has the habits of the Dunlin, to which also it is nearly allied in structure and form. How any one, misled, perhaps, by the absence of a hind toe, should place it in connection with the Plovers, it would be difficult to say. They who give it a station between the Turnstone and the Oyster-catcher, from both of which it widely differs, may possibly consider such remarks "uncalled for." Very interesting, too, it would be to know the physiological facts and logical arguments, by which the Ardeidæ are made to occupy a station intermediate between Plovers and Snipes.

CALIDRIS ARENARIA. THE COMMON SANDERLING.

CURWILLET. TOWILLY. SAND LARK. OX-BIRDS.

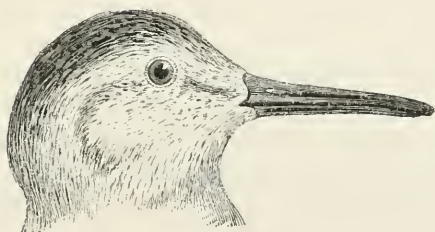


FIG. 19.

- Tringa arenaria.* Linn. Syst. Nat. I. 255.
Charadrius calidris. Linn. Syst. Nat. I. 255.
Charadrius calidris. Lath. Ind. Orn. II. 741.
Charadrius rubidus. Lath. Ind. Orn. II. 740.
 Sanderling. Mont. Orn. Dict.
 Sanderling variable. *Calidris arenaria.* Temm. Man. d'Orn. II. 524.
Calidris arenaria. Common Sanderling. Flem. Brit. Anim. 112.
 Common Sanderling. *Arenaria Calidris.* Selb. Illustr. II. 208.
Calidris arenaria. Sanderling. Jen. Brit. Vert. An. 183.
Calidris arenaria. Bonap. Comp. List. 50.

In winter the upper parts pale grey, with dusky lines ; the lower white ; wings black and grey with a white band. In summer the upper parts variegated with black and red ; the lower red anteriorly, white behind. Young with the upper parts black, and variegated with yellow and white ; the lower white.

THE Sanderling is a lively little bird, very similar to the Dunlin, in winter not easily distinguishable from it at a distance, but readily known when procured by its wanting the

hind toe. It varies so much in colour, that scarcely two individuals can be found precisely alike. The appearance which it presents at various seasons may be thus described:—

MALE IN WINTER.—Bill black, iris dusky, feet greenish-black. The upper part of the head, the hind part and sides of the neck and the back, pale grey, each feather with a darker medial streak. The forehead, cheeks, fore part of the neck, and all the under parts pure white. The small coverts margining the wing, the alula, primary coverts, and primary quills are greyish-black; the secondary quills paler, as are their coverts; the inner secondaries and the middle coverts light grey. The primary and secondary coverts are tipped with white; a great portion of the shafts of all the quills is of that colour, and all the quills are white at the base, the portion so coloured extending from the first primary to the tenth secondary, which is entirely white, or with a slight grey mark. Tail-feathers grey, margined with white, the outer feathers paler.

Length to end of tail $7\frac{3}{4}$ inches; extent of wings 16; bill along the ridge 1, along the edge of lower mandible 1; bare part of tibia $\frac{1}{2}$; tarsus $\frac{1\frac{1}{2}}$; second toe $\frac{6}{1\frac{1}{2}}$, its claw $\frac{1}{1\frac{1}{2}}$; third toe $\frac{8}{1\frac{1}{2}}$, its claw $\frac{1}{1\frac{1}{2}}$; fourth toe $\frac{7}{1\frac{1}{2}}$, its claw $\frac{1}{1\frac{1}{2}}$; wing from flexure $5\frac{2}{1\frac{1}{2}}$; tail $2\frac{2}{1\frac{1}{2}}$.

FEMALE IN WINTER.—The female is similar to the male in colour, but somewhat larger.

Length 8 inches; extent of wings 16; bill along the ridge 1; tarsus 1; middle toe $\frac{7}{1\frac{1}{2}}$, its claw $\frac{2}{1\frac{1}{2}}$.

VARIATIONS.—The colour of the upper parts may be greyish-white, pale grey, or pale brownish-grey, with the shaft-streaks narrower or broader, and of a darker or lighter tint. But the principal variations are owing to an intermixture of new and old feathers, there being a constant succession, and the full winter plumage not being obtained until the middle or end of November.

MALE IN SUMMER.—The bare parts as in winter. The

feathers of the upper part of the head are black, margined with light red and white; the cheeks, neck, fore part of the breast and sides greyish-red, streaked with black; the rest of the lower parts white. The feathers of the back and the scapulars are black in the centre, light red toward the edges, which are white, the larger spotted with red; the tail-feathers grey, excepting the two middle, which are black, margined with light red. The wing-coverts are brownish-black, bordered, and the inner marginally spotted with light red; the quills and large coverts as in winter.

FEMALE IN SUMMER.—Similar to the male.

HABITS.—The Sanderlings appear in small flocks on our northern coasts, on both sides of the island, as early as the beginning of September. Their numbers gradually increase, until in winter, when they are met with in all parts; they collect into large bands, which frequent the sandy shores and muddy estuaries, often mingling with various species of *Tringa*, but especially with the Dunlins. In searching for their food, which consists of small worms, testacea, and sometimes insects, they run with rapidity when following the margin of the wave, but more sedately in other circumstances, patting and probing the soft sand or mud with their bills, which they seldom introduce to any depth. It is pleasant to watch a flock so occupied, the liveliness of the little creatures, and their clean and beautiful plumage, together with the mutual goodwill and forbearance which they exhibit, rendering them most agreeable companions. When alarmed, they fly off in a body, uttering occasionally a shrill cry, move with great rapidity, now all inclining to one side, now to the other, and performing various evolutions. In sunshine they may be perceived at a very great distance by the glancing of their white under parts. At first they are not shy, and may easily be approached; but after being molested, they become rather vigilant. At high water they repose on the sands or in their neighbourhood, sometimes by themselves, but often in company with Dunlins and Ringed Plovers. Like these species they also feed by moonlight. Individuals are sometimes seen

on various parts of the coast during summer ; but it does not appear that this species breeds in any part of Britain.

At that season it has been found in the arctic regions of both Europe and America. In winter it extends southward along the shores, and is very generally dispersed, being, it is said, observed in Africa and India. In autumn it is extremely fat, and affords delicate eating.

YOUNG.—In their full plumage the young, when they arrive on our coast are as follows :—The bill and feet are black, as in the adult. The forehead, a band over the eyes, the throat, and all the lower parts are white ; there is a dusky loreal band, and the cheeks are faintly marked with dark grey, of which there is a patch on the ear-coverts ; the hind part and sides of the neck are whitish-grey, finely streaked with darker ; the sides of the breast dotted with the same. The feathers of the upper parts are black, margined with greyish-white, the larger variegated with yellowish spots. The wings are nearly as in the adult ; the inner elongated secondaries grey, with white and dusky spots toward the end. The feathers on the hind part of the back grey, darker toward the end ; the tail-feathers grey on the outer, nearly white on the inner web, the two middle darker, all bordered with white.

REMARKS.—With one who looks to the general form, structure, and habits of birds, rather than to some insignificant conventional or artificial characters, there can be no doubt whatever as to the direct affinity of the Sanderling to the Dunlin and the *Tringa*. It is, in fact, a *Tringa* destitute of hind toe, just as *Phalaropus platyrhynchus* is a *Tringa* with the margins of the toes enlarged.

NUMENIUS. CURLEW.

THE Curlews are birds of moderate size, especially remarkable for the great length and curvature of their bill, which is at least twice as long as the head, slender, arcuate, larger at the base, tapering to the end. Upper mandible with its dorsal outline arcuate, the ridge broadly convex, the sides slightly sloped, the edges involute, with a very narrow groove; the tip elliptical, obtuse, and extending beyond that of the lower; the nasal groove very long and narrow. Lower mandible with the angle very narrow, extending to the middle, and bare anteriorly; the dorsal line concave, the ridge broadly convex, the sides of the crura a little inflected, and having a longitudinal groove.

Both mandibles very thick, internally having a narrow central groove, not occupied by the tongue, which is short, sagittate, narrow, tapering, grooved above, acute. Palate with a central and two lateral ridges. Throat very narrow. Œsophagus very long, of nearly equal diameter throughout; proventriculus oblong, completely encircled by large oblong glandules. Stomach a large and powerful gizzard, having the muscles distinct, the tendons radiated, and the inner coat rugous. Intestine long, of moderate width; cœca rather slender, cylindrical, rather short; rectum cylindrical; cloaca globular.

Eyes rather small; eyelids feathered. Nostrils linear, pervious, basal. Aperture of ear moderate, roundish. The feet are long and slender; the tibia bare below, reticulated all round with angular scales; tarsus long, similarly reticulate, but having for two-thirds of its length anteriorly a series of short scutella; toes rather short, slender, with numerous scutella above, broad and flat with flattened

papillæ in transverse rows beneath; the anterior webbed as far as the second joint; the hind toe very small. Claws small, slightly arched, compressed, obtuse; that of the middle toe curved outwards, with a dilated edge.

Plumage moderately full, soft, blended, the feathers oblong or lanceolate. Wings very long, narrow, pointed, with about thirty quills; first primary longest, the rest rapidly graduated; secondaries slightly incurved, rounded, and acuminate; some of the inner much elongated and tapering; tertiaries seven, concealed by the very long scapulars. Tail rather short, rounded, of twelve acuminate feathers, the two middle considerably longer.

The genus *Numenius* is very nearly allied to *Tantalus* on the one hand, and to *Limosa* on the other. It is composed of species varying in size from that of a Domestic Fowl to that of the Woodcock. They are generally distributed, of migratory habits, present a great uniformity of appearance, frequent the shores in winter and spring, breed on the moors, laying four pyriform mottled or clouded eggs, and seldom associate with other species. Shy, easily alarmed, and extremely vigilant, they are with difficulty approached. They run with great celerity; have a powerful, light, and rapid flight; and feed on insects, larvæ, mollusca, and crustacea. Their flesh is excellent, being sapid, savoury, and highly-flavoured; and their eggs are delicious.

The only character in which the Curlews differ from the *Tringinae* is their having a very short tongue, that organ being elongated and pointed in the other species of this family. In this respect they resemble the *Tantalinae*, to which they are further allied in the form of the bill; but from which they differ in that of the wings, the general style of colouring of the plumage, and in having a more muscular gizzard, with longer cœca.

Two species occur in Britain—the Curlew, properly so called, and the Whimbrel; the former indigenous, the latter partially so, but for the most part migratory.

NUMENIUS ARQUATA. THE GREAT CURLEW.

WHAAP. WHAUP. STOCK WILAAP. WHITTERICK.

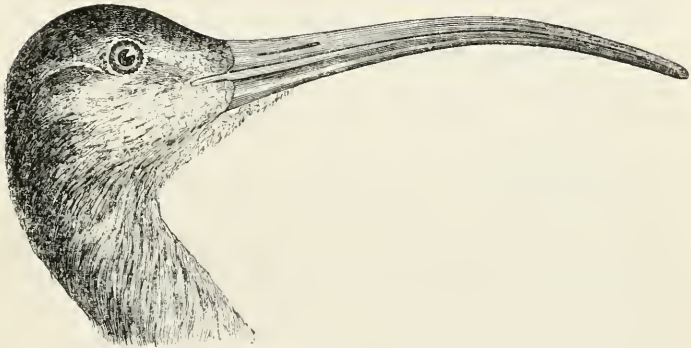


FIG. 20.

Scolopax Arquata. Linn. Syst. Nat. I. 242.

Numenius Arquata. Lath. Ind. Orn. II. 710.

Common Curlew. Mont. Orn. Dict.

Grand Courlis cendré. Numenius Arquata. Temm. Man. d'Orn. II. 603.

Common Curlew. Numenius Arquata. Selb. Illustr. II. 62.

Numenius Arquata. Common Curlew. Jen. Brit. Vert. An. 195.

Numenius Arquata. Bonap. Comp. List, 49.

Length from twenty-three to twenty-eight inches; bill from five to seven inches. Plumage of the head, neck, and fore part of the back light reddish-grey, streaked with blackish-brown; the hind part of the back white, with narrow longitudinal dark marks; the tail white, with twelve black bars; the breast, sides, and abdomen white, with lanceolate black spots and bars.

MALE.—The Great or Common Curlew is generally distributed, familiarly known in most districts, and indeed one

of the most remarkable of our native birds, enlivening the wild heaths in summer, and in winter giving interest to the sands and muddy bays of the sea-shore. Its body is ovate, and rather full; its legs long and slender; its neck also long; its head rather small, oblong, anteriorly rounded. The bill is extremely long, slender, arched, tapering, blunt; the tip of the upper extending about two-twelfths of an inch beyond that of the lower mandible, which is at the base a little broader than the upper. Owing to the great thickness of the mandibles, their internal cavity is reduced to a narrow groove, which is not occupied by the tongue; that organ being very short, sagittate, tapering, grooved above, and sharp-pointed. The throat is very narrow; the œsophagus eleven inches long, of nearly equal diameter throughout; the proventriculus oblong, an inch and a half in length, its glandules cylindrical. The gizzard is elliptical, a little compressed, two inches long, its muscles very thick, its radiated tendons very large, measuring an inch across. The intestine is four feet six inches long, at its upper part six-twelfths of an inch in diameter, at the cœca three-twelfths. The rectum is four inches long; the cœca four inches and a quarter, their diameter three-twelfths.

The eyes are rather small, the diameter of their aperture being four-twelfths. The nostrils are linear, pervious, placed in the nasal membrane near the base. The aperture of the ear measures four-twelfths across. The tibia has its bare part reticulated with angular scales. The tarsus has for two-thirds of its length anteriorly a series of twenty-six narrow scutella, the upper part and the sides reticulated. The fore toes are webbed as far as the second joint, the outer web largest: the first toe with ten, the second with twenty-five, the third with thirty-three, the fourth with twenty-seven scutella. The claws are small, slender, arched, compressed, obtuse.

The plumage is soft, on the upper part of the head rather compact, on the neck blended. On the fore part of the back the feathers are longish, oblong, and rounded; on the rest of the back small and oblong; on the lower parts also oblong and blended. The tibiæ are feathered nearly two-

thirds of their length. The wings are very long, narrow, and pointed; the quills thirty; the first longest, the other primaries rapidly graduated; the secondaries slightly incurved with a minute tip, some of the inner much elongated and tapering. There are seven stiffish tertiaries, concealed by the scapulars. The tail is short, rounded, of twelve acuminate feathers, the two middle considerably longer.

The base of the lower mandible and basal margins of the upper are flesh-coloured, the rest black. The iris is brown. The feet are bluish-grey; the claws black. The head and neck are light yellowish-red, tinged with grey, each feather having a central blackish-brown streak, darker and broader on the upper part of the head. The fore part of the back and the scapulars are darker, their central black markings broader and continued to the tip; the scapulars with serriform yellowish-red spots on the edges. The small wing-coverts are lighter, but similarly marked; the primary coverts brownish-black, with the tip white; the primaries deep brown, the shaft of the first white, of the rest hair brown; the first five quills unspotted on the outer web, the rest with serriform white spots on the outer, and all with similar larger spots on the inner web; the secondary coverts and first series of smaller coverts similarly marked. The back is white, with narrow longitudinal black marks; the upper tail-coverts barred with black. The tail is white, towards the end tinged with red, and having twelve brownish-black bands. The breast, sides, and abdomen are white; the first with lanceolate spots, the second with broader lanceolate spots and bars, the last nearly pure; the lower tail-coverts with narrow lanceolate spots; the tibia white, with a few narrow streaks; the lower wing-coverts white, spotted and barred with dusky.

Length to end of tail 25 inches, to end of wings $23\frac{3}{4}$, to end of toes $27\frac{3}{4}$; extent of wings 42; bill along the ridge $6\frac{1}{4}$, along the edge of lower mandible $6\frac{1}{4}$; wing from flexure $12\frac{1}{2}$; tail $4\frac{1}{2}$; tarsus $3\frac{2}{12}$; first toe $\frac{7}{12}$, its claw $\frac{3}{12}$; second toe $1\frac{6}{12}$, its claw $\frac{3}{12}$; third toe $1\frac{3}{4}$, its claw $\frac{4}{12}$; fourth toe $1\frac{7}{12}$, its claw $\frac{3}{12}$.

VARIATIONS.—Individuals of both sexes vary greatly in size, the males measuring from twenty-seven to twenty-four inches in length; the females from twenty-four to twenty-one. Some have more of the rufous tint on the head, neck, and back; but in other respects the variations are not remarkable.

CHANGES OF PLUMAGE.—The moult commences in June, and is completed by the end of October. As the summer advances the reddish tint disappears, and the feathers become worn, ragged, and pointed, those portions of their margins on which are the white spots generally coming off, as if they had been eaten out by an acid. This appearance is presented by all the birds of this family which have the feathers margined with white spots.

HABITS.—With the history of the Curlew might be connected, and not inappropriately, not only much of the wild scenery of Britain, but somewhat of the progress of civilization amongst us; but as these subjects have received ample illustration from individuals better qualified to do them justice, it seems advisable for us not to wander from our proper course.

We may suppose that in the middle of October we are traversing the extensive mud flat that stretches at low water from the village of Cramond to the ruins of Barnbogle Castle, on the southern shore of the Firth of Forth. Many Gulls are scattered over the sands, small flocks of Ducks are swimming in the river, straggling bands of Terns hover and scream along the edge of the water, here and there may be seen a solitary Gannet gliding past, and far out at sea are some dusky birds, which may be Cormorants or Red-throated Divers. On that shoal is a vast multitude of small birds, probably Dunlins; farther on are some black and white waders, which are reasonably conjectured to be Oystercatchers; and here, scattered over the miry flat, are very many grey-backed, long-legged, long-necked, and long-billed birds—those, in fact, of which we are in search. They observe us; one utters a loud shrill cry, to which another responds, and presently all are on wing. Mark how they

fly, at a moderate height, with contracted neck, outstretched bill, feet folded back, wide-spread wings moved in regular time. Away they speed, one screaming now and then, and alarming the Gulls and other birds in their course; nor do they stop until arriving at a suitable spot, a quarter of a mile off, they perform a few circling evolutions, and alight by the margin of the sea, into which some of them wade, while the rest disperse over the sand. All we can see or say of them here is, that at this season they have arrived on the sea-shore, where they frequent the beaches, searching for food in the same way as the Godwits, Longshanks, and Sandpipers; but in what precise manner they procure it, or of what it consists, remains to be discovered. To see these vigilant and suspicious birds at hand, we must find some place resorted to by them, in which we may draw near without being perceived. Let us imagine ourselves in such a place.

Here is a low tract of sandy pasture, with a shallow pool upon it, and extending along a large ford or expanse of sand, covered by the tide, and laid bare when it recedes. Many Curlews and Golden Plovers, a few Ringed Dotterels, two or three Mallards, and doubtless hundreds of Snipes, are dispersed over the plashy ground. That old turf fold, in which the cattle have been milked in summer, will enable us to approach the birds unseen, unless some of the Curlews should happen to fly overhead and discover us, when they will be sure to sound an alarm. Now crawl this way, and see that the muzzle of your gun is not filled with sand. From this slap in the wall, cautiously raising our heads until we can bring our eye to bear on them, we may observe their motions. This is one of the few occasions on which a low forehead would be of decided advantage. There, twenty paces off, stalks an old Curlew, cunning and sagacious, yet not conscious of our proximity. He has heard, or fancied that he has heard, some unusual sound; and there he moves slowly, with raised head and ear attent; but some appearance in the soft sand has attracted his notice, and forgetting his fears, he thrusts or rather works his bill into it, and extracting something, which he swallows, withdraws it, and

proceeds, looking carefully around. Now from the surface he picks up a snail, of that small kind named *Helix erice-torum*, which, raising his head, and moving it rapidly backwards and forwards, at the same time slightly opening and closing his mandibles, he gradually brings within reach of his tongue, when he swallows it. There he has dragged a worm from the sand, and again has obtained a small crab or insect. But now two others have come up; they are all within range; let me fire:—there they are, two dead, the other with broken wing runs off screaming loudly. Curlews, Plovers, Redshanks, Dotterels, Ducks, and Snipes, all rise, and move to a distance corresponding to their fears, the Curlews flying out of sight, the Snipes coming back to the same spot, and the Plovers alighting about two hundred yards off.

The Curlew is extremely shy and suspicious, so that at this season, unless by some stratagem or accident, one can very seldom obtain a shot at it. In Harris, I once shot three from a cattle-fold in the manner described above. On another occasion, having a musket with large shot, I let fly at one feeding in a field as I was passing, hit it in the wing, and on measuring the distance found it to be seventy-five yards. In the Hebrides I have heard it said, that to kill seven Curlews was enough for a life-time; but one, by lying among the rocks on a point frequented by them, might, I doubt not, shoot as many in less than a week. This method, however, I have never tried, it being much more pleasant to be moving about than lying jammed into the crevice of a cliff. When alarmed they spread out their wings, run rapidly forward some paces, and springing into the air, uttering their loud cries, fly off at a rapid rate. When looking for food they generally walk sedately,—unlike the Redshank, which is continually running, stooping, or vibrating,—but sometimes run. Dry pastures, moist ground, and shallow pools are equally frequented by them, and they may be seen wading in the water up to the tarsal joint.

Towards the end of March they generally leave the shores, where they have resided in flocks from September, and separating in pairs, betake themselves to the interior,

where, in the higher and less frequented moors, they deposit their eggs and rear their young.

It is now the beginning of May. The sunny banks are covered with primroses, the golden catkins of the willow fringe the brooks, while the spikes of the cotton-grass ornament the moss-clad moor. Let us ascend the long glen, and wandering on the heathy slopes, listen to the clear but melancholy whistle of the Plover, the bleating of the Snipe, and the loud scream of the Curlew. Here is a bog, interspersed with tufts of heath, among which is a profusion of *Myrica Gale*. Some Lapwings are coming up, gliding and flapping along; a black-breasted Plover has stationed himself on the top of that mound of green moss, and a Ring Ouzel has just sprung from the furze on the brae. See! what is that? a Hare among our feet? No, a Curlew, fluttering along the ground, wounded, unable to escape; run! she has been sitting. Here is the nest, in a hollow, under shelter of two tufts of heath and a stunted willow. It is composed of dry grass, apparently *criophora*, *eleocharis palustris*, *scirpus cœspitosa*, some twigs of heath, and perhaps portions of other plants, not very neatly disposed. It is very shallow, and internally about a foot in diameter. The eggs are four, pyriform, excessively large, three inches long, an inch and ten-twelfths across, light olive or dull yellowish-brown, or pale greenish-grey, blotched and spotted with umber-brown, the markings crowded in the larger end. They vary considerably in size and form, some being only two inches and three quarters in length. Those of the nest before us are of the largest size, very darkly coloured, and so little contrasting with the surrounding objects that, unless the bird had sprung up among our feet, we should scarcely have observed them.

Far up on the hill-side you hear the loud cry of the Curlew, which is presently responded to from the opposite slope; in another place a bird commences a series of modulated cries, and springing up, performs a curved flight, flapping its wings and screaming as it proceeds. Presently the whole glen is vocal, but not with sweet sounds, like those of "the Mavis and Merle." But it is in vain to pursue the

birds, for these are the males; and at this season you will find them fully as shy as they were in winter on the seashore. Some weeks hence, when the young are abroad, the females, and even the males, will flutter around you, if you approach the spot where their unfledged brood lie concealed among the herbage, and will attempt, by feigning distress, to lead you into a vain pursuit. Like all the other birds of this genus, the young are covered with long, stiffish down, and run about presently after exclusion from the egg, squatting to conceal themselves from their enemies. Up to the age of three weeks they are still unfeathered; their forehead, throat, and under surface yellowish-grey; their upper parts of the same colour with patches of dark brown; the bill not longer than the head. That organ gradually elongates as the feathers spread, and by the end of about seven weeks they are able to fly.

At this season old and young feed on insects, larvæ, and worms. The latter are very fat, but the former are not in good condition until the middle of autumn: about which period the Curlews unite into small flocks, gradually disperse, and betake themselves to the shores. Their flesh is delicate and well-flavoured, and they are not unfrequently to be seen in our markets. I am not aware of any difference produced in the quality of their flesh as an article of food by their change of residence.

Montagu has given, in the Supplement to his Ornithological Dictionary, an account of a tame bird of this species:—"One that was shot in the wing was turned amongst aquatic birds, and was at first so extremely shy, that he was obliged to be crammed with meat for a day or two, when he began to eat worms; but as this was precarious food, he was tempted to eat bread and milk like Ruffs. To induce this substitution worms were put into a mess of bread mixed with milk, and it was curious to observe how cautiously he avoided the mixture, by carrying every worm to the pond, and well washing it previously to swallowing. In the course of a few days this new diet did not appear unpalatable to him, and in little more than a week he became partial to it; and from being exceedingly poor and emaciated, got plump

and in high health. In the course of a month or six weeks, this bird became excessively tame, and would follow a person across the menagerie for a bit of bread or a small fish, of which he was remarkably fond. But he became almost omnivorous; fish, water-lizards, small frogs, insects of every kind that were not too large to swallow, and (in defect of other food) barley with the ducks was not rejected. This very great favourite was at last killed by a rat, as it was suspected, after a short life of two years in confinement; but he had in that time fully satisfied our inquiries into his natural habits."

The Curlew breeds on all our elevated moors that are of considerable extent, from Cornwall and Devonshire to the northern extremity of Scotland; but its nests are much more numerous in the latter country than in England. On the range of high grounds extending from the Mull of Galloway to St. Abb's Head, Curlews are more abundant in summer than in the Grampian Range. It is not generally in marshes that they nestle, but on dry moorland on the sides of the hills. In Orkney and Shetland it occurs all the year round. It would be difficult to determine whether our summer birds advance southward in winter or not, leaving their places to be occupied by immigrants from the north. It has been conjectured that the birds which winter in the south of England betake themselves in summer to the Grampians, and that the breeders in England come over from France. But it seems in no way improbable that the broods, with their parents, merely shift from the hills to the sea-shores and back again, according to the season, as is the case with the Golden Plover and Lapwing.

This species has not been found in America, but is dispersed over the greater part of Europe, and probably of Asia, from many parts of which skins have been transmitted. China, Japan, India and its islands, are mentioned as inhabited by it; and in Africa it extends even to the Cape of Good Hope.

YOUNG.—The young are at first covered with down, variegated with grey and dusky.

PROGRESS TOWARD MATURITY.—When the first plumage is perfected, the bird scarcely differs from the adult, except in having the light tints paler, and the bill much shorter and more flexible. That organ, however, rapidly elongates, and in the second year appears to obtain its full size, although it presents great differences in individuals, some having it an inch or more longer than others.

REMARKS.—There are extensive tracts of hill and moor in the counties of Aberdeen and Banff, to which Curlews were not known to resort twenty years ago, but which are now more or less frequented by them during the breeding season. Yet these tracts have not undergone any perceptible change, except that of being better protected by gamekeepers. It is remarkable that, though at most, perhaps all, seasons of the year, Curlews are to be seen along the shores of the Outer Hebrides, none bred there, or were to be met with on the hills or moors in summer, thirty years ago, though the case may be different now. The hill ranges of the south of Scotland are all much more frequented by them than those of any other tract that I have visited.

NUMENIUS PHÆOPUS. THE WHIMBREL CURLEW.

WHIMBREL. LITTLE CURLEW. TANG WHAAP. MAYFOWL. HALF-CURLEW.
CURLEW-JACK.

Scolopax Phæopus. Linn. Syst. Nat. I. 243.

Numenius Phæopus. Lath. Ind. Ornith. II. 711.

Whimbrel. Mont. Ornith. Dict.

Courlis Corlieu. Numenius Phæopus. Temm. Man. d'Ornith. II. 604.

Whimbrel Curlew. Numenius Phæopus. Selby, Illustr. II. 65.

Numænius Phæopus. Bonap. Comp. List, 49.

Length from nineteen to sixteen inches ; bill little more than three inches. Upper part of the head dark-brown, with a medial and two lateral whitish bands, streaked with dusky ; neck all round pale brownish-grey, streaked with brown ; feathers of the fore part of the back, scapulars, and wing-coverts, dusky, with marginal whitish spots ; hind part of back white, tail and coverts greyish-white barred with dusky ; chin, hind part of breast, and abdomen white ; fore part of breast streaked, sides and lower wing-coverts barred with dusky.

MALE.—The Whimbrel, or Little Curlew, although much inferior in size to the other British species, is very similar not only in form, but in colouring. Its body is ovate, and rather full ; the neck long ; the head rather small, oblong, and rounded above. The bill is twice the length of the head, slender, considerably arcuate, tapering, blunt, with the tip of the upper mandible extending a little beyond that of the lower, which at the base is a little wider than the upper. The nostrils are linear, pervious, sub-basal ; the eyes rather small ; the aperture of the ear large. The legs are long and slender ; the bare part of the tibia reticulated ; the tarsus also reticulated, but with anterior scutella in the lower two-

thirds of its length. The fore toes are webbed as far as the second joint, the outer web largest; the hind toe small, the anterior rather short; all scutellate. The claws small, slender, arched, compressed, rather obtuse.

The plumage is soft, on the sides of the head and on the neck blended, on the fore part of the back oblong, on its hind part small, on the lower parts rather blended and oblong. The wings are very long, narrow, and pointed; the quills twenty-eight; the first longest, the other primaries rapidly decreasing; the secondaries a little incurved, some of the inner much elongated and tapering. The tail of moderate length, rounded, of twelve acuminate feathers, the two middle considerably longer.

The bill is black, excepting the base of the lower mandible, which is pale brown. The iris brown. The feet light greyish-blue, the claws black. The upper part of the head from the bill to the occiput is dark brown, with a medial streak of brownish-white variegated with dusky, and on each side a streak of the same passing over the eye to the occiput; the lore dusky brown, the eyelids and chin whitish; the sides of the head, and the neck all round, greyish-white, streaked with brown; the breast and sides brownish-white, the former with longitudinal the latter with transverse dusky streaks, which gradually diminish, leaving the middle of the breast and the abdomen white; the lower wing-coverts white, barred with dusky; the lower tail-coverts with a medial brown streak and bars. The feathers of the fore part of the back, the scapulars, and wing-coverts, are dusky, marginally spotted with brownish-white; the primary coverts dusky, excepting the first tipped with white; secondary coverts dusky, marginally spotted with white; quills dusky, spotted along both margins with white, excepting the outer five, which are so marked on their inner edges only, and the inner elongated secondaries, which have no spots on their inner webs. The rump is white; the tail-coverts white, spotted and barred with dusky; the tail-feathers brownish-white, or pale greenish-brown barred with dusky, and tipped with white, the outer feather on each side edged with pure white.

Length to end of tail 17 inches; extent of wings 30;

wing from flexure $9\frac{3}{4}$; tail 4; bill along the ridge $3\frac{2}{12}$; along the edge of lower mandible $3\frac{3}{12}$; tarsus $2\frac{4}{12}$; middle toe $1\frac{4}{12}$; its claw $\frac{4}{12}$.

FEMALE.—The female, which is larger, resembles the male in colour.

Length to end of tail $19\frac{2}{8}$; extent of wings $33\frac{1}{2}$; bill along the ridge $3\frac{3}{8}$, along the edge of lower mandible $3\frac{6}{8}$.

The above descriptions are taken from fresh specimens; one of them, the female, shot by myself in the Island of Harris, on the 9th of May, 1818, and minutely described at the time.

HABITS.—In the beginning of May, a few individuals of this species make their appearance here and there on the sandy pastures bordering the west coast of the long range of the outer Hebrides, from one end to the other. Their numbers daily increase, until in about a week they are in many places very abundant. At first they are not in the least shy, and may easily be shot; but in a short time they become almost as wary as the Common Curlew. They keep by themselves in flocks of from three or four to twenty, not associating even with the Curlews which also frequent the pastures, search exclusively the sandy pasture grounds, showing no preference for wet places, and never betaking themselves to the fords or pools, although occasionally they may be seen in damp places. Their food consists of *Bulimus acutus* and *Helix ericetorum*, which are very abundant there. They walk for the most part sedately, but sometimes with alacrity, having their neck bent forward, and their regards fixed on the ground. If alarmed, they stand, elevate their heads, emit a shrill tremulous cry, and perhaps fly off, or presently resume their search. If surprised they are clamorous in their flight, but usually alight at no great distance, unless shot at. When on wing they display the white part of the back conspicuously, and have a beautiful appearance. Their flight is similar to that of the Curlew, but quicker. They remain about four weeks, the 26th of May being the latest date in my Journal of 1818, and thus have obtained

the name of May-fowls; but possibly the individuals which arrived first may give place to others, so that during that period there may be a succession of flocks. During their stay they enliven these sandy pastures, and their departure always seemed to me to leave a blank, not to be filled up until next May, for they neither breed in any of those islands, nor re-appear on their return southward. Their flesh is delicate, superior in flavour to that of the Curlew, which however is excellent, and more tender. I regret that I have nothing more to say of them from personal observation, but that they occur on the east coast of Aberdeenshire, both in May and in autumn, but in small numbers.

It appears from the statements of authors that this species is met with in spring and the early part of summer along the coasts of both sides of Britain, and again in autumn. Several persons allege that it remains in diminished numbers through the winter. It does not, however, appear that any occur at that period in Scotland. Its occurrence inland in summer must be very rare, as I have never met with an individual elsewhere than on the sandy pastures along the sea-shore. Mr. Selby informs us that it was seen on the margin of Loch Sheen, in Sutherland, in the summer of 1834; and others have spoken of its visits to the Grampians. Mr. Low, who does not distinguish it specifically from the Curlew, speaks of it as common in Orkney, where it has since been observed by Mr. Salmon. Dr. Fleming, Mr. Hewitson, and Mr. Dunn state that it breeds in Shetland, whence it departs when the breeding season is over.

The eggs, which I have not seen, are described by Mr. Yarrell as "four in number, of a dark olive-brown, blotched with darker brown, pear-shaped, and very much like those of the Curlew, but smaller, measuring two inches five lines in length, by one inch eight lines in breadth."

From Iceland, Norway, Lapland, Sweden, and Denmark, where it breeds, it extends southward to Africa, being found in the intermediate places in the course of its migrations. It is probable that its distribution in Asia is very extensive, as it has been found in the Caucasus, Japan, and various parts of India.

REMARKS.—*Numenius hudsonicus* of America is so very similar to this species in size and colour, that in description they can hardly be distinguished, and were it to be met with would most probably be considered as the Whimbrel. In that species, however, no part of the back is entirely white, the rump being all barred with brown, and the tail much darker. This Hudsonian Curlew M. Temminck considers as identical with our Whimbrel, alleging that the individuals which he has received from North America do not differ from those killed in Europe. But in more than twenty instances he has made similar assertions, which the more correct comparisons of others have obliged him to withdraw. Mr. Selby follows him in considering the Hudsonian Curlew as identical with the Whimbrel. I have examined and described both, and agree with the Prince of Canino and Mr. Audubon in considering them distinct.

LIMOSA. GODWIT.

A DIFFERENCE greater than that between *Pluvialis* and *Charadrius*, *Glottis* and *Totanus*, *Totanus* and *Actitis*, presents itself among the birds which the more recent authors have referred to the genus *Limosa*. Thus *Limosa rufa* has the bill re-arcuate, *Limosa melanura* straight; the tibia of the former has not half so much bare space as that of the latter, its tarsus is a third shorter, its toes are rather short and broad, while those of the other bird are rather long and slender; and the claws of the two species are considerably different, that of the middle toe being short and rounded in the one, while in the other it is long, tapering, and serrated. Differences much less than these make genera, in the opinion of many of our modern ornithologists. But in this case, seeing that the bill is of the same form, although more or less curved, the plumage exactly similar, and the feet varying only in their degree of elongation, it is hardly necessary to break up the established genus, which, in respect to the variations exhibited by its species, is similar to *Tringa*.

The birds of which this genus is composed have the body moderate; the neck long and rather slender; the head rather small, oblong, compressed, rounded above, narrowed and sloping anteriorly. The bill, twice the length of the head or more, is slender, higher than broad at the base, tapering, toward the end rather depressed, and generally in its whole length slightly curved upwards; both mandibles flexible, grooved almost to the end, with the tips firm and bluntish, that of the lower being shorter; the edges soft, blunt, and grooved. The mouth very narrow; the upper mandible internally with a deep medial groove; the tongue long, slender, fleshy at the base, then horny, trigonal, grooved above, and tapering to a fine point. Œsophagus narrow, uniform; stomach elliptical, compressed, with strong lateral muscles,

and thin, dense, longitudinally rugous epithelium. Intestine of moderate length, narrow; cœca small and cylindrical.

Eyes small; eyelids feathered. Nostrils basal, direct, linear. External aperture of ear rather large. Legs slender, of moderate length or long; tibia bare about a third of its length; tarsus scutellate before and behind; toes four, short; the first very small and elevated; the anterior scutellate, marginate, flattened beneath, with basal webs, of which the outer is much larger. Claws small, arched, compressed, at the end convex, and obtuse.

Plumage of the head, neck, and lower parts very soft and blended; of the upper parts rather compact. Wings long, narrow, pointed, of thirty quills; the first longest, the other primaries rapidly decreasing; the inner secondaries much elongated and tapering, but rounded. Tail short, nearly even, of twelve rounded feathers.

The Godwits are very intimately allied to the Curlews from which they differ, however, in having the bill recurved or straight, in place of being rearcuate; the tongue long instead of short; the tarsi scutellate instead of being reticulate in part. They also differ in moulting twice every year, and in assuming in spring colours different from those of autumn and winter. Unless during the breeding season, they frequent the muddy and sandy shores of estuaries; but in summer they resort to marshes and the margins of lakes and rivers, where they feed on insects, larvæ, worms, and mollusca. They form a slight nest, or deposit in a cavity their four pyriform, spotted eggs. In searching for food they dip their bill into the soft mud or sand. That organ, although not so soft, nor so copiously supplied with nervous filaments at the end, is very similar to the bill of the Snipes; to which the Godwits are also allied, though they have not the same crouching and skulking habits. They are generally shy, but not so readily alarmed as the Curlews, Longshanks, or Tatlers. They walk rather sedately, but also run with great speed on occasion; have a moderately rapid, light, direct flight; emit loud shrill cries; and in feeding often mingle with other shore birds. Species of this genus occur in all climates. Two are met with in Britain.

LIMOSA RUF A. BAR-TAILED GODWIT.

GODWIT. YARWHELP. STONE PLOVER. POOR WILLIE.

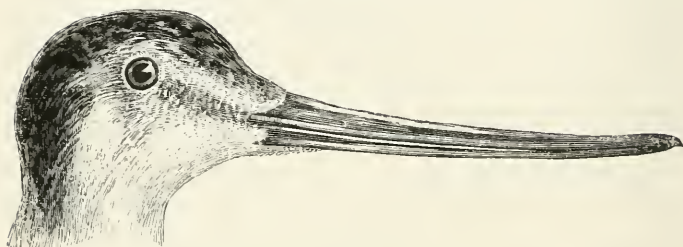


FIG. 21.

- Scolopax Lapponica*. Linn. Syst. Nat. I. 246.
Scolopax Lapponica. Lath. Ind. Ornith. II. 718.
Scolopax leucophœa. Lath. Ind. Ornith. II. 719.
 Red-breasted Snipe. Mont. Ornith. Dict.
 Common Godwit. Mont. Ornith. Dict.
Limosa rufa. Temm. Man. d'Ornith. II. 668.
Limosa rufa. Bar-tailed Godwit. Flem. Brit. Anim 107.
 Red Godwit. *Limosa rufa*. Selby, Illustr. Brit. Ornith. II. 98.
Limosa rufa. Bar-tailed Godwit. Jen. Brit. Vert. Anim. 202.
Limosa rufa. Bonap. Comp. List, 52.

Bill about four inches long, bent upwards; male about fifteen, female seventeen inches long; tarsus about two inches and two-twelfths; bill flesh-coloured, dusky in its terminal half; feet greyish-blue; toes darker; claws black, short, blunt, that of the middle toe without serrature. In winter the head and neck pale grey, with small brownish-grey streaks; a broad band over the eye, the throat, breast, and other lower parts white; feathers of the fore part of the back and scapulars grey, with a central brown streak; hind part

of back white; tail white, with eight dusky bars. In summer the upper part of the head blackish-brown, streaked with reddish; band over the eye light red; cheeks, throat, and lower parts light yellowish-red; feathers of the fore part of the back and scapulars blackish-brown, mottled with reddish-yellow and light grey; hind part of back white, with yellow spots; tail white, barred with brown. Young with the upper part of the head blackish-brown, streaked with pale brownish-grey; band over the eye white dotted with brown; cheeks and neck all round light brownish-grey, streaked with grey; lower parts white; upper variegated with blackish-brown and pale reddish-grey; hind part of back white, with dusky spots; tail white, barred with dusky.

WHEN seen flying at a moderate distance, this bird so much resembles the Whimbrel, Numænius Phæopus, that I have several times mistaken it for that species. Not only is the flight similar, but the colours, and especially the white on the hind part of the back, indicate a close affinity.

MALE IN WINTER.—This species is, like the rest, of rather elegant form, its body being moderately stout; its neck long and rather slender; the head rather small, oblong, compressed, rounded above, but narrowed and sloping anteriorly. The bill is about twice the length of the head, tapering, higher than broad at the base, but toward the end rather depressed; in its whole length slightly curved upwards. One at first would hardly suspect that the curve is so small; but when a line is drawn from the base of the ridge to the tip, and a line run from it at right angles to the most distant part of the concavity, the latter line measures only a twelfth and a half, or one-eighth of an inch. Both mandibles are flexible in a considerable degree, covered with soft skin until near the end, when it becomes dense, laterally grooved nearly to the points, which are slightly enlarged and obtuse. The upper mandible has the ridge flattened at the base, then narrowed for half its length, again flattened, and at the tip convex; the lower has the angle long and very narrow, the dorsal line slightly ascending; the edges of both are soft,

blunt, and grooved. The mouth is very narrow, measuring only four-twelfths and a quarter across. The palate is flat, with two rows of papillæ on each side of the linear-oblong posterior nasal aperture, and three anterior rows. The tongue is two inches and eleven-twelfths long, emarginate and papillate at the base, fleshy for half-an-inch, then horny, trigonal, grooved above, tapering to a fine point. The œsophagus is seven and a half inches long, narrow, having a nearly uniform width of four-twelfths; the proventriculus oblong. The stomach is an elliptical compressed gizzard, an inch and four-twelfths in length, an inch and one-twelfth in breadth, with the muscles rather large and distinct; the epithelium dense, flesh-coloured, and longitudinally rugous. The intestine, forty-two inches long, varies from three-and-a-half-twelfths to two-twelfths in width; the cœca half-an-inch long, a twelfth-and-a-half in breadth, and two inches from the extremity.

The eyes are small, their aperture measuring three-twelfths across; that of the ear four-and-a-half-twelfths, but the meatus transverse and narrow; nostrils basal, direct, linear, four-and-a-half-twelfths long. The feet are slender, of moderate length; the tibia bare for rather more than a third; the tarsus with twenty-eight scutella. The toes are short; the first very small, elevated, with eight scutella; the second with twenty-two, the third with thirty, the fourth twenty-six. They are broad beneath and marginate; the outer connected with the third by a rather large basal web, which runs out narrowing to the end of both toes; the inner web much smaller. The claws are very small, arched, compressed, at the end convex and obtuse.

The feathers of the head and neck are oblong and blended; of the body rather compact, ovate, and rounded. The wings when closed reach to the tip of the tail, and are long, narrow, and pointed; of thirty quills; the first longest and very slightly curved, the other primaries rapidly graduated; the secondaries slightly incurved, obliquely rounded, with a minute tip; some of the inner much elongated, tapering, but rounded. There are seven stiffish tertials, concealed by the scapulars, which are long. The tail is

short, of twelve rounded feathers, almost even, the four middle feathers being slightly longer.

The bill is dull flesh-coloured, dusky toward the end, more of the lower mandible being of the former colour. The iris is brown. The tarsi and toes are dull greyish-blue; the claws black. The upper part of the head, its sides, and the neck all round are pale grey, with numerous small longitudinal brownish-grey streaks. A broad band of white from the bill over the eye. The throat, breast, sides, abdomen, and lower tail-coverts are white; as are the lower wing-coverts, excepting those bordering the wing, which have a grey central patch. The feathers of the fore part of the back and the scapulars are grey, with an oblong brown central streak; the rest of the back white, as are the upper tail-coverts, some of which, however, have two or three dusky bands. The tail-feathers have eight dusky bars, the intervals and margins white. The primary quills, coverts, and alular feathers are greyish-black, margined, except a few of the outer, with white; the secondary quills are more grey, the inner like the feathers of the back, all margined with white; the secondary coverts greyish-brown, with broad white margins; the smaller coverts dusky, margined with greyish-white.

Length to end of tail 15 inches; extent of wings 30; bill along the ridge $3\frac{1}{2}$, along the edge of lower mandible $3\frac{1}{2}$; wing from flexure $8\frac{1}{2}$; tail $3\frac{1}{2}$; bare part of tibia 1; tarsus $2\frac{2}{2}$; first toe $\frac{5}{2}$, its claw $\frac{2}{2}$; second toe $\frac{1}{2}$, its claw $\frac{2}{2}$; third toe $1\frac{2}{2}$, its claw $\frac{3}{2}$; fourth toe $1\frac{1}{2}$, its claw $\frac{2}{2}$.

FEMALE.—The female resembles the male, but is considerably larger.

Length to end of tail $17\frac{1}{2}$ inches; extent of wings 31; bill along the ridge 4; wing from flexure $9\frac{1}{4}$; tail 3; bare part of tibia $1\frac{2}{2}$; tarsus $1\frac{2}{2}$; middle toe $1\frac{3}{2}$, its claw $\frac{3}{2}$.

CHANGES OF PLUMAGE.—Not having met with this species in summer, during which season it seems to absent itself from Britain, I translate the following account of it from M. Temminck's Manual.

MALE IN SUMMER.—“Upper part of the head and occiput blackish-brown, mixed with streaks of reddish-yellow; a band of the latter colour over the eyes; lore blackish-brown; cheeks and throat of a yellowish-red; all the lower part of the body, including the under tail-coverts, pale yellowish-red; upper part of the back and scapulars blackish-brown, marbled with reddish-yellow and whitish-grey; lower parts of the back and rump white, marked with longitudinal yellowish-red spots; the tail marked with brown and white bars, those of the latter tint irregularly distributed, and disposed more or less longitudinally; quills black from their tip, the remaining part toward the base is entirely blackish-brown, but with their inner webs whitish-grey, marbled with pale brown; the secondaries grey, with the shafts and margins white. Bill much recurved, the greater part of its base yellowish-brown. Length from fourteen inches to six or seven lines more.”

FEMALE IN SUMMER.—“The head and lore as in the male; throat white, marked with greyish-red; cheeks and neck very light reddish, with numerous brown streaks, which become broader, and form small transverse brown and white bars on the sides of the breast; the latter and the belly marbled with white and very pale reddish; the abdominal part white; the lower tail-coverts reddish-white, with light brown bars. Length sixteen inches two or three lines.”

HABITS.—This Godwit arrives in small flocks on the eastern coasts of the northern and middle divisions of Scotland early in September. Considerable numbers may frequently be seen in the Bay of Cromarty, and in the estuaries of the Ythan, South Esk, and Tay. To the north of Aberdeen they appear to remain but a few weeks. I have also seen them in the beginning of September on the shores of the Firth of Forth, when they frequent more especially the muddy parts at the mouths of streams. At the estuary of the Esk at Musselburgh, it is not uncommon in September and October, generally keeping in small flocks of from six to ten or twelve, most of the individuals being young birds.

For some time after its arrival it is not shy, but when feeding allows a near approach. I have known six killed in one week in September, two of them by a young friend. After October they become scarcer and more shy; but individuals occur until April, when they disappear. Their flight is moderately rapid, light, somewhat buoyant, and greatly resembles that of the Curlew, and especially the Whimbrel. They emit a loud shrill whistle, and on rising utter a lower modulated sound, somewhat like that of the bird just mentioned. Walking for the most part sedately, but sometimes running, they tap and probe the mud and sands in search of worms and other small animals, frequently mingling with Sandpipers and Ring-Plovers, along with which they often repose on the sands and neighbouring pastures at high water.

It has been alleged that the bill of the Limosæ is not recurved when the bird is alive, but bends presently after it is killed. One day in September, 1840, observing a bird of this species on the edge of the tide at high water, I walked slowly toward it until exactly eleven paces distant, when, after some hesitation, it flew away, but not until I very distinctly saw that the bill was recurved. All the specimens examined by me soon after death had it equally bent upwards. When it begins to dry, however, it curves considerably more than in the natural state, which is also the case with the bills of the Tringæ, although in the opposite direction.

As might be expected, it occurs in autumn along the whole eastern coast of England, and extends to Devonshire and Cornwall. Whether it migrates also along the western coasts of Scotland and England cannot well be affirmed, although Mr. Heysham has recorded the shooting of one near Bowness in October. From its frequenting the shores of the continent, and occurring in Germany, Switzerland, and on the shores of the Caspian Sea, its course of migration had been considered more to the eastward than that of the Black-tailed Godwit; but Mr. Thompson notes it as a regular autumnal visitant in Ireland, where it occasionally remains until spring.

“The number of Godwits varies remarkably in different years, in some being scarce, in others abundant. The first that I met with was, when a young shooter, in 1822; in which year large flocks appeared on the 7th of September, on the short pasture and the sandy beach at Holywood rabbit-warren, Belfast Bay. Their tameness surprised me. Of all birds that I had ever seen they most freely admitted the approach of the fowler, who had only to walk directly towards them, and choose his distance from which to fire, as they were feeding or reposing on the strand. After a number were killed from a flock on the ground, the remainder, though taking wing on hearing the report, would sometimes pitch again among the dead and wounded before the perpetrator of the deed of blood, having again charged his gun, could reach the spot to lift them; when a second volley would, in addition, lay some of the others low. The pockets of a shooting-jacket at that time usually sufficed to hold the few birds that might fall to my gun; but the number of Godwits proved too great for them, and, notwithstanding all that could be done in the way of squeezing and pressing, the long bills and legs of the poor victims could not be concealed, but kept dangling outside, thus serving as an announcement to the shooters in the village, when I returned homeward, of the easy prey that awaited them. At a different part of the shore, on the same day, thirty-one Godwits were killed by two persons shooting in company; a number which would probably have been doubled had one of the guns not missed fire at the best shot offered during the day. This was at ‘the great flock of from 200 to 300,’ which from a distance of four or five yards, with the gun resting on a ditch-bank, was sought to be fired at; the birds were so close together, that less than thirty could hardly have fallen had the gun been discharged. This being on a Saturday, the report of the number of these birds seen had time to spread widely before Monday morning, when the field—or rather shore—was taken by so many shooters, that the execution done on the poor Godwits was very great; about twenty or thirty birds were killed by single guns. For several days they continued in consider-

able numbers; but experience teaching them like other bipeds, they became gradually less easy of approach. They were in very good condition, and sold at this time in Belfast at sixpence a couple. Godwits remained later than usual in the bay that season, and occasionally fell to my gun until the 24th of October. At the beginning of September, when these birds appeared in such numbers in Belfast Bay, they were very abundant in Larne Lough, the next inlet of the sea northward—and of a similar oozy nature—on the Antrim coast.”

The numbers that appear in spring along the east coast of Britain are much less than those of autumn, and the birds do not seem to attract much attention at that season. Individuals are sometimes seen so late as the middle of May, by which time they have assumed their summer clothing.

It does not appear that this species breeds in any part of Britain. On their arrival, however, the young are in their first plumage, which I am enabled to describe from two recent specimens.

YOUNG.—Bill dull flesh-coloured, with the ridge dusky, and the terminal half black. Iris dusky; tibia and tarsus dull greyish-blue; toes almost black, as are the claws. The upper part of the head is blackish-brown, streaked with pale brownish-grey; over the eyes a broad band of white minutely streaked with brown. The sides of the head and the neck all round, with a portion of the breast and sides of the body, pale brownish-grey, streaked with dark grey; the fore-neck, with low markings, and tinged with cream-colour. The rest of the lower parts white; the axillars, some of the feathers of the sides, and the lower tail-coverts barred or spotted with blackish-grey. The lower marginal wing-coverts are white, with a blackish-grey spot; the larger coverts are white, variously marked with pale grey. The feathers of the lower hind-neck, fore part of the back, and scapulars are blackish-brown, margined with pale greyish-red, the marginal bands of the large feathers indented. The middle and hind part of the back white, each feather spotted or broadly barred with greyish-black; the upper tail-coverts with four

bars. The tail is white, tinged with red toward the end, each feather with eight dusky bars. The smaller wing-coverts are blackish-brown, broadly margined with pale brownish-grey; the alular feathers and primary coverts brownish-black, margined with white; the secondary coverts blackish-grey, margined with yellowish-white; the primary quills greyish-black, with white shafts and margined with white, the inner web paler, and dotted or marbled with white; the secondaries have the outer web darker, a central white streak, and white margins; the inner and their coverts like the scapulars, with indented marginal spots. The following are the dimensions of the two individuals:—

Length $16\frac{1}{2}$ inches; extent of wings $29\frac{1}{2}$; bill along the ridge $3\frac{1}{2}$; wing from flexure $8\frac{1}{2}$; tail $2\frac{1}{2}$; tarsus $2\frac{2}{12}$; middle toe $1\frac{2}{12}$, its claw $\frac{3}{12}$.

Length $16\frac{3}{4}$; extent of wings 30; bill along the ridge $3\frac{7}{12}$; wing from flexure 9; tail $3\frac{1}{12}$; tarsus $2\frac{2}{12}$; middle toe $1\frac{2}{12}$, its claw $\frac{3}{12}$.

The first of these I found to be a male. Its gizzard contained a great quantity of small stones, mud, and fragments of shells, but no animal substances. The account of its digestive organ I have transferred to the article in which the adult male is described.

LIMOSA ÆGOCEPHALA. THE BLACK-TAILED GODWIT.

- Scolopax Limosa. Linn. Syst. Nat. I. 245. Winter.
 Scopolax Ægocephala. Linn. Syst. Nat. I. 246. Summer.
 Scopolax Limosa Lath. Ind. Orn. II. 719. Winter.
 Scopolax Ægocephala. Linn. Syst. Nat. II. 719. Summer.
 Red Godwit. Mont. Ornith. Dict. Summer.
 Jadreka Snipe. Mont. Orn. Dict. and Suppl. Winter.
 Barge a queue noire. Limosa melanura. Temm. Man. d'Orn. II. 664.
 Limosa Ægocephala. Black-tailed Godwit. Flem. Brit. Anim. 107.
 Black-tailed Godwit. Limosa melanura. Selb. Illustr. II. 94.
 Limosa melanura. Black-tailed Godwit. Jen. Brit. Vert. An. 203.
 Limosa Ægocephala. Bonap. Comp. List. 52.

Tail slightly emarginate; bill about three and a half inches long, straight; tarsus about two inches and three-quarters long; bill orange, dusky at the end; feet brownish-black; claws slender, rather pointed, that of the middle toe serrated; tail black, white at the base; wings with a conspicuous white band. In winter the upper parts greyish-brown, streaked with dusky; fore part of neck, breast, and sides, pale grey; middle of breast, abdomen, base of quills, secondary coverts, and tail feathers white. In summer the neck, breast, and sides bright red, dotted and barred with dusky; fore part of the back and scapulars black, variegated with light red. Young with the feathers of the upper parts blackish-brown, margined with light red; the neck pale reddish-grey.

The Black-tailed Godwit is rather inferior in bulk to the Bar-tailed, but has the bill and legs much longer.

MALE IN WINTER.—The body is moderately stout, the neck long and slender, the head rather small, oblong, compressed, rounded above, narrowed and sloping anteriorly. The bill is more than twice the length of the head, tapering, higher than broad at the base, toward the end rather depressed, almost quite straight in its whole length; both mandibles flexible, covered with soft skin until near the end, laterally grooved nearly to the points, which are slightly enlarged and obtuse. The upper mandible has the ridge convex in its whole length, unless at the tip, where it is flattened; the lower has the angle long and very narrow; the edges of both are soft, blunt, and grooved.

The nostrils are linear, four-twelfths long, basal, in the fore part of the short bare sinus. The eyes are small, their aperture measuring three-twelfths across; that of the ear four-twelfths. The legs are long and very slender; the tibia bare for more than a third, and scutellate before and behind; the tarsus with thirty-eight scutella. The toes are of moderate length, slender, marginate, flattened beneath; the first very small and elevated, with ten scutella; the second with twenty-eight, the third forty, the fourth thirty-eight; the inner web extremely small, the outer moderate, but running out narrowing to the end of both toes. The claws are rather long, slender, little arched, compressed; the inner thin edge of that of the third toe with five serratures.

The feathers of the head and neck are oblong and blended; of the body rather compact, ovate, and rounded. The wings, when closed, reach nearly to the tip of the tail, and are long, narrow, and pointed, of thirty quills; the first longest, and slightly curved, the other primaries rapidly decreasing; the secondaries slightly incurved, obliquely rounded; some of the inner much elongated and tapering. The tail is short, almost even, of twelve rounded feathers, of which the lateral are nearly two-twelfths longer.

The bill is orange-yellow for two-thirds of its length, the remaining part black. The iris is brown. The feet are greyish-black, the claws black. The head, and neck all round, are pale brownish-grey, streaked with greyish-brown;

the throat, a streak over the eye, breast, sides, abdomen, and lower tail-coverts white, as are the lower wing-coverts, excepting those bordering the wing, which have a grey central patch. The feathers of the fore part of the back, and the scapulars, are brownish-grey, darker in the middle; those on the hind part of the back darker, passing into blackish-brown; the upper tail-coverts white, tipped with black; the tail black, at the base white, the latter colour occupying rather more than a third of the middle feathers, and two-thirds of the outer; most of the feathers also tipped with white. The wing-coverts, and inner secondaries, are greyish-brown, with paler margins; the quills brownish-black, slightly tipped with white. A broad band of white extends across the wing, commencing on the fourth primary, extending, larger, as far as the inner secondaries, and including the ends of the secondary coverts.

Length to end of tail 16 inches; bill along the ridge 4 inches, along the edge of lower mandible $3\frac{1}{2}$; wing from flexure $8\frac{3}{4}$; tail $3\frac{1}{2}$; bare part of tibia $1\frac{7}{8}$; tarsus $2\frac{8}{12}$; hind toe $\frac{7}{12}$, its claw $\frac{3}{12}$; second toe $1\frac{1}{12}$, its claw $\frac{4}{12}$; third toe $1\frac{5}{12}$, its claw $\frac{5}{12}$; fourth toe $1\frac{2}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The female resembles the male, but is considerably larger.

Length to end of tail $17\frac{3}{4}$ inches; bill along the ridge $4\frac{9}{12}$; wing from flexure $9\frac{1}{2}$; tail $3\frac{8}{12}$; bare part of tibia $1\frac{9}{12}$; tarsus $3\frac{2}{12}$; middle toe $1\frac{7}{12}$, its claw $\frac{6}{12}$.

MALE IN SUMMER.—The upper part of the head is longitudinally streaked with brown and light red, the margins of the feathers being of the latter colour; a reddish-white band from the bill over the eye; the loreal band brown; the cheeks pale red, the throat white; neck all round light red, with minute brown specks; its lower part and the sides of the body light red, with transverse curved bands of brownish-black, there being several, generally four, of these bands on each feather; the middle of the breast, abdomen, and lower tail-coverts, white; the former and latter with some dusky bands. The feathers of the fore part of the back and the

scapulars black, tipped and marginally barred or spotted with light red; the wings, tail, and its coverts as in winter.

FEMALE IN SUMMER.—Similar to the male.

HABITS.—The Black-tailed Godwit, which is rather inaptly named, inasmuch as its tail has as much white as black, is of much less frequent occurrence in England than the Bar-tailed, and apparently still rarer in Scotland, although, as Mr. Selby states that it is not unfrequently seen on the coasts of Northumberland and other northern districts, it is very probably not extremely uncommon on the east coast of the southern and middle divisions of that country. It is stated in the Statistical Account, to be one of the birds that frequent the Montrose Basin, and to have been shot at Logie and Kinnordy in the same county. In Aberdeenshire one individual, at least, has been shot. The Rev. Mr. Smith, Monquhither, writes me:—"In the end of July, 1826,—an unusually hot year, by the way—I saw a very fine specimen of the Black-tailed Godwit shot, as it rose from among the reeds surrounding the Loch of Strathbeg. Instead of being preserved, it was cooked, and proved to be excellent eating." In Mr. Thompson's Natural History of Ireland, it is said to "frequent the coast in autumn and winter—more especially at the former season—in very limited numbers." Its habits have not apparently been subjected to very close scrutiny; but it is easy to say, and probable enough, that they resemble those of the other species. "The food of the Black-tailed Godwit," Mr. Selby says, "consists of insects and worms, obtained by probing the mud and soft sand with its long bill; and it is then frequently seen wading tolerably deep in the water, immersing the head at intervals, and searching the deposit beneath. This habit accounts for the great development of that gland, which appears to secrete a fluid for lubricating and protecting the eyes of such birds as are accustomed to have the head frequently sub-merged; and it accordingly exists to the greatest extent in the order Natatores, or true Water Birds." I apprehend, however, that this cannot be the use of the gland in question, because its duct passes into

the nasal cavity, so that its secretion has no access to the eyes. This species is said to nestle sometimes in the fens of the eastern districts of England, laying four large eggs of a light olive tint, spotted with brown. On the continent it makes its appearance at the periods of its autumnal and vernal migrations, and is especially abundant in Holland.

YOUNG.—According to M. Temminck, the young, previously to their first moult, have a “band from the upper mandible to the eye, the throat, base of the tail-feathers, upper part of the quills, the belly, and abdomen pure white; the feathers of the upper part of the head brown, bordered with light red; the neck and breast of a light greyish-red; the feathers of the back and the scapulars blackish, surrounded by a light red band; the wing-coverts grey, bordered and terminated by a large reddish-white space; the tip of the tail-feathers bordered with white; the point of the bill brown.

MACRORHAMPHUS. LONGBEAK.

THE bird named by Gmelin *Scolopax grisea* and *Scolopax Novæboracensis*, the Red-breasted Snipe and Brown Snipe of English ornithologists, has been referred by many recent authors to the restricted genus *Scolopax*, or Snipe, solely on account of the bill being scrobiculated toward the end, although this character is not peculiar to the Snipes, but presents itself, though in a less degree, in the Sandpipers and several other genera. Its feet, however, resemble those of *Limosa* and *Totanus*, the toes being shorter than in the Snipes, and the outer two connected at the base by a pretty large membrane. Its plumage, also, differs from that of the Snipes, and resembles, in colouring and in its periodical changes, that of the Godwits; while its habits are similar to those of the *Tringinae* generally. Dr. Leach, taking these differences into consideration, and viewing the bird as intermediate between the *Scolopaces* and *Limosæ*, referred it to a separate genus, which he named *Macroramphus*; and which may be thus characterized.

Only one species is known. It has the body ovate and compact; the neck rather short; the head rather small, convex above, and narrowed in front. Bill very long, straight, subulate, compressed for more than half its length, then depressed; both mandibles grooved to near the end, where it is a little enlarged, and terminating in a narrow but blunt point. Digestive organs as in the genus *Tringa*.

Nostrils basal, sub-marginal, linear, pervious. Eyes of moderate size; as are the apertures of the ears. Legs of moderate length, slender; tibia bare for a third of its length; tarsus compressed, scutellate before and behind; hind toe very small and slender; anterior toes of moderate length, the outer two connected by a web nearly reaching to the second joint of the outer, and margining both to the end.

Plumage soft and blended, but firm. Wings long, narrow, pointed; the inner secondaries much elongated. Tail rather short, nearly even.

MACRORHAMPHUS GRISEUS. THE GREY LONG-BEAK.

RED-BREASTED SNIPE. BROWN SNIPE. GREY SNIPE.

- Scolopax grisea. Gmel. Syst. Nat. I. 658.
 Scolopax grisea. Lath. Ind. Ornith. II. 724.
 Scolopax Novæboracensis. Gmel. Syst. Nat. I. 658.
 Scolopax Novæboracensis. Lath. Ind. Ornith. II. 723.
 Brown Snipe. Mont. Ornith. Dict.
 Bécassine Ponetuée. Scolopax grisea. Temm. Man. d'Ornith. II. 679.
 Brown Long-beak. Macroramphus griseus. Selby, Illustr. vol. II. p. 103.
 Scolopax grisea. Jen. Brit. Vert. Anim. 207.
 Red-breasted Snipe. Scolopax Noveboracensis. Audub. Ornith. Biogr.
 III. 474.
 Macroramphus griseus. Bonap. Comp. List, 52.

Bill twice the length of the head; tail nearly even, of twelve feathers; outer and middle toes connected by a basal web. In winter, the plumage of the upper part of the head and hind-neck brownish-grey; the fore part of the back of the same colour, spotted with dusky; the rump and tail white, transversely barred with blackish-brown; the lower parts white; the sides and lower tail-coverts barred with dusky. In summer, the upper parts variegated with brownish-black and light reddish-yellow; the lower light yellowish-red, more or less spotted and barred with dusky.

MALE.—The Grey Snipe, which is, properly speaking, a native of America, ranks in Britain merely as an accidental straggler. In form and proportions it is not unlike the Common Snipe and several other species, from which in these respects it differs, however, in having the middle and outer toes connected by a basal web extending as far as the

second joint of the latter, these toes being in other Snipes free. Such a difference might not of itself be viewed as of much importance, and its occurrence in other genera has not been considered as sufficient to render a separation of species necessary. Thus *Charadrius Hiaticula* of Europe differs from *Ch. semipalmatus* of America chiefly in this very circumstance; and yet the persons who separate the Grey Snipe from the Brown Snipe generically place these Plovers in the same genus, whatever name they give to it. But the habits are quite different, and indicate an affinity to the *Tringinae*.

This species is somewhat larger than the Common Snipe. Its body is ovate and compact; its neck rather short; its head rather small, oblong, convex above, and narrowed in front. The bill is twice the length of the head, straight, subulate, compressed for more than half its length, depressed toward the end; the sides of both mandibles grooved, the ends of both a little enlarged, and terminating in a narrow but blunt point. The mouth is very narrow, the gape-line straight; the eyes of moderate size, as are the apertures of the ears; the nostrils small, linear, basal; the nasal groove narrow.

The roof of the mouth is flat, with three longitudinal series of papillae; the lower mandible deeply concave; the tongue marginate and papillate at the base, slender, tapering to a point, two inches and a quarter in length. The œsophagus is three inches and three quarters long, a quarter of an inch in diameter, without dilatation. The proventriculus oblong, four-twelfths across, with cylindrical glandules. The stomach is an oblong gizzard, an inch in length, and eight-twelfths in breadth; its lateral muscles strong, the inferior distinct, the tendons large; the epithelium dense, tough, longitudinally rugous, and of a dark red colour. The intestine, which is twenty inches and a half in length, is of considerable width, its diameter being a quarter of an inch at the upper part. The cœca are an inch and three quarters long, one-twelfth in diameter at the commencement, two-twelfths toward the end. The digestive organs are thus, in all respects, similar to those of the other Snipes.

The legs are of moderate length and slender; the tibia bare for eight-twelfths; the tarsus moderate, compressed, covered with numerous scutella before and behind, with sub-hexagonal scales on the sides. The hind toe is very small and slender, with six scutella, and a small compressed claw about half its length; the middle toe with its claw about the same length as the tarsus, and connected with the outer toe, which is very slightly longer than the inner, by a web nearly reaching to the second joint of the outer toe, and running along the edges of both to the end. The claws are small, slightly arched, slender, compressed, acute.

The plumage is soft and blended, but firm. The wings long, narrow, and pointed; the primaries tapering to an obtuse point, the first longest, the rest rapidly diminishing; the secondaries short, incurvate, obliquely terminated, the inner web extending beyond the outer; the inner elongated, one of them reaching to half-an-inch of the tip of the longest primary. Tail rather short, nearly even, of twelve rounded feathers.

The bill is dusky, tinged with green; the iris brown; the feet yellowish-green. The upper part of the head and the hind-neck are brownish-grey, with a dusky streak on each feather. The fore part of the back, scapulars, wing-coverts, and inner secondaries brownish-grey, the centre of each feather dusky; the hind part of the back and the tail white, transversely banded with dark greyish-brown. Alula, primary coverts, and primary quills blackish-brown; the shaft of the first primary and the terminal margins of the inner five white; the secondaries and their coverts brownish-grey, margined and tipped with white. Over the eye, from the bill, is a broad streak of white; the loreal space dusky; the cheeks and lower part of the fore-neck grey, streaked with dusky; the throat, sides, axillars, and lower tail-coverts white, with transverse dark grey bands; the lower wing-coverts dark grey, with the centre and margins white; the middle of the breast and the abdomen white.

Length to end of tail $10\frac{1}{2}$ inches; extent of wings 18; wing from flexure $5\frac{7}{12}$; tail $2\frac{1}{4}$; bill along the ridge $2\frac{1}{2}$, along the edge of lower mandible $2\frac{5}{12}$; tarsus $1\frac{4}{12}$; first

toe $\frac{3}{12}$, its claw $\frac{2}{12}$; second toe $\frac{10}{12}$, its claw $\frac{2}{12}$; third toe 1, its claw $\frac{3}{12}$; fourth toe $\frac{11}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female is similar to the male, but somewhat larger.

Length to end of tail $10\frac{3}{4}$ inches; wing from flexure 6; tail $2\frac{1}{4}$; bill $2\frac{1}{4}$; tarsus $1\frac{4}{12}$; middle toe and claw $1\frac{3}{12}$.

HABITS.—Of the habits of this species, considered as a British bird, nothing is known. Montagu first recorded its occurrence in England, having obtained a male which was shot in the beginning of October on the coast of Devonshire. Another specimen has since been killed in the same county; a third near Carlisle, in 1835; a fourth at Yarmouth, in 1836; and, together with these, two more are mentioned by Mr. Yarrell as having been obtained at Norfolk in 1840. I am not aware of its having been seen in Scotland, and Mr. Thompson does not include it among the birds of Ireland. Greenland and Sweden are said to be inhabited by it, and it is very abundant in North America. Mr. Audubon, after stating that he met with it in large flocks at the mouths of the Mississippi, in April, 1837, and all along to Galveston Bay, gives the following account of its habits:—

“Although much more abundant along the coast and in its vicinity, the Red-breasted Snipe is not uncommon in many parts of the interior, especially in autumn; and I have procured many individuals along the muddy margins of lakes, more than three hundred miles in a direct line from the sea. Its migratory movements are performed with uncommon celerity, as many are observed along the coast of New Jersey in April, and afterwards on the borders of the Arctic Sea, in time to rear young, and return to our eastern and middle districts before the end of August.

“This bird exhibits at times a manner of feeding which appeared to me singular, and which I repeatedly witnessed while at Grande Terre, in Louisiana. While watching their manner of walking and wading along sand-bars and muddy flats, I saw that as long as the water was not deeper than the length of their bills, they probed the ground beneath

them precisely in the manner of the American Snipe, *Scelopax Wilsoni*; but when the water reached their bodies, they immersed the head and a portion of the neck, and remained thus sufficiently long to satisfy me that, while in this position, they probed several spots before raising their heads to breathe. On such grounds as are yet soft, although not covered with water, they bore holes as deep as the soil will admit, and this with surprising rapidity, occupying but a few moments in one spot, and probing as they advance. I have watched some dozens at this work for half-an-hour at a time, when I was completely concealed from their view. Godwits, which are also borers, probe the mud or moist earth often in an oblique direction; whilst the Woodcock, the Common Snipe, and the present species thrust in their bills perpendicularly. The latter bird also seizes many sorts of insects, and at times small fry, as well as the seeds of plants that have dropped into the water. Dr. Richardson informs us that 'individuals killed on the Saskatchewan plains had the crops filled with leeches and fragments of coleoptera.'

"The flight of this bird is rapid, strong, and remarkably well-sustained. When rising in large numbers, which they usually do simultaneously, they crowd together, are apt to launch upwards in the air for a while, and after performing several evolutions in contrary directions, glide towards the ground, and wend their way close to it, until, finding a suitable place, they alight in a very compact body, and stand for a moment. Sometimes, as if alarmed, they recommence their meandering flight, and after a while return to the same spot, alighting in the same manner. Then is the time when the gunner may carry havoc amongst them; but in two or three minutes they separate and search for food, when you must either put them up to have a good shot, or wait the arrival of another flock at the same place, which often happens, for these birds seldom suffer any of their species to pass without sending them a note of invitation. It is not at all uncommon to shoot twenty or thirty of them at once. I have been present when 127 were killed by discharging three barrels, and have heard of many dozens being procured at a shot.

When wounded and brought to the water, they try in vain to dive; and on reaching the nearest part of the shore, they usually run a few steps and squat among the grass, when it becomes difficult to find them. Those which have escaped unhurt often remain looking upon their dead companions, sometimes waiting until shot at a second time. When they are fat they afford good eating, but their flesh is at no time so savoury as that of the common American Snipe.

“The cry of this species when on wing is a single and rather mellow *weet*. When on the ground I have heard them emit a continued guttural rolling sound, such as is on certain occasions given out by the species just mentioned. Their call-note resembles the soft and pleasing sound of a whistle; but I have never heard them emit it while travelling. Nothing is known respecting their breeding, and yet there can be little doubt that many of them must rear young within the limits of the Union.”

ADULT IN SUMMER.—The bill, eyes, and feet as in winter. The upper parts are brownish-black, varied with light brownish-red, the feathers being margined or spotted, the scapulars and inner secondaries obliquely barred with the latter colour. The hind part of the back and the tail are reddish-white, barred with dusky. The wing-coverts are greyish-brown, darker in the centre, the larger barred or spotted with yellowish-red; the quills as in winter, some of the secondaries barred with white. A reddish-white band over the eye, loreal space dusky; lower parts light yellowish-red, with streaks of dusky on the neck, spots on the breast, and bars on the sides and lower tail-coverts.

REMARKS.—For opportunities of examining this species I am indebted to Mr. Audubon, who, besides allowing me the use of his dried specimens, presented me with some preserved in spirits.

PHALAROPINÆ.

PHALAROPES AND ALLIED SPECIES.

THE next two genera have by some ornithologists been formed into a family, Phalaropidæ, and placed in connexion with the Coots. Their affinities, however, are with the Tringinæ and Totaninæ, their general form being similar, and their digestive organs the same. Their lobed toes and natatorial habits have given rise to this misapprehension. In accordance with their habits, they have the tarsi much compressed and the plumage dense. Whether they ought to form a separate family or not, their proper place is between the Tringinæ, which one of the genera resembles in its bill, and the Totaninæ, to which the other genus approximates in the form of that organ. They are small or diminutive birds, remarkable for being often met at a great distance from land, where they alight among floating sea-weed, and, it would appear, for their extreme but ill-placed confidence in man, at least during their residence on fresh-water.



SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. PHALAROPUS.

Bill rather longer than the head, almost straight, slender, with the ridge flattened, the nasal groove extending to two-thirds, the breadth considerably enlarged toward the end, the tip obtuse. Nostrils basal, oblong, with an elevated

margin. Legs short, extremely slender; tarsus much compressed, anteriorly scutellate; first toe diminutive; anterior toes of moderate length, connected at the base by webs, and laterally margined with a lobed membrane. Wings long, pointed; tail short, rounded.

1. *Phalaropus lobatus*. *Grey Phalarope*. In winter, the back pale blue; the occiput and a line down the back of the neck greyish-black; the lower parts, forehead, and cheeks white. In summer, the upper parts dark brown, the feathers edged with yellowish-red; the lower parts light red.

GENUS II. LOBIPES. LOBE-FOOT.

Bill rather longer than the head, straight or very slightly bent upwards, very slender, depressed, tapering, the ridge convex, flattened at the base, the nasal groove extending nearly to the end, the tip slender and pointed. Nostrils basal, linear. Legs of moderate length, slender; tarsus much compressed, thin-edged anteriorly; first toe diminutive; anterior toes of moderate length, connected at the base by webs, of which the outer is longer, and laterally margined with a lobed and pectinated membrane. Wings long, pointed; tail rather short, much rounded.

1. *Lobipes hyperboreus*. *Red-necked Lobe-foot*. In winter, the back greyish-black, streaked with white; upper part of the head, a narrow band along the hind-neck, and a band below the eyes blackish-grey; lower parts white. In summer, the upper parts blackish-grey, the feathers edged with light red; of which colour are the sides and fore part of the neck; sides grey, with a white band; the rest of the lower parts white.

PHALAROPUS. PHALAROPE.

THE only species of this genus known to me is a small bird about the size of the Purple Sandpiper, and which at first sight might be taken for a *Tringa*, although its feet differ so much as to refer it to a separate genus. The body is rather slender; the neck of moderate length; the head small, compressed, with the forehead elevated and rounded.

Bill rather longer than the head, almost straight, slender, sub-cylindrical; upper mandible with the dorsal line straight, the ridge flattened, the nasal groove extending to two-thirds, the breadth considerably enlarged toward the end, the tip obtuse; lower mandible with the angle long and extremely narrow, the sides erect and grooved, the tip rather acute.

Eyes rather small; nostrils basal, oblong, with an elevated margin; aperture of ear roundish, and of moderate size. Feet short, extremely slender; tibia bare to a considerable extent; tarsus short, much compressed, anteriorly scutellate, posteriorly thin-edged; the first toe diminutive; the anterior toes of moderate length, the second slightly shorter than the fourth, which is not much exceeded by the third; the three connected at the base by webs, and laterally margined with a lobed membrane. Claws very small, arched, compressed, rather sharp.

Plumage full, soft, blended; the feathers oblong, and much curved. Wings long, pointed, the first and second quills longest; secondaries fifteen, rather short, incurved, the inner very long and tapering. Tail short or of moderate length, rounded, of twelve feathers.

The dense plumage, impervious to water, and the expanded margins of the toes, indicate an affinity to the aquatic birds. *Phalaropus* may, in fact, be said to be a *Tringa* adapted for swimming. Another genus of small birds, having their toes similarly webbed and lobed, seems to approach more to the *Totaniæ* than the *Tringinaæ*, they being of a more slender form, with the bill much attenuated.

PHALAROPUS LOBATUS. THE GREY PHALAROPE.

RED PHALAROPE. GREY PHALAROPE. COOT-FOOT.

- Tringa lobata. Linn. Syst. Nat. I. 249. Winter.
 Phalaropus lobatus. Lath. Ind. Orn II. 776. Winter.
 Tringa fulvicaria. Linn. Syst. Nat. I. 249. Summer.
 Phalaropus glacialis. Lath. Ind. Orn. II. 776.
 Grey Phalarope. Mont. Orn. Dict. and Suppl.
 Phalarope platyrinque. Phalaropus platyrinchus. Temm. Man. d'Orn.
 II. 712.
 Phalaropus lobatus. Grey Phalarope. Flem. Brit. Anim. 100.
 Grey Phalarope. Phalaropus lobatus. Selb. Illustr. II. 162.
 Phalaropus lobatus. Grey Phalarope. Jen. Brit. Vert. An. 215.
 Phalaropus fulicarius. Bonap. Comp. List, 54.

In winter the back pale blue; the occiput and a line down the back of the neck greyish-black; the forehead, sides of the head, neck, and lower parts white. In summer the upper parts dark brown; the feathers edged with yellowish-red; the lower parts light red.

THIS beautiful bird is so seldom met with that recent specimens cannot be procured by the ornithologist, whenever he wishes to describe it. The only individual that came un mutilated into my hands was killed in the beginning of winter, and, being a male, has supplied the following notice:—

MALE IN WINTER.—About the size of the Purple Sandpiper, with the body moderately full, the neck rather long, the head small, compressed, and rounded above. The bill is

rather longer than the head, almost straight, being very slightly recurved, sub-cylindrical, a little larger at the base, obtuse; the upper mandible dilated near the end, and having its tip slightly declinate, while that of the lower is obtusely pointed; both mandibles laterally grooved, the upper having its ridge flattened. The nostrils are basal, lateral, oblong, small, with a rather prominent margin. The eyes are rather small, with both eyelids feathered. The feet are rather short and slender; the tibia bare below; the tarsus compressed, having a projecting margin before and another behind, both scutellate. The hind toe is very small, with a membranous margin; the fore toes are joined at the base by membranes, and margined on each side with rounded lobes, each of which corresponds to an articulation. The claws are small, arched, compressed; that of the second toe is merely a minute blunt knob.

The plumage is close and blended on the head, neck, and especially the lower parts. On the back the feathers are distinct, but weak. The wings are long, narrow, and pointed, with twenty-five quills; the second primary longest, but the first scarcely shorter; the secondaries are oblique, excepting the inner, which are very long and pointed. The tail is small, much rounded, of twelve delicate, acute feathers.

The bill is black; the iris dusky; the feet pale brown, the lobes of the membranes grey, dark toward the end; the claws black. The forehead, sides of the head, neck, and lower parts are pure white. The occiput and a broad line down the back of the neck are greyish-black, and there are some dusky spots beneath the eye. The general colour of the back is a fine pale purplish-blue; the wing-coverts blackish, as are the primary quills, and some of the very elongated and pointed inner secondaries. The shafts of the quills, and the margins and tips of the secondary coverts, and the tips of the primary coverts, are white. The middle tail-feathers are deep brown, margined with white, the lateral shaded into ash-grey.

Length to end of tail $8\frac{1}{2}$ inches; extent of wings $15\frac{3}{4}$; bill along the ridge $\frac{1}{2}$, along the edge of lower mandible 1;

wing from flexure 5; tail $2\frac{9}{12}$; tarsus $\frac{11}{12}$: middle toe 9 and a half-twelfth, its claw $\frac{2}{12}$.

FEMALE IN WINTER.—The female is said to be similar to the male; but I have not examined a specimen known to be such.

MALE IN SUMMER.—At this season the bird has a very different appearance, it having undergone a change of plumage, and assumed a red colour. As it does not occur with us in summer, I have taken my description from an arctic specimen. The bill is yellow, with the point dusky: the feet greyish-blue. The upper part of the head is black; the fore part of the back, the scapulars, and inner secondaries black, margined with light red; the wing-coverts greyish-black, tipped with white; the quills greyish-black. The basal part of the outer web of the primaries, and the tops of the primary and secondary coverts, being white, a band of that colour is conspicuous on the extended wing. The upper tail-coverts are partly dusky brown, partly light red; the rump white, with dusky streaks; the tail deep grey, dusky toward the end. The forehead is dusky ash-grey; the sides of the head white; the fore-neck, breast, abdomen, and lower tail-coverts light red.

Length to end of tail 8; wing from flexure 5; tail $2\frac{9}{12}$; bill along the ridge $\frac{11}{12}$; bare part of tibia $\frac{3}{12}$; tarsus $\frac{10}{12}$; third toe $\frac{10}{12}$, its claw $\frac{2}{12}$.

FEMALE IN SUMMER.—The female resembles the male, but has the lower parts tinged with grey, and of a paler red.

HABITS.—The Grey Phalarope has seldom been seen alive in Britain by any person capable of describing its habits. Montagu states that he once met with one "swimming in a small pool of water left by the tide on the Sussex coast. It was continually dipping its bill into the water, as if feeding on some insects, and so intent as to suffer us to approach within a few yards. It never attempted to dive, and when disturbed flew only a small distance, very like the

Purre.” It is chiefly to the arctic navigators that we are indebted for our knowledge of the habits of this species, which in summer extends as far northward as Melville Peninsula, and is said also to be abundant in the eastern parts of the north of Europe. Although it searches the shores of the sea, lakes, and rivers in the manner of *Tringas*, it is frequently seen at a great distance from land, walking on masses of floating sea-weeds, or swimming in the open ocean. With reference to this part of their economy, M. Temminck remarks:—“I do not see how birds having manners and forms so dissimilar could be associated with the *Tringæ* and *Totani*.” In these respects, however, it is obvious they are precisely analogous to the Dippers, which, although very closely allied to the Thrushes, are essentially aquatic. The terrestrial *Cornerake* and the aquatic *Waterhen* afford a similar example of affinity. Mr. Audubon, who met with the Grey Phalarope on the Ohio in the end of autumn, states that a large flock, of which he was in pursuit, “swam beautifully, played about, picked up substances floating on the water, now dispersed, and again came close together, until at length coming opposite to a small sand-bar stretching out from the shore to the distance of a few yards, they directed their course towards it, and waded out. When just landing, they were so close to each other that I could not withstand the temptation, and so levelled my gun, pulled both triggers, and saw that I had made considerable havoc among them. Those which had not been hitten flew off in a compact body, while the birds that had been but slightly wounded made for the water, and swam away so fast that they seemed to be running on the surface.” “Their flight was rapid, resembling that of the *Red-backed Sandpiper*, *Tringa alpina*; and they performed various evolutions, sometimes skimming over the water, when they kept more apart than either when rising at first or when they reached a certain height; on attaining which they pursued their course with alternate inclinations to either side. According to Captain J. C. Ross, these birds breed in great numbers far north. The eggs, of which he has favoured me with some, measure an inch and a quarter by seven-eighths; their

ground colour is dull greenish-yellow, irregularly blotched and dotted with reddish-brown." Specimens from Parry's second expedition, brought by Mr. Fisher, are an inch and two-eighths long, seven-eighths in breadth, oil-green, clouded over the large half with umber-brown, spotted with the same in the smaller; they are broadish oval, approaching to pyriform, with the broad end hemispherical, the other rather abruptly rounded.

LOBIPES. LOBEFOOT.

It appears that only three species of this genus are known. One of these I have not seen. From the other two, which I have carefully examined, I derive the following generic characters. They are small birds, of slender form, with the body somewhat elongated; the neck rather long and slender; the head small, compressed, with the forehead elevated and rounded.

Bill rather longer than the head, straight or very slightly bent upwards, very slender, depressed, tapering; upper mandible with the dorsal line straight, the ridge convex, flattened at the base, the nasal groove extending nearly to the end, the tip slender and pointed; lower mandible with the angle long and extremely narrow, the sides sloping outwards and grooved for three-fourths, the tip acute. Mouth extremely narrow; tongue long, emarginate and papillate at the base, presently contracted, extremely slender, horny, trigonal, grooved above, tapering to a fine point; œsophagus narrow, nearly uniform; proventriculus oblong; stomach elliptical, with strong lateral muscles, large tendons, and dense, longitudinally rugous epithelium; intestine of moderate length and width; cœca of moderate length, cylindrical, contracted at the base.

Eyes small; nostrils basal, linear; aperture of ear roundish, and of moderate size. Feet of moderate length, slender; tibia bare to a considerable extent; tarsus moderate, much compressed, thin-edged anteriorly; the first toe diminutive; the anterior toes of moderate length, the second slightly shorter than the fourth, which is not much exceeded by the third; the three connected at the base by webs, of which the outer is longer, and laterally margined with a

lobed and pectinated membrane. Claws very small, curved, compressed, pointed.

Plumage full, soft, blended; the feathers oblong and much curved. Wings long, pointed, the first quill longest; secondaries fifteen, rather short, incurved, the inner very long and tapering. Tail rather short, much rounded, of twelve feathers.

Lobipes differs from Phalaropus chiefly in having the bill more slender, depressed, and tapering to a point, instead of becoming enlarged toward the end. There is, however, little difference in their habits. These birds resemble the *Tringæ* and *Totani* in their modes of walking and flying, as well as in their food, which consists of insects, crustacea, and mollusca; but they are often seen swimming in lakes, and even in the open sea, sometimes many leagues from land. They have not, however, the faculty of diving; in which respect they differ from the Coots and Grebes, with which some have associated them, merely on account of their scalloped toes. They moult twice in the year, their summer plumage being more variegated and more brightly coloured than that of winter; and are said to breed in marshy places and on the edges of lakes, laying four pyriform spotted eggs.

Independently of other considerations, the structure of the digestive organs is sufficient to point out the affinities of these birds.



FIG. 22.

LOBIPES HYPERBOREUS. THE RED-NECKED LOBEFOOT.

RED PHALAROPE. BROWN PHALAROPE. HYPERBOREAN PHALAROPE.

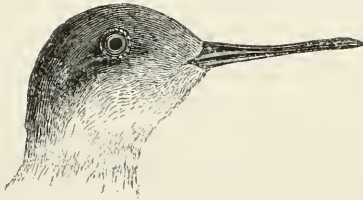


FIG. 23.

Tringa hyperborea. Linn. Syst. Nat. I. 249.

Phalaropus hyperboreus. Lath. Ind. Orn. II. 775.

Phalaropus fuscus. Lath. Ind. Orn. II. 776. Young.

Red Phalarope. Mont. Orn. Dict. and Suppl.

Phalarope hyperboré. *Phalaropus hyperboreus.* Temm. Man. d'Orn. II. 709.

Red Lobe-foot. *Lobipes hyperborea.* Selb. Illustr. II. 166.

Lobipes hyperboreus. Bonap. Comp. List. 54.

In winter the forehead, cheeks, fore-neck, and all the lower parts white; the upper part of the head, a band below the eyes, and a narrow band along the hind-neck blackish-grey, upper parts of the body greyish-black, streaked with white; wings with a white band. In summer the upper parts blackish-grey; the feathers of the back and the scapulars edged with light red; of which colour are the sides and fore part of the neck; throat, breast, and abdomen white; sides grey; wings with a white band. Young with the upper parts blackish-brown, the feathers bordered with light red; quills and wing-coverts brownish-black, edged and tipped with white; forehead, throat, fore-neck, breast, and abdomen white; sides of neck tinged with reddish-yellow.

THIS species having come under my observation only once in winter, I shall first describe its appearance in summer. It is inferior in size to the Dunlin, but nearly of the same form, though rather more slender. Being much more numerous with us than the Grey Phalarope, I have had opportunities of examining many specimens.

MALE IN SUMMER.—Body rather slender; neck rather long; head small, and much rounded above. Bill a little longer than the head, very slender, depressed, tapering; the ridge convex, but flattened at the base; the grooves on both mandibles extending to more than three-fourths; the tips attenuated, the upper slightly deflected. The mouth is very narrow, having a breadth of only two-twelfths and a half; the tongue ten-twelfths long, extremely slender, horny, channelled above, tapering to a point. The legs are of moderate length; the tarsus compressed, thin-edged anteriorly, with about twenty scutella. The hind toe is extremely small, a little elevated, with a small inferior membranous lobe; the anterior toes slender, webbed at the base, and having their margins expanded into crenate lobes; on the second toe are two internal and one external lobe; on the third two internal and two external; on the fourth one internal and four external. The claws are extremely small, much curved, compressed, and pointed.

The plumage is very soft and blended; the feathers of the back, and especially the scapulars, elongated. The wings are long and pointed; the first quill longest, the second scarcely shorter, the other primaries rapidly graduated; the inner secondaries tapering and elongated, one of them being nearly as long as the outer primary when the wing is closed. The tail is rather short, and much rounded.

The bill is black; the iris dusky; the feet dark bluish-grey; the claws black. The upper part and sides of the head, with the hind-neck, blackish-grey; the rest of the upper parts greyish-black; the sides and fore part of the neck light red; some of the feathers of the back and the scapulars broadly margined with yellowish-red. The wing-coverts and quills are greyish-black; the tips of the larger small coverts

and of the outer secondary coverts, the margins of the inner, and the shafts of the quills white. The tail-feathers grey, margined with white, the four middle blackish-grey; the lateral upper tail-coverts broadly barred with white and blackish-grey. The throat and lower part of the cheeks white; of which colour also is part of the upper eyelid; the lower part of the neck in front and the sides of the body dark grey; the rest of the lower parts white; the marginal wing-coverts dusky grey, with broad white margins.

Length to end of tail 7 inches; extent of wings 14; bill along the ridge $\frac{1}{2}$, along the edge of lower mandible 1; wing from flexure $4\frac{6}{12}$; tail $2\frac{2}{12}$; tarsus $\frac{1}{2}$; first toe $\frac{2}{12}$, its claw a half-twelfth; second toe $\frac{7}{12}$, its claw $\frac{1}{2}$; third toe $\frac{9}{12}$, its claw $\frac{2}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{1}{2}$.

FEMALE IN SUMMER.—The female resembles the male, but has the dark parts more grey, the red lighter and less extended, the fore-neck with more grey intermixed with the red, the grey on the sides of greater extent. The digestive organs of an individual which I examined for Mr. Audubon were as follows:—The palate straight, with two longitudinal ridges, and three anterior series of papillæ. The tongue ten-and-a-half-twelfths long, emarginate and papillate at the base, presently contracted, extremely slender, channelled above, tapering to a point. The œsophagus three inches and a half long, two-twelfths in width; the proventriculus four-twelfths in breadth. The stomach roundish or broadly elliptical, oblique, eight-twelfths long, seven-twelfths in breadth, with the lateral muscles large and distinct, the lower prominent and thick; the epithelium of moderate thickness, dense, with numerous longitudinal rugæ. The intestine eleven inches and a quarter in length, three-twelfths in breadth, diminishing to a twelfth and a half; the cœca ten-twelfths long, one-twelfth in width, but at the base only a quarter of a twelfth; the rectum an inch and a quarter long, the cloaca five-twelfths in width. The digestive organs are thus exactly similar to those of the *Tringæ* and *Totani*.

Length to end of tail $7\frac{3}{4}$ inches; extent of wings $14\frac{1}{2}$; bill along the ridge $\frac{1}{2}$; wing from flexure $4\frac{8}{12}$; tail $2\frac{3}{12}$;

bare part of tibia $\frac{6}{12}$; tarsus $\frac{10}{12}$; first toe $\frac{2}{12}$, its claw $\frac{1}{12}$; second toe $\frac{7}{12}$, its claw $\frac{1}{12}$; third toe $\frac{8}{12}$, its claw $\frac{2}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{2}{12}$.

ADULT IN WINTER.—At this season I have seen only one individual, of which the sex was not determined. The bill black; the feet dark bluish-grey. The forehead, cheeks, sides and fore part of the neck, breast, abdomen, and lower tail-coverts white; the sides streaked with grey; the upper part of the head, a band below the eyes, and a band down the hind-neck blackish-grey; the back greyish-black, the larger feathers and scapulars margined with white; the wings and tail as in summer.

HABITS.—The Red-necked Lobefoot has long been known as an inhabitant of the Orkney Islands. Pennant makes mention of a specimen shot on the island of Stronsay, in May, 1769. Mr. Simmonds, in the Transactions of the Linnæan Society, refers to six females and two males, obtained, in 1803, in Sanda and North Ronaldsha. Mr. Bullock, in a letter to Montagu, says:—"I found the Red Phalarope common in the marshes of Sanda and Westra in the breeding season, but which it leaves in the autumn. This bird is so extremely tame that I killed nine without moving out of the same spot, being not in the least alarmed at the report of a gun. It lays four eggs of the shape of that of a Snipe, but much less; of an olive colour, blotched with dusky. It swims with the greatest ease, and when on the water looks like a beautiful miniature of a Duck, carrying its head close to the back, in the manner of a Teal." Mr. Salmon, in the Magazine of Natural History, gives the following account of it, as observed by him in Orkney in 1831:—"This beautiful little bird appeared to be very tame; although we shot two pairs, those that were swimming about did not take the least notice of the report of the gun; and they seemed to be much attached to each other, for when one of them flew to a short distance, the other directly followed; and while I held a female that was wounded in my hand, its mate came and fluttered before my face. We were much gratified in watching

the motions of these elegant little creatures, as they kept swimming about, and were for ever dipping their bills into the water; and so intent were they upon their occupation, that they did not take the least notice of us, although within a few yards of them. The female has not that brilliant bay colour upon the sides of the neck and breast, so conspicuous in the male. After some little difficulty, we were fortunate in finding their nests, which were placed in small tufts of grass growing close to the edge of the loch; they were formed of dried grass, and were about the size of that of a Titlark, but much deeper. The eggs are considerably smaller than those of the Dunlin, and beautifully spotted all over with brown. They had but just commenced laying (June 13), as we found only from one to two eggs in each nest; but we were informed by a boy, whom we engaged in our service, that they always lay four, and are called by the name of Half-web." Mr. Dunn, in his *Ornithologists' Guide to Orkney and Shetland*, says:—"I have never seen this bird in Shetland. I got several in Orkney; but it is not plentiful. It arrives in the month of July, and departs on the approach of winter. It breeds in August, and builds its nest in swampy situations close to the edge of the water; sometimes on small green islands in the middle of the lakes. The places where I procured their eggs, and found the birds most numerous, are in a small sheet of water three or four miles from the lighthouse of Sanda, a lake near Nunse Castle, in Westra, and at Sandwich, near Stromness."

Southwards, it has been obtained in the Firth of Forth and on the coasts of Northumberland, Yorkshire, and Norfolk. It probably occurs in the Hebrides, although I never saw it there. M. Nillson mentions its occurrence in Sweden and Norway. Mr. W. Proctor found it in Iceland. Dr. Richardson says it breeds on all the arctic coasts of America; and Mr. Audubon found it at Boston, and from thence to Labrador. Its southward migrations appear limited, New York and Italy being mentioned as its extreme stages. According to Mr. Thompson, it has not been observed in Ireland.

Mr. Audubon found the American birds more wary than ours have been represented:—"While at Eastport, in Maine,

my son John shot several out of flocks of sixty or more. At one time a flock consisting of more than a hundred was seen in the Bay of Fundy. They were exceedingly shy; and the gunners of Eastport, who knew them under the name of Sea Geese, spoke of them as very curious birds.

“They procure their food principally upon the water, on which they alight like Ducks, float as light as Gulls, and move about in search of food with much nimbleness. The sight of a bank of floating sea-weeds or garbage of any kind, induces them at once to alight upon it, when they walk about as unconcernedly as if on land. Their notes, which resemble the syllables *tweet, tweet, tweet*, are sharp and clear; and in their flight they resemble our common American Snipe. At the approach of an enemy they immediately close their ranks, until they almost touch each other, when great havoc is made among them; but if not immediately shot at, they rise all at once and fly swiftly off, emitting their shrill cries, and remove to a great distance. These Phalaropes congregate in this manner for the purpose of moving northwards to their breeding grounds; although some remain and breed as far south as Mount Desert Island. I have met with them in equally large flocks at a distance of more than a hundred miles from the shores. They were feeding on great beds of floating sea-weeds, and in several instances some Red Phalaropes were seen in their company.

“Whilst in Labrador I observed that the Hyberborean Phalarope occurred only in small parties of a few pairs, and that instead of keeping at sea or on the salt-water bays, they were always in the immediate vicinity of small fresh-water lakes or ponds, near which they bred. The nest was a hollow scooped out among the herbage, and covered with a few bits of dried grass and moss. The eggs are always four; they measure at an average an inch and three-sixteenths in length, seven-eighths in their greatest diameter; are rather pointed at the smaller end, and are more uniform in their size and markings than those of most water birds. The ground colour is a deep dull buff, and is irregularly marked with large and small blotches of dark reddish-brown, which are larger and more abundant at the crown. The birds

shewed great anxiety for the safety of their eggs, limping before us, or running with extended wings, and emitting a feeble melancholy note as if about to expire. When we approached them they resumed all their natural alacrity, piped in their usual manner, flew off, and alighted on the water. Captain Emery and myself followed some nearly an hour, assisted by a pointer dog, in the hope of tiring them out; but they seemed to laugh at our efforts, and when Dash was quite close to them, they would suddenly fly off in another direction, and with great swiftness, always leading us farther from their nests. The young leave the nest shortly after they are hatched, and run after their parents over the moss, and along the edges of the small ponds; but I saw none on the water that were not fully fledged. Both young and old had departed by the beginning of August.

“I have never procured this species in any part of the interior, although I have procured the Red Phalarope and Wilson’s Phalarope in many parts to the west of the Alleghany Mountains, at a distance of more than a thousand miles from the sea-coast.”

YOUNG.—The young, when its plumage is completed, differs in several respects from the adult, although coloured in the same manner. The upper part of the head, loreal spaces, a band under the eyes, and the hind-neck are dark brown, streaked with dull light yellowish-brown; on the forehead some of the feathers are nearly white, and the upper eyelid is of that colour. On each side of the neck behind is a broad longitudinal band of light red, streaked with dusky. The upper parts of the body are greyish-black; the feathers of the fore part of the back and the scapulars margined with pale yellowish-red; the wings as in the adult, but with the white band narrower; the tail dull ash-grey, with the two middle feathers darker. The throat and lower part of the cheeks are white; the fore-neck, with a portion of the breast and the sides, dark grey, the feathers margined with white, the rest of the lower parts white. The bill is black; the feet greenish-grey, part of the webs

yellow. The differences in the young merely amount to this:—The tints are lighter; the red on the neck is reduced to a band of pale reddish-yellow, streaked with dusky; the light red margins of the dorsal feathers and scapulars are paler; and the head and hind-neck, instead of being uniform, are streaked and paler. This description is from a specimen obtained in Shetland.

TOTANINÆ.

TATLERS AND ALLIED SPECIES.

THE *Tringinæ* are so intimately allied to the *Totantinæ*, that most authors consider them as forming one family; in which they also place the *Snipes*, or *Scolopacinaæ*. They certainly differ little in their general appearance, and their digestive organs are the same. But while the *Tringinæ* have the body moderately stout, the legs mostly of ordinary length, and the bill, though long, soft and blunt at the end, the *Totantinæ* are remarkable for their slender body, very elongated legs, and extremely slender bill, attenuated at the end, pointed, and in its terminal half firm, though elastic. They may be characterized as follows:—

The body ovate, compact, rather slender; the neck long; the head small, compressed, rounded in front. The bill long, straight, sometimes re-arcuate, or bent a little upwards, acute. The mouth is extremely narrow; the tongue very slender, trigonal, tapering, horny toward the end, pointed. (Esophagus narrow, with an oblong or bulbiform proventriculus; stomach elliptical or roundish, with the lateral muscles moderately thick; the epithelium dense and longitudinally rugous; intestine long and of moderate width; cæca of moderate length and narrow.

Nostrils linear, small, pervious, sub-basal. Eyes rather small. Aperture of ear rather large. Legs very long, slender; tibia bare to a great extent; tarsus slender, compressed, anteriorly and posteriorly scutellate; toes four, the hind toe very small and elevated; or three only, slender, of moderate length, webbed at the base; claws small, slightly arched, compressed, rather obtuse.

Plumage very soft and blended; on the upper parts rather compact. Wings very long, pointed, with the first

quill longest; inner secondaries elongated and tapering. Tail short, rounded, of twelve rather soft feathers.

These birds, which are most strictly littoral and true waders, frequent the margins of the sea, estuaries, rivers, and lakes, or marshy grounds. Their food consists of mollusca, insects, crustacea, and other animals, which they obtain in the water or on the ground, sometimes also by probing the mud or soft sand. Gregarious in winter, they then collect into small bands, and frequent chiefly the estuaries. They run with great celerity, but not so continuously as the *Tringinae*, their mode of searching being more desultory than theirs; and are remarkable for vibrating or balancing their body when standing. Their flight is rapid, light, and rather buoyant and wavering; and their cries are loud and shrill, and under excitement reiterated. Most of the species are more or less migratory. Their nests are slightly constructed, or merely a hollow, with some vegetable fibres; the eggs four, pyriform, and spotted. The young, covered with down, are active from the first, but usually conceal themselves by crouching. Their flesh is equally esteemed with that of the *Tringinae*.

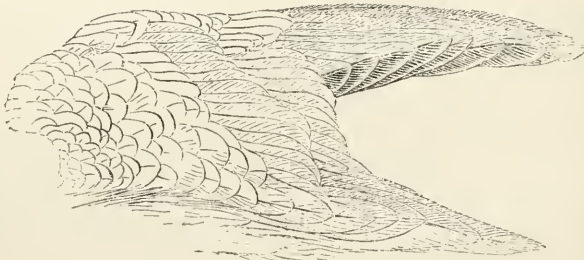


FIG. 24.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES

GENUS I. RECURVIROSTRA. AVOSET.

Bill more than twice the length of the head, very slender, depressed, tapering to a point, and slightly recurved; the

edges of both mandibles thick and grooved. Nostrils basal, linear. Legs very long, slender; tibia bare for half its length; tarsus reticulated; hind toe extremely small and elevated; anterior toes rather short, and connected by very deeply emarginate webs. Wings long, rather narrow, pointed. Tail short, nearly even.

1. *Recurvirostra Arosetta*. *Black-and-white Aroset*. Bill black; feet greyish-blue; plumage white; upper part of head, hind-neck, some of the scapulars, the smaller wing-coverts, and the primary quills and coverts black.

GENUS II. HIMANTOPUS. STILT-SHANK.

Bill about twice the length of the head, almost straight, being very slightly recurved, very slender, roundish, tapering; the edges of both mandibles sharp and inflexed. Nostrils sub-basal, linear. Legs extremely long, slender; tibia bare for more than half its length; tarsus compressed, reticulated; no hind toe; toes of moderate length, slender; the inner connected with the middle toe by a very slight web, the outer by a web extending nearly to the second joint. Wings extremely long, exceeding the tail, acute; tail short, nearly even.

1. *Himantopus melanopterus*. *Black-winged Stilt-shank*. Bill black; feet vermilion; plumage white, the breast tinged with rose-colour; upper part of head and nape greyish-black; fore part of back, scapulars, and wings black, glossed with green; tail ash-grey.

GENUS III. GLOTTIS. LONG-SHANK.

Bill about half as long again as the head, beyond the middle slightly inclined upwards, very slender, roundish, tapering; the edges of both mandibles inflexed. Nostrils sub-basal, linear. Legs very long, slender; tibia bare for nearly half its length; tarsus compressed, scutellate before and behind; toes four, anterior of moderate length, slightly webbed at the base. Wings very long, pointed. Tail short, somewhat rounded.

1. *Glottis Chloropus*. *Green-legged Long-shank*. Bill greenish-brown, black toward the end; feet greenish-grey. In winter, the lower parts white; the fore part of the back, scapulars, and wing-coverts greyish-brown, the feathers edged with whitish. In summer, the fore neck and breast white, with oblong black spots; the fore part of the back, and the scapulars black, the feathers margined with whitish.

GENUS IV. TOTANUS. TATLER.

Bill about a third longer than the head, straight, very slender, the tip of the upper mandible slightly declinate, narrowed, blunt, a little exceeding the lower; edge of both mandibles thick, with a linear groove. Nostrils basal, linear. Legs long, very slender; tibia bare to a considerable extent; tarsus scutellate before and behind; toes small, the first diminutive, anterior with basal webs, of which the outer is larger. Wings long, pointed. Tail short, rounded.

1. *Totanus fuscus*. *Dusky Redshank Tatler*. Bill red in its basal half, the other brownish-black; feet orange-red; secondary quills black, barred with white.

2. *Totanus Calidris*. *Common Redshank Tatler*. Bill red in its basal half, the other brownish-black; secondary quills black at the base, white toward the end.

3. *Totanus ochropus*. *Green Tatler*. Bill dusky above, reddish below; feet greyish-blue, tinged with brown; tail nearly even, white, the four middle feathers with three blackish-brown bars toward the end, the outermost feather plain.

4. *Totanus Glareola*. *Wood Tatler*. Bill dusky, greenish at the base; feet greenish-grey; tail doubly emarginate, white, all the feathers barred to the base with blackish-brown; the outermost with the inner web plain.

GENUS V. ACTITIS. WEET-WEET.

Bill not longer than the head, straight, very slender, the tip of the upper mandible slightly declinate, narrowed, bluntish, a little exceeding the lower; edges of both man-

dibles thin and sharp. Nostrils basal, linear. Legs of moderate length, very slender; tibia bare to a considerable extent; tarsus scutellate before and behind; toes small; the anterior webbed at the base. Wings long, pointed. Tail short, rounded.

1. *Actitis Hypoleucos*. *White-breasted Weet-weet*. Bill dusky; feet greenish-grey; upper parts glossy greenish-brown, transversely banded and undulated with dark brown; lower parts white, excepting the fore part and sides of the neck, which are greyish, with faint dusky lines.

2. *Actitis macularia*. *Spotted Weet-weet*. Bill dusky at the point, greenish-brown above, yellow beneath; upper parts glossy greenish-brown, transversely banded with dark brown; lower parts white, marked all over with roundish dusky spots.

RECURVIROSTRA. AVOSET.

The Avocets form a genus of birds remarkable for having their long and very slender bill considerably curved upwards. Although in all other respects very similar to the Totani, their anterior toes are connected by webs of large extent. Their body is compact, ovate, rather slender; the neck long; the head small, ovate, compressed, rounded above.

Bill more than twice the length of the head, very slender, depressed or broader than high, tapering to the point, slightly recurved: upper mandible with the dorsal line straight for half its length, then curved upwards, the ridge flattened, the nasal groove very narrow and extending to a third, the point slightly decurved; lower mandible with the angle long and very narrow, the dorsal line slightly curved upwards, the point very slender and curved a little upwards, the edges of both mandibles thick and grooved. Two longitudinal series of blunt reversed papillæ on the palate. Tongue slightly emarginate and papillate at the base, slender, tapering, pointed, flattened above, horny beneath. Oesophagus narrow, dilated a little about the middle; proventriculus with oblong glandules. Stomach an oblong gizzard of moderate strength, with distinct muscles, large tendons, and dense, longitudinal rugous epithelium. Intestine rather long and of moderate width; cæca rather long, cylindrical, narrow.

Eyes small; nostrils basal, linear, perforated; aperture of ear roundish, rather large. Leg very long, slender; tibia bare for half its length, reticulated; tarsus very long, compressed, reticulated with hexagonal scales; hind toe extremely small and elevated; anterior toes rather short, the outer a little longer than the second, all scutellate, and con-

nected by webs, which are very deeply emarginate, but run to the end; claws very small, almost straight, compressed, tapering, obtuse.

Plumage very soft and blended; wings long, rather narrow, pointed; the first quill longest; the primaries tapering, rapidly graduated; the secondaries broad, incurved, the inner elongated and tapering; tail short, nearly even, of twelve rather narrow feathers.

Of the very few species belonging to this genus one occurs in Europe, and is sometimes met with in England. They resemble the Totani in their habits, but are more addicted to wading, and are occasionally seen to swim. The American species is described by Mr. Audubon as searching the soft mud with a lateral wriggling motion of the head, in the manner of the Spoonbill. The eggs are four, pyriform, and spotted.

By overlooking the structure of these birds, some authors have entirely misplaced them in their systems. They are evidently most closely allied to the Himantopi, Totani, and other genera of that group.

RECURVIROSTRA AVOCETTA. THE BLACK-AND-WHITE AVOCET.

SCOOPING AVOCET. SCOOPER. CROOKED-BILL. COBLER'S-AWL. YELPER.

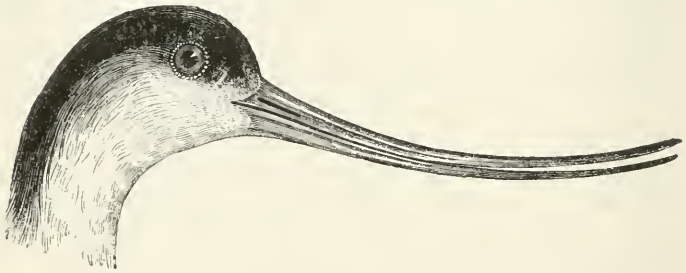


FIG. 25.

- Recurvirostra Avocetta. Linn. Syst. Nat. I. 156.
 Recurvirostra Avocetta. Lath. Ind. Orn. II. 786.
 Scooping Avocet. Mont. Orn. Dict.
 Avocette à nuque noir. Recurvirostra Avocetta. Temm. Man. d'Orn. II.
 590.
 Recurvirostra Avocetta. Scooping Avocet. Flem. Brit. Anim. 101.
 Scooping Avocet. Recurvirostra Avocetta. Selb. Illustr. II. 90.
 Recurvirostra Avocetta. Scooping Avocet. Jen. Brit. Vert. An. 201.
 Recurvirostra Avocetta. Bonap. Comp. List. 54.

Upper part of the head and hind neck for half its length black; the rest white, excepting some of the scapulars, the smaller wing-coverts, and the primary quills and coverts, which are black.

MALE.—This beautiful bird, which is easily distinguished among our waders by its semipalmated feet, is of a slender form, with the body moderate, the neck long, the head small and much elevated in front; the bill is more than twice the length of the head, very slender, tapering, depressed, recurved

beyond the middle, with the tips very small and curved toward each other. The nostrils are small and linear; the eyes also small, with the eyelids feathered. The tibia is bare for nearly half its length; the tarsus slender, compressed and reticulated. The hind toe is extremely small and elevated; the fore toes of moderate length, or rather short, semipalmated or connected by webs, which extend to their ends, but have their anterior margin concave, as if cut out for half their length. The claws are very small, almost straight, tapering obtuse.

The plumage is very soft and blended on the head and neck; rather compact on the back and wings; the latter long and pointed, the first quill being longest, and the other primaries rapidly graduated; the inner secondaries tapering, and some of them, when the wing is closed, reaching to within an inch of the outer primary. The tail is short, nearly even, of twelve rather narrow, rounded feathers.

The bill is black; the feet greyish-blue, the toes darker, the claws black. All the upper part of the head, including the loreal space, a small band under the eye, and the hind neck for half its length, are brownish-black; the rest of the neck, all the lower parts, the under wing-coverts, the middle and hind part of the back, and the tail are white. On the fore part of the back on each side is an oblique band of black, including most of the scapulars; the smaller wing-coverts are black, the larger white, but the inner with a blackish-brown patch. The primary quills and their coverts are white at the base, brownish-black in the rest of their extent; the secondary quills white, as is the alula.

Length to end of tail 18 inches; bill along the ridge $3\frac{1}{4}$; wing from flexure $9\frac{1}{4}$; tail $3\frac{1}{4}$; bare part of tibia $1\frac{9}{12}$; tarsus $2\frac{11}{12}$; first toe $\frac{2}{12}$, its claw $\frac{1}{12}$; second toe $1\frac{1}{12}$, its claw $\frac{2}{12}$; third toe $1\frac{5}{12}$, its claw $\frac{3}{12}$; fourth toe $1\frac{2}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female is similar to the male, but somewhat smaller.

HABITS.—Not having seen this bird alive, I can give no certain account of its habits, which most authors seem to

have inferred from its structure, rather than actually observed. Mr. Selby merely repeats, with the necessary amplification, what Montagu relates; and Mr. Moody, after informing us "in what time would the productive power of a single pair of fishes, if it could act unrestrained, convert the matter of the whole solar system into fish," gives a very particular account of its mode of proceeding, but omits the very essential declaration of his having seen and watched the bird scooping "alternately left and right, with ease, with effect, and even with a grace, almost unparelled in the action of birds." All that seems to be authentic in the accounts given by authors may be reduced to few words.

The Avocet, which is now of rare occurrence in any part of the country, still bred in Montagu's time in the fens of Lincolnshire, and in Romney Marsh, in Kent; but appears now to rank in England only as a casual visitant, or winter resident. Assembling in small flocks, in winter, it frequents the shores and estuaries of the south-eastern coasts, and feeds on worms, insects, and mollusca, which it obtains, it is said, not by patting or probing, but by an alternating lateral motion of the bill among the soft mud. The use of its webs seems to be chiefly to support it on the yielding surface, for it has not been observed to swim. It wades out in the water, runs with rapidity, vibrates its body when standing, has a powerful flight, and a long shrill cry. According to M. Temminck, it forms a small cavity among the grass or in the sand, and lays two, seldom three, eggs, of an olivaceous grey colour, sprinkled with numerous blackish spots. It is said to resemble the Totani and other birds of this family, in its attempt to decoy intruders from its nest or young.

It is met with in Africa, various parts of Asia, and in Europe as far north as Sweden. In England it is now scarce, and I have not seen a specimen obtained in Scotland; but the Rev. Mr. James Leslie, of Coul, and Dr. Dickie, of Belfast, inform me that "one was shot in the Old Town Links, Aberdeen, in 1841." Mr. Thomson mentions several specimens met with in Ireland.

YOUNG.—The young, when their plumage is complete,

differ little from the adult, the colours being similarly distributed, but the black shaded with brown.

REMARKS.—In relating the history of *Recurvirostra Americana*, Mr. Audubon, who met with several individuals about a pond in Indiana, presents, among others, the following statements:—"On alighting, whether on the water or on the ground, the American Avocet keeps its wings raised until it has fairly settled. If in the water, it stands a few minutes balancing its head and neck, somewhat in the manner of the Tell-tale Godwit. After this it stalks about searching for food, or runs after it, sometimes swimming for a yard or so while passing from one shallow to another, or wading up to its body, with the wings partially raised. Sometimes they would enter among the rushes, and disappear for several minutes. * * * They search for food precisely in the manner of the Roseate Spoonbill, moving their heads to and fro sideways, while their bill is passing through the soft mud; and in many instances, when the water was deeper, they would immerse their whole head and a portion of the neck, as the Spoonbill and Red-breasted Snipe are wont to do. When, on the contrary, they pursued aquatic insects, such as swim on the surface, they ran after them, and on getting up to them, suddenly seized them by thrusting the lower mandible beneath them, while the other was raised a good way above the surface, much in the manner of the Black Shearwater, which, however, performs this act on wing. They were also expert in catching flying insects, after which they ran with partially expanded wings."

HIMANTOPUS. STILT-SHANK.

THE importance of the hind toe in the Grallatores has been much over-rated, otherwise the Himantopi, which in all essential characters are most intimately connected with the Totani and Recurvirostræ, would never have been placed in connection with the Plovers, with which they have very little affinity. A similar error has been committed by M. Temminck, when, on account of their agreeing in having scolloped margins to their toes, he places together, to constitute his family of Pinnatipedes, birds so essentially different in structure as the Coots, Phalaropes, and Grebes, separating the first from the Gallinules, which differ very little from them, the last from the Divers, with which they are intimately connected, and the Phalaropes from the Tringæ and Totani, which are their natural allies. Thus it is that artificial distinctions give rise to unnatural associations.

The Himantopi are of a singularly slender form, with legs so extremely elongated as to suggest the idea of a bird walking on stilts. The body, however, is rather compact, and possessed of considerable muscularity; but the neck is very long and slender; the head small, compressed, and much rounded above.

Bill about twice the length of the head, almost straight, being very slightly recurved, very slender, roundish, tapering; upper mandible with the ridge convex, rather flattened at the base, the sides convex, the nasal groove extending half its length, the edges sharp and inflected, the tip very narrow, rather acute, and slightly decurved; lower mandible with the angle long and extremely narrow, the sides grooved nearly as far as the angle, the edges sharp and inflected, the tip extremely narrow, and just at the end turned a little upwards. Both mandibles are concave within,

the groove thus formed being extremely narrow, that of the lower deeper. Tongue scarcely half the length of the bill, very slender, tapering, emarginate and papillate at the base, pointed. Œsophagus narrow: proventriculus oblong. Stomach elliptical, with its lateral muscles moderately thick, the epithelium dense, and longitudinally rugous. Intestine of moderate length, narrow; cœca rather short, very narrow.

Eyes rather small. Nostrils rather long, linear, sub-basal, pervious. Aperture of ear roundish, rather large. Legs extremely long and slender; tibia bare for more than half its length; tarsus very slender, compressed, reticulated with elongated hexagonal scales; toes of moderate length, slender, scutellate unless toward the base; no hind toe; the outer a little longer than the inner, and connected with the third by a web extending nearly to the second joint, and forming narrow margins to the two toes; the inner with a very slight web. Claws small, slightly arched, compressed, obtuse.

Plumage of the head, neck, and lower parts very soft and blended; of the back and wings compact. Wings extremely long, exceeding the tail, narrow, acute, of twenty-eight quills; the primaries tapering, the first longest, the rest rapidly graduated; the secondaries rather narrow, incurved, some of the inner tapering and elongated. Tail short, nearly even, of twelve feathers.

These birds entirely resemble the Totani in their habits, fly with rapidity, are remarkably vociferous, walk and run with celerity, vibrate their body when standing, search the mud and sands for worms, insects, crustacea, and mollusca, often wading far into the water. The eggs are four, pyriform, and spotted. The males are larger than the females, as in all the *Limosinæ*.

It is stated by Montagu, that "six of this species were shot out of seven in a flock, in the month of April, at the verge of a lake not very far distant from Farnham, in Surrey. One of them was preserved by the late Rev. Mr. White, of Selborne," and was seen by Montagu with Mr. White, of Fleet Street. It was "wholly white, except the wings and back as far as the rump, which were black."

HIMANTOPUS MELANOPTERUS. THE BLACK- WINGED STILT-SHANK.

STILT. LONGSHANK. LONG-LEGGED PLOVER. LONG-LEGS.

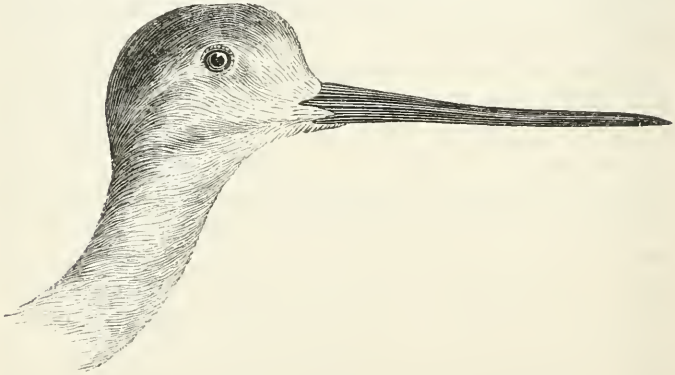


FIG. 26.

Charadrius Himantopus. Linn. Syst. Nat. I. 255.

Charadrius Himantopus. Lath. Ind. Orn. II. 741.

Long-legged Plover. Charadrius Himantopus. Mont. Ornith. Dict. and Suppl.

Echasse a manteau noir. Himantopus melanopterus. Temm. Man. d'Ornith. II. 528; III. 350.

Himantopus Plinii. Long-legs. Flem. Brit. Anim. 112.

Black-winged Stilt. Himantopus melanopterus. Selb. Illustr. II. 247.

Himantopus melanopterus. Black-winged Long-shanks. Jen. Brit. Vert. An. 201.

Himantopus melanopterus. Bonap. Comp. List, 54.

In summer the bill black; the feet vermilion; forehead, cheeks, neck, lower parts and sides of the body, with the greater part of the back, white; the breast tinged with rose-colour; upper part of head and nape greyish-black; fore part of back, scapulars and wings black, glossed with green; tail ash-grey.

MALE.—This bird, of which the limbs are so disproportionately elongated and attenuated, and the whole form so slender, that one might suppose it liable to be blown over or swept away by a moderate blast of wind, exhibits the distinctive characters of the *Limosinæ* in their highest development. Yet Mr. Selby places it between the genera *Charadrius* and *Edicnemus*, to neither of which has it any other resemblance than that caused by the want of a hind toe. Its ovate, rather slender body is elevated upon extremely elongated, slender, compressed, stilt-like legs, of which the skin is very thin and reticulated; the tibia bare for three inches, or more than half its length; the toes proportionally short and very slender, with the outer web rather large, the inner scarcely apparent; the claws small and rather blunt. The bill is twice the length of the head, very slender, and slightly recurved. The head much rounded above, compressed, and small; the neck long and slender. The nostrils are linear, four-and-a-half-twelfths long; the aperture of the eyes also four-and-a-half-twelfths in diameter. In all other respects the generic character will afford a correct idea of the proportions.

The plumage is very soft and blended on the head and neck; somewhat blended on the lower, rather compact on the upper parts of the body. The wings exceed the tail by two inches; the primaries are very narrow and tapering, the first longest, the second half-an-inch shorter, the rest rapidly decreasing; the longest inner secondary two inches and a half shorter than the longest primary. The tail, which is short, and of twelve narrow feathers, is somewhat emarginate, but with the middle feathers projecting a little.

The bill is black; the iris crimson; the feet vermilion; the claws black; the forehead, cheeks, throat, neck all round, lower parts of the body, middle and hind part of the back, are white, the breast slightly tinged with rose-colour. The upper part of the head and the nape are greyish-black; the fore part of the back, the scapulars, and inner secondaries with their coverts brownish-black glossed with green; the wing glossy greenish-black; the lower wing coverts deep black, the lower surface of the quills greyish-black; the tail

is dark grey, as are some of its upper coverts, the outer tail feathers nearly white.

Length to end of tail 14 inches; bill along the ridge $2\frac{7}{12}$, along the edge of lower mandible $2\frac{8}{12}$; wing from flexure $9\frac{3}{4}$; tail $3\frac{4}{12}$; bare part of tibia $3\frac{1}{4}$; tarsus $4\frac{10}{12}$; second toe 1, its claw $\frac{2}{12}$; third toe $1\frac{4}{12}$, its claw $\frac{3}{12}$; fourth toe $1\frac{1}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female resembles the male, but is somewhat smaller, and with the black of the back less glossy.

VARIATIONS.—The principal variations which I have seen are confined to the tints of the back and scapulars, which are more or less tinged with brown, and to the extent of the dark colour on the nape, which also varies from greyish-black to dark grey. Two specimens which I have received from India, along with *Totanus glottis*, *Totanus stagnatilis*, *Tringa subarquata*, and other birds, all in their winter plumage, seem to me to be also winter birds. It does not appear that authors have been aware of any seasonal change of plumage in this species; but analogy might lead us to believe that the Himantopi resemble the Totani in this respect. This is certainly not the young bird in its first plumage, as none of the dark feathers are in the slightest degree margined.

ADULT IN WINTER.—Bill and feet as in the summer. Forehead, a band over the eyes, fore part of neck, breast, sides, abdomen, lower tail coverts, and the greater part of the back, white. Upper part of the head, nape, and a line below the eye, with the ear coverts, ash-grey; the whole hind part of the neck pale grey, its sides tinged with the same. The tail feathers and upper coverts pale ash-grey. The fore part of the back, the scapulars, and the inner elongated secondaries, with their coverts brown, the latter glossed with greenish; the rest of the wing black strongly glossed with green; the lower wing coverts brownish-black.

HABITS.—All that I can learn of this species is merely

such as might be expected from ornithologists who seem to consider the habits of birds as of little importance. It is said to be plentiful in many parts of Asia, and the south-eastern portions of Europe, whence it migrates into Germany, France, and Italy. It feeds on worms and insects; and, according to M. Temminck, nestles on a small eminence formed in the marshes, laying four eggs of the size and form of those of the Avocet, dull greenish, marked with numerous grey spots, and dotted with middle-sized and very small spots of a reddish-brown.

YOUNG.—According to the same author, the young have the feet of an orange colour, the feathers of the back and wings brown, with whitish margins; those of the upper part of the head, occiput, and nape blackish-grey, with whitish borders.

GLOTTIS. LONGSHANK.

THE birds of this genus are intimately allied to the Himantopi on the one hand, and the Totani on the other. Their bill is extremely similar to that of the former birds, and may therefore be described precisely in the same terms. If one could take a Stiltshank, shorten its wings considerably, and diminish the length of its preposterous-looking legs, leaving them still long enough to exceed those of the Totani, and add a very small hind toe, he would have a Longshank. The genus is not very definite, in one direction at least, for some birds, without showing more caprice than some ornithologists, might claim a place in it to-day, and in Totanus to-morrow, just as some philosophers have one year indignantly scouted the idea of separating them, and the next year have put them down as distinct, without troubling their readers with reasons. The Longshanks may be known by the following characters:—

Their body is ovate and rather slender, their neck long and slender, their head small, oblong, compressed, with the upper part much rounded.

Bill about half as long again as the head, very slender, compressed towards the end, roundish, tapering, beyond the middle slightly inclined upwards; upper mandible with the ridge convex, as are the sides beyond the middle, the nasal groove extending nearly half its length, the edges inflected with a narrow groove, the tip narrowed, slightly decurved, and somewhat obtuse; lower mandible with the angle long and extremely narrow, the sides grooved nearly as far as the angle, the dorsal line slightly ascending, the edges inflected, with a narrow groove, the tip narrow, rather obtuse, and very slightly directed upwards, Tongue about half the length of the bill, very slender, tapering, emarginate and papillate at

the base, horny toward the end, pointed. Both mandibles concave within, the groove formed by the lower extremely narrow. Mouth very narrow; œsophagus narrow; proventriculus oblong. Stomach elliptical, with its lateral muscles moderately thick, the epithelium dense and longitudinally rugous. Intestine rather long and of moderate width; cœca of moderate length and narrow.

Eyes rather small. Nostrils rather long, linear, sub-basal, pervious. Aperture of ear roundish, rather large. Legs very long and slender; tibia bare for nearly half its length; tarsus very slender, compressed, anteriorly and posteriorly scutellate; hind toe very small and elevated; anterior toes of moderate length, slightly webbed at the base, the inner a little shorter than the outer. Claws small, slightly arched, compressed, obtuse.

Plumage of the head, neck, and lower parts very soft and blended; of the back and wings rather compact. Wings very long, pointed, with twenty-five quills; the primaries tapering, the first longest, the rest rapidly graduated; the secondaries incurved, some of the inner tapering and elongated. Tail short, a little rounded, of twelve feathers.

These birds are of moderate size or small. They frequent the shores of the sea, lakes, marshes, and rivers; feed upon worms, insects, crustacea, and mollusca, along with which they swallow sand or gravel; run with great celerity, vibrate their body when standing, especially if alarmed; emit a loud shrill reiterated cry; and have a rapid, though light and rather buoyant flight. Their nest is a slight hollow among sand or herbage; their eggs four, very large, pyriform, and spotted. The young, at first covered with longish down, presently run about, and conceal themselves by squatting. Some species of the genus are found in all parts of the globe. In Britain only one occurs. The most characteristic, from which I have derived the above characters, are *Glottis chloropus*, *Glottis melanoleuca*, *Glottis semipalmatus*, and *Glottis stagnatilis*.

It is ludicrous to see the tenacity with which people adhere to the vernacular, while they are perpetually changing the scientific nomenclature, as if the one were sacred, and

the other to be dealt with according to caprice. If at one time there is a genus named *Scolopax* in Latin and Snipe in English, and at another time the species of that genus be formed into several genera, as *Scolopax*, *Totanus*, *Limosa*, these new genera surely ought not to be called Snipe, Snipe, Snipe. If at one time some species of the genus *Tringa* are called Sandpipers, while some of another genus, *Totanus*, are also called Sandpipers, being considered to be *Tringas*, surely when *Totanus* and *Tringa* come to be well defined, the species of the one should have a different English name from those of the other. It is an established rule that every genus must have a name. I say every genus must have in every country *two names*, a Latin name and a vernacular name. Is it possible to adduce a *reason* to the contrary? Well, then, *Totanus* of old used to be called in English Greenshank, Redshank, Yellowshank, Sandpiper, Plover, Tatler, Willet, Weet-weet, Snipe, &c. But my *Totanus* I call simply Tatler; my *Glottis*, Longshank; and my *Actitis*, Weet-weet. Let who will name them to his mind.

GLOTTIS CHLOROPUS. THE GREEN-LEGGED LONGSHANK, OR GREENSHANK.

GREEN-LEGGED HORSEMAN. GREATER PLOVER. GREENSHANK SNIPE.

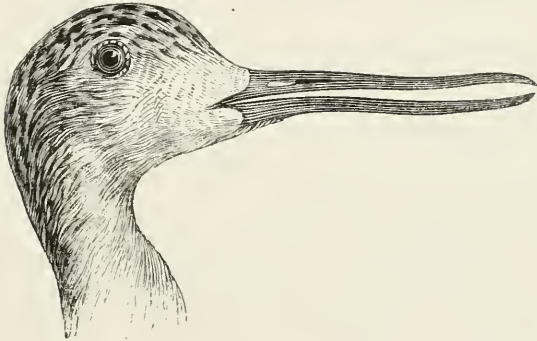


FIG. 27.

Scopolax Glottis. Linn. Syst. Nat. I. 245.

Scopolax Glottis. Lath. Ind. Orn. II. 720.

Greenshank. Mont. Orn. Dict.

Chevalier Aboyeur. Totanus Glottis. Temm. Man. d'Ornith. II. 659.

Totanus Glottis. Greenshank. Flem. Brit. Anim. 104.

Greenshank. Totanus Glottis. Selb. Illustr. Brit. Ornith. II. 86.

Totanus Glottis. Greenshank. Jen. Brit. Vert. An: 200.

Glottis Chloropus. Bonap. Comp. List. 51.

Adult in Winter with the bill greenish-brown at the base, black toward the end, the feet greenish-grey; the head, hind part and sides of the neck, greyish-white, streaked with brown; the fore part of the back, scapulars and wing coverts greyish-brown, the feathers edged with whitish; the hind part of the back, the fore part of the face, and all the lower parts white, but with faint grey markings on the fore part of the sides, and on the lower wing coverts; tail white, barred with greyish-brown. Adult in summer with the fore neck and breast marked with oblong black spots; the fore part of the back and the scapulars black, the feathers margined with whitish.

MALE.—The Greenshank, which is the only species of the genus *Glottis* that occurs in Britain, is of a very slender form, having the body rather elongated, the neck long, the head small, oblong, narrowed before, and much rounded in front. The bill is half as long again as the head, very slender, compressed toward the end, straight until beyond the middle, when it inclines slightly upwards. The nasal groove and that of the lower mandible extend nearly to the middle; the upper mandible has the ridge rather flattened at the base, but with the sides convex beyond the groove, the edges inflected, with a narrow groove, the tip narrowed, and slightly decurved; the lower mandible with the angle long and extremely narrow, the dorsal line slightly ascending, the edges inflected, with a narrow groove, the tip narrow.

Internally both mandibles present a narrow and deep groove, their sides being thick. The tongue is narrow, grooved above, sagittate and papillate at the base, horny toward the end, thin-edged, and pointed; its length an inch and a quarter. The mouth is very narrow; the œsophagus six inches and a half long, of the nearly uniform width of four-twelfths; the proventriculus oblong, with cylindrical glands. The stomach is elliptical, an inch long, ten-twelfths in breadth, compressed, with the lateral muscles very large, the epithelium dense and rugous. The intestine is three feet two inches long, and varies from four-and-a-half-twelfths to two-and-a-half-twelfths in width; the cœca are cylindrical, two inches and a half in length, and two-twelfths in width.

The eyes are rather small, their aperture measuring two-twelfths and a half. The nostrils are linear, direct, pervious, two-twelfths and a half long. The aperture of the ear is elliptical, three twelfths and a half in its greatest diameter. The feet are very long and slender; the tibia bare for an inch and a quarter, with thirteen anterior scutella; the tarsus compressed, with thirty scutella; the hind toe very small and elevated, with six scutella; the anterior toes are very slightly webbed at the base, flattened beneath, marginate; the inner, which is slightly shorter than the outer, with twenty-four, the middle toe with thirty-five,

the outer with thirty-two scutella. The claws are small, slightly arched, compressed, laterally grooved at the base, with the tip rather blunt.

The plumage is blended, very soft, and on the upper parts a little glossed; the feathers oblong, narrow, and rounded; those on the fore part of the head short. The wings are very long and pointed, with twenty-five quills; the primaries tapering, the first longest; the secondaries short, incurvate and rounded, except the inner, which taper, and of which one is scarcely an inch shorter than the longest primary when the wing is closed. The tail is short, and a little rounded.

The bill is greenish-brown at the base, black toward the end; the iris brown; the feet greenish-grey. The anterior part of the forehead, the space before the eye, the throat, fore part of the neck, all the lower parts of the body, and the middle and hind part of the back white. Part of the loreal space is marked with small oblong brownish-grey spots. The sides of the neck below and a small part of the breast are faintly barred with grey, and the lower wing-coverts have a central mark of dusky. The feathers of the upper part of the head, and of the hind part and sides of the neck, have a longitudinal dusky streak in the middle, with broad greyish-white margins. The scapulars and inner secondary quills are greyish-brown, margined with greyish-white, and spotted with dusky toward the edges; the smaller wing-coverts brownish-grey, the larger darker toward the margin, and edged with whitish, as are the outer secondaries; the primaries and their coverts dusky brownish-grey, the outer quill with its shaft white. The tail is white, transversely undulated with greyish-brown, the outer four feathers on each side with only a series of spots on the outer edge, and the outermost with merely narrow longitudinal streaks on the outer web; the middle feathers grey toward the end.

Length to end of tail $14\frac{1}{4}$ inches; extent of wings 28; bill along the ridge $2\frac{2}{12}$, along the edge of lower mandible $2\frac{3}{12}$; wing from flexure $7\frac{1}{2}$; tail $3\frac{2}{12}$; bare part of tibia $1\frac{2}{12}$; tarsus $2\frac{5}{12}$; first toe $\frac{2}{12}$, its claw $\frac{1}{12}$; second toe $1\frac{1}{12}$, its claw $\frac{2}{12}$; third toe $1\frac{2}{12}$, its claw $\frac{2}{12}$; fourth toe $\frac{2}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female is slightly smaller, but does not differ from the male in colour.

HABITS.—The Greenshank is generally dispersed in England and some of the southern parts of Scotland during the winter, when it is seen in small flocks here and there along the sea-shore, by the margins of rivers, and in marshy places; but it is nowhere common, and in most districts of very rare occurrence. By the beginning of summer it has disappeared from its winter haunts, and advanced northwards, individuals or pairs remaining here and there in the more northern parts of Scotland, while the rest extend their migration.

In the Outer Hebrides it is seen early in summer, and generally departs in October, although I have seen individuals there in November. Previous to the commencement of the breeding season, and after the young are fledged, it resorts to the shores of the sea, frequenting pools of brackish water at the head of the sandfords, and the shallow margins of bays and creeks. Its habits are very similar to those of the Redshank, with which it associates in autumn. It is extremely shy and vigilant, insomuch that one can very seldom shoot it, unless after it has deposited its eggs. Many individuals remain during the summer, when they are to be found by the lakes in the interior, of which the number in Uist, Harris, and Lewis is astonishing. At that season it is very easily discovered, for when one is perhaps more than a quarter of a mile distant, it rises into the air with clamorous cries, alarming all the birds in its neighbourhood, flies round the place of its nest, now wheeling off to a distance, again advancing, and at intervals alighting by the edge of the lake, when it continues its cries, vibrating its body all the while.

I once found a nest of this bird in the island of Harris. It was at a considerable distance from a small lake, and consisted of a few fragments of heath and some blades of grass, placed in a shallow cavity scraped in the turf, in an exposed place,—that is, on a slight eminence,—covered chiefly with moss, lichens, and some carices and short heath.

The nest, in fact, resembled those of the Golden Plover, Lapwing, and Curlew. The eggs, placed with their narrow ends together, were four in number, pyriform, larger than these of the Lapwing, and smaller than those of the Golden Plover, equally pointed with the latter, but proportionately broader and more rounded at the larger end than those of either. The dimensions of one of them, still in my collection, are two inches exactly, by one inch and three-eighths. The ground colour is a very pale yellowish-green, sprinkled all over with irregular spots of dark brown, intermixed with blotches of light purplish-grey, the spots, and especially the blotches, more numerous on the larger end. Although in summer these birds may be seen in many parts of these islands, they are yet very rare, a pair being to be met with only at an interval of several miles.

These observations made many years ago, I communicated to a foreign ornithologist, by whom they were published in 1835. In the following spring Mr. Selby, in his *List of Birds Inhabiting the County of Sutherland*, gave the following statement:—"The Greenshank, whose nest had never before been found in Britain, we detected breeding in various parts of the country, generally in some swampy marsh, or by the margin of some of its numerous lochs. It is very wild and wary, except when it has tender young, at which time, when first disturbed, it sometimes approaches pretty near, making a rapid stoop, like the Redshank, at the head of the intruder. If fired at and missed, which is frequently the case, even by a good marksman, as the stoop is made with remarkable rapidity, it seldom, at least for that day, ventures again within range. A pair which had their nest in a marsh near Tongue, after being once fired at, could not again be approached; but we obtained one of the young, apparently about a fortnight old, by means of a water-dog. Another pair were shot near Scourie, by the margin of a small loch, where, from their violent outcries and alarm, they evidently had their nest or young, though we were unable to find either."

In ordinary circumstances, the Greenshank searches the shores, in muddy places, for food, often walking out into the

water until it reaches nearly to the tarsal joint. It generally advances with rapidity, running rather than walking, and almost continually vibrating its body. On being disturbed it stands with upraised neck, emits a succession of loud and shrill cries, and, though there should be little danger, flies off to a distance. Its flight is rapid, gliding, and devious, and it alights abruptly, runs to some distance, stands and vibrates. Its food no doubt consists of worms and small shells; but I have neglected to take note of the contents of the stomach of the few individuals which I have examined.

It appears from the accounts of authors, to be very extensively dispersed. Skins of it are very common in collections from India and its islands; and it has been found on the coast of the United States of North America.

YOUNG.—Young birds have the feathers of the fore part of the back, the scapulars, and the larger secondary coverts, margined with brownish-black spots with the edge white, the upper tail coverts and tail barred with brown, the lower wing coverts and axillar feathers greyish-white, marked with grey in bands parallel to the margin; the other parts nearly as in the adult in winter.

TOTANUS. TATLER.

THE Tatlers are very nearly allied to the Longshanks and Weetweets, between which they may be considered as in most respects intermediate. Their general habits and food are similar, although they present some peculiarities, and several of the species are so similar to the latter birds, that they might be placed in either genus. Their body is ovate and rather slender, their neck slender and longish, their head small, oblong, and compressed, with the forehead considerably rounded.

Bill about a third longer than the head, straight, very slender, soft and flexible at the base, hard and elastic at the end. Upper mandible with the dorsal line straight, the ridge convex, the sides grooved to beyond the middle, afterwards convex, the edges thick with a linear groove, the tip slightly declinate, narrowed, blunt, and a little exceeding the other; lower mandible with the angle long and extremely narrow, the sides grooved to the middle, afterwards convex, the dorsal outline straight or slightly concave, the edges thick with a linear groove, the tip narrowed and a little obtuse. The gape-line straight. Throat very narrow.

Both mandibles internally with a very narrow and deep groove; palate with a double row of papillæ. Posterior aperture of the nares linear, margined with papillæ. Tongue linear, emarginate at the base with three lateral papillæ, channelled above, acute. Œsophagus narrow, and without dilatation; proventriculus with oblong glandules; gizzard rather large, oblong, with very powerful distinct muscles, its inner coat rugous. Intestine long; cœca of moderate length, cylindrical.

Nostrils small, linear, pervious, basal, close to the margin. Eyes rather small; both eyelids closely feathered. Aperture of ear rather small, roundish. Feet long, very slender; tibia

bare to a considerable extent; tarsus with numerous broad scutella anteriorly, blunt and scutellate behind; toes small; the anterior flattened beneath and marginate; first very small and elevated; lateral toes about equal, connected with the third by a basal web, of which the outer is larger. Claws small, compressed, slightly curved, obtuse.

Plumage moderately full, very soft, rather blended, and glossy above. Wings long and pointed; quills about twenty-five; primaries tapering, obtuse, the first longest; secondaries short, incurved, but the inner elongated, one of them not much shorter than the third primary when the wing is closed. Tail short, straight, rounded, of twelve narrow, rounded feathers.

The Tatlers are birds of small or moderate size. Their long, slender legs, and rather short flattened and marginate toes, correspond with their habit of running on the mud or sand of the shores of the sea, of lakes, or of streams. Their long, slender bill, elastic and hardened towards the end, enables them to pick up small or minute objects from the surface, as well as from beneath it. Their food consists of insects, larvæ, worms, mollusca, and crustacea, along with which they swallow sand and gravel. All the species are remarkable for the vibratory or balancing motion of their body, which is especially observable when they are alarmed, or utter their cries, which are loud, shrill, and generally reiterated. They are mostly of solitary habits, and are extremely shy, and in danger clamorous. Their flight is rapid, somewhat undulated, and as if vacillating. They moult twice in the year, but generally undergo little alteration of colour. Their nest is a slight hollow, generally among sand, gravel, or stone, sometimes among the herbage; their eggs four, very large, pyriform, spotted. The young, at first covered with longish down, run about from the first, and conceal themselves by squatting, the old birds exhibiting much anxiety for their safety, as expressed by their hurried desultory flight and clamorous cries. Some species of the genus are found in all parts of the globe. Four are reckoned inhabitants of this country; but of these only one is common or generally distributed.

Formerly, when the genera *Tringa* and *Totanus* were united, the species composing them were designated in English by the generic name Sandpiper. That name being with propriety assigned to *Tringa*, it becomes necessary to apply another to *Totanus*; and I can find none more applicable than that of Tatler, employed by Mr. Nuttall. It is true that term is applicable, in a greater or less degree, to other genera; but so is Sandpiper, as well as almost any other expressive of any circumstance relative to their form or habits.

TOTANUS FUSCUS. THE DUSKY REDSHANK TATLER.

SPOTTED SNIPE. SPOTTED REDSHANK. RED-LEGGED GODWIT. CAMBRIDGE
GODWIT. DUSKY SANDPIPER. DUSKY SNIPE. DUSKY REDSHANK.

- Scolopax fusca. Linn. Syst. Nat. I. 243.
 Scolopax fusca. Lath. Ind. Ornith. II. 724. Summer.
 Tringa atra. Lath. Ind. Ornith. II. 738. Summer.
 Scolopax Cantabrigiensis. Lath. Ind. Ornith. II. 721. Winter.
 Scolopax Curonica. Lath. Ind. Ornith. II. 724. Winter.
 Scolopax Totanus. Lath. Ind. Ornith. II. 721. Young.
 Cambridge Godwit. Mont. Ornith. Diet.
 Spotted Snipe. Mont. Ornith. Diet. and Suppl.
 Chevalier Arlequin. Totanus fuscus. Temm. Man. d'Ornith. II. 639.
 Totanus fuscus. Flem. Brit. Anim. 102.
 Dusky Sandpiper. Totanus fuscus. Selby, Illustr. II. 69.
 Totanus fuscus. Dusky Sandpiper. Jen. Brit. Vert. Anim. 196.
 Totanus fuscus. Bonap. Comp. List, 51.

Adult with the basal half of the bill red, the other half brownish-black; the feet orange-red; the secondary quills black, barred with white. In winter the upper part of the head and hind-neck brownish-grey; the fore part of the back greyish-brown, streaked with dusky, its hind part white; the tail and its coverts barred with white and dusky; the cheeks and fore-neck greyish-white, faintly streaked with grey; the rest of the lower parts white. In summer the head, neck, and lower parts greyish-black, the feathers slightly edged with whitish; those of the fore part of the back and the wing-coverts blackish-brown, marginally spotted with black and white; the other parts as in winter. Young with the base of the upper mandible dusky; the feet orange; the upper parts blackish-brown, the feathers edged with triangular white spots; the hind part of the back white, streaked with dusky.

MALE.—This species, which is of rare occurrence in Britain, may be compared to the Grey Plover as to size, although of a more slender form, having the body compact, the neck rather elongated, the head oblong, compressed, rounded above, and rather small. The bill is long, exceeding the head by about two-thirds, very slender, tapering, compressed, and straight, or having a very slight inclination upwards. The upper mandible has the dorsal line straight, the ridge convex, a little flattened at the base, the nasal groove extending a little beyond the middle, the sides then convex, the end enlarged in a very slight degree, the tip narrowed, obtuse, and a little declinate. The lower mandible with the intercrural space and lateral grooves extending as far as the nasal grooves of the upper, the dorsal line straight, the tip narrow and rather acute.

The nostrils are small, two-twelfths in length, linear, basal. The eyes are also small, their aperture measuring nearly three-twelfths. The legs are long and very slender; the tibia bare for nearly an inch; the tarsus compressed, with about thirty anterior and a greater number of posterior scutella. The hind toe is very small and elevated, with six scutella; the anterior toes rather short, distinctly marginate, flattened beneath, with two basal webs, of which the outer is larger; the second toe with twenty scutella, the third thirty, the fourth twenty-eight. The claws are small, compressed, laterally grooved, slightly curved, acute.

The plumage is very soft, blended, on the back and wings compact and glossy; the feathers oblong, narrow, and rounded. The wings are long, pointed, with twenty-five quills; the primaries tapering, the first longest, the second a little shorter, the rest rapidly decreasing; the secondaries incurvate and rounded, the inner elongated and tapering. The tail short, and doubly emarginate.

The bill is brownish-black, with the basal half of the lower mandible yellowish-red, and that of the upper similar, but of a darker tint. The irides are brown. The feet yellowish-red; the claws black. The upper part of the head, the hind part and sides of the neck are dull light

brownish-grey; the fore part of the back and the scapulars glossy greyish-brown: as are the inner secondaries and the wing-coverts, which are margined with alternate spots of dark brown and white. The rest of the back is pure white; the tail and its upper coverts white, barred with greyish-black, the two middle feathers tinged with brown. The outer primaries are blackish-brown, paler on the inner web; the shaft of the first white; the inner five primaries white toward the end, barred with dusky; the secondaries barred with dusky and white, forming one of the best distinctive characters of the species; these quills being in *Totanus fuscus* dusky for half their length, and then white; the inner secondaries like the back. A white streak from the bill to the eye; a dusky loreal band. The checks and fore part of the neck are greyish-white, with faint grey markings; the rest of the lower parts white.

Length to end of tail 12 inches; extent of wings 23; wing from flexure $6\frac{3}{4}$; tail 3; bill along the ridge $2\frac{2}{12}$, along the edge of lower mandible $2\frac{3}{12}$; bare part of tibia 1; tarsus $2\frac{1}{12}$; hind toe $\frac{5}{12}$, its claw $\frac{2}{12}$; second toe $1\frac{1}{12}$, its claw $\frac{2}{12}$; third toe $1\frac{3}{12}$, its claw $\frac{3}{12}$; fourth toe $1\frac{1}{12}$, its claw $\frac{2}{12}$.

FEMALE IN WINTER.—The female differs only in being a little larger.

Length to end of tail $12\frac{1}{2}$ inches; extent of wings 24; bill $2\frac{1}{4}$; tarsus $2\frac{2}{12}$; middle toe $1\frac{3}{12}$, its claw $\frac{3}{12}$.

MALE IN SUMMER.—Although in winter this species so closely resembles the next as to be with difficulty distinguishable, the case is very different in summer, when the plumage of the head, neck, fore part of the back, and all the lower parts assume a uniform greyish-black tint; the scapulars and wing-coverts brownish-black, margined with black and white spots; the quills, tail-feathers, tail-coverts, and hind part of the back as in winter. The feathers of the breast and abdomen are very narrowly edged with greyish-white, and the lower tail-coverts barred with white. The bill and feet are coloured as in winter.

FEMALE IN SUMMER.—The female differs from the male only in size.

HABITS.—Not having met with this bird alive, nor even having examined a recently killed and entire specimen, the above descriptions being taken from skins, and the works of Temminck, Selby, Montagu, and Gould, I am unable to present an original account of its manners and distribution. It is said, or rather supposed, to breed in the arctic regions, and to appear on the coasts of Europe in the course of its migrations. M. Temminck asserts that the species is absolutely the same in North America; but neither it nor the next species is admitted into the Fauna of that continent by those who have submitted its winged inhabitants to the most careful examination. It is also reported by him to occur in Bengal. In Europe it has been traced from Scandinavia to Denmark, Holland, France, Spain, Switzerland, and Italy. Its habits, in so far as they are known, are similar to those of the next species, the places to which it resorts being the muddy and sandy shores of the seas, rivers, and lakes or marshes; and its food consisting of worms, mollusca, and insects. In Britain, although many individuals have been obtained, it is of rare occurrence. Cornwall, Devonshire, Norfolk, Suffolk, Cambridgeshire, Northumberland, Cumberland, and Anglesey are mentioned as having afforded specimens. It appears to be more frequent in autumn than in spring, and in summer to be extremely rare. Being in its winter plumage so very similar to the next species, it is very likely to be often confounded with it.

YOUNG.—When they appear on our coasts in autumn, the young are as follows:—The basal half of the lower mandible is red, that of the upper dusky; the rest of the bill brownish-black. The feet light orange-red; the claws dusky. The upper part of the head and the hind-neck are light brownish-grey, the feathers edged with greyish-white; the fore part of the back blackish-brown; the scapulars, wing-coverts, and inner secondary quills of a darker tint, all

the feathers edged with large triangular white spots and intervening blackish bars. The quills brownish-black, the secondaries and inner primaries marginally spotted with white. The hind part of the back white, streaked with dusky; the tail-coverts and tail-feathers white, the latter tinged with grey, barred with blackish-grey. The loreal band dusky, the space above it white; the fore part of the neck, the breast, and sides greyish-white with faint undulating transverse lines of greyish-brown; the rest of the lower parts white; but the marginal wing-coverts dusky, and the lower tail-coverts barred with grey.

TOTANUS CALIDRIS. THE COMMON REDSHANK TATLER.

POOL SNIPE. SANDCOCK. REDSHANK. RED-LEGGED SNIPE.

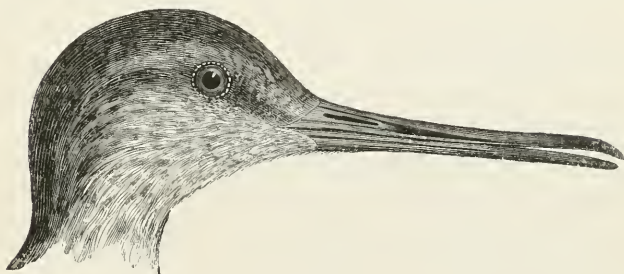


FIG. 28.

- Scolopax Calidris. Linn. Syst. Nat. I. 245.
 Tringa Gambetta. Linn. Syst. Nat. I. 248.
 Scolopax Calidris. Lath. Ind. Ornith. II. 722.
 Tringa Gambetta. Lath. Ind. Ornith. II. 728.
 Tringa striata. Lath. Ind. Ornith. II. 733. Young.
 Chevalier Gambette. Totanus Calidris. Temm. Man. d'Ornith. II 643.
 Totanus Calidris. Redshank. Flem. Brit. Anim. 102.
 Redshank Sandpiper. Totanus Calidris. Selb. Illustr. II. 72.
 Totanus Calidris. Redshank Sandpiper. Jenyns, Brit. Vert. Anim. 196.
 Totanus Calidris. Bonap. Comp. List. 51.

Adult with the basal half of the bill red, the other half brownish-black; the feet orange-red; the secondary quills black at the base, white toward the end. In winter the upper part of the head and hind-neck brownish-grey; the fore part of the back greyish-brown, streaked with dusky, its hind part white; the tail and its coverts barred with white and dusky grey; the fore part and sides of the neck pale grey, streaked with dusky, as are the sides; the rest of the lower parts white. In summer the cheeks and fore-neck greyish-white,

streaked with dusky; the rest of the lower parts white, the sides with angular dusky markings; the upper parts of a deeper tint than in winter. Young with the base of the upper mandible dusky; the feet orange; the upper parts brown, the feathers margined with yellowish; the hind part of the back white, but streaked with dusky.

MALE.—This species, usually named the Common Redshank, is about equal in size to the Golden Plover, but less robust than that bird, being of a slender and delicate form, with the neck rather elongated, the head oblong, compressed, rather small, and rounded above. The bill is long, exceeding the head by about a half, very slender, tapering, compressed, and almost perfectly straight, being very slightly bent upwards. The upper mandible has the dorsal line straight, the ridge convex, a little flattened at the base, the nasal groove extending a little beyond the middle, the sides then convex, the end enlarged in an almost imperceptible degree, the tip narrowed, obtuse, a little declinate, and extending beyond the lower. The intercrural space and lateral grooves of the lower mandible extend as far as the nasal grooves of the upper, its dorsal line is straight, and it gradually narrows to the point, which is rather acute. Internally both mandibles present a narrow and deep groove, their sides being thick, and marked with a depressed line. The tongue is narrow, emarginate and papillate at the base, grooved above, acute, and an inch in length. The fauces are very narrow; the œsophagus five inches and a half long, with an average width of three-twelfths of an inch; the proventriculus seven-twelfths long, its glandules cylindrical. The stomach is of an irregular elliptical form, compressed, eleven-twelfths of an inch long, nine-twelfths in breadth; its muscles very large, its inner coat rugous. The intestine is thirty-two inches long, and varies in width from four-twelfths to two-twelfths and a half. The cœca, which arise at the distance of two inches from the end, are cylindrical, two inches and a quarter in length, and two-twelfths in width.

The nostrils are linear and small, being only two-twelfths

in length. The eyes are also small, their aperture measuring two-twelfths and a half. That of the ear is elliptical, and three-twelfths long. The legs are long and very slender; the tibia bare for nearly three-fourths of an inch; the tarsus compressed, with thirty anterior, and about forty posterior scutella. The hind toe is very small and elevated, with six scutella; the anterior toes are rather short, distinctly marginate, flattened beneath, with two basal webs, of which the outer is larger, but does not extend as far as the second joint of the outer toe; the second toe with twenty-four, the third thirty, the fourth thirty scutella. The claws are small, compressed, laterally grooved, slightly curved, obtuse.

The plumage is very soft, blended, on the back and wings glossy; the feathers oblong, narrow, and rounded, those on the fore part of the head short. The wings are long, pointed, of twenty-five quills; the primaries tapering, the first longest, the second two-twelfths of an inch shorter, the rest rapidly decreasing; the secondaries short, incurvate, and rounded, the inner elongated and tapering, one of them reaching to about three-fourths of an inch from the tip of the longest primary, when the wing is closed. The tail is short, and doubly emarginate, but only in a slight degree.

The bill is brownish-black, with the basal half of the lower mandible yellowish-red, and that of the upper similar, but of a duller tint. The irides are brown. The feet yellowish-red; the claws black. The upper part of the head, and the hind part and sides of the neck, are dull light brownish-grey; the fore part of the back and the scapulars are glossy greyish-brown; as are the inner secondaries and the wing-coverts, which are for the most part margined with small dusky spots having the interspaces grey. The rest of the back is pure white; the tail and its upper coverts white, barred with greyish-black, the two middle feathers tinged with brown. The number of dark bars on the tail is fifteen. The outer primaries are blackish-brown, paler on the inner web; the shaft of the first white; the inner five primaries white toward the end, barred and dotted with dusky; the secondaries, except the inner, black at the base, with the rest white, a few of the inner barred or spotted

with black; the inner elongated secondaries, which are coloured like the back, have also their margins spotted with dusky. The primary coverts are brownish-black; the secondary coverts are greyish-brown, white at the end, and barred with dusky. The sides of the head are light brownish-grey, streaked with darker grey; the lore of a deeper tint; and a pale band over the eye. The throat is whitish; but the sides and fore part of the neck, and the sides of the breast, are pale grey, each feather with a slender medial streak of a deeper colour; the rest of the lower parts white; but the feathers of the hind part of the sides and the lower tail-coverts barred with dusky grey.

Length to end of tail $11\frac{1}{4}$ inches; extent of wings 21; wing from flexure $6\frac{1}{2}$; tail $2\frac{1}{2}$; bill along the ridge $1\frac{8}{12}$, along the edge of lower mandible $1\frac{9}{12}$; bare part of tibia $\frac{1}{2}$; tarsus $1\frac{9}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{2}{12}$; second toe $\frac{1}{2}$, its claw $\frac{3}{12}$; third toe $1\frac{3}{12}$, its claw $\frac{3}{12}$; fourth toe $1\frac{1}{12}$, its claw $\frac{2}{12}$.

FEMALE IN WINTER.—The female, which is a little larger than the male, presents no external characters by which she may be distinguished.

Length to end of tail $12\frac{1}{4}$ inches; extent of wings 22; bill along the ridge $1\frac{8}{12}$, along the edge of lower mandible $1\frac{8}{12}$; wing from flexure $6\frac{1}{2}$; tail 3; tarsus $1\frac{1}{12}$; first toe $\frac{4}{12}$, its claw $\frac{2}{12}$; second toe $\frac{1}{12}$, its claw $\frac{3}{12}$; third toe $1\frac{2}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{1}{12}$, its claw $\frac{2}{12}$.

In another individual the length is $12\frac{1}{2}$ inches; extent of wings 23; bill along the ridge $1\frac{8}{12}$; wing from flexure $6\frac{1}{12}$; tail $\frac{3}{12}$; bare part of tibia $\frac{1}{2}$; tarsus $1\frac{11}{12}$; middle toe $1\frac{2}{12}$, its claw $\frac{3}{12}$.

VARIATIONS.—Adult individuals vary little in colour, unless in the degree of distinctness of the dusky markings. The wing-coverts and scapulars are always more or less margined with dark spots. Many individuals have the upper parts of the head and neck quite free of dusky streaks, and the hind part of the back purely white. Considerable differences in size are observed.

CHANGES OF PLUMAGE.—In spring a change of plumage takes place, in consequence of which the birds present the following appearances:—

MALE IN SUMMER.—The bill and feet are coloured as in winter, but with the red of a somewhat brighter tint. The head and hind part of the neck are of a darker tint than in winter, as are the back and wings; the scapulars, wing-coverts, and inner secondaries margined with decided brownish-black spots or bars, alternating with white. The sides of the head and neck are greyish-white, with dusky streaks, as is the fore part of the neck; on the sides the markings are angular, or in the form of bars; the middle of the breast and the abdomen pure white; the other parts nearly as in winter. The principal difference, then, in summer is, that the lower parts are white or less shaded with grey, and marked with decided dusky streaks, spots, and angular bars.

FEMALE IN SUMMER.—The female shows no remarkable difference in colour.

HABITS.—In the northern parts of Scotland this species is not very frequently met with in winter, unless in particular localities; but in the southern, especially along the firths and inlets, and on the coasts of England, it is not uncommon, although seldom anywhere very abundant. From the middle of autumn to the end of spring, it is to be found in suitable places along the shores, seldom in flocks, indeed rarely in greater numbers than two or three together. They may, however, occasionally congregate in particularly favourable situations. Thus, a writer in the *Naturalist* says they are very numerous in Dublin Bay, where so many as two hundred may sometimes be seen in a flock. But it is perhaps not quite certain that the birds were of this species, as they exhibited a kind of action which I have not observed in it. These Irish Redshanks, it is said, “dart their bills into the sand nearly its whole length, by jumping up, and thus giving it a sort of impetus by the weight of their bodies pressing it

downwards." Muddy shores at the mouths of rivers, shallow pools left by the tide, and the sands in rocky creeks, are its favourite places of resort. Its food consists of insects, worms, small crustacea, and mollusca, which it picks from the surface, frequently wading for that purpose up to the ancles. It also probes the mud and soft sand in the manner of the Dunlin. Much more vigilant and suspicious than the Sandpipers and Plovers, it does not allow a person to approach within shot, but, on his advancing, first exhibits its alarm by running about, pivoting its body incessantly, and uttering its shrill cries, and then flies off, repeating its screams in a series of sharp notes, and alarming all the birds in the neighbourhood. Its flight is light, rapid, wavering, and as if undecided, and being performed by quick jerks of the wings, bears some resemblance to that of a pigeon. Alighting again at a great distance, along the edge of the water, it runs a short way, stands, vibrates its body, utters its cry, and thus continues until its alarm has subsided. It runs with great celerity, and is in every way remarkable for its activity, which becomes almost ludicrous when it is picking up its food on a beach washed by a high surf, its movements being then executed with astonishing rapidity, as it follows the retiring and retreats before the advancing waves.

In summer it is found near the heads of the unfrequented creeks, among fens or salt-marshes, and not unfrequently by pools and lakes, not far from the sea, but often also in the interior. At this season should a person come within a quarter of a mile of its habitation, it is sure to greet him with its clamorous cries, and to advance towards him on wing, wheeling round, gliding to either side, and exhibiting its alarm lest he should discover its nest or young. I have found it breeding in the Hebrides, but not in great numbers. Mr. Selby met with it in summer on the marshy margin of Loch Doulich, near Lairg, and at the head of Loch Naver, in Sutherlandshire. Here and there it may be seen in the middle and southern districts of Scotland, especially in the former, in many tracts of which it is common. In the marshes of the eastern parts of England it also frequently breeds, according to the statements of various observers.

The nest, which is placed on a tuft in marshy ground, or on a dry spot in a meadow, is composed of a few blades of grass carelessly arranged in a slight hollow. The eggs, four in number, are pyriform, an inch and seven-twelfths in length, an inch and two-twelfths in breadth, pale greenish-grey, spotted and blotched with reddish-brown and blackish-brown. The young, which I have never met with, are said to have the back of the neck without feathers, like that of the Bittern, and usually to keep the head sunk back between the shoulders.

The flesh of this bird is not inferior as an article of food to that of the Godwits and Sandpipers. It is not unfrequently seen in the markets.

In the eastern parts of the middle divisions of Scotland, it is by no means a very rare bird at any season of the year. In summer it is found among fens or salt-marshes about the mouths of some of the rivers; the Ythan, for example, above Newburgh, where great numbers breed. It is also to be seen by lakes and about marshes in the interior, as at the upper end of the Loch of Skene, and even in the midst of the central mountains, as by Loch Muic and Loch Callader. It leaves the interior in the end of July or the beginning of August, and returns in the beginning of April. On the 23d of that month, in 1849, I observed very large flocks at the upper end of the Montrose Basin, where they were feeding along with Knots and Dunlins. On the 26th I saw more than forty individuals, mostly in pairs, dispersed along the shingly and flat sea coast extending from John's Haven to Gurdon, in Kincardineshire. In such places, it is scarcely possible to obtain a shot, for, although they often fly up to an intruder, and sweep around, reiterating their shrill cries, they keep at a safe distance.

Mr. Burnett informs me that they arrive in his neighbourhood, on the river Don, during the last week of March, coming in small parties or singly, and resting on the shingly margins till they become numerous, when, after three weeks or a month, they disperse, and resort to low marshy spots. "In such places and on soft moors they are very numerous, and reside together with the Common Snipe. The Red-

shank has a rapid short whistle, and also repeats a clicking note. It is very shy, though in the breeding season it flies in wide circles round one's head. I have seen it perch on a paling rail. The nests, I think, must be covered up, otherwise I cannot understand how they are so seldom found. For all my searching last season, I could find but one—April 22nd. It was on a strip of mud between two pools, and formed of fragments of equisetæ, with but little of hollow visible. There were only three eggs; but they had not been sat upon, and probably one would have been added. The Redshanks feed much upon caddis-cases, and discharge the straws in pellets, commonly found in their haunts."

In Ireland, according to Mr. Thompson, it "is common around the coast; but a small proportion only of those seen during the autumn and winter breed in the island." This is probably the case in Scotland also. In some parts of Ireland, the Redshanks usually breed, as is stated by the same eminent naturalist, on the shingly beaches of sea islands. I have not heard of its doing so with us; but circumstances induce so many changes in the habits of some birds, that there is nothing surprising in the fact. Mr. St. John says:—"The Redshank does not breed on the stones or bare ground, but in some spot of rough grass; their motions are very curious at this time of the year, as they run along with great swiftness, clapping their wings together audibly above their heads, and flying about, round and round any intruder with rapid jerks, or hovering in the air like a hawk, all the time uttering a loud and peculiar whistle. They lead their young to the banks of any pool or ditch at hand, and they conceal themselves in the holes and corners close to the waters' edge."

YOUNG.—When fully fledged, the young have the basal half of the lower mandible dull reddish; the feet orange, the claws dusky. The upper part of the head greyish-brown, the feathers edged with whitish; the hind part of the neck grey; the fore part of the back, the scapulars, and inner secondaries greyish-brown, the feathers margined with an undulated band of yellowish-white; the smaller wing coverts similar, but

barred with dusky on the edges ; the quills as in the adults, as is the tail ; the hind part of the back white, with dusky streaks. The sides of the head, the sides and fore part of the neck, the fore part of the breast, and the sides of the body, are light grey, streaked with dusky ; the hind part of the sides, and the lower tail-coverts undulated or barred with the same.

PROGRESS TOWARD MATURITY.—The difference between the young and the adult not being remarkable, it is unnecessary to enter into the minute details by which they may be distinguished. Old birds are recognised by their having the base of their bills bright red, the hind part of the back pure white, and the lower parts of a lighter tint than in the young.

REMARKS.—This species may in all stages be distinguished from *Totanus fuscus* by the secondary quills, which are white in their terminal half. The specific character given by M. Temminck to *Totanus fuscus*, viz.—base of the lower mandible red ; rump pure white ; upper tail-coverts banded with white and dusky, is precisely applicable to the present species, and therefore apt to deceive.

The next two species are of a more slender form. Their bills are like those of *Totanus Calidris*, but more slender ; their toes longer, but their basal webs much smaller.

TOTANUS OCHROPUS. THE GREEN TATLER.

GREEN SANDPIPER.

- Tringa ochropus. Linn. Syst. Nat. I. 250.
 Tringa ochropus. Lath. Ind. Orn. II. 729.
 Green Sandpiper. Mont. Orn. Diet. and Suppl.
 Chevalier cul-blanc. Totanus ochropus. Temm. Man. d'Orn. II. 651.
 Totanus ochropus. Green Sandpiper. Flem. Brit. Anim. 103.
 Green Sandpiper. Totanus ochropus. Selb. Illustr. Brit. Ornith. II. 75.
 Totanus ochropus. Green Sandpiper. Jen. Brit. Vert. An. 197.
 Totanus ochropus. Bonap. Comp. List, 51.

Tail nearly even, white, the four middle feathers with three blackish-brown bars toward the end, the outermost feather plain; upper part of head and hind-neck brownish-grey; back, scapulars, and inner secondaries greenish-brown, with marginal whitish and dusky spots; neck greyish-white, with longitudinal dusky lines; the breast and abdomen white; lower wing-coverts, axillars, and some of the hypochondrial feathers angularly barred with brown; bill dusky above, reddish beneath; feet greyish-blue, tinged with green.

MALE.—This very elegant species is much larger than the Common or White-breasted Weet-weet, which it however closely resembles in form and proportions, the body being ovate and rather elongated; the neck slender and rather long; the head small, oblong, and compressed. The bill is straight, very slender, with the nasal groove extending beyond the middle, the upper mandible a little declinate at the tip, the lower straight. The legs are rather long and very slender; the tibia bare for eight-twelfths of an inch; the tarsus compressed and slender, with thirty-four anterior and thirty-six posterior scutella. The anterior toes are long, very slender, and marginate; the outer longer than the

inner, and connected with the middle toe by a pretty large basal web; the hind toe very small and elevated, with eight scutella; the second with twenty-five, the third with thirty-two, the fourth with thirty. The claws are small, declinate-arcuate, compressed, rather blunt

The plumage is extremely soft, on the back and wings glossy. The wings when closed extend to two-twelfths of an inch from the tip of the tail, and are narrow, of twenty-five quills, of which the first is longest. The tail is rather short, slightly emarginate, and at the sides a little rounded.

The bill is dusky above, reddish below; the eyes dusky; the feet greyish-blue, tinged with green, especially on the heel, or hind part of the tibio-tarsal joint, and the sole; the claws brownish-black. The upper part of the head and the hind-neck are brownish-grey; the back, scapulars, and inner secondaries greenish-brown, with marginal whitish and dusky spots; the feathers of the rump white toward the end; the tail-coverts white, but most of them barred at the base. The quills, primary and secondary coverts, alula, and outer small coverts blackish-brown; the shaft of the first quill brown. The lower surface of the quills is a little paler; the lower coverts dusky brown, tipped and barred with whitish; as are the axillar feathers, and a few of the hypochondrial. A broad white band extends over the eye, and a narrow dusky band along the lore. The throat is greyish-white; the cheeks and fore-neck greyish-white, tinged with brown, and longitudinally streaked with dusky. The breast and all the lower parts of the body, as well as the rump, are pure white. The tail-feathers are white, all excepting the outer barred with blackish-brown; the four middle with three bars on both webs and a spot on the outer web, the next with two bars and a spot, the next with one bar and a spot, the next with only a spot, and the outermost plain.

Length to end of tail $10\frac{1}{2}$; extent of wings $17\frac{1}{2}$; tail $2\frac{1}{2}$; wing from flexure $5\frac{8}{12}$; bill along the ridge $1\frac{1}{4}$, along the edge of lower mandible $1\frac{5}{12}$; tarsus $1\frac{4}{12}$; first toe $\frac{4}{12}$, its claw $\frac{2}{12}$; second toe $\frac{10}{12}$, its claw $\frac{2}{12}$; third toe $\frac{11}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{11}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female is similar to the male, but somewhat larger.

Length to end of tail $11\frac{1}{2}$; extent of wings $18\frac{1}{4}$; wing from flexure $5\frac{1}{2}$; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{7}{8}$; bare part of tibia $\frac{9}{12}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{9}{12}$, its claw $\frac{3}{12}$.

The above descriptions are from fresh specimens, both shot in the south of Scotland—the male in January, 1837; the female in November, 1835. I have not met with the bird in summer, and therefore borrow its description from M. Temminck:—

ADULT IN SUMMER.—“The summer plumage differs from that of winter only in having the upper parts darker and more glossed with green, in there being a greater number of small dots on these parts, and in the spots on the fore part of the neck being guttiform, there being one along the shaft of each feather.”

HABITS.—It does not appear that this elegantly formed bird ever breeds in Britain. In England it is merely a winter visitant, arriving about the middle of September, and departing toward the end of April. According to Montagu, it frequents pools and small shallow streams, is solitary, but sometimes pairs before leaving us; and when disturbed, makes a very shrill whistling note as it flies. M. Temminck states that it is dispersed over the greater part of Europe during its autumnal and vernal migrations; appears on the margins of streams, more particularly limpid brooks, pretty often in marshes, and feeds on small worms, flies, and other soft-winged insects. He also informs us that it nestles in the sand or among the grass near the water, and lays from three to five eggs of a whitish-green marked with brown spots. Both Montagu and Mr. Selby have met with it in August. The latter says:—It runs with great activity, flirting its tail in the same manner as the Common Sandpiper, *Totanus hypoleucos*. When flushed it utters a shrill whistle, and generally flies low, skimming over the surface of the water, and following with precision all the bends and

angles of the stream. It is very rarely met with on the east coast of Scotland in autumn and spring. According to the New Statistical Account, it has been seen near Montrose. As it has not, I believe, been found breeding in Scotland, the following notice with which I have been favoured by the Rev. Mr. Smith is very interesting:—"I saw a beautiful specimen of the Green Sandpiper, *Totanus oehropus*, shot, in July, 1826, on a muddy rivulet near to the Loeh of Strathbeg. I am told that it may be found in that locality almost every summer." In Ireland, according to Mr. Thompson, "it is only known as a rare visitant, but has occurred at all seasons of the year.

YOUNG.—In autumn the young, according to M. Temminck, "differs only in having all the upper parts of a lighter tint, with fewer small dots, which have a yellowish colour; the nape tinged with grey; the sides of the breast coloured like the feathers of the back, and marked with white spots; all the fore part of the neck and the middle of the breast with brown lanceolate spots; the white space at the base of the tail of less extent, and the black bars of the middle feathers broader."

VARIATIONS.—The tint of the upper parts varies considerably, as do the markings on the tail. In an individual from England, the two middle feathers have four bands, and on the outer web an additional spot; the next two have two bands and a spot; the next a spot only on the outer web; the outermost a faint mark on the outer web.

TOTANUS GLAREOLA. WOOD TATLER.

WOOD SANDPIPER.

- Tringa Glareola. Linn. Syst. Nat. I. 250.
 Tringa Glareola. Lath. Ind. Orn. II. 730.
 Wood Sandpiper. Mont. Orn. Diet. and Suppl.
 Chevalier Sylvain. Totanus Glareola. Temm. Man. d'Ornith. II. 654.
 Totanus Glareola. Wood Sandpiper. Flem. Brit. Anim. 103.
 Wood Sandpiper. Totanus Glareola. Selb. Illustr. II. 77.
 Totanus Glareola. Wood Sandpiper. Jen. Brit. Vert. An. 198.
 Totanus Glareola. Bonap. Comp. List, 51.

Tail doubly emarginate, white, all the feathers barred to the base with blackish-brown, the outermost feather with the inner web plain; upper part of head greyish-brown; back, scapulars, and inner secondaries dark purplish-brown, with marginal whitish and dusky spots; neck greyish-white, with longitudinal dusky lines; the breast and abdomen white; lower wing-coverts dusky, edged with white; axillar feathers and some of those of the sides narrowly and irregularly barred with brown; bill dusky, greenish at the base; feet greenish-grey.

MALE.—This species is of a still more slender form than the last, to which it is considerably inferior in size, and has the legs proportionally longer. It is so intimately allied, however, both in form and in colour, to that species, that a careless observer is very apt to confound the two; and I have seen them misnamed, and even an American species, *Totanus chloropygius*, mistaken for them. The bill is straight, very slender, with the nasal groove extending beyond the middle; the tip of the upper mandible a little declinate, that of the lower straight. The legs are long and

very slender; the tibia bare for ten-twelfths of an inch; the tarsus compressed, with thirty-six anterior scutella. The anterior toes are long, very slender, and marginate; the outer longer than the inner, and connected with the middle toe by a pretty large basal web; the hind toe very small and elevated, with eight scutella; the second with twenty-five, the third with thirty-two, the fourth with thirty scutella. The claws are small, declinate, arcuate, compressed, rather blunt.

The plumage is extremely soft, on the back and wings slightly glossed. The wings, which when closed extend nearly to the end of the tail, are narrow, with twenty-five quills, of which the first is longest. The tail is rather short and doubly emarginate, the outermost feather being a little longer than several of the rest, but nearly a quarter of an inch shorter than the two middle feathers, which are rather pointed.

The bill is dusky, tinged with green in its basal half; the eyes dusky; the feet greenish-grey. The upper part of the head is greyish-brown, the feathers edged with greyish-white; a broad streak of white from the bill over the eye; a dusky loreal band; the neck all round greyish-white, streaked with greyish-brown. The back, scapulars, and inner secondaries are dark brown, somewhat glossed with purple; the feathers edged with white and black spots, the former larger than those of *Totanus ochropus*. The quills, primary and secondary coverts, alula, and outer small coverts blackish-brown; the first quill with its shaft white. The lower surface of the quills is a little paler; the lower coverts dusky, margined with white; the axillar feathers and those of the upper part of the sides white, narrowly and irregularly barred with brown, the bars not angularly disposed, nor nearly so broad, as in *Totanus ochropus*. The throat is greyish-white; the breast, abdomen, and lower tail-coverts white, the latter with a medial brown line; the hind part of the rump and the upper tail-coverts white, the latter marked along the shafts with brown. The tail is white, barred with dusky in its whole length, there being eight dark bars on the outer webs of all the feathers, seven on the inner webs

of the middle feathers, on the rest fewer, and on the inner web of the outer none.

Length to end of tail 9 inches; extent of wings 15; bill along the ridge $1\frac{2}{12}$, along the edge of lower mandible $1\frac{3}{12}$; wing from flexure $5\frac{2}{12}$; tail $2\frac{2}{12}$; tarsus $1\frac{9}{12}$; hind toe $\frac{3}{12}$; its claw $\frac{2}{12}$; second toe $\frac{1}{12}$, its claw $\frac{2}{12}$; third toe $1\frac{1}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{1}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female resembles the male, differing only in being a little larger.

VARIATIONS.—The principal variations that occur are in the tint of the upper parts, and the size of the spots margining the feathers. The tail varies in the number of bands on most of the feathers, but those on the outer webs of the middle and lateral feathers are generally uniform.

ADULT IN SUMMER.—“The top of the head and the nape longitudinally streaked with brown and whitish; the cheeks, fore part of the neck, breast, and sides nearly pure white, longitudinally streaked with dark brown; all the feathers of the back have a very large black spot in their centre, and on each side of the webs two whitish spots; the scapulars on being raised are found to be marked with broad blackish bands; the other parts as in winter.”—*Temminck*.

HABITS.—This species occurs accidentally, as it were, on the southern and eastern coasts of England, in the course of its autumnal and vernal migrations; and is still less frequently met with than *Totanus ochropus*, insomuch that I have never obtained it in a recent state. It is said to be pretty common in the southern and eastern parts of Europe, but to be seldom met with in France and Germany. I have seen specimens from Southern India, and Mr. Selby says he has some from the Cape of Good Hope. Of its food, general habits, and nidification nothing is known with certainty.

YOUNG.—The young in autumn have the bill as in the adult; the feet of a lighter tint. The upper part of the

head is dark brown, the feathers narrowly edged with reddish-brown ; a broad band of white over the eye, finely streaked with brown ; the throat white ; the hind part and sides of the neck greyish-white, with brown streaks ; the lower parts white ; the sides undulated with brown, as are the axillar feathers ; the lower tail-coverts with a central brown streak. The upper parts are dark brown, glossed with purple ; the feathers with a reddish-white spot on each side near the end ; the feathers of the hind part of the back dark greyish-brown, terminally edged with greyish-white ; the rump and upper tail-coverts white, the latter with a longitudinal streak or series of spots of dark brown. The quills are brownish-black, the shaft of the first white, and the secondaries edged with yellowish-white. The tail is white, barred with brownish-black, the bars less regular than in the adult, and those of the outer feathers confluent at the base.

REMARKS.—There is as close a resemblance between *Totanus Glareola* of Europe and *Totanus solitarius*, otherwise named *Chloropygius*, of North America, as between *Scolopax Gallinago* and *Scolopax Wilsoni* of these countries. A character by which *Totanus solitarius* may at once be distinguished is that of the middle tail-feathers being similar to the back, they being merely spotted with white on the edges.

As the genus *Totanus* differs very little from *Glottis*, so on the other hand it passes directly into *Actitis*, of which the species, having the bill and feet shorter, seem to be very nearly allied to some species of *Tringa*.

ACTITIS. WEET-WEET.

THE birds which constitute this genus agree with the Totani in their general form ; but differ in having the bill not longer than the head, with the margins of the mandibles but faintly grooved, and the feet also shorter. The two genera, however, are most intimately connected. The Weet-weets are very delicately formed, and of a lively and active disposition. Their body is ovate and slender ; their neck of moderate length ; their head small, oblong, and compressed, with the forehead rounded.

Bill of the same length as the head, straight, very slender, soft and flexible at the base, hard and elastic at the end ; upper mandible with the dorsal line straight, the ridge narrow and convex, the sides grooved for three-fourths of its length, the edges thin and sharp, the tip slightly declinate, narrowed, bluntish, and a little exceeding the other ; lower mandible with the angle long and extremely narrow, the sides grooved to the middle, afterwards convex, the dorsal outline straight, the edges thick and faintly grooved, the tip narrowed and somewhat obtuse. The gape-line straight ; the throat very narrow.

The digestive organs are similar to those of the Totani ; as are the organs of sense and the limbs, the feet being proportionally shorter. The plumage is also similar.

The Weet-weets are small migratory birds, which frequent the sandy and muddy margins of lakes, rivers, and estuaries. They are especially remarkable for the vibratory motion of their body, and their shrill cries. They feed on insects, larvæ, worms, and mollusca ; have a rapid, somewhat undulated, and vacillatory flight ; and run with great celerity. Their nest is a slight hollow ; their eggs four, very large, pyriform, spotted. The young, at first covered with longish down, run about and conceal themselves by squatting. Only two species are found in Britain : one of them common and generally distributed ; the other extremely rare, and properly an American species, of which a few stragglers sometimes find their way to Europe.

ACTITIS HYPOLEUCOS. THE WHITE-BREASTED WEET-WEET.

COMMON SANDPIPER. WILLYWICKET. WATER JUNKET. FIDDLER.

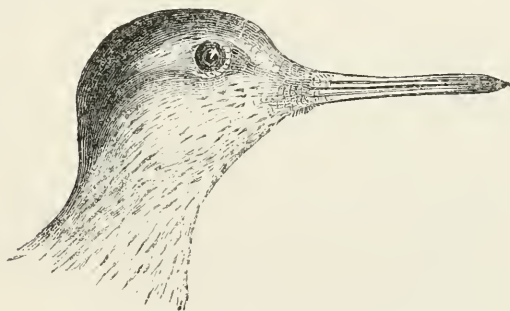


FIG. 29.

- Tringa Hypoleucos. Linn. Syst. Nat. I. 250.
 Tringa Hypoleucos. Lath. Ind. Ornith. II. 734.
 Common Sandpiper. Mont. Orn. Dict.
 Chevalier Guignette. Totanus hypoleucos. Temm. Man. d'Orn. II. 657.
 Totanus Hypoleucos. Common Sandpiper. Flem. Brit. Anim. 104.
 Common Sandpiper. Totanus Hypoleucos. Selb. Illustr. II. 81.
 Totanus Hypoleucos. Common Sandpiper. Jen. Brit. Vert. An. 199.
 Actitis Hypoleucos. Bonap. Comp. List, 51.

The bill dusky; the feet greenish-grey; upper parts glossy greenish-brown, transversely banded and undulated with dark brown; lower parts white, excepting the fore part and sides of neck, which are greyish, with faint dusky lines. Young with the upper parts lighter, the feathers margined with dusky and reddish; the feet ochraceous.

MALE.—This delicate and lively little bird, which in size scarcely exceeds the Dunlin, exhibits in its form the usual characters of the genus, its body being rather slender, its

legs and neck longish, its head small and compressed. The bill is not much longer than the head, and in all respects very closely resembles that of the bird named above, being straight, slender, compressed, laterally grooved on both mandibles for two-thirds of its length, soft and flexible. The tongue is linear, channelled above, emarginate and papillate at the base, with the tip pointed. The fauces are very narrow; the œsophagus three inches long, and two-twelfths in diameter; the gizzard somewhat elliptical, eight-twelfths of an inch long, its muscles moderately large, its inner coat rugous; the intestine fourteen inches in length, and varying in diameter from two and a half to one and a half twelfths.

The eyes are of moderate size; the aperture of the ear elliptical, and two and a half twelfths long; the nostrils linear, pervious, and only one-twelfth long. The tibia is bare for four-twelfths of an inch; the tarsus has numerous anterior and posterior scutella. The hind toe is very small and elevated; the anterior toes are webbed at the base, the inner web much smaller, flattened beneath, and marginate. The claws are small, compressed, and blunt.

The plumage is soft, blended, glossy and somewhat compact on the upper parts. The wings are long; the primaries narrowish, the first longest, the second almost equal; the secondaries longish, rounded and acuminate, the inner tapering. The tail is of moderate length, and considerably rounded.

The bill is dusky above, brownish-grey beneath. The irides are brown. The feet greyish, tinged with green; the claws black. The upper part of the head and the hind neck are brownish-grey; an indistinct whitish line passes over the eye, and the loreal space is dusky. The rest of the upper parts glossy greenish-brown, transversely banded and undulated with dark brown. Some feathers on the edge of the wing, the margins of the alular feathers, the tips of the primary and secondary coverts are white. A bar of the same colour crosses the wing, including the inner margins of the primaries, excepting the first, appearing on the first secondary, and reflecting along the tips of the secondaries, one or two of which are entirely white. The lateral tail-feathers

are white, barred with dusky; the inner become gradually darker. The throat, breast, sides, belly, and lower tail-coverts are white; the sides and fore part of the neck light brownish-grey, streaked with dusky, each feather having a triangular tip of that colour.

Length to end of tail $8\frac{1}{2}$ inches; extent of wings 14; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{2}{12}$; wing from flexure $4\frac{9}{12}$; tail $2\frac{5}{12}$; tarsus $\frac{11}{12}$; first toe $\frac{3}{12}$, its claw $\frac{1}{12}$; second toe $\frac{7}{12}$, its claw $\frac{2}{12}$; third toe $\frac{10}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{7}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female is precisely similar to the male.

VARIATIONS.—I have not observed any remarkable variations in colour or size in adult individuals.

CHANGES OF PLUMAGE.—As the bird is only a summer resident, and departs in autumn, before much progress has been made in moulting, I am unable to describe its winter plumage. Towards the end of the season of its sojourn, the feathers are often very ragged, and the glossy brown of the upper parts has considerably faded.

HABITS.—This elegant little bird arrives in England about the middle of April, and in the south of Scotland towards the end of that month, betaking itself immediately to the sandy or gravelly shores of lakes and rivers, where it procures its food, and remains until its departure in September. The species is generally distributed, being found in all the northern districts of Scotland, and in all the larger Hebrides, as well as in most parts of England and Wales; but the individuals never congregate, although a brood and their parents, amounting to six, or occasionally two or three families, may be seen keeping together in the end of summer. In August and September some may be met with on the sea-shore, and especially on that of the muddy estuaries of our rivers; but the species is decidedly lacustrine and fluvial, and is nowhere more plentiful than on the pebbly shores of the Highland lakes.

The flight of this species is rapid, and in its course it moves in various directions, somewhat in the manner of the Snipe. When flying over the surface of the water, which it often does so low as almost to touch it with its wings, it now and then spreads out and bends downwards those organs, keeping them apparently rigid and motionless at intervals, and thus proceeding by alternate starts, flapping and sailing in a manner peculiar to itself. When resting, it keeps the body nearly horizontal and the legs quite straight, like the Ring Plover and many other birds of this order. It runs with as much celerity as the Sandpipers, to which it is most intimately allied, but from which it differs in exhibiting the peculiar irritability and mobility of body observed in all the species of this genus.

These birds enliven the solitary shores of the moorland lakes and streams, where they may be seen running with great activity along the beaches, or skimming over the water. In general, however, one is apprised of their presence sooner by the sense of hearing than by that of sight, for they are vigilant and suspicious, and on being alarmed commence their shrill piping, which is continued in the breeding season until the disturber of their quiet takes his departure. They employ the same artifice as the Ring Plover and Dunlin to decoy a person from their nest or young. It is by no means difficult to procure specimens of this species, for although thus suspicious, it conceives itself safe enough at times within shooting distance, or skims past on wing unaware of its danger.

The nest is merely a slight hollow in the sand or among pebbles, with a few blades of withered grass. Like most of the birds of this family, it lays four pyriform eggs, which are placed with the narrow ends together, so as to occupy less room. They are so disproportionably large that one on finding them is apt to marvel how so small a bird could have laid them, their average length being an inch and four-twelfths, and their greatest breadth an inch. They are reddish-white or cream-coloured, glossy, and covered with dots and small spots of dark purplish-brown and greyish-purple.

The young run about immediately after exclusion from the egg, conceal themselves by squatting motionless among the stones, and are anxiously tended by their parents. If discovered and pursued, they sometimes betake themselves to the water, and swim like young gulls in similar circumstances. The old birds, too, should they drop into the water when wounded, float and swim as if it were their proper element.

From the manner in which this bird continually vibrates its body, as if on a pivot, joined with its piping notes, the Hebridians name it the Little Fiddler. Its food consists of insects of all kinds, and the gizzard usually contains sand or small stones.

Mr. Thompson notes it as "a regular summer visitant to the lakes, rivers, and brooks throughout Ireland."

YOUNG.—At first the young are covered with long stiffish down of a brownish-grey colour above, with a brownish-black band down the back, the lower parts white. When fledged they are light greyish-brown above, the feathers margined with two bands, the one dusky, the other reddish. The fore part and sides of the neck are greyish, with faint dusky lines; the rest of the lower parts white, excepting the lower tibial feathers, which are dusky. The wings and tail are coloured as in the adult; the feet more yellow, and the bill bluish.

ACTITIS MACULARIA. THE SPOTTED WEET-WEET.

SPOTTED SANDPIPER.

- Tringa macularia. Lath. Ind. Orn. II. 734.
 Spotted Sandpiper. Mont. Ornith. Diet.
 Chevalier Perlé. Totanus macularia. Temm. Man. d'Ornith. II. 656.
 Spotted Sandpiper. Totanus macularius. Selb. Illustr. II. 84.
 Totanus Macularia. Jen. Brit. Vert. An. 199.
 Actitis macularius. Bonap. Comp. List. 51.

The bill dusky at the point, greenish-brown above, yellow beneath; upper parts glossy greenish-brown, the head longitudinally streaked, the rest transversely banded with dark brown; lower parts white, marked all over with roundish dusky spots. Young with the upper parts lighter; the feathers of the head margined with dusky; the back and wings with more numerous dusky bars; the lower parts brownish-white, unspotted.

MALE.—This beautiful species is a little smaller than the White-bellied, which it precisely resembles in form, as well as in the general tint of its upper parts; but from which it is readily distinguishable on account of the spots on its lower surface. The bill is in length and form almost exactly the same as that of the species just named, being scarcely longer than the head, straight, slender, compressed, laterally grooved on the upper mandible for two-thirds of its length, on the lower for one-half, soft and flexible. The eyes are of moderate size; the nostrils linear, pervious, two-and-a-half-twelfths of an inch long. The tibia is bare for four-twelfths of an inch; the tarsus has thirty anterior and about the same number of posterior scutella. The hind toe is very

small and elevated; the anterior toes are webbed at the base, the outer web much larger, flattened beneath, and marginate; the first toe with ten, the second with twenty-four, the third with thirty-five, the fourth with forty scutella. The claws are slender, slightly arched, compressed, and rather acute.

The plumage is soft, blended, glossy, and somewhat compact on the upper parts. The wings are long; the primaries narrowish, the first longest, the second almost equal; the secondaries longish, incurved, obliquely rounded and acuminate, the inner very long and tapering, one of them only four-twelfths of an inch shorter than the first primary when the wing is closed. The tail is of moderate length and much rounded.

The bill is greenish-brown above, yellowish-flesh-coloured beneath, the extremity of both mandibles blackish. The feet flesh-colour, tinged with yellow. The general colour of the upper parts is greyish-brown, tinged with green and glossy; the head, hind-neck, and fore part of the back with small longitudinal dusky lines; the other parts with distant transverse bars. Some feathers on the edge of the wing, the margins of the alular feathers, the tips of the primary and secondary coverts are white. The alula, primary coverts, and primary quills are dusky, glossed with green; the secondary quills lighter; all the quills, except the inner elongated secondaries and the outer primary, tipped with white, which on the secondaries form a conspicuous band. When the wing is extended it is crossed by a bar of the same colour, which includes the inner margins of the primaries except the first and the bases of the secondaries, on which, however, it is concealed by the coverts. The tail is of the same colour as the back, tipped with white, that colour margined anteriorly by a dusky bar; the feather next to the outer is paler, with several dark bands on its outer web; that of the outermost white, with four dusky bands. The lower parts are pure white, marked all over with roundish, brownish-black spots, which are larger on the breast and sides.

Length to end of tail 8 inches; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{1}{2}$; wing from flexure

$4\frac{6}{12}$; tail 2; tarsus $1\frac{1}{2}$; first toe $\frac{3}{12}$, its claw $\frac{1}{12}$; second toe $\frac{7}{12}$, its claw $\frac{2}{12}$; third toe $\frac{9}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female is similar to the male.

REMARKS.—This species is abundant in many parts of North America, where it is migratory, and frequents the margins of rivers and pools. Its habits, as described by the ornithologists of that country, are similar to those of our White-bellied Tatler, which it resembles so closely in form. Individuals have been shot on the continent of Europe, and a few are recorded to have been obtained in Britain—the first in September, 1839.

I have not met with it in any part of Scotland, and statements as to its occurrence must generally be received with doubt, as persons unacquainted with it are apt to mistake for it the young of *Tringa Cinclus*, which have the lower parts somewhat similarly spotted. It is, however, included in the list of birds observed near Montrose, given in the Statistical Account of Forfarshire.

SCOLOPACINÆ.

SNIPES AND ALLIED SPECIES.

MANY ornithological writers include the *Tringinae*, *Totantinae*, and *Scolopacinae*, as here characterized under the family of *Scelopacidae*; and it is certain that they all agree in many respects, although the groups which I have indicated are natural and intelligible; and a family containing all the species belonging to them seems to me rather unwieldy and improvable by division. The birds properly called Snipes, and some others intimately allied to them, including the Woodcocks, have a family likeness; and when viewed collectively, present some peculiar characters by which they may be distinguished. Some of them, however, are so closely allied to several of the *Tringinae*, that in description they cannot be very clearly distinguished; and thus, as is usually the case with very closely connected groups, it is scarcely possible to mark with certainty the limits of the two families. In practice, however, a Scolopacine is always readily distinguishable from a *Tringine* bird. The general characters of the *Scolopacinae* may, I think, be expressed thus:—

Birds of small size, with the body ovate, compact, rather full; the neck of moderate length; the head rather small, much compressed, and rounded above. The bill very long, straight, slender, flexible, compressed until toward the end, where it becomes enlarged, depressed, and is there, as well as in its whole extent, covered with a soft skin, and has in its terminal part numerous nervous filaments, the position of which is indicated, when the parts become dry by little depressions or scrobiculi; the extreme tips of both mandibles,

however, are hard, narrowly obtuse, the upper extending beyond the lower, and receiving it into a wide groove beneath, in such a manner as to prevent its offering any impediment to the easy intrusion of the bill into the mud. This character, however, also presents itself in some of the *Tringinae*.

The mouth is extremely narrow; the tongue elongated, very slender, channelled above, and acutely pointed; on the palate are numerous short, pointed papillæ, directed backwards, and arranged in two series. The œsophagus is narrow; the stomach a roundish, compressed, very muscular gizzard, with a dense plicate epithelium; the intestine of moderate length and width; the cœca rather long.

The nostrils very small, linear, basal. Eyes moderate, generally placed higher than in other birds. The aperture of the ear large and roundish. The legs are short; the bare part of tibia very limited; the tarsus short, anteriorly scutellate; the toes four, the first very small and elevated; the anterior long, slender; the fourth a little longer than the second; the third much longer; the claws rather long, slender, little arched, acute.

The plumage moderately compact; the wings long or moderate, rather broad, but pointed; the first quill, however, not much exceeding the second; the inner secondaries generally much elongated, sometimes moderate and rounded. The tail short, of from twelve to twenty or more soft, narrow feathers.

These birds are of more hideling habits than the *Tringinae* and *Totantinae* which frequent open places, and render themselves conspicuous by searching the open shores or exposed places, by their free unsneaking flight, and often by their clamorous cries. They, on the contrary, seek the retirement and security of swamps, marshes, ditches, and brooks. There they search for their food in the quietest possible manner, proceeding singly and sedately, and thrusting their long, delicately sensitive, probe-like bills into the mud, whence they extract the worms and larvæ, sucking them up as it were, and swallowing them with still immersed bill. They never, I think, pick up insects from the surface, nor

search the open sands unless at night, but keep in concealment; and when alarmed, sit close and motionless. When surprised they do not run, but spring on wing, and then generally emit loud cries. They walk well, glide with ease among the herbage, have a very rapid flight, alight abruptly, feed by night apparently more than by day; nestle on the ground, and in a slight hollow, more or less lined or covered with fragments of herbage; lay four very large, pyriform eggs, patched and spotted with dark tints. The young, covered with dense parti-coloured down, presently leave the nest, squat to conceal themselves, and soon begin to search for their food. The females are larger than the males, and seldom differ from them in colouring. The prevailing colours are dusky, light red, reddish-yellow, and white, disposed in bars and streaks. Their flesh is much esteemed, and greatly superior to that of the Totaninæ.

The scrobiculation of the extremity of the bill, so obvious in the birds of this family, and assumed by many writers as distinctive of them, is not at all peculiar, but presents itself, though less conspicuously, in many of the Tringinæ and Totaninæ.

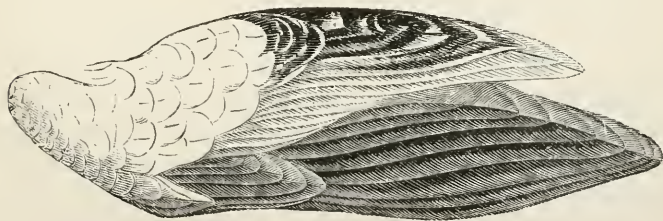


FIG. 30.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. SCOLOPAX. SNIPE.

Bill about twice the length of the head, straight, slender, compressed; both mandibles grooved, and in their terminal

third scrobiculate, and more or less enlarged, with the tips hard and narrowed, but obtuse, that of the lower shorter. Legs rather short, slender; tibia bare for nearly a fourth; tarsus compressed, scutellate before and behind; anterior toes long, slender, free; claws slender, slightly arched, acute. Wings long, narrow, pointed; inner secondaries very long. Tail short, of from twelve to twenty-four soft feathers.

1. *Scolopax major*. *Great Snipe*. Tail of sixteen feathers; bill twice the length of the head; three lateral tail-feathers on each side white; lower parts greyish-white, barred with brown.

2. *Scolopax Gallinago*. *Common Snipe*. Tail rounded, of fourteen feathers; bill twice the length of the head; abdomen white; lower tail-coverts light red, varied with dusky.

3. *Scolopax Sabini*. *Sabine's Snipe*. Tail of fourteen feathers; bill twice the length of the head; lower parts dull light red, undulated with dusky.

4. *Scolopax Gallinula*. *Jack Snipe*. Tail pointed, of twelve feathers; bill about a fourth longer than the head; sides longitudinally streaked with brown.

GENUS II. RUSTICOLA. WOODCOCK.

Bill about half as long again as the head, straight, slender, compressed, tapering; both mandibles grooved, and in their terminal half inconspicuously scrobiculate, not enlarged at the end, the tips hard and obtuse, that of the lower shorter. Legs short, rather slender; tibia entirely feathered; tarsus roundish, with very broad anterior scutella; middle toe long, lateral short, free; claws small, slightly arched, acute. Wings rather long, broad, somewhat pointed; inner secondaries of moderate length, rounded. Tail short, rounded.

1. *Rusticola sylvestris*. *Common Woodcock*. Above variegated with brownish-black, light red, and pale reddish-yellow; beneath yellowish-grey, narrowly barred with dark brown.

SCOLOPAX. SNIPE.

THE birds of this genus, varying in size from that of the Ruff to that of the Dunlin, and generally so similar in colour as in some cases to be with difficulty distinguishable, have the body ovate and somewhat compressed; the neck of moderate length; the head small and rounded above. The bill about twice the length of the head, flexible, straight, slender, compressed, tapering, with both mandibles grooved for two-thirds of their length, in their terminal third somewhat enlarged and scrobiculate, with the tips hard and narrowed, but blunt; that of the lower considerably shorter.

Mouth very narrow, its roof with two or three longitudinal series of pointed and reversed papillæ. Tongue very long, slender, channelled above, tapering to a point. Œsophagus rather narrow, with an oblong proventriculus; stomach roundish, very muscular, with dense rugous epithelium; intestine of moderate length and width; cæca moderate, cylindrical, narrowed at the commencement.

Nostrils linear, lateral, basal. Eyes rather small. Apertures of ears rather large. Legs rather short, slender; tibia bare for nearly a fourth; tarsus compressed, scutellate before and behind; first toe very small, slender, and elevated; anterior toes rather long, slender, free; claws rather long, slender, slightly arched, compressed, acute.

Plumage rather firm. Wings long, narrow, pointed; the first quill longest; the inner secondaries very long. Tail short, of from twelve to twenty-four soft feathers.

The Snipes inhabit marshy places, in which they search for their food in a hideling manner, They nestle on moors, in moist pastures, meadows, and marshes. The nest is of slight construction, and the eggs are four, very large, pyriform, olivaceous or yellowish, blotched with dusky. Species are found in most parts of both continents adapted to their habits.

SCOLOPAX MAJOR. GREAT SNIPE.

SOLITARY SNIPE. WOODCOCK SNIPE. DOUBLE SNIPE.

- Scolopax major. Gmel. Syst. Nat. I. 661.
 Scolopax major. Lath. Ind. Ornith. II. 714.
 Great Snipe. Mont. Ornith. Diet. and Suppl.
 Grande ou Double Becassine. Scolopax major. Temm. Man. d'Ornith. II
 675.
 Scolopax major. Great Snipe. Flem. Brit. Anim. 105.
 Great Snipe. Scolopax major. Selby, Illustr. II. 115.
 Scolopax major. Great Snipe. Jenyns, Brit. Vert. Anim. 205.
 Gallinago Montagui. Bonap. Comp. List. 52.

Tail rounded, of sixteen feathers; bill twice the length of the head; two longitudinal black bands on the head separated by a narrower medial reddish-white band, and on each side a yellowish-white band; the upper parts variegated with black and light red, with four longitudinal yellowish white bands; wing-coverts tipped with white; three lateral tail-feathers on each side white; sides transversely barred with dusky; axillar feathers white, barred with greyish-black.

MALE.—This species is considerably larger than our common Snipe, which it, however, so closely resembles, that one might readily mistake a specimen of it for a large individual of that species. The body is ovate, compact, and rather full; the neck of moderate length; the head small, oblong, compressed, much rounded above. The bill is nearly twice the length of the head, slender, straight, compressed until near the end, where it is depressed; the upper mandible with the ridge narrow but rounded, toward the end sulcate, the lateral grooves extending nearly to the end, the edges rather sharp, the tip blunt; the lower mandible with the angle extremely long and continued into a groove, which

extends to the tip, its sides erect, the tip blunt, and two-twelfths of an inch shorter than that of the upper mandible.

The eyes of moderate size; the aperture of the ear large; the nostrils very small, basal, linear. The legs rather short; the tibia bare for five-twelfths of an inch; the tarsus short, with twenty scutella; the anterior toes rather long, slender, compressed; the claws rather long, arcuate, much compressed, acute.

The plumage is moderately compact; those of the back and the scapulars much elongated. The wings rather long, of twenty-five quills; the primaries slightly incurved, the first longest; the secondaries incurved, rounded at the end, the inner straight, elongated, rather obtuse. The tail short, somewhat doubly emarginate, of sixteen obtuse feathers.

Bill yellowish-brown at the base, dusky toward the end. Irides brown. Feet pale bluish-green; claws black. From the bill to the occiput two broad bands of blackish-brown, slightly variegated with light red, and separated by a narrower band of pale reddish-brown; from the bill over each eye a band of pale brown; the loreal band dark brown. The neck all round pale brown, each feather darker in the middle; the chin pale yellowish-brown. The elongated feathers of the back and the scapulars are brownish-black, variegated with yellowish-brown, externally margined with buff, of which there are thus four longitudinal bands on the back. On the hind part of the back and rump the feathers are barred with pale brownish-yellow and dark brown, as are the upper tail-coverts. The tail-feathers are brownish-black, toward the end with a broad irregular band of chestnut-red, succeeded by a narrow band of black, the tip white; the outer four feathers on each side nearly all white. The smaller wing-coverts are black, tipped with pale brown; the larger black, tipped with white; the quills greyish-black, with the shafts white; the secondaries largely tipped with white; the inner secondaries banded like the back. The middle of the breast and the abdomen brownish-white, barred with brown; the sides undulated and barred with dusky and pale brown; the axillaries white, with blackish-grey bars.

Length to end of tail 12 inches; extent of wings 18;

wing from flexure $5\frac{1}{2}$; tail $2\frac{1}{2}$; bill along the ridge $2\frac{1}{4}$; tarsus $1\frac{4}{12}$; hind toe $\frac{5}{12}$, its claw $\frac{2}{12}$; middle toe $\frac{4}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—This species has been found breeding in Norway, Sweden, and some parts of Germany. It has been observed in Holland, France, Switzerland, Italy, Hungary, and the Caucasus. In Britain,—it has not hitherto, I believe, been found in Shetland; but in the *Historia Naturalis Orcadensis* it is stated that “this bird appeared several times in marshy ground in Sanday, in September, 1815.” In Scotland it appears to be very rare. Mr. St. John says he never saw but one there, and that was in Sutherland. I have not seen an individual, dead or alive, that had the honour of standing on Scottish ground; but several reports of its occurrence along the east coast have come to my ears. Mr. Selby states that several instances of its occurrence in Northumberland had come to his knowledge within the eight or ten years preceding 1833, and was informed that five or six had been shot, in 1826, in a morass in the county of Durham. Montagu relates that individuals had been killed in the counties of Kent, Wilts, and Lancaster; and other localities have since been given. Mr. Yarrell says it is now by no means uncommon in England, but occurs more frequently in autumn than in any other season; and Mr. Thompson notes it as occasionally obtained in Ireland, though he “never could meet with one among the thousands of Snipes exposed for sale during the autumn and winter in Belfast.” Considering its comparative scarcity as an autumnal visitant, Mr. Selby’s remark that “the immediate direction of their latitudinal flight is much to the east of the longitude of the British Islands,” is probably correct. The course of that flight, however, does not appear to have as yet been determined by observation.

The habits of the Great Snipe may be tolerably well made out by comparing the various statements and notices given by authors. It arrives in the northern countries in

the beginning of summer, and presently commences the business of propagation. Mr. Greiff gives such an account of their habits at this period as would lead us to assimilate them to those of the Ruff:—"I was an old sportsman of thirty years' standing before it came to my knowledge that Double Snipes had their *lek*, or playing-ground. I heard their cry a whole spring, which was in a marsh where I had a good *orr-lek*, but never observed them, and therefore believed it to be some frogs or reptiles; but at last I discovered they were Double Snipes, which ran like rats among the hillocks. Their cry commences with a sound resembling the smack of the tongue, and thereupon four or five louder follow." According to Mr. Hoy, "the nest is similar to, and placed in the same situation as, that of the common species. The eggs are four in number." Mr. Yarrell adds, "These are of a yellow olive-brown, spotted with two shades of reddish-brown; the length one inch nine lines, by one inch and two lines in breadth." After breeding, these birds remain in the north until toward the end of September, and they and their young become extremely fat, and afford the most delicious eating; for which reason, and the amusement they afford, they are much sought after, and, being easy to shoot, are, in some places killed in great numbers.

The flight of the Great Snipe is less rapid than that of the Common species. It rises in silence, flies steadily and heavily, with the tail expanded like a fan, and usually proceeds but a short distance before alighting.

SCOLOPAX GALLINAGO. THE COMMON SNIPE.

MOOR, OR MIRE SNIPE. HEATHER-BLITER, BLEATER, OR BLUTTER. NAOSG.
JAN-GHURAG.

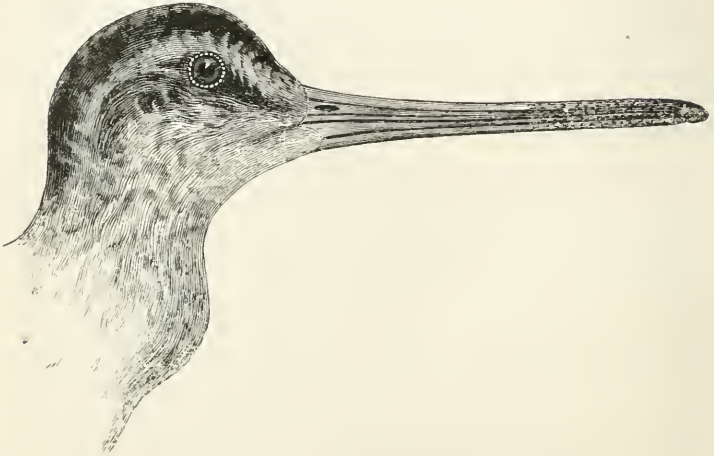


FIG. 31.

Scolopax Gallinago. Linn. Syst. Nat. I. 244.

Scolopax Gallinago. Lath. Ind. Orn. II.

Common Snipe. Mont. Orn. Dict.

Bécassine ordinaire. Scolopax Gallinago. Temm. Man. d'Orn. II. 676.

Scolopax Gallinago. Common Snipe. Flem. Brit. Anim. 106.

Common Snipe. Scolopax Gallinago. Selb. Illustr. Brit. Ornith. II. 121.

Scolopax Gallinago. Common Snipe. Jen. Brit. Vert. An. 205.

Gallinago scolopacinus. Bonap. Comp. List, 52.

Tail rounded, of fourteen feathers; secondary quills rounded; bill twice the length of the head; on the head two longitudinal black bands separated by a narrower medial reddish-white band, and on each side a reddish-white band; the upper parts variegated with black and light red, with four longitudinal yellowish-white bands; sides transversely barred with dusky; axillar feathers white barred with greyish-black; lower tail-coverts light red, barred with dusky.

MALE.—This species, which is somewhat inferior in size to the last, and greatly exceeds the next, is of the ordinary form in this genus, its body being compact and rather full; the neck of moderate length, the head rather small, oblong, compressed, and rounded above. The bill is twice the length of the head, slender, straight, compressed until near the end, where it is depressed; the upper mandible with the ridge narrow but obtuse, toward the end sulcate, the lateral groove extending nearly to the end, the edges rather sharp, the tip blunt; the lower mandible with the angle extremely long and continued into a groove, which extends to the tip, its sides erect, the tip blunt and two-twelfths of an inch shorter than that of the upper mandible.

The eyes are moderate, their aperture being three-twelfths. That of the ear four-twelfths. The nostrils very small, basal, linear, a twelfth and a half long. The legs are short; the tibia bare for a third of an inch; the tarsus short, with eighteen scutella. The hind toe has eight, the inner eighteen, the third thirty, the fourth twenty-eight scutella; the fore toes entirely separated. The claws are small, arcuate, much compressed, laterally concave at the base, pointed.

The plumage is moderately compact; the feathers oblong; those of the fore part of the back and the scapulars much elongated. The wings rather long, of twenty-five quills; the primaries slightly incurved, the first longest; the secondaries incurved, rounded at the end, the inner straight, elongated, rather acute. The tail is short, somewhat doubly emarginate, of fourteen obtuse feathers.

Bill greyish-blue at the base, dusky in the rest of its extent, but with two-thirds of the ridge flesh-coloured. Irides brown. Feet pale greenish-blue; claws black. From the bill to the occiput two broad bands of black, slightly variegated with pale red, and separated by a narrow band of reddish-white; from the bill over each eye a band of reddish-white; the loreal band dusky; then a band of reddish-white dotted with brown to behind the eye, and beneath it an obscure band of dusky spots. The throat is reddish-white; the neck all round variegated with reddish-white tinged with

grey and dusky. The elongated feathers of the back and the scapulars are deep black, variegated with light red, externally margined with reddish-white, of which there are thus four longitudinal bands on the back. On the hind part of the back and rump the feathers are barred with dusky and light red, as are the upper tail-coverts, of which the light bars incline to white. The tail is brownish-black, toward the end irregularly barred or spotted with reddish-white, succeeded by a curved narrow bar of black, the tip light red, the lateral feathers much paler. The smaller wing-coverts are black glossed with purple, and tipped with reddish-grey; the quills greyish-black; the outer web of the first white, its shaft brownish-white, the primaries slightly, the secondaries largely tipped with white; the inner secondaries banded like the back; the larger coverts similar to their respective quills. The middle of the breast and the abdomen are white; the sides undulated and barred with dusky; the axillaries white, with greyish-black bars; the lower wing-coverts greyish-dusky, margined with white. The lower tail-coverts are pale red barred with dusky.

Length to end of tail $10\frac{3}{4}$ inches; extent of wings 16; wing from flexure $5\frac{1}{4}$; tail $2\frac{4}{2}$; bill along the ridge $2\frac{8}{2}$, along the edge of lower mandible $2\frac{8}{2}$; tarsus $1\frac{3}{2}$; hind toe $\frac{4}{2}$, its claw $\frac{2}{2}$; second toe $\frac{1}{2}$, its claw $\frac{2}{2}$; third toe $1\frac{3}{2}$, its claw $\frac{4}{2}$; fourth toe 1, its claw $\frac{2}{2}$.

FEMALE.—The female is similar to the male, generally has the dusky bars of the sides more extended, and is considerably larger.

Length to end of tail $11\frac{1}{4}$ inches; extent of wings $17\frac{1}{4}$; wing from flexure $5\frac{7}{2}$; tail $2\frac{6}{2}$; bill along the ridge $2\frac{11}{2}$, along the edge of lower mandible $2\frac{10}{2}$; tarsus $1\frac{4}{2}$; bare part of tibia $\frac{7}{2}$; hind toe $\frac{5}{2}$, its claw $\frac{2}{2}$; second toe 1, its claw $\frac{3}{2}$; third toe $1\frac{4}{2}$, its claw $\frac{4}{2}$; fourth toe $1\frac{1}{2}$, its claw $\frac{3}{2}$.

VARIATIONS.—Adult birds vary considerably in size, and especially in the length of the bill. Individuals pure white or yellowish-white, or white variegated with red and dusky, or more frequently of the ordinary colours, with some white

feathers, are sometimes, but in this country very seldom, met with. The colour of the feet varies.

CHANGES OF PLUMAGE.—There is no remarkable difference between the summer and winter plumage, the latter when fresh being as richly coloured as the former. Toward the end of summer the colours are greatly faded, the wings have lost their purple gloss, and the reddish tints are much paler.

HABITS.—Beautiful are those green woods that hang upon the craggy sides of the fern-clad hills, where the heath-fowl threads its way among the tufts of brown heath, and the Cuckoo sings his ever-pleasing notes as he balances himself on the grey stone, vibrating his fan-like tail. Now I listen to the simple song of the mountain Blackbird, warbled by the quiet lake that spreads its glittering bosom to the sun, winding far away among the mountains, amid whose rocky glens wander the wild deer, tossing their antlered heads on high as they snuff the breeze tainted with the odour of the slow-paced shepherd and his faithful dog. In that recess formed by two moss-clad slabs of mica-slate, the lively Wren jerks up its little tail, and chits its merry note, as it recalls its straggling young ones that have wandered among the bushes. From the sedgy slope, sprinkled with white cotton-grass, comes the shrill cry of the solitary Curlew; and there, high over the heath, wings his meandering way the joyous Snipe, giddy with excess of unalloyed happiness.

There another has sprung from among the yellow-flowered marigolds that profusely cover the marsh. Upwards slantingly, on rapidly vibrating wings, he shoots, uttering the while his shrill two-noted cry. Tissick, tissick, quoth the Snipe, as he leaves the bog. Now in silence he wends his way, until at length having reached the height of perhaps a thousand feet, he zigzags along, emitting a louder and shriller cry of zoo-zee, zoo-zee, zoo-zee; which over, varying his action, he descends on quivering pinions, curving toward the earth with surprising speed, while from the rapid beats

of his wing the tremulous air gives to the ear what at first seems the voice of distant thunder. This noise some have likened to the bleating of a goat at a distance on the hill-side, and thus have named our bird the Air-goat and Air-bleater. The sound, I think, is evidently produced by the rapid action of the wings, which, during its continuance, are seen to be in tremulous motion. It comes on the ear soon after the bird commences its descent, and ceases when, having gained the lowest part of the curve, it recovers itself, and ascends with a different and ordinary motion of its wings. I have never heard it under any other circumstances. Were it produced by the voice it might be emitted when the bird is on the ground, or during its ordinary flight; but should one hear it on the moor, he will invariably find that it proceeds from on high. In this manner the Snipe may continue to amuse itself for, perhaps, an hour or more; and sometimes, in the clear sky, one may trace it until at length it mounts so high as to be no longer perceptible.

This drumming noise of the Snipe commences in April, and is continued through the summer. It is altogether a solitary act, although several individuals may often be heard at the same time, and may be an expression of the happiness of the bird, or an intimation of its presence to its mate while sitting upon her eggs. We have no means of ascertaining its object, nor has it been determined whether it be performed by the male only, or by the female also. When the bird has gone through his evolutions, he descends, often with astonishing velocity, on partially extended and apparently motionless wings, diminishes his speed a little as he approaches the ground obliquely, and alights abruptly.

In winter this species is dispersed over the whole of Britain, and in summer many remain to breed even in the most southern parts, where there are suitable places; but in England the number is very inferior to what is met with in Scotland; on all the moist heaths of which, but especially on those of the northern parts and the Hebrides, it is extremely abundant. The multitudes that rear their young in the bogs of Lewis, Harris, and the Uists are truly

astonishing. There the nests are found in various situations ; often in the grassy pastures, but more frequently on the unfrequented moors, from the level of the lakes to the height of two thousand feet. A slight hollow, lined with bits of heath and grass or sedge, and situated on a dry tuft, or among stunted heath or moss, receives the eggs, which are usually four in number, although I have often found only three, pyriform, placed with the small ends together, generally an inch and seven-twelfths long, an inch and one-twelfth in breadth, of a greyish-yellow colour, tinged with greenish-blue, and marked with irregular spots and patches of dark brown and brownish-grey, more numerous toward the larger end. They vary considerably in form, size, and colour.

The young, which are at first covered with extremely soft, tufty down, of a brownish-red colour, spotted with dusky brown and white on the head and upper parts, leave the nest presently after emerging from the eggs, and accompany their parents in search of food. Whether they are at first fed by them, or from the beginning seek out their food of themselves, has not been determined. They conceal themselves by squatting when in apprehension of danger, and are anxiously tended by their mother, who flies around the intruder on their haunts, alights, and feigns lameness, in the manner of the Dunlin, Golden Plover, and other birds of this order. When they are fledged they disperse, and the parents usually nestle a second time.

When the nights become cold after the middle of autumn, the Snipes betake themselves to the marshy parts of the lower grounds, and later in the season they almost entirely leave the moors, especially those that are elevated ; but in all parts of Scotland individuals are met with on the moors during the whole winter. Usually they remain in the more unfrequented parts during the day, part of which they pass in repose ; and in the evening resort to the low grounds, where they may be seen arriving singly in favourite places, and where they remain all night searching for food. In such places in the Hebrides, as in marshy meadows and by the sides of pools, I have started hundreds of them at night. By moonlight I have seen them in surprising numbers on

the margins of these pools, and even frequently wading a little way into the shallow water. Early in the morning they may be obtained in such situations in great abundance ; but after a few shots have been fired, they generally fly off singly or in small parties to a great distance.

In winter, especially during frost, they often betake themselves in great numbers to marshy places on the coast liable to be overflowed by the tide. During snow they resort to the unfrozen rills, brooks, ditches, and the sides of rivers, as well as to the sea-shore. On a bank from which a number of springs oozed, in the island of Harris, I have, in the time of long-continued snow, seen several hundreds of them crowded together in search of a precarious morsel of food. So intent were the famished birds on their search, that when a shot was fired very few of them flew off, and the spot on which they were was presently occupied by others which unexpectedly arrived. Even in these northern parts, I think the number of Snipes is not much diminished in winter. On the other hand, it is vastly increased at that season in most parts of England ; but whether that increase arises from the immigration of individuals from the continent, or merely from the descent of our resident birds from the central and northern moors, is not apparent. That they leave many of our moors in winter I am well assured, for at that season I have traversed places that abounded with them in summer without meeting with any.

At all times the Snipe is sly and suspicious ; but, instead of flying off when under apprehension of danger, it lies close to the ground, draws in its neck, and inclines its bill downwards, expecting to escape notice ; and one may come within a few feet of it before it rises, for on such occasions it is almost impossible to perceive it. On rising, it invariably utters a shrill hissing cry of two sharp notes, flies low or obliquely upwards, with a zigzag motion, for about eighty or a hundred yards, and then assumes a more direct flight. Although this undulating motion continues so long, the deviation to either side is not so great as to render it very difficult to shoot it, when one has become accustomed to this kind of sport. The ordinary flight of this bird is rapid and

direct, and, when it is proceeding to a distant place, elevated. It is very seldom that two or more individuals are seen together on wing, unless when a shot has been fired in a place where they are very numerous.

The food of the Snipe consists of worms, insects, and delicate fibrous roots of plants. On alighting it stands for a short time, apparently for the purpose of looking around; then proceeds in search of food with its bill obliquely inclined toward the ground, which it rapidly probes to a variable depth, sometimes inserting the bill to its base. By the peaty or muddy edges of ditches, rills, and small water-runs, the marks thus left are frequent. It also wades in the water, keeping itself as high as possible on its legs. In feeding it cannot be properly said to associate with any other bird, although occasionally in summer the Dunlin, and in winter the Water Rail and Jack Snipe may be found in the same place.

I have many times watched the Snipe while feeding by unfrozen rills and in oozy ground, when there was snow on the ground, as well as on ordinary occasions, when, however, it is very difficult to observe it, or when it is met with, to avoid alarming it. Proceeding in a crouching manner, it thrusts its bill rapidly into the mud, often up to the base, seems to be groping with it for a moment or two, then as rapidly withdraws it, and thus goes on, advancing slowly and making many thrusts in some places, in others moving quickly and making few trials. I have never seen it extract anything to be subsequently swallowed, prehension and deglutition being apparently performed while the bill is immersed. It proceeds in silence, and if alarmed stops, crouches close to the ground, sometimes allowing a very near approach; or if in a soft muddy or very wet place, flying off from a considerable distance.

Its flesh being delicate and savoury, the Snipe is in much request, and is common in our markets. For this and other reasons it is a favourite with sportsmen. It is also caught with springes set in its usual runs, in the same manner as the Woodcock. It is a general, but, I think, a filthy practice, to prepare Snipes for the table without removing

their digestive organs or their contents, which are relished by persons who would turn with loathing from meat in which a worm had been seen. At the same time, the few insects and crawling things that may happen to be in a Snipe's stomach can do no harm, although they are not so agreeable as the beans from a Wood-pigeon's crop, which I have seen eaten.

This species of Snipe is generally dispersed over the continent, in the northern parts of which it is migratory. It also occurs in various parts of Asia, but has not been met with in America.

REMARKS.—A species of Snipe, *Scolopax Wilsoni*, occurs in North America, so very similar in size, proportions, and colours to ours, that on placing the two together one can hardly discover any distinctive characters. That species, however, has sixteen feathers in the tail, whereas ours has only fourteen, and is said to differ in its notes and some of its habits.

M. Temminck gives as a distinctive character of our Common Snipe a brown shaft to the outer as well as the other quills ; but that shaft is always white for a fourth of its length, and in the rest of its extent sometimes pale brown, sometimes brownish-white, and occasionally entirely white.

SCOLOPAX SABINI. SABINE'S SNIPE.

- Scolopax Sabini. Vigors, Linn. Trans. XIV. 556.
 Scolopax Sabini. Jard. and Selby, Illustr. of Ornith. pl. XXVII.
 Scolopax Sabini. Flem. Brit. Anim. 105.
 Scolopax Sabini. Jen. Brit. Vert. Anim. 204.
 Scolopax Sabini. Temm. Man. d'Ornith. IV. 432.
 Scolopax Sabini. Selby, Illustr. Brit. Ornith. II. 118.
 Scolopax Sabini. Gould, Birds of Eur. pt. XVI.
 Gallinago Sabini. Bonap. Comp. List, 52.

Tail rounded, of fourteen feathers; bill more than twice the length of the head; upper part of the head and hind-neck brownish-black, spotted with dull chestnut-brown; back and wings black, barred and spotted with chestnut-red; tail black for half its length, then chestnut-red, barred with black; lower parts dull light red, undulated with dusky.

ADULT.—This species, of which I have no specimen for description, is characterized by its peculiar style of colouring, as indicated above. Otherwise it is very intimately allied to the Common Snipe, of which it might be supposed a variety, were the colouring of all the individuals hitherto obtained not the same. It cannot be better introduced to notice than in the words of its first describer, the late Mr. Vigors, who announced its discovery in the fourteenth volume of the Transactions of the Linnæan Society:—

“ This species is at once distinguished from every other European species of Scolopax, by the total absence of white from its plumage, or of any of those lighter tints of ferruginous yellow, which extend more or less in stripes along the head and back of them all. In this respect it exhibits a strong resemblance to the Scolopax saturata of Dr. Horse-

field, from which, however, it sufficiently differs in its general proportions; and I find no description of any other extra-European species of true *Scolopax* which at all approaches it in this character of its plumage. In the number of the tail-feathers, again, which amount to twelve, it differs from *Scolopax major*, which has sixteen, and agrees with *Scolopax Gallinula*, which also has but twelve; but it never can be confounded with that bird, from the great disproportion between the essential characters of both, the bill alone of *Scolopax Sabini* exceeding that of the latter species by one-third of its length. In the relative length and strength of the tarsi, it equally differs from all. These members, although stouter than those of *Scolopax Gallinago*, fall short of them by three-twentieths of an inch: they are much weaker, on the other hand, than those of *Scolopax major*, although they nearly equal them in length. In general appearance it bears a greater resemblance to *Scolopax rusticola* than to the other European *Scolopaces*, but it may be immediately recognized as belonging to a different station in the genus; the two exterior toes being united at the base for a short distance, as in the greater number of the congeneric species; while those of *Scolopax rusticola* are divided to the origin."

"This bird was shot in the Queen's County, in Ireland, by the Rev. Charles Doyne, of Portarlington, in that county, on the 21st of August, 1822, and was obligingly communicated to me the same day. I have named the species in honour of the Chairman of the Zoological Club of the Linnean Society, whose zeal and ability have thrown so much light upon the ornithology of the British Islands."

Another individual is announced by Mr. Vigors in a note:—"Since this communication was read to the Society, I have been enabled to record a second instance of this bird having been met with in the British Islands. On the 26th of October, 1824, a female of this species was shot on the banks of the Medway, near Rochester, and is preserved in the valuable collection of Mr. Dunning, of Maidstone. The specimen was kindly communicated to me by that gentleman, and was exhibited to the Zoological Club on the 23rd of November, 1824. It accords in every particular with the

specimen first obtained, with the exception of being somewhat smaller. This difference of size most probably indicates the difference of sex."

Mr. Thompson, of Belfast, afterwards exhibited to the Zoological Society of London a second Irish specimen, shot by Captain Bontram, in the end of 1827, about a mile from Garvagh, in the county of Londonderry. In 1833, Mr. Selby "received a fresh specimen of this rare Snipe from Morpeth, possessing all the characteristics of Mr. Vigors's bird. The under parts, perhaps, a little darker, having fewer bars or undulations of the lighter tint." Several specimens are mentioned by Mr. Thompson as occurring in various parts of Ireland, all the individuals recorded by him as occurring in that country amounting to ten. "Not so many," he continues, "have been procured in England, and in Scotland none at all. (Jard., Macg.) This bird is not known out of the British Islands, and there only as one of which a few individuals have fallen beneath the guns of Snipe-shooters." Mr. Thompson mentions two specimens having thirteen tail-feathers, the true number being thus, no doubt, fourteen, as in *Scolopax Gallinago*.

SCOLOPAX GALLINULA. THE JACK SNIPE.

JUDCOCK. JID.

Scolopax Gallinula. Linn. Syst. Nat. I. 244.

Scolopax Gallinula. Lath. Ind. Orn. II. 715.

Jack Snipe. Mont. Ornith. Diet.

Bécassine Sourde. Scolopax Gallinula. Temm. Man. d'Ornith. II. 678.

Scolopax Gallinula. Jack Snipe. Flem. Brit. Anim. 106.

Jack Snipe. Scolopax Gallinula. Selb. Illustr. II. 125.

Scolopax Gallinula. Jack Snipe. Jen. Brit. Vert. An. 206.

Gallinago Gallinula. Bonap. Comp. List, 52.

Tail pointed, of twelve feathers; secondary quills acutely pointed; bill about a fourth longer than the head. A longitudinal black band, slightly variegated with red on the head, and on each side a reddish-white band, in part divided by a dusky line; on the back three longitudinal bands of black glossed with purple and green and variegated with red, and four bands of pale yellowish-red; sides longitudinally streaked with brown, axillar feathers white, with some faint grey elongated lines.

MALE.—This species, the smallest of those that occur in Britain, is nearly of the same form as the last, having the body compact and rather full, the neck of moderate length, the head much compressed and rounded above. The bill is proportionally shorter and stouter at the base, being only about a fourth longer than the head, straight, nearly twice as high as broad at the commencement, but suddenly narrowing, and toward the end depressed; the upper mandible with the ridge narrow but obtuse, toward the end sulcate, the lateral groove extending nearly to the end, the edges sharp but soft and inflected, the tip blunt; the lower mandible with the angle extending almost to the tip, the sides

erect, the edges soft, the point blunt. The tongue is an inch and ten-twelfths long, slender, soft, thin, canaliculate above, horny beneath, acutely pointed. Along the whole length of the upper jaw is a double series of short, pointed, reversed papillæ; the œsophagus is three inches and a quarter in length.

The eyes are moderate, their aperture being two-twelfths and a half. That of the ear is large, being three-twelfths. The nostril is very small, linear-oblong, only one-twelfth long. The legs are rather short; the tibia bare for a third of an inch; the tarsus short, with eighteen scutella. The hind toe has six, the inner eighteen, the third thirty, the fourth twenty-six scutella; the fore toes entirely separated. The claws are small, arcuato-declinate, much compressed, laterally concave at the base, pointed.

The plumage is moderately compact; the feathers oblong; those of the fore part of the back and the scapulars much elongated. The wings rather long, of twenty-five quills; the primaries slightly incurved, the first longest; the secondaries incurved, acuminate, the inner straight, elongated, tapering. The tail is short, of twelve narrow, pointed feathers.

Bill greyish-blue at the base, dusky in the rest of its extent, but with two-thirds of the ridge flesh-coloured. Irides dark brown. Feet pale greenish-blue; claws brownish-black. From the bill to the nape a brownish-black band, at first very narrow and gradually enlarging, all the feathers slightly margined with brownish-red; on each side from the bill to the nape a broad band of reddish-white, in part divided by a dusky line; a dusky loreal band, then a band of reddish-white to behind the eye, and another of dusky. The throat is reddish-white; the neck all round variegated with reddish-white and dusky. The elongated feathers of the back and the scapulars are deep black partly glossed with purple, variegated with light red, externally broadly margined with pale yellowish-red, internally with glossy green. There are thus four longitudinal pale red bands on the back. Along the middle of the hind part of the back the feathers are small, black glossed with purple, and very narrowly

tipped with greyish-white, which latter is the prevailing colour on the sides of the back. The upper tail-coverts and rump-feathers are dusky, variegated with light red, and broadly margined with pale yellowish-red. The tail-feathers are dusky, on the outer web toward the end undulated with dull light red, all margined with light red. The wings are dusky; the coverts and quills tipped with greyish-white, the middle coverts with reddish; the inner secondaries and their coverts barred with light red on the outer web. The breast and abdomen are white; the upper part of the sides streaked with dusky and red; the lower tail-coverts with a slight reddish central streak. The lower wing-coverts deep grey, edged with greyish-white.

Length to end of tail $8\frac{1}{2}$ inches; extent of wings $14\frac{1}{2}$; bill along the ridge $1\frac{9}{12}$, along the edge of lower mandible $1\frac{8}{12}$; wing from flexure $4\frac{9}{12}$; tail $2\frac{1}{2}$; tarsus $1\frac{1}{2}$; hind toe $\frac{3}{12}$, its claw $\frac{1}{12}$; second toe $\frac{6}{12}$, its claw $\frac{2}{12}$; third toe $1\frac{1}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{11}{12}$, its claw $\frac{2}{12}$.

FEMALE.—The female resembles the male.

HABITS.—The Jack Snipe arrives about the beginning of October, sometimes earlier, and departs in March. It is generally dispersed over the country, residing in marshy places, by the margins of rivers and lakes, in ditches, and, in short, in the same kind of places as our Common Snipe. Unless occasionally in time of snow, when attracted by unfrozen patches of water, individuals never congregate, this species being more solitary than even the other.

Although not nearly so numerous, it is not at all rare in many districts, and is generally dispersed over Britain. In Scotland the proportion of Jack Snipes to Common Snipes cannot, I think, be greater than as one to a hundred; but in Ireland, according to Mr. Thompson, who calculates from actual facts, Jack Snipes would seem to be in the proportion of about one-fourth to the common species." He states that it has "greatly increased in numbers of late years in the north of Ireland; and gives, from Mr. E. Jackson, game-keeper, several instances of its breeding in that country. In

Scotland and England it has only, in a very few instances, been known to breed.

It is considered a lazy bird, as it seldom rises until one is close upon it ; but this is scarcely an indication of sluggishness, and may rather be attributed to a desire of concealing itself in the apprehension of danger. On being raised or flushed, as the sportsmen say, it flies off low, in a slightly zigzag manner, and without emitting any cry, until about seventy or eighty yards distant, when it ascends, generally proceeds but a short way, and comes down with rapidity in the first suitable place that occurs.

As to its distribution on the continent, it will suffice to state that, according to various authorities, it extends from Norway to the south of Europe, and has been found in some parts of Asia. Its habits in the breeding season are not described. Mr. Yarrell states that "the egg is of a yellowish-olive, the larger end spotted with two shades of brown ; the length of the egg one inch three lines, by ten lines in breadth."

YOUNG.—The young in winter differ from the old birds only in having much less glossy purple and green on the back.

REMARKS.—Independently of colour and size, this species is easily distinguished from any other by its cuneate tail and acuminate secondary quills. M. Temminck and some others assert that it occurs in North America ; but this statement is erroneous.

RUSTICOLA. WOODCOCK.

THE Woodcocks differ from the Snipes in having the body fuller, the tibiæ feathered to the joint, the tarsi shorter, the wings broader, and the bill firmer and less scrobicular. Their habits, although essentially similar, are in some respects different. These birds are also of larger size than the Snipes. The head is of moderate size, very convex above, not much compressed, with the eyes rather large, placed very high and farther back than usual.

Bill longer than the head, straight, slender, tapering, compressed, with both mandibles grooved nearly to the end, scarcely enlarged there, scrobiculate beyond the middle, with the tips hard and obtuse, the upper projecting beneath into a considerable sulcate knob, into the depression behind which that of the lower is received.

Mouth very narrow; its roof with series of reversed pointed papillæ. Tongue very long, slender, channelled above, tapering to a point. Œsophagus rather narrow, with an oblong proventriculus; stomach roundish, very muscular, with dense rugous epithelium; intestine of moderate length and width; cæca moderate, cylindrical.

Nostrils sub-basal, sub-linear. Eyes rather large; as are the apertures of the ears. Legs short, rather strong; tibia feathered in its whole length; tarsus roundish, with very broad anterior scutella; first toe small, a little above the level of the anterior, of which the medial is long, compressed, marginate, the outer a little longer than the inner; claws short, obtuse, that of the middle toe only being of moderate length and rather acute.

Plumage firm. Wings long, broad, pointed; the first quill slightly longer than the second; the outer primaries considerably incurvate, all the primaries rounded at the

end ; the inner secondaries broad and not much elongated. Tail short, rounded.

These birds inhabit marshy places, moors, and woods ; rest for the most part by day, and at night search for food in the same manner as the Snipes, by thrusting their bill into the mud or soft earth. Their nest is slightly constructed ; the eggs four, pyriform, but less so than those of the Snipes, and blotched with dusky.

RUSTICOLA SYLVESTRIS. THE COMMON
WOODCOCK.

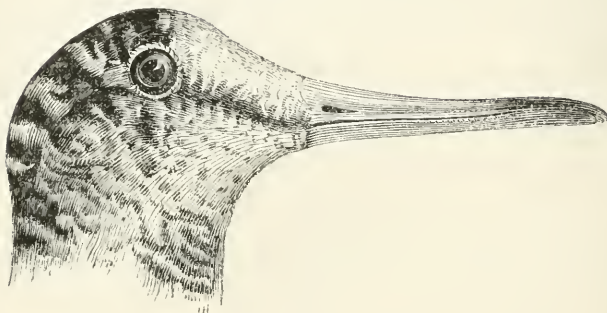


FIG. 32.

Scolopax Rusticola. Linn. Syst. Nat. I. 243.

Scolopax Rusticola. Lath. Ind. Ornith. II. 713.

Woodcock. Mont. Ornith. Dict.

Becasse ordinaire. Scolopax Rusticola. Temm. Man. d'Ornith. II. 673.

Scolopax Rusticola. Woodcock. Flem. Brit. Anim. 105.

Woodcock. Scolopax rusticola. Selby, Illustr. Brit. Ornith. II. 107.

Scolopax Rusticola. Woodcock. Jen. Brit. Vert. Anim. 204.

Scolopax Rusticola. Bonap. Comp. List, 53.

Upper parts variegated with blackish-brown, chestnut-red, and pale brownish-yellow; lower parts yellowish-grey, barred with brown.

MALE.—A great favourite with the sportsman, and in several other respects one of the most interesting of the Gallatorial birds, the Woodcock demands special attention from the ornithologist, whose descriptions, however, ought not on any occasion to degenerate into such statements as have reference solely or principally to the mode of procuring game, and the quantities of it obtained. A sportsman's diary is not an ornithologist's guide-book, although it may

supply useful particulars. They who separate the Woodcock generically from the Snipes do well; for it has a more bulky form, with shorter limbs, a larger and less compressed head.

The bill is about half as long as the head, slender, straight, tapering and compressed for half its length, then sub-cylindrical or slightly depressed, scarcely at all enlarged toward the end, scrobiculate in its terminal half, but inconspicuously; upper mandible with the nasal grooves filled with a membrane at the base, extending to near the end; the ridge, at first narrow and convex, becoming broader toward the end, with a medial groove; the tip hard and obtuse, with a prominence beneath; lower mandible with the sides sloping outwards, and having a shallow groove in the greater part of their extent; the tip depressed and obtuse.

The mouth is very narrow; the palate with several rows of very small pointed, reversed papillæ; the œsophagus narrow; the stomach a roundish, compressed, muscular gizzard; the intestine of moderate length; the cœca rather long and cylindrical.

Nostrils basal, sub-marginal, small, linear. Eyes rather large, placed higher and far back. Apertures of ears rather large. Legs short; tibia feathered to the joint; tarsus rather stout, roundish, with about fifteen very broad scutella, the sides reticulated, the hind part with two series of very small scales. The hind toe small, not much above the level of the rest, and with a short, convex, obtuse claw; the anterior toes compressed, the medial greatly exceeding the lateral, and with a much longer, gently arched, compressed, rather acute claw; the outer toe a little longer than the inner, with a shorter, more curved claw.

The plumage is rather firm and compact; the feathers broadly rounded. The wings are long, rather broad; the quills twenty; the primaries rather broad and rounded; the outer considerably incurvate; the first and second of about equal length, the rest slowly decreasing; the inner secondaries not much elongated, broad, and rounded. Tail short, rounded, of twelve rather soft feathers.

The bill is flesh-colour, tinged with bluish-grey, becoming dusky toward the end; the feet livid flesh-colour; the claws brown. The plumage, which is intricately coloured, may be described as variegated on the upper parts with blackish-brown, chestnut-red, grey, and pale brownish-yellow. The forehead is grey or yellowish-grey; the upper and hind part of the head very deep brown or blackish-brown, with three transverse narrow pale red bands. There is a distinct blackish-brown loreal band. The sides and fore part of the neck are light yellowish-brown, fading on the breast, and changing on the abdomen into pale yellowish-grey; all with narrow transverse bars of dusky brown; the lower wing-coverts and axillar feathers similar. On the lower part of the side of the neck is a large patch of blackish-brown; the wing-coverts are chestnut-red, barred with grey and dusky; the rump and upper tail-coverts of a lighter red, also barred with dusky. Primary quills, their coverts, and the alula brownish-black, barred on the outer web with triangular spots of light red, paler or whitish, and often continuous, on the first quill, and on the inner web marginally barred with paler red. The first primary covert stiff and pointed. Tail-feathers brownish-black, marginally barred with red, and having a large round terminal spot, which is grey above and white beneath.

Length to end of tail $13\frac{1}{2}$ inches; extent of wings 24; wing from the flexure $7\frac{8}{12}$; bill along the ridge $1\frac{3}{12}$; tarsus $1\frac{4}{12}$; hind toe $\frac{5}{12}$, its claw $\frac{1}{12}$; middle toe $1\frac{4}{12}$, its claw $\frac{3}{12}$.

FEMALE.—Larger than the male; similarly coloured, but with little or no grey on the back; the lower parts of a redder tint; the outer web of the first quill barred in its whole extent.

Length to end of tail $14\frac{1}{2}$ inches; extent of wings 25; wing from flexure $8\frac{1}{4}$; bill along the ridge $2\frac{8}{12}$; tarsus $1\frac{5}{12}$; hind toe $\frac{5}{12}$, its claw $\frac{1}{12}$; middle toe $1\frac{5}{12}$, its claw $\frac{4}{12}$,

VARIATIONS.—Individuals vary considerably in the tints of their plumage. Some have been seen of a yellowish-grey colour, faintly mottled with darker; and others with white

patches. Some entirely white individuals are also recorded. They also vary much in size.

HABITS.—Several excellent accounts of the habits of the Woodcock have been given by British writers, especially by Mr. Selby, Mr. Yarrell, and Mr. Thompson. This celebrated bird arrives on our eastern coasts, often in very great numbers, in the end of September and the beginning of October. It has been met with at that season along the whole extent of coast from Caithness to the Land's End. Although, in correspondence with a fancied course of migration, it has been stated that Woodcocks are more abundant in the south of England and Ireland, and generally arrive at an earlier period in the southern than in the northern parts of England, it does not appear, from recorded facts, that this is the case. In Shetland, although they arrive sometimes as early as anywhere else, they seldom remain long, these islands being not well adapted to their habits, but are supposed to proceed southward. In Orkney they are said, in mild winters, to remain until the period of their spring migration. In Lewis and Harris they appear early in October, sometimes not till near the end of that month, and continue there all the winter, although there is no wood in these islands. One could hardly suspect their presence there in any considerable numbers, as they are seldom met with; but one very severe winter, when the snow lay many weeks on the ground, and vast numbers of Rock Pigeons, Thrushes, and other birds were to be seen lying dead, the frozen brooks presented surprising quantities of Woodcocks that had perished from want of food. All along the east coast of Scotland they alight at the season of the autumnal migration, generally pass a few days not far from the shore, and then proceed inward. In winter and early spring scarcely any are to be found there, they having retired into the interior, where they are most plentiful in the wooded tracts in the hilly districts. As they have never been seen arriving on our coasts, nor setting out from them on their northward migration, it is concluded that they travel by night. Mr. Selby, however, says:—"A respect-

able person who lived upon the coast, and who, being a keen pursuer of wild fowl, was in the habit of frequenting the sea-shore at an early hour in the morning, assured me that he had more than once noticed the arrival of a flight of Woodcocks coming from the north-east just at day-dawn. His notice was first attracted by a peculiar sound in the air over his head, that, upon attending to, he found proceeding from birds descending in a direction almost perpendicular; and which, upon approaching the shore, separated and flew towards the interior." Some of them which alighted in hedges not far off he pursued and shot, and found them to be what he had supposed. Mr. Selby infers from the above statement that "they fly at a considerable altitude, to avoid, it is presumed, the currents of air so frequent near the surface of the earth." Mr. St. John remarks:—"No bird seems less adapted for a long flight across the sea than the Woodcock, and it is only by taking advantage of a favourable wind that they can accomplish their passage. An intelligent master of a ship once told me, that in his voyage to and from Norway and Sweden he has frequently seen them, tired and exhausted, pitch for a moment or two with outspread wings in the smooth water in the ship's wake; and having rested themselves for a few moments, continue their weary journey."

I do not see why writers on birds do not give the names of the "respectable persons" and "intelligent masters of ships" from whom they obtain information. When a lord, baronet, squire, or even a poor professor supplies a fact, of little value it may be, his name, title, and designation are carefully recorded. But the Woodcock, which receives no favours from respectable persons more than poachers, tries to conceal itself the best way it can, all day long, in some thicket or wood, resting quietly under a bush or tree, until toward night, when it leaves its retreat and flies off to some neighbouring field, meadow, or moor to search for food. During the day it sits very close, and is not in general to be flushed without the aid of a dog, or beating the bushes. When it has cleared the trees, it flies off in an easy manner, and requires no particular dexterity to shoot it. Frequently

it flies to no great distance, for, whenever a suitable spot presents itself, it drops suddenly down, and looks for a place of repose. Woodcocks, however, do not always doze all day long; for I have more than once found them in full activity, searching for food, along brooks and ditches, in woods and by hedges.

The common earth-worm appears to be the favourite food of this bird. To obtain it the bill is thrust into the ground to its full length, as appears from the holes made where it has been feeding. Coleopterous insects are also found in its stomach, and sometimes vegetable fibres. According to M. Lesson, "the Woodcocks live on insects, worms, slugs, and other small animals; for which they search among the grass and in moist ground, or beneath fallen leaves." The ordinary flight of the Woodcock is moderately quick, sedate, and unlike that of the Snipe, which is rapid, undulated, and, performed by quick beats of the wings. It walks with ease, and on occasions quickly; but is not addicted to running or much wading, although it readily goes into the water.

It forms its nest in various situations—in woods, about the margins of thickets, or in open places. It is a slight hollow, lined with bits of twigs and leaves. The eggs, four in number, are obtusely pyriform, an inch and three-fourths in length, an inch and a third in breadth, yellowish-white, clouded and spotted with grey and reddish-brown or dusky. Very considerable numbers breed in Scotland, as well as in England; fewer in the latter country, it would appear. Previous to the beginning of the present century, either the bird did not breed with us, or it had been considered altogether migratory; and reports as to nest or young were neglected. But of late years so many instances have been recorded, that we cannot doubt its perennial residence in Britain, and have ceased to consider a Woodcock's nest as a wonderful thing. Indeed, many more cases are known than have been recorded of the Redshank. Sir F. Mackenzie sent to the Zoological Society, in July, 1832, an account of the breeding of some Woodcocks at Conan, in Ross-shire. In the Magazine of Natural History for 1837, are accounts of Woodcocks breeding at Brahan Castle, in the same county,

and at Castle Forbes, in Aberdeenshire. The Rev. Mr. Gordon states that "some pairs breed in the larger woods (of Moray), as at Darnaway and at Cawdor." At the latter place a nest was found "on the ground at the foot of a fir tree, formed of the leaves of the Scots fir, and with four eggs." I have been favoured with interesting statements by the Rev. Mr. Smith, and Mr. Burnet of Kemnay.

"During the day-time," Mr. Smith writes, "the Woodcock repairs to the elevated and dry parts of the woods, where it reposes snugly beneath the stunted Scottish firs, to which it seems partial,—probably because the ground below them is generally less damp than that below the spruce and other kinds of fir. The Hill of Alvah, towards its summit, is surrounded by a belt of stunted and bush-like firs of this kind, beneath which the ground is dry and comparatively warm. I recollect once accompanying Lord Fife's gamekeeper to this particular spot, and in the course of going round the hill, in the line of these firs, we raised at least twenty Woodcocks. On being alarmed, they uttered, if I mistake not, a rather sharp quack, consisting of two notes. During unusually severe weather, the Woodcock, contrary to his habits when the season is of an ordinary character, may sometimes be observed, during the day, feeding at such small springs and boggy patches in the woods as have yielded to the frost. This operation he performs by boring to a great depth with his bill in the mud. While he is thus employed, his head is driven backward and forward with a rapidity which, to one who has not witnessed the performance, would almost exceed belief. So soon, however, as he becomes aware of your presence, he ceases his efforts, draws in his bill upon his breast, lowers his shoulders, squats close upon the ground, and continues perfectly motionless. In such a position, it is not a little difficult to distinguish him from the hues of the surrounding ground, covered as it generally is by ferns, and such withered leaves as, in their winter tints, harmonize remarkably with the colours of his plumage."

Mr. Burnet's statement is as follows:—"In my neighbourhood the Woodcock is not uncommon, especially in the

woods about the Barmkin of Echt and the Loch of Skene. At night I have sometimes raised it on elevated moors. In some seasons, however, it is more abundant than in others. In the spring there seems an accession to their numbers, and from April to the end of July they are to be seen every night passing, sometimes in small parties of old and young, over the tree tops in the woods they frequent. They fly steadily and rapidly on such occasions, uttering a sound like the word *vessop*, accompanied by several strange low croaks, like those of a frog. I have seen some briskly pass me one evening within a small space at the edge of a planting. In these motions they seem to take regular rounds, passing the same spots for many successive nights, as I have taken pains to observe. They breed twice in the year: first, very early, as I got remains of a young bird pretty far fledged in the month of April. The only nest I ever got was in a thick plantation, near the Loch of Skene, on July 1st, the bird fluttering off at my feet as if wounded. There was merely a cavity at the root of a tree, with a few fir leaves in a sort of form. The four eggs I presented to you. In the bilberry season the Woodcock resorts to the places where that fruit grows, and eats great quantities of it. Its dung has then the purple colour of that of all birds feeding on the same berry. This species leaves our part of the country about the month of August, few or none being found betwixt that and the beginning of October."

The eggs alluded to are broadly ovate, rather pointed, not depressed at the broader end; the largest an inch and ten-twelfths in length, an inch and five-twelfths in breadth; the smallest an inch and nine-twelfths by an inch and four-twelfths; pale yellowish-grey, densely blotched and spotted with umber-brown and purplish-grey at the larger end, sparsely over the other parts, with some faint purplish-grey markings.

Mr. St. John's account of the Woodcock as observed in Morayshire is less that of a mere sportsman than of a lover of nature and an observer of the habits of birds. After stating that a nest with three eggs was brought to him on the 9th of March, 1846, and that in the second week of

April a boy brought him a young bird nearly fledged, he remarks that it must be about the first bird to hatch in the country. "A few years ago it was supposed that none remained in Britain after the end of winter, except a few wounded birds, which were unable to cross the sea to their usual breeding-places. However, since the great increase of fir plantations, great numbers remain to breed. In the woods of Altyre and Darnaway, as well as in all the other extensive plantations in the country, during the whole spring and summer, I see the Woodcocks flying to and fro every evening in considerable numbers. As early as six or seven o'clock they begin to fly, uttering their curious cry, which resembles more the croak of a frog than anything else; varied, however, by a short shrill chirp. Down the shaded course of the river, or through the avenues and glades of the forest, already dark from the shadow of the pine-trees, the Woodcocks keep up a continual flight, passing and repassing in all directions, as if in search of each other. As the twilight comes on, in the open part of the country, they leave the shade of the woods, and fly down to the swamps and pools near the sea-shore and elsewhere to feed during the night. When watching in the evening for wild Ducks or Geese near the swamps by the shore, I have constantly seen them pitch close to me, and commence feeding in their peculiar manner. These birds must probably come from the Altyre woods, the nearest point of which is at a distance of two or three miles. In the evening the Woodcock's flight is rapid and steady, instead of being uncertain and owl-like, as it often is in the bright sunshine. I consider their vision to be peculiarly adapted to the twilight, and even to the darker hours of night, this being the bird's feeding time. In very severe and protracted snow-storms and frosts I have seen them feeding at the springs during the day-time; but in moderate weather they pass all the light hours in the solitary recesses of the quietest parts of the woods, although occasionally one will remain all day in the swamp, or near the springs on the hill-side, where he had been feeding during the night."

Several statements have been made, from which it would

appear that the Woodcock, habitually or occasionally, carries its young from one place to another—some say with its bill, others with its feet, the latter mode of conveyance more numerously attested than the former ; but more observations are necessary on this point.

Woodcocks vary much in size and remarkably in weight, from seven or eight, it is stated, to twenty or even more ounces. As an article of food or of luxurious gastric indulgence, no bird is held in more estimation ; and in this respect it deserves all the encomiums bestowed upon it. Its price is accordingly high, and poor people are neither permitted to shoot nor can afford to eat Woodcocks, which are quite aristocratic in their final tendencies. They afford prime sport, too, to idle people, who expatiate with delight upon the pleasures of “cock-shooting.” It is very interesting, it would appear, to be informed that the Earl of Claremont shot fifty couple in one day, Captain Donnan thirty, and a field-officer of the Tipperary Militia saw fifty couple bagged by an acquaintance. This happened in Ireland, where, if shooting Woodcocks would prevent people from shooting each other, it would be politic and humane to give “the finest peasantry” in the world the free range of the bogs and thickets, and set the gentry to dig potatoes or preach popery out of the island.

The Woodcock is, properly, a regular winter resident in Great Britain and Ireland ; and it does not appear that the number of those which make their abode there in summer and breed, bears any considerable proportion to that of the individuals which leave us in spring for the northern parts of Europe. They depart in March, and in the end of that month or the beginning of the next arrive in Scandinavia, some of them proceeding to the extreme north. They are also said to breed in Russia and Siberia ; some in various more southern countries. Their southern migration extends to Egypt and Cashmere. They are also stated to inhabit various parts of India. This species has not hitherto been observed anywhere in America ; but in the northern parts of that continent a smaller Woodcock occurs, to which, on account of its shorter rounded wings and some other pecu-

liarities, a separate genus has been assigned. It is named *Microptera Americana*, and was by Linnæus called *Scolopax minor*.

YOUNG.—The young when fledged differ from the adult only in having the tints deeper.

REMARKS.—The second quill is said by some authors to be longer than the first. I find it very slightly shorter; and if these quills, which are considerably incurvate, be straightened, the first becomes decidedly longer.

XV. ACUPATORES. STALKERS.

Stately and sedate birds, as most of those which constitute this order are, they differ as much from the rambling and lively Tentatorial tribes as can well be conceived. Many of them are of a very large size, some quite small, the majority of moderate dimensions. Their body is much compressed, sometimes rather robust, generally light, and often very thin. The head oblong, compressed, flattened above. The bill is large, generally compressed, and conical, but varying considerably in form, and sometimes elongated, tapering, sub-cylindrical, or flattened and expanded at the end.

Their digestive organs, adapted for animal food, and especially for fishes and reptiles, differ from those of the preceding orders: the œsophagus being wide; the stomach large, roundish, with the muscular coat thin, the epithelium soft; the intestine very long and narrow; the cœca wanting or small.

The legs are usually long and slender; the tibia bare to a large extent; the tarsus generally scutellate; the toes four, the hind toe large, and placed on the same level as the rest.

The plumage is various, mostly rather loose, with some of the feathers elongated, and having disunited filaments. The wings large and broad; the tail short.

These birds feed on fishes, reptiles, crustacea, and other aquatic animals. They frequent the shores of the sea, estuaries, rivers, and lakes, or reside in marshy places, among the rank herbage. Their flight is light or buoyant, but mostly slow. They walk in a sedate and rather graceful manner, often wade upon the mud and sand, and sometimes stand for

hours in the water, watching for their prey. Most of them are shy and suspicious, either removing by flight from the approach of man, or concealing themselves among the herbage. They form very large, generally slovenly and flat nests, which they place on the ground or on trees, and lay few, from two to five, light-coloured eggs. The young, at first scantily clothed with down, remain in the nest or its neighbourhood, until able to fly.

The Herons, *Ardeinæ*, the typical birds of this order, are in external aspect very distinct from all the other *Grallatorial* tribes; but the *Tantalinae*, the only other birds belonging to it, have some affinity to the *Tringinae*, and resemble the Curlews. The species are much more numerous in tropical than in temperate countries; but even in the colder some occur, at least in the breeding season. Most of them are more or less migratory, and some perform long journeys. Very few are permanently resident in Britain; but, with stragglers, we make up a pretty considerable list.

ARDEINÆ.

HERONS AND ALLIED SPECIES.

THE genera which collectively constitute the family of Ardeinæ are Ciconia, Argala, Mycteria, Ardea, Egretta, Nycterodius, Botaurus, Anastomus, Scopus, Cancroma, and some others formed of sections of the genus Ardea of the older writers, that is, of those who flourished thirty or forty years ago. It is chiefly in the skeleton, digestive organs, wings, and feet that these genera present easily appreciable characters of general application. The bill, although differing little in form in three-fourths of the genera, varies considerably, even in them, as to length, thickness, and other circumstances; and in the rest exhibits remarkable peculiarities.

A Heron at first sight seems to have little affinity to the other groups of the birds usually called Waders or Grallatores; but a closer inspection discloses gradations of specific forms by which it is connected with them. Thus, our common Heron is obviously allied to the common Stork. This latter is very similar in form and plumage to Anastomus, which, however, has the bill considerably modified, and the toes and claws longer; Anastomus resembles *Ædicnemus magnirostris* in its bill, and does not differ widely from it in plumage. Now *Ædicnemus* belongs to the family of Charadriinæ, or Plovers, which are allied to the Bustards, and these latter in several respects resemble the *Perdicinæ*. Some Cranes so much resemble Storks or Herons that most authors have referred them to the same group, although they present well-marked distinctive characters. In the general form, and especially in the structure of the legs, toes, wings,

and tail, the connection of *Ardea* with *Tantalus* is obvious. Even the bill of the latter has a considerable resemblance to that of the *Ardeinæ*, while the bareness of its head more particularly indicates an affinity to the Storks. The *Tantali* almost blend with the Spoonbills and Ibises, and the latter are scarcely distinguishable from the Curlews, which belong to the family of *Scolopacinae* or Snipes. Some of the smaller *Ardeinæ*, of the *Bittern* genus, seem in structure and habits to be related even to the Rails and Gallinules, which are of themselves allied to some of the *Rasores*. But, to explain these relations fully would require a larger space than can well be afforded in a work on the birds of a particular country. What has been said, however, will shew that the *Ardeinæ* are by no means so isolated as they might at first seem to be.

In like manner, it may be remarked, the affinities of any particular group, family, or genus of the *Grallatorial* Birds might be shewn to have complex affinities with other groups. The *Hérons* themselves, from feeding chiefly on fish, and having a very wide *œsophagus*, are allied to the piscatorial swimming birds. But, without entering into such extended considerations, I think it must be obvious to most persons, who are not authors of systems founded on superficial characters, or partizans blinded by prejudice and obstinate from pride, that internal structure must be studied before a natural arrangement can be discovered.

The *Ardeinæ* cannot be defined by many characters equally applicable to all the species. Perhaps the following general features may afford a sufficiently definite idea of them:—

They are birds of very large, moderate, or very small size. The body seems large when viewed laterally, but is much compressed, and in the smaller species extremely narrowed; the neck long and generally slender; the head oblong, much compressed, flattened in front. The bill is long, straight, stout, tapering, compressed; the upper mandible with its dorsal line nearly straight, the ridge broad at the base, narrowed in the rest of its extent, the sides sloping outwards, the edges thin, the tip acuminate. The mouth is

rather wide, and capable of being much dilated in consequence of the flexibility of the crura of the lower jaw. The palate is convex, anteriorly with two papillate ridges, and a median prominent line which runs to the point of the mandible. The posterior aperture of the nares is linear. The tongue long, slender, trigonal, tapering, sagittate at the base, with a large pointed papilla on each side, the tip acute. Although there is a large gular sac, the skin on the throat is feathered. The œsophagus is very wide in its whole length, with its walls thin, and its inner coat longitudinally plicate; the proventriculus very wide, its glands forming a broad belt, at the upper margin of which are numerous large mucous crypts in groups. The stomach, a very large rounded sac, of which the muscular coat is extremely thin, and formed of very slender fasciculi, with the inner coat thin, soft, and smooth. Attached to it is a globular pyloric lobe. The intestine is very long and extremely narrow; at the commencement of the rectum is an oblong small caput cœcum, but no lateral cœcal appendages; the cloaca very large and globular.

The trachea, which is composed of numerous, very thin rings, is considerably flattened and gradually narrowed; the last four rings dimidiate. A pair of cleido-tracheal muscles pass from the thyroid bone to near the middle of the furcula. The lateral muscles, thin and slender at the upper part, become thicker below, and extend over the whole surface before and behind. A slip from them, on each side, extends to the last half-ring. The bronchi are wide, of numerous half-rings, their membrane large.

The eyes are of moderate size, generally surrounded with a bare space. The nostrils linear, in the small nasal membrane, from which a groove extends anteriorly, but in some genera is obsolete. The aperture of the ear is small and roundish.

The tibiæ are very long, and generally bare to a great extent; the tarsi long and rather stout; the toes four, of which the first is slender, and placed nearly on a level with the anterior, which are long and rather slender, scutellate above, flattened beneath, and connected by basal membranes.

The claws are short or of moderate length, arched, generally compressed, and pointed; the thin edge of that of the third toe often moderate.

The plumage is generally full, soft and blended on the neck and lower parts, as well as on the hind part of the back. The feathers, which vary in form, have a small down-plumule. Those on the head, nape, lower part of the neck, fore part of the back and scapulars, are more or less elongated. The wings are very large, broad, somewhat rounded; some of the inner secondaries about the length of the longest primary when the wing is closed. The tail is always short, and of twelve or ten weak, rounded feathers.

The skeleton varies in the proportion of its parts; but in the common Heron, *Ardea cinerea*, may be briefly described as follows:—The cranium is oblong, flattened anteriorly, with a strong transverse ridge on the occiput; the bony septum between the eyes with a large vacant space; three large spaces filled with membrane only at the base of the skull anteriorly. The jaws are straight and elongated; the nasal vacuity oblong and of small extent. The cervical vertebræ are very elongated and much compressed; the upper five long and peculiarly articulated, the lower part of each upper vertebra passing far over the joint behind, while the upper anterior part of the lower vertebra passes upwards. There are in all forty-three vertebræ, of which sixteen are cervical, nine dorsal, eleven sacral, and seven coccygeal. The ribs are very slender, the first rudimentary, the second incomplete, the last two without medial processes. The sternum is very short; its body of moderate breadth, concave, with two deep sinuses behind; the carina very prominent, thin, with a curved convex outline. The clavicles or coracoid bones long and of moderate strength; the furcula articulated to the tip of the carina, of moderate width, rather stout, with a small process projecting upwards in its angle. The scapulæ are slender and arcuate; the humeral bone very long and stout; the cubital bones about a fourth longer; two carpal bones; the pollical bone slender; the two metacarpal bones long and united at the end; the outer first digital bone large and broad; the terminal bone slender;

the inner digital bone very small. The pelvis of moderate size, with the ischiatic bone united, the pubic bone slender and free, unless at the base. The femur is very short; the tibia extremely long; the fibula slender, united, and extending half-way down; the tarsus long, slender, of greater breadth than depth; the digits long and slender; the first toe on the same plane, with two phalanges and a basal bone; the second with three; the third with four; the fourth five.

The skeleton thus differs considerably from that of the *Gruinæ*. The skull is more elongated, and flattened instead of being convex above; the nasal sinus short, instead of being very long; the upper cervical vertebræ are very long in the Herons, short in the Cranes; the sternum short, and of moderate breadth in the former, long and narrow in the latter; the furcula articulated in the Herons, united in the Cranes; the pelvis moderate in the former, very large in the latter; besides other differences.

The affinities of the genera being complex, it is impossible to arrange them in a circular or quinary order, unless a single organ be taken as supplying characters. It is amusing to see those who profess to take the whole organization into account, usually forced to confine their regards to a few organs. Thus Mr. Swainson betakes himself to the bill; for although the feet in several instances, and other parts in others, are spoken of, the bill is the only organ adduced in all his generic characters. He has, besides, thrust among the *Ardeinæ* two genera, *Platalea* and *Hæmatopus*, which belong to two distinct families. None but the most superficial observer could think of placing an Oyster-catcher beside a Heron, differing as they do in structure and habits. *Hæmatopus* having three toes, while the rest have four, is assumed by him as the "Grallatorial type," it being necessary, in a quinary arrangement, that such should be. Yet, not at all strange to tell, in another part of the same volume, *Hæmatopus* is assumed as belonging to the "*Charadriadæ*," or family of Plovers. It is disheartening to find nature thus perverted by ignorant pretenders to science, and wearisome to point out their errors.

The *Ardeinæ* are essentially carnivorous, and more espe-

cially ichthyophagous, as is shown by the structure of their digestive organs, as well as by their habits. They feed also on crustacea, mollusca, worms, insects, occasionally reptiles, small quadrupeds, and young birds. Those of the Stork kind, especially if domesticated or allowed to frequent cities, devour with Vulturine appetite any animal substance they can find. They walk sedately, often gracefully; wade into shallow water in search of prey; often stand patiently waiting its arrival, when they suddenly jerk out their previously retracted neck, seize it with their strong-pointed bill, and generally swallow it entire. They have a quiet, seemingly heavy, but in reality buoyant flight, capable of being protracted to great distances. Their voice is generally a harsh, grating scream, without modulation, or a kind of guttural croak; but some emit a booming or drumming noise. They nestle on the ground or on trees, often in large communities, forming a large flat nest of twigs and other rude materials, and lay from two to five eggs, of a broadly elliptical form, and generally of a light greenish-blue colour. The young, at first bare or scantily clothed with coarse down, remain in the nest until able to fly, unless attacked, when they often leave it; but are incapable of running with the speed of the young *Cursitores*. On being pursued or surprised, the old birds do not squat or run, but fly off. Species occur in all countries, but are more numerous toward the equator. They frequent marshes, the shores of lakes, rivers, and even the sea. Only one species is common in Britain; but eleven others occur there, most of them as accidental or occasional visitants.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. BOTAURUS. BITTERN.

Bill longer than the head, slender, straight, compressed, tapering to a fine point, and with the edges sharp and serrulate. Legs of moderate length; tibia bare for a short space

only, or entirely feathered; tarsus with very broad anterior scutella; toes long, with long slender claws. Feathers of the sides and lower part of the neck much elongated; on the former directed obliquely backwards, so as to cover the downy part of the neck behind. Wings large, with the third and second quills longest; tail very short, of ten soft feathers.

1. *Botaurus stellaris*. *European Bittern*. Length about thirty inches; one inch of the tibia bare. Plumage light reddish-yellow, variegated with dusky; the upper part of the head and the greater portion of the scapulars purplish-black.

2. *Botaurus lentiginosus*. *The American Bittern*. Length about twenty-six inches; one inch of the tibia bare. Plumage variegated with yellowish-brown, dark brown, and reddish; a broad band of brownish-yellow from the cheek to the nape, and beneath it an oblique band of black.

3. *Botaurus minutus*. *The Little Bittern*. Length about fourteen inches; tibia entirely feathered. Upper part of the head, back, scapulars, and tail glossy greenish-black; lower parts and smaller wing-coverts light reddish-yellow.

4. *Botaurus comatus*. *The Squacco Bittern*. Length about eighteen inches; tibia entirely feathered. Upper part of the head pale yellow, with dusky lines; an occipital plume of long, linear, acuminate white feathers, each with two black lines.

GENUS II. NYCTICORAX. NIGHT-HERON.

Bill scarcely longer than the head, stout, nearly straight, compressed, tapering to a point, and with the edges sharp. Legs of moderate length; tibia bare for about a fourth of its length; tarsus scutellate above, reticulate below; toes rather long, with moderate compressed claws; wings broad, with the second and third quills longest, the first a little shorter; tail short, even, of twelve broad feathers

1. *Nycticorax Ardeola*. *The Grey Night-Heron*. Three white, black-tipped, linear occipital feathers; crown, nape, fore part of back, and scapulars greenish-black.

GENUS III. ARDEA. HERON.

Bill longer than the head, stout, straight, compressed, tapering to a point, and with the edges sharp and serrulate. Legs very long, rather slender; tibia bare for more than a third of its length; tarsus anteriorly scutellate; toes very long; claws moderately arched, compressed, acute. Wings ample, the outer four quills nearly equal. Tail short, nearly even, of twelve feathers.

1. *Ardea cinerea*. *The Grey Heron*. Upper parts and sides bluish-grey; forehead white; pendent occipital crest black; fore-neck white, with longitudinal black spots.

2. *Ardea purpurea*. *The Purple Heron*. Upper parts light greyish-blue; edge of wing light red; neck longitudinally banded with greenish-black and light red; tail black toward the end.

GENUS IV. EGRETTEA. EGRET.

Bill much longer than the head, strong but rather slender, straight, compressed, tapering to a point, and with the edges sharp and often serrulate. Legs extremely long, slender; tibia bare for half its length or more; tarsus anteriorly scutellate; toes long, slender; claws arched, compressed, acute. Wings ample, the outer three quills nearly equal. Tail short, nearly even. Four longitudinal series of very elongated feathers on the back.

1. *Egretta nigrirostris*. *Black-billed Egret*. Length about forty-four inches. Bill black; bare preocular space verdigris-green; plumage white.

2. *Egretta alba*. *Yellow-billed White Egret*. Bill yellow; bare preocular space verdigris-green; plumage white.

3. *Ardea Garzetta*. *Little White Egret*. Length about twenty-four inches. Bill black; bare preocular space green; plumage white.

4. *Egretta russata*. *Buff-backed Egret*. Hair-like feathers of hind-head and neck and dorsal plumes reddish-yellow; fore part of breast and back pale cream-colour; the rest of the plumage white.

GENUS V. CICONIA. STORK.

Bill much longer than the head, straight, stout, conical, moderately compressed. Legs very long, rather slender; tibia bare for about half its length; tarsus reticulated; anterior toes of moderate length, webbed at the base; claws short, obtuse. Wings long, ample, the third quill longest. Tail rather short, rounded.

1. *Ciconia alba*. *White Stork*. Bill and feet red; plumage white; scapulars, quills, and larger coverts black.

2. *Ciconia nigra*. *Black Stork*. Bill and feet red; plumage brownish-black, glossed with purple and green; breast and abdomen white.

BOTAURUS. BITTERN.

THE Bitterns are generally distinguishable from the other birds of this family by the extreme compression of their body, their shorter legs and proportionally longer claws, the great elongation of the feathers of the neck, which is bare behind nearly in its whole length; their oblong, extremely compressed head; and very slender, straight bill. The genus, however, is not clearly separated from the others, into all of which it graduates. *Ardea stellaris* and *Ardea minor* of authors may be assumed as among the most characteristic species; while *Ardea speciosa*, *Ardea minuta*, *Ardea exilis*, and other small species are allied to the Night Herons. It is by these smaller species that an apparent transition is made to the family of Rails, Water-hens, and Jacanas, which they greatly resemble in form, often in colouring, and not a little in habits, although the internal structure of the two groups is quite distinct, there being no blending of either the skeleton or the digestive organs. The little Bitterns have by some been formed into a genus, to which the name of *Ardeola* has been given; but this separation I think unnecessary. The general characters of the *Botauri* seem to be the following:—

Bill longer than the head, slender, straight, compressed, tapering to a fine point: upper mandible with the dorsal line almost straight, being but slightly declinate toward the end; the ridge flattened for a short space, then narrow; the nasal groove deep and extending to near the end; the sides convex; the edges sharp, serrulate, with a notch close to the acute tip; lower mandible with the angle very long and extremely narrow; the dorsal line almost straight and slightly ascending; the sides slightly concave and nearly erect; the

tip acuminate; the gape-line straight, being deflected only at the base.

Tongue long, slender, trigonal; œsophagus very wide; stomach roundish, with very thin walls and a round pyloric lobe; intestine long, narrow; cœcum oblong.

Nostrils linear. Eyes large. Aperture of ears rather small. Legs of moderate length; tibia bare for a short space or entirely feathered; tarsus with very broad anterior scutella; toes long, the first strong, the second much longer than the fourth, the outer two connected by a small basal web; claws long, slender, that of the first toe stouter and more arched, of the middle toe with the inner edge pectinate.

Plumage very full and soft; the hind part of the neck covered only with down, but concealed by the very elongated feathers of its sides and lower part, which are directed obliquely backwards. Wings large, of twenty-eight quills, of which the second and third are longest; inner secondaries nearly as long when the wing is folded. Tail very short, nearly even, of ten soft feathers.

The Bitterns reside in marshes, and by the sides of lakes and streams, where, in a hideling manner, they search for reptiles, fishes, and other aquatic animals. The males, in the breeding season, make a loud booming or bellowing noise. The eggs, from three to five, are elliptical, of one colour, generally grey, olivaceous, or white. The young remain in the nest until fledged.

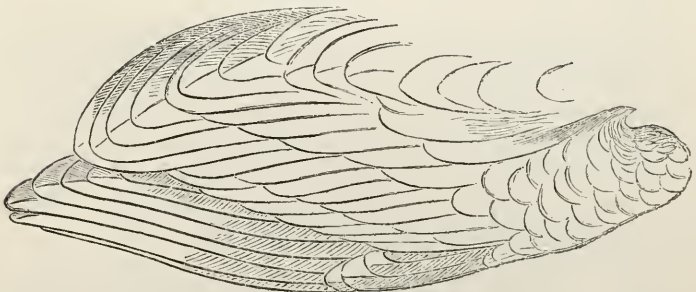


FIG. 33.

BOTAURUS STELLARIS. THE EUROPEAN BITTERN.

COMMON BITTERN. MIREDRUM. BUMPY-COSS. BUTTER-BUMP. BITTER-
BUM. BOG-BUMPER. BUMBLE.

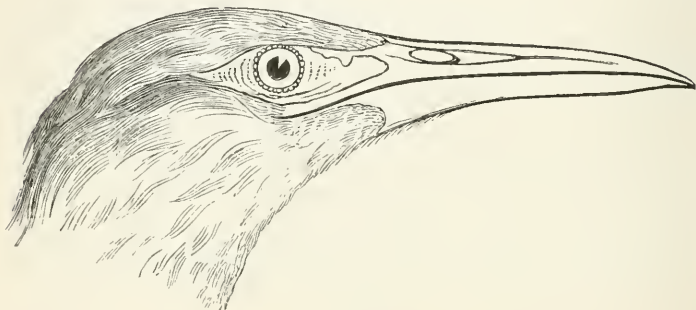


FIG. 34.

- Ardea stellaris.* Linn. Syst. Nat. I. 239.
Ardea stellaris. Lath. Ind. Orn. II. 680.
Ardea stellaris. Linn. Syst. Nat. I. 329.
 Bittern. Mont. Orn. Dict.
 Heron Grand Butor. *Ardea stellaris.* Temm. Man. d'Orn. II. 580.
Ardea stellaris. Flem. Brit. Anim. 95.
 Common Bittern. *Ardea stellaris.* Selb. Illustr. II. 30.
Ardea stellaris. Common Bittern. Jen. Brit. Vert. An. 190.
Botaurus stellaris. Bonap. Comp. List, 48.

Length about thirty inches; one inch of the tibia bare. Adult light reddish-yellow, with the upper part of the head and the greater portion of the scapulars purplish-black; the rest of the upper parts transversely undulated with dusky; the lower parts paler, with the markings on the fore-neck larger and more brown, those along the middle of the breast black and longitudinal. Young similar.

MALE.—Although the Bittern has a very bulky appearance compared with that of many other species of this family, it is in reality a very slender bird, its size being

chiefly made up of feathers. It is much smaller and of a less elongated form than the Grey Heron. Its body is extremely compressed behind; the neck long and of moderate thickness; but both seem large on account of the elongation and arrangement of the feathers. The head is oblong and compressed.

The bill, which is about the same length as the head, or a little longer, is straight, rather slender, compressed, and tapering to a point; the upper mandible with the dorsal line straight for nearly two-thirds, then slightly declinate; the ridge flattened at the base, then narrowed and convex, the groove extending nearly to the end; the sides flat at the base, little convex in the rest of their extent; the edges sharp, serrulate, with a notch close to the tip, which is acute; the lower mandible with the angle very long and extremely narrow; the dorsal line straight and ascending; the sides slightly convex; the edges sharp, serrulate; the tip acuminate; the gape-line almost straight.

Internally the upper mandible is considerably concave, with three longitudinal ridges. The tongue is an inch and ten-twelfths long, deeply emarginate at the base, narrow, trigonal, tapering to the point. The œsophagus is seventeen inches long; for two inches of the width of an inch and a half, then contracting to eight-twelfths, but presently enlarging to an inch and two-twelfths, and so continuing until its entrance into the thorax, when it enlarges to an inch and ten-twelfths; its walls very thin. The stomach is large, thin, rounded, with a roundish pyloric lobe. The intestine is six feet seven inches in length, from three-twelfths to two-twelfths in width; the rectum wider, with an oblong cœcal head; the cloaca globular. The lobes of the liver are very unequal, and the gall-bladder is an inch and a half long, but only three-twelfths in breadth.

The nostrils are linear, seven-and-a-half-twelfths long. The eyes large. The aperture of the ear rather small, its greatest diameter being four-twelfths. The feet are of moderate length, stout; the tibia bare for the space of only an inch; the tarsus with very broad scutella before, reticulate behind. Toes long, stout, scutellate above, flattened

beneath; the first strong, the second much longer than the fourth, which is connected with the third by a small basal web; the first with twelve, the second twenty-two, the third thirty-four, the fourth twenty-four scutella. The claws are long, slender; that of the first toe stouter and more arched, the rest being but slightly so; all compressed, tapering; the inner edge of the third pectinate, with about thirty teeth.

The plumage is very full and soft; the feathers oblong or ovate, obtuse, with loose margin; those of the head and nape oblong and elongated; of the sides and lower part of the neck also much elongated, and on the former directed obliquely backwards, so to cover the hind-neck, which is covered with down only in its whole length; the scapulars long, but not remarkably so; the feathers on the hind part of the back rather downy. The wings are large, extending nearly to the end of the tail when closed, of twenty-eight quills, of which the third and second are longest, the first almost equal; the inner secondaries nearly as long as the outer primaries in the closed wing. The tail is very short, nearly even, of ten soft feathers.

The bill is greenish-yellow, with the ridge of the upper mandible brown; the bare spaces on the head greenish-yellow; the irides light yellow; the legs, tarsi, and toes anteriorly greenish-brown, posteriorly yellowish green; the claws brown. The upper part of the head and occiput are purplish-black. The general colour of the plumage is light reddish-yellow, variegated with brown and black, the markings transverse and undulated on the sides and hind part of the neck, upper and lower wing-coverts, and the part of the back behind the scapulars. On these and the fore part of the back the predominant colour is black, tinged with purple, the edges of the feathers only being indented with yellowish-red. The quills are blackish-brown, tinged with greyish-blue, and undulatingly barred with yellowish-red. The tail is lighter and more narrowly barred. On the fore-neck the markings are larger, more brown, and assume somewhat of a longitudinal direction. The fore part and middle of the breast are longitudinally streaked with brownish-black.

Length to end of tail 30 inches; extent of wings 46; bill along the ridge 3, along the lower mandible 4; wing from flexure $13\frac{1}{2}$; tail $4\frac{1}{2}$; tarsus $3\frac{9}{12}$; hind toe $1\frac{10}{12}$, its claw $1\frac{7}{12}$; second toe $2\frac{5}{12}$, its claw $1\frac{3}{12}$; third toe $3\frac{4}{12}$, its claw $1\frac{2}{12}$; fourth toe $2\frac{2}{12}$, its claw $\frac{1}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—The Bittern, which is said to be abundant in most of the marshy districts on the Continent, and to have formerly been plentiful in England, is now of rare occurrence in any part of Britain, and especially in Scotland, where I have, however, seen many specimens, and even obtained one for dissection. Montagu states that “in the breeding season it is only found in the less frequented reedy marshes and swampy moors well clothed with rushes, where it forms a nest on some tump, by collecting a quantity of sedge or other coarse plants together. It lays four or five eggs of a light olive-green colour, inclining to cinereous. At this season the male makes a singular bellowing noise, vulgarly supposed to be produced by the bird putting his bill into a reed. It is roused with difficulty from its lurking-place, flies heavily, and frequently lights again at a small distance; so that it becomes an easy prey to the sportsman. We are informed, however, that sometimes it soars to a prodigious height in the air with a spiral ascent, making at the same time a singular noise. In the winter these birds leave the more mountainous swamps, where it is probable the greater part breed, and become more scattered in the low moist situations; and in severe weather are found on the sedgy banks of rivers and streams of water. It is, however, become much more scarce than formerly, since its flesh has been accounted a delicacy; and the poulterers value it at not less than half-a-guinea. The principal food of this bird is small fish, frogs, and insects; the warty lizard also becomes its prey, as we have found by dissection.”

The booming or bellowing noise emitted by this bird has given rise to a great deal of fanciful conjecture. I have never heard it; and cannot pretend to account for it. Mr.

Mudie, who appears to consider himself quite familiar with it, describes it thus:—He is wandering in the twilight by the side of a bog, and hears a rustle among the reeds, “accompanied by the brush of a rather powerful wing. You look round the dim horizon, but there is no bird; another rustle of the wing, and another, still weaker and weaker, but not a moving thing between you and the sky around. You feel rather disappointed—foolish, if you are daring; fearful, if you are timid. Anon a burst of uncouth and savage laughter breaks over you, piercingly or rather gratingly loud, and so unwonted and odd, that it sounds as if the voices of a bull and a horse were combined, the former breaking down his bellow to suit the neigh of the latter, in mocking you from the sky. That is the love-song of the Bittern, with which he serenades his mate; and uncouth and harsh as it sounds to you, that mate hears it with far more pleasure than she would the sweetest chorus of the grove; and when the surprise with which you are at first taken is over, you begin to discover that there is a sort of modulation in the singular sound. As the bird utters it he wheels in a spiral, expanding his voice as the loops widen, and sinking it as they close; and though you can just dimly discover him between you and the zenith, it is worth while to lie down on your back and watch the style of his flight, which is as fine as it is peculiar. The sound comes better out, too, when you are in that position; and there is an echo, and, as you would readily imagine, a shaking of the ground; not that, according to the tale of the poets, the bird thrusts his bill into the marsh, and shakes that with his booming, though (familiar as I once was for years with the sound and all the observable habits of Bitterns) some kindly critic, on a former occasion, laboured to convert me from that heresy. A quagmire would be but a sorry instrument even for a Bittern’s music; but when the Bittern booms and bleats overhead, one certainly feels as if the earth were shaking; but it is probably nothing more than the general affection of the sentient system by the jarring upon the ear—an affection which we more or less feel in the case of all harsh and grating sounds, more especially when they

are new to us." What a pleasant thing it is to be able to write copiously and with ease on a subject about which one knows nothing! Mr. Mudie's Bittern is evidently the offspring of his fine imagination, and its booming is the drumming of a Snipe. That he has mistaken one thing for another is very evident; for when attempting to describe the noises made by the Snipe, he quite mismanages.

The Bittern is an unsocial bird, deriving its chief enjoyment from an exclusive attention to its own interests; and thus its habits present nothing particularly pleasing. It reposes by day, concealed among the reeds or other tall aquatic plants, standing with its neck bent, and its head drawn back between its shoulders. When so situated, it allows a person to come quite close upon it before it takes wing; and when it flies off, it proceeds but to a short distance, and then alights. It pairs in February, and at that season has a mode of expressing its tender feelings quite in correspondence with its uncouth manners. In the evening twilight it rises on wing in a spiral direction, emitting at intervals a bellowing noise, which, however, it also gives out when on the ground. Its nest, which is concealed among the long herbage is a bulky and rudely-constructed mass of sticks, reeds, and sedges. The eggs, four or five in number, are of a pale yellowish-green colour. The young continue in or about the nest until they are able to fly. A few instances of its breeding in England are given. It is probable, however, that by far the greater number of individuals that are found in Britain are visitants only. In some years they are said to be more numerous than in others. Thus, Mr. Selby remarks that, in the winter of 1830, "a more than usual number of Bitterns has been killed in various parts of the kingdom; and I am credibly informed, that no less than ten were exposed for sale in one morning at Bath." Mr. Heysham also states that, "during the months of December, January, and February last (1830-31), no less than eight specimens of the Bittern were killed in this part of the county (Carlisle.)" This is the more remarkable, as only a single specimen has been met with in the same district for the last ten or twelve years. It would

appear from the public journals, that about the same period of the year others were killed in Durham, Yorkshire, Devonshire, &c. Sir William Jardine observes:—"In the south of Scotland a similar comparative abundance occurred; several were brought to me in Dumfriesshire; and, on a visit to Edinburgh, it was found that the bird-preservers there had obtained also a more than usual number of specimens." Mr. Thompson, after giving a long list of specimens killed in Ireland, remarks:—"It will have been observed that, in the winter of 1830-31, Bitterns were more than commonly frequent in Dublin and the neighbouring country—in Waterford and perhaps in Down; thus implying an unusual migration to the island."

The Bittern is said to visit Scandinavia in summer, and to be found in Russia and Siberia. Thence it extends southward over the whole of Europe, and in Asia as far as India, China, and Japan. In our own country it is not quite so rare as is commonly supposed. There is no recent account of its visiting Shetland or Orkney, and I have not heard of its occurrence in the outer Hebrides. The Rev. Mr. Gordon says it is "occasionally met with as stragglers about the Loch of Spynie and other marshes." I have seen specimens obtained at the Loch of Strathbeg, in Fyvie, and near Aberdeen, and one near Banff. The Rev. Mr. Smith writes:—"I have known at least three specimens of the Bittern being shot, at distant intervals, among the reeds surrounding the Loch of Strathbeg. About eighteen years ago, a very fine specimen was shot on the farm of Raltie, near Banff." In the county of Kincardine it appears to be extremely rare; but in that of Forfar of not very unfrequent occurrence, and especially near Forfar and on the Tay. In the southern division of Scotland it has frequently been killed. In England it has occurred in almost every district; and Mr. Thompson gives many instances of its mishaps in Ireland. Like every other rare bird, everyone's hand is against it. I never knew a person addicted to zoological pursuits who did not destroy ten times more living creatures than he needed; and I know only one keen and accurate observer of birds who never shot at all.

BOTAURUS LENTIGINOSUS. THE AMERICAN BITTERN.

FRECKLED HERON.

- Heron lentigineux. *Ardea lentiginosa*. Temm. Man. d'Ornith. IV. 381.
 American Bittern. *Botaurus Mokoko*. Selby, Illustr. II. 34.
 American Bittern. *Ardea minor*. Wils. Amer. Ornith. VIII. 35, Pl. 65, f. 3.
 Freckled Heron. *Ardea lentiginosa*. Mont. Ornith. Dict. Suppl.
Ardea Mokoko. Wagler. Syst. Avium.
 American Bittern. *Ardea minor*. Audub. Amer. Ornith. Biogr. IV. 296.
Ardea lentiginosa. American Bittern. Jenyns, Brit. Vert. Anim. 191.
Botaurus lentiginosus. Bonap. Comp. List. 48.

Length about twenty-six inches, one inch of the tibia bare ; the upper part of the head greyish-brown ; a light yellowish streak over the eye, a dusky streak from behind it, a broad band of brownish-yellow from the cheek to the nape, and beneath it an oblique band of black ; the upper parts of the body variegated with yellowish brown, dark-brown, and reddish, the margin of the feathers closely undulated and transversely barred ; the throat white, with brown markings, the fore part of the neck, and the lower parts of the body pale yellowish, with numerous elongated streaks of reddish-brown, dotted and edged with darker. Young similar, but with the colours duller.

MALE.—This species, although much inferior to the last in size, bears a close resemblance to it in form, and is not very dissimilar in colouring. Its body is extremely compressed ; the neck long and thick ; the head small, oblong, and much compressed. The bill is longer than the head, moderately stout, much compressed, tapering to the point ; the upper mandible with the dorsal line straight for nearly

two-thirds, then slightly declinate, the ridge broad and somewhat flattened at the base, then gradually narrowed and convex, the nasal sinus oblong, basal, with a groove extending nearly to the end, the sides erect and flattened at the base, convex in the middle, the edges sharp, somewhat serrulate towards the end, the tip narrow, with a distinct notch on each side; the lower mandible with the angle very long and narrow, the lower outline of the crura straight, their sides flattened and sloping a little outwards, the dorsal line ascending, the edges sharp, direct, obscurely serrulate, the tip finely acuminate; the gape-line nearly straight.

Internally the upper mandible is considerably concave, with three longitudinal ridges; the lower deeply concave, with its crura very elastic, so that the mouth, which measures ten-twelfths of an inch across, may be greatly expanded. The tongue is two inches long, slender, trigonal, flattened above, saggitate at the base, with a single pointed papilla on each side, its tip slender and bluntish. The œsophagus is fifteen inches long, two inches wide at the commencement, gradually contracting to half an inch, but within the thorax an inch in width; its walls extremely thin; the proventriculus very wide, with a belt of oblong glandules, ten-twelfths in breadth. The stomach is of moderate size, an inch in diameter, roundish, membranous, with circular tendinous spaces, and smooth inner coat. The intestine is four feet seven inches in length, extremely narrow, its breadth in the duodenal part being only two-twelfths, and toward the cœcum one-twelfth and a half. The rectum, which is four inches long, has its anterior extremity rounded, with a minute papilliform termination. The cloaca very large and globular.

The nostrils are linear, seven-twelfths long. The eyes four-twelfths in breadth. The legs are rather long, and stout; the tibia bare for the space of an inch; the tarsus rather short, roundish, with about eighteen very broad anterior scutella; the toes very long, slender, marginate, the third and fourth connected by a basal web; the first large, with nine scutella, the second, which is longer than the fourth, with eighteen, the third thirty-two, the fourth

twenty-two. The claws are long, slender, compressed, tapering, slightly arched; that of the hind toe much larger and more curved; the inner edge of the third pectinate, with about twenty-four teeth.

The plumage is full, soft, loose, and blended; the feathers oblong or ovate; those of the head and nape oblong and elongated; of the sides and lower part of the neck also much elongated, and on the former directed obliquely backwards, so as to cover the hind neck, which is bare in its whole length; the scapulars oblong and rounded. The wings are large, broad, convex, of twenty-six quills, of which the primaries are broad and rounded, except the first, which is pointed; the third longest, the second scarcely shorter, and but slightly exceeding the first; the secondaries very broad and rounded, the inner elongated so as to be about the same length as the outer primaries when the wing is closed. The tail is very short, nearly even, of ten soft feathers.

The bill is greenish-yellow, with the ridge of the upper mandible brownish-black toward the end, but paler at the base; the bare spaces on the head brownish-yellow; the irides reddish yellow; the feet dull yellowish-green; the claws brown. The upper part of the head and occiput are greyish-brown. A streak of pale buff passes over the eye to behind the ear; a dusky band extends from behind the eye; the cheek and an oblique band on the neck are light brownish-yellow; a dusky band from the base of the lower mandible passes under the cheek, and is continued into a black band, which passes along the side of the neck. The fore part of the neck is yellowish-white, the throat with a medial longitudinal line of yellowish-brown spots; on the rest of the neck each feather has an elongated yellowish-brown medial stripe edged with darker brown; the lower parts of the body dull yellowish-white, each feather with a medial brown streak; the abdomen and lower tail-coverts uniform dull buff. The upper parts are yellowish-brown, variegated with dark brown and reddish, the margins of the feathers undulatingly and transversely barred and dotted. The wing-coverts dull reddish-yellow, finely undulated with dusky, the alula, primary coverts, and quills, deep bluish-grey, with their tip barred

with reddish-brown, that colour gradually extending on the secondary quills. The tail-feathers are greyish-brown, undulated with reddish.

Length to end of tail 26 inches, to end of wings 25; extent of wings 45; wing from flexure $12\frac{1}{2}$; tail $4\frac{1}{4}$; bill along the ridge $3\frac{2}{12}$, along the edge of lower mandible $4\frac{1}{2}$; tarsus $3\frac{3}{4}$; hind toe $1\frac{1}{2}$, its claw $1\frac{1}{12}$; second toe $2\frac{1}{4}$, its claw $\frac{9}{12}$; third toe $3\frac{2}{12}$, its claw $1\frac{1}{2}$; fourth toe $1\frac{1}{12}$, its claw $\frac{8}{12}$.

FEMALE.—The female differs from the male only in being somewhat smaller.

HABITS.—This Bittern being a native of America, it is to that continent that they who would describe its habits from personal observation must betake themselves. Not having had an opportunity of studying the bird in the living state, although I have examined various entire specimens and skins of it, I must have recourse to the writings of those ornithologists who are more or less familiar with it.

Mr. Audubon informs us that in winter it resides chiefly to the southward of the United States, the only districts in which he has then met with it being the peninsula of Florida and its islands, and the lower parts of the valley of the Mississippi. He says that, although it migrates by night, and seeks its food then also, it yet occasionally at least feeds by day. “That they are extremely timid,” he continues, “I well know, for on several occasions, when I have suddenly come upon them, they have stood still from mere terror, until I have knocked them down with an oar or a stick. Yet, when wounded, and their courage is raised, they show great willingness to defend themselves, and if in the presence of a dog, they never fail to spread out to their full extent the feathers of the neck, leaving its hind part bare, ruffle those of their body, extend their wings, and strike violently at their enemy. When seized they scratch furiously, and endeavour to bite, so that, unless great care be taken, they may inflict severe wounds. I never saw one of them fly farther than thirty or forty yards at a time; and on such occasions, their movements were so sluggish as to give opportunities of easily

shooting them; for they generally rise within a few yards of you, and fly off very slowly in a direct course. Their cries at such times greatly resemble those of the Night and Yellow-crowned Herons. My friends, Dr. Bachman and Mr. Nuttall have both heard the love-notes of this bird. The former says, in a letter to me, 'their hoarse croakings, as if their throats were filled with water, were heard on every side;' and the latter states that 'instead of the *bump* or *boom* of the common Bittern, their call is something like the uncouth syllables of *pump-au-gah*, but uttered in the same low, bellying tone.' An egg presented by Dr. Brown, of Boston, measures two inches in length, by one inch and a half, and is of a broadly oval shape, rather pointed at the smaller end, and of a uniform dull olivaceous tint."

In summer, it is said to extend as far northward as the shores of Hudson's Bay, and, according to Dr. Richardson, "is a common bird in the marshes and thickets of the interior of the fur countries up to the fifty-eighth parallel. Its loud booming, exactly resembling that of the Common Bittern of Europe, may be heard every summer evening, and also frequently in the day. When disturbed, it utters a hollow croaking cry," According to Hutchins, it nestles in the swamps, laying four cinereous-green eggs. Its food is said to consist chiefly of fishes and aquatic reptiles, and its flesh, when in good condition, is by many considered, excellent.

The first individual of this species met with in England, was described by Montagu, who states that it "was shot by Mr. Cunningham, in the parish of Piddletown in Dorsetshire, in the autumn of 1804." This gentleman relates, that when in pursuit of some pheasants, amongst the high banks, between the broad ditches of some rich water-meadows, about half a mile distant from the river Froome, this bird rose, and he shot it. Mr. Cunningham further remarks, that its flight was rather rapid, and that it made a noise something like the tap on a drum, which induced him to believe it was the common Bittern, and as such he sent it to Colonel George, of Penryn, in Cornwall, who at that time was making a collection of birds." It was afterwards purchased by Montagu,

and, with the rest of his collection, is now in the British Museum.

Dr. Edward Moore, in his Catalogue of the Wading Birds of Devonshire, in the Magazine of Natural History, vol. x., p. 320, says he obtained a specimen, shot at Mottrecombe, near Plymouth, on the 22nd December, 1829. Two or three other instances are recorded by Mr. Yarrel. In the Zoologist for February, 1846, Mr. James Cooper, of Preston, gives an account of one that had been killed about the 8th of December, 1845, in the vicinity of Fleetwood, Lancashire. About the middle of October, 1844, one was killed on the estate of Sir William Jardine, in Dumfriesshire. I have not heard of any other instance of the occurrence of this species in Scotland. Mr. Thompson, in the Annals of Natural History, vol. xvii., published in 1846, records its having been once shot in Ireland, by Mr. Wm. R. Robinson, on the 12th of November, 1845, in a bog, a mile from Armagh. It does not appear that it has ever been met with on the Continent of Europe.

YOUNG.—When fully fledged, the young have the bill greenish-yellow, with the ridge of the upper mandible brown, darker toward the end; the bare spaces on the head brownish-yellow; the feet greenish-brown, the claws light brown. The upper part of the head is reddish-brown, with blackish streaks; there are the same markings on the sides of the head and neck as in the adult, but the black band is faint; the fore neck is yellowish-white in its whole length, with longitudinal series of reddish-brown streaks, mottled and margined with darker; the sides of the neck greyish-yellow, with brown streaks. The other parts nearly as in the adult, but of duller tints, the sides and tibiæ more freckled.

REMARKS.—Wagler states that the tail feathers are twelve, but in all the specimens examined by me they are ten. Individuals vary greatly in size, but little in colour.

BOTAURUS MINUTUS. THE LITTLE BITTERN

BOONK. LONG-NECK.

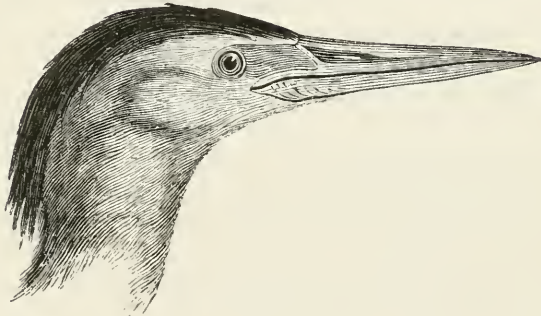


FIG. 35.

- Ardea minuta. Linn. Syst. Nat. I. 240.
 Ardea minuta. Lath. Ind. Ornith. II. 683.
 Little Bittern. Mont. Orn. Dict. and Suppl.
 Heron Blongios. Ardea minuta. Temm. Man. d'Ornith. II. 584.
 Little Bittern. Botaurus minutus. Selb. Illustr. II. 36.
 Ardea minuta. Little Heron. Jen. Brit. Vert. Anim. 189.
 Ardeola minuta. Bonap. Comp. List, 48.

Length about fourteen inches ; tibia entirely feathered. Male with the upper part of the head, the back, scapulars, and tail glossy greenish-black ; the sides of the head, the neck, lower parts, and smaller wing-coverts light reddish-yellow. Female similar, but with the tints less deep. Young with the upper part of the head dark brown ; the feathers of the back dark brown, edged with yellow ; the fore-neck yellowish-white, streaked with dusky ; the sides of the head, hind part of the neck, wing-coverts, and breast brownish-red, streaked with dusky and brown.

MALE.—This Bittern, which is the smallest European bird of the family of Ardeinæ, is most closely allied to a still smaller American species, *Ardea exilis* of Wilson, *Ardeola exilis* of the Prince of Canino, from which, considering their form and colours, it is difficult to distinguish it. Viewed as a British bird, however, it runs no risk of being mistaken. Its body is extremely compressed; the neck long; the head oblong and very narrow.

The bill is about a third longer than the head, slender, but strong, straight, compressed, and tapering to a fine point; its upper outline declinate toward the end, the lower straight and ascending, the edges serrulate, the tips slender and acuminate; the gape-line almost straight. The tongue is an inch and two-twelfths in length, trigonal, fleshy, grooved near the base, convex toward the end, deeply sagittate at the base, with a long acute papilla on each side, the tip acute. The œsophagus is eight inches long and very wide; the stomach roundish, of moderate size, with their parietes.

The nostrils are linear; the eyes of moderate size. The legs rather long; the tibia feathered almost to the joint; the tarsus with anterior scutella; the toes long, slender; the first with eight, the second eighteen, the third twenty-eight, the fourth twenty-two scutella; the inner toe considerably longer than the outer. The claws are rather long, very slender, compressed, little arched, finely pointed, the inner thin edge of the middle toe serrate, with about thirty teeth.

The eyelids and loreal spaces are bare. The hind-neck is destitute of feathers, or even down, of which there is none on any part of the body, excepting two small stripes on the fore part of the breast, and a patch on each side of the rump. The plumage is soft and blended; the feathers on the upper part of the head elongated; those on the fore-neck of moderate length, but on the sides large and curved backwards, so as to cover the extended bare space behind; and on the lower parts elongated. The wings are rather large, of twenty-six quills; the second longest, but scarcely exceeding the first; the inner secondaries much shorter than the longest primaries when the wing is closed. The tail is

very short, rounded, of ten decurved feathers, which are not stronger than the scapulars.

The bill is yellow, with the exception of the ridge and point of the upper mandible, which are dusky. The iris bright yellow. The feet dull greenish-yellow; the claws light brown. The upper part of the head, the back, scapulars, and tail are glossy greenish-black; the sides of the head and neck yellowish-brown; the rest of the neck of a light ochraceous tint; the lower parts white; the sides ochraceous; the anterior feathers of the breast brownish-black, with yellowish margins; the lower wing-coverts white. The smaller upper wing-coverts are ochraceous, those next the body dark reddish-brown; the primary coverts black; the secondary coverts greyish-white; the quills black, glossed with green, and toward the end tinged with greyish-brown.

Length to end of tail $14\frac{1}{2}$ inches; extent of wings 22; wing from flexure $6\frac{1}{4}$; tail 2; bill along the ridge 2, along the edge of lower mandible $2\frac{8}{12}$; bare part of tibia $\frac{2}{12}$; tarsus $1\frac{11}{12}$; hind toe $\frac{9}{12}$, its claw $\frac{6}{12}$; second toe $1\frac{3}{12}$, its claw $\frac{5}{12}$; third toe $1\frac{7}{12}$, its claw $\frac{5}{12}$; fourth toe $1\frac{1}{12}$, its claw $\frac{5}{12}$.

FEMALE.—The female resembles the male, but has the tints less intense, and is of somewhat smaller size.

HABITS.—The Little Bittern, which is extensively distributed, having been found at the Cape of Good Hope, in Barbary, the south-western parts of Asia, the southern countries of Europe, and various districts of that continent, extending as far north as Sweden, is rather of accidental or occasional than of regular occurrence in Britain, where it has not hitherto been observed to breed, although many individuals have been found there in summer, as well as at other seasons. Dr. Fleming makes mention of one that was shot at Sanda, in Orkney; but I am not aware of its having been obtained on any part of the mainland of Scotland, although a few individuals are said to have been killed in Northumberland, Yorkshire, and Cumberland. In the

southern, and especially the south-eastern counties of England, it has frequently been procured, yet not so often as to raise it from the rank of a very rare visitant. In corresponding latitudes on the continent it is a summer bird only, inhabiting marshy places, the swampy sides of lakes and rivers, and, in general, situations in which a profuse vegetation of reeds, sedges, flags, or willows afford it concealment, while they harbour its prey, which consists of small fishes, young frogs, newts, aquatic insects, worms, and mollusca. Its nest, which is placed upon the ground, is formed of withered blades of grasses or carices; and the eggs, four or five in number, are white, broadly elliptical, an inch and five-twelfths in length, an inch and a twelfth in breadth. The male is said to emit a loud barking cry; but the habits of this species are very imperfectly known, none of the continental ornithologists having extended their observations on birds in any degree approaching to that presented by the labours of those of North America, especially Wilson and Audubon; and in Britain opportunities of studying the manners of this bird are wanting. Although its nest has not been met with in England, it very probably sometimes breeds there, as individuals have been shot in the summer months and early in autumn. Mr. Thompson mentions several cases of its occurrence in Ireland.

YOUNG.—In their first winter the young have the bill pale flesh-colour, with the ridge brown; the iris pale yellow; the feet pale bluish-green; the claws pale brown. The upper part of the head is dull brownish-black; the feathers of the upper parts of the body and the scapulars dusky, edged with light brownish-yellow; the wing-coverts dull yellow; the quills and primary coverts greyish-black, with a tinge of green; the outer web of the first quill reddish-brown; the tail dusky. The lower parts are pale yellow, streaked with dusky; the breast brownish. The following are the dimensions of the individual described, which was procured in a recent state:—

Length to end of tail 14 inches; extent of wings 21; bill along the ridge $1\frac{8}{12}$, along the edge of lower mandible $2\frac{3}{4}$;

wing from flexure $5\frac{8}{12}$; tail $1\frac{1}{2}$; tarsus $1\frac{2}{12}$; first toe $\frac{9}{12}$, its claw $\frac{5}{12}$; second toe $1\frac{3}{12}$, its claw $\frac{4}{12}$; third toe $1\frac{6}{12}$, its claw $\frac{5}{12}$, with 14 teeth; fourth toe $1\frac{2}{12}$, its claw $\frac{4}{12}$.

PROGRESS TOWARD MATURITY.—At the second moult, according to M. Temminck, the longitudinal spots begin to disappear; the feathers on the back are then margined with light red, and the quill and tail-feathers become black.

BOTAURUS COMATUS. SQUACCO BITTERN.

- Ardea comata. Pallas. Reis. II. 715.
 Ardea comata. Squacco Heron. Penn. Brit. Zool. II. 26.
 Ardea comata, Squaiota, and castanea. Lath. Ind. Ornith. 686, 687.
 Heron crabier. Ardea Ralloides. Temm. Man. d'Ornith. II. 581.
 Ardea Ralloides. Flem. Brit. Anim. 96.
 Squacco Heron. Ardea Ralloides. Selby, Illustr. Brit. Ornith. II. 25.
 Ardea Ralloides. Squacco Heron. Jen. Brit. Vert. Anim. 189.
 Buphus Ralloides. Bonap. Comp. List, 48.

Bill slender, blue at the base, dusky toward the end; feet greenish-yellow; upper part of the head pale yellow, with dusky lines; on the occiput eight or ten white feathers, having a black line along their margins; upper parts pale reddish-brown; wings, rump, and tail white; as are the lower parts, which, however, are more or less tinged with buff.

ADULT.—This beautiful species, remarkable for its long occipital plume of white feathers, each with two sub-marginal black lines, is of the usual form and proportions of the Egrets, but with the legs less elongated. The bill is about a fourth longer than the head, slender, tapering, straight, compressed; the upper mandible with the dorsal line straight until toward the end, the sides convex, the groove extending to a fifth from the end, the edges sharp, the tip acute; the lower mandible with the angle very long and extremely narrow, the dorsal line very slightly ascending, the sides concave, the edges sharp, the tip acuminate; gape-line commencing behind the eye.

Nostrils linear in the lower and fore part of the nasal membrane. Eyes large. Aperture of ear rather small, rounded.

Feet long, rather slender. Tibia feathered to the joint. Tarsus of moderate length, reticulated with hexagonal scales. Toes rather long, slender, scutellate above, flat beneath; first toe large, second a little shorter than the first. Claws rather long, arched, compressed, acute; that of the middle toe serrate on its inner thin edge.

Plumage full, soft, blended; occipital feathers elongated, linear, forming a decumbent plume or crest; those of the fore part and sides of the neck long, with the filaments disunited toward the end; dorsal feathers much elongated, with disunited filaments; wings and tail rounded.

The bill is greenish-blue, becoming dusky toward the end; the loreal spaces green; the legs yellowish-brown; the toes umber-brown; the claws black. The upper part of the head is pale yellowish-brown streaked with darker, the feathers gradually elongated behind, those of the occiput pale yellow or white on the margins, with a submarginal black line; the sides and fore part of the neck buff-yellow; the back is anteriorly yellowish-brown; the elongated plumes pale reddish-yellow. The wings are white, the tips of the inner secondaries and some of the coverts tinged with brownish-yellow; the hind part of the back and the tail are white; the throat, lower parts of the body, and under surface of the wings are also white.

Length to end of tail 18 inches; wing from flexure 9; bill along the ridge $2\frac{1}{2}$.

FEMALE.—The female is similar to the male.

HABITS.—This species, which is said to inhabit the sides of rivers and lakes, marshes, and maritime pastures, but of the habits of which little seems to be known, is extensively distributed in Western Asia, and the countries about the Caspian and the Mediterranean seas. Its migrations, however, do not extend northward beyond the Baltic. It is said by Temminck to feed on small fishes, insects, and testaceous mollusca, and to nestle on trees.

Several specimens have been obtained in the southern and south-eastern counties of England. Scotland has not

been honoured with a visit, and even in the Green Isle only one has been met with.

YOUNG.—According to M. Temminck, “the young, before the age of two years, are without the long occipital feathers; the whole of the head, the neck, and the wing-coverts are brownish-red, with large longitudinal spots of a deeper tint; throat, rump, and tail pure white; feathers of the wings white on the inner webs, but grey externally and toward the end; upper part of the back and scapulars of a more or less deep brown; upper mandible brown and greenish, lower greenish-yellow; bare skin about the eyes green; feet greenish-grey; iris very pale yellow.”

NYCTICORAX. NIGHT-HERON.

THE Night-Herons, of which *Ardea Nycticorax*, *Ardea caledonica*, and *Ardea violacea* of authors may be considered as among the most characteristic species, are of a more robust form than the Herons, or other genera of this family, with the feet shorter, the neck thicker and less elongated, and the bill stouter and shorter than in most of them. Some of the species, however, indicate a transition to the Herons and Bitterns.

Bill scarcely longer than the head, stout, nearly straight, compressed, tapering to a point; upper mandible with the dorsal line straight and declinate for two-thirds, then slightly decurved, the ridge flattened or convex for a short space, then narrowed, the nasal depression elongated-triangular, with a groove extending to near the end, the sides convex, the edges sharp, with a notch close to the tip, which is acute; lower mandible with the angle very long and very narrow, the dorsal line direct or slightly ascending, the sides concave and sloping outwards, the edges sharp and scutellate, the tip acuminate; gape-line slightly arched, commencing behind the eye.

Mouth rather wide and expansile; upper mandible considerably concave, with three longitudinal ridges, the lower deeply concave. Tongue of moderate length, emarginate at the base, trigonal, flat above, tapering to a point. Œsophagus very wide in its whole length; proventriculus dilated. Stomach roundish, compressed, thin, with a small roundish pyloric lobe. Intestine long and very slender; rectum with an oblong cæcum; cloaca globular.

Nostrils linear in the lower and fore part of the nasal membrane. Eyes large. Aperture of ear rather small, roundish.

Feet long, moderately stout. Tibia bare for about a fourth of its length, and reticulated. Tarsus of moderate length, covered anteriorly above with scutella or large scales, below with hexagonal scales. Toes rather long, rather slender, scutellate above, flat beneath; first toe stout, second a little shorter than the first. Claws small or of moderate size, arched, compressed, narrowed beneath, acute, that of the middle toe serrate on its inner thin edge.

Plumage full, soft, blended. Feathers on the upper part of the head and nape elongated, oblong; some of those on the occiput very long, linear, forming a pendent, erectile crest; on the neck, especially its hind part, rather long, and inclined obliquely backwards; those of its lower part in front elongated and rounded; on the back ovato-oblong; those on its fore part elongated, the rest small and somewhat downy; on the lower parts long and rather loose. Wings broad, of about twenty-six quills; the second and third longest, the first a little shorter. Tail short, even, of twelve broad, rounded feathers.

Species of this genus occur on both continents. They are more active than the Herons, and less graceful in their motions than the Egrets. Their food is the same as that of those genera. They nestle on the ground, or on trees or bushes, laying three or four broadly elliptical pale blue eggs.

Only one species is found in Britain, where it is of very rare occurrence.

NYCTICORAX GARDENI. THE GREY NIGHT HERON.

NIGHT HERON. NIGHT RAVEN.

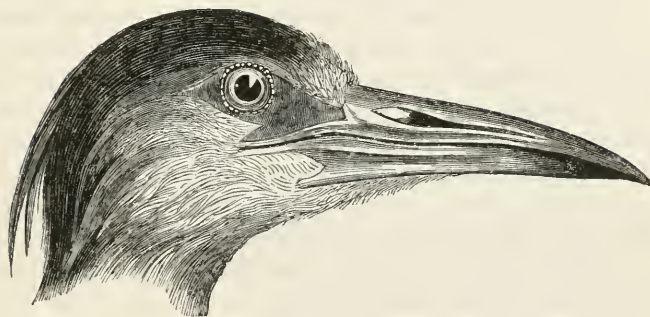


FIG. 36.

- Ardea Nycticorax. Linn. Syst. Nat. I. 235. Adult.
 Ardea grisea. Linn. Syst. Nat. I. 239. Immature.
 Ardea Nycticorax. Lath. Ind. Orn. II. 678. Adult.
 Ardea obscura, badia, and Gardeni. Lath. Young.
 Bihoreau a manteau noir. Ardea Nycticorax. Temm. Man. d'Orn. II. 577.
 Night Heron, and Gardenian Heron. Mont. Orn. Dict.
 Ardea Nycticorax. Night Heron. Flem. Brit. Vert. Anim. 96.
 Common Night Heron. Nycticorax Europæus. Selb. Illustr. II. 39.
 Ardea Nycticorax. Common Night Heron. Jen. Brit. Vert. An. 191.
 Nycticorax Gardeni. Bonap. Comp. List. 48.

Adult with three white, black-tipped, linear occipital feathers; the crown and nape, with the fore part of the back and the scapulars greenish-black; the wings and tail bluish-grey; the lower parts white. Young without elongated occipital plumes; upper part of the head and nape, with the fore part of the back and the scapulars dull brown, with pale red longitudinal streaks; wing coverts greyish-brown, with yellowish-white spots; throat and lower parts whitish, tinged with grey and streaked with brown.

MALE.—The Night Heron, which is pretty generally dispersed over Europe, occurs so seldom in Britain, that I have not had an opportunity of examining a recent specimen, or of seeing one alive. The following description is therefore taken from a very beautiful individual preserved in the Museum of the University of Edinburgh. It was shot in 1823, near Coldstream, by the Earl of Home. The general form is that of the common Heron, but with the neck and legs shorter. The head is large, ovate-oblong, compressed.

The bill is of equal length with the head, robust, a little higher than broad at the base, much compressed toward the end, tapering to a point; the upper mandible with the dorsal line straight for two-thirds, then deflected, the ridge broadly convex at the base, but presently narrowed, the nasal groove strongly marked, the sides convex, the edges sharp, with a notch close to the acute tip; lower mandible with the angle very narrow, the sides concave, toward the end somewhat convex, the edges sharp, the tip acuminate; the gape-line a little arched. Upper mandible considerably concave, with three parallel slender ridges.

The nostrils are straight and linear; the eyes large, surrounded by a bare space, which extends to the bill. The tibia is covered to three-quarters of an inch from the joint; the tarsus rather short, with broad hexagonal scales before, and smaller scales of the same form on the sides. The toes are rather long, slender; the first with twelve, the second sixteen, the third thirty-four, the fourth thirty scutella; the fourth a little longer than the second, and connected with the third by a pretty large basal web. The claws are of moderate length, arched, slender, much compressed, acute; that of the middle toe pectinate.

The plumage is full, very soft, and rather blended. The feathers on the upper part of the head, occiput, and hind-neck are elongated, pointed, and silky. Three feathers, about seven inches long, linear, acuminate, with inflected webs, arise from the occiput, forming a decurved erectile crest, extending narrow nearly half-way down the neck. On the neck the feathers are curved obliquely, and elongate towards its hind and lower parts. The wings are large; the third

quill longest, the second almost equal, the first nearly as long as the fourth. When folded the wings reach to nearly an inch from the tip of the tail, which is very short, slightly rounded, of twelve arched, weak, rounded feathers.

The bill is black, toward the base of the lower mandible yellowish-brown. The bare spaces on the head are yellowish-green. The iris, according to authors, is orange-yellow. The feet greenish-yellow; the claws black. The elongated glossy feathers on the upper part of the head and the nape are greenish-black, or rather of a very deep green; the three linear feathers white, with the tip black. A white band extends from the forehead over the eyes. The sides of the neck are very pale purplish-grey; the throat, fore-neck, and the lower parts of the body white, with a tinge of purplish. The fore part and middle of the back, with the scapulars, are deep green, like the head, appearing black at a distance. The back of the neck, hind part of the back, tail-coverts, and tail are pale purplish-blue; the wings similar, with a tinge of brown, the outer edge of the first quill whitish.

Length to end of tail 21 inches; bill along the ridge $2\frac{0}{12}$, along the edge of lower mandible $3\frac{1}{2}$; wing from flexure 12; tail 5; bare part of tibia $\frac{0}{12}$; tarsus $2\frac{1}{12}$; hind toe $1\frac{2}{12}$, its claw $\frac{0}{12}$; second toe $1\frac{8}{12}$, its claw $\frac{8}{12}$; third toe $2\frac{4}{12}$, its claw $\frac{7}{12}$; fourth toe $1\frac{1}{12}$, its claw $\frac{4}{12}$.

FEMALE.—The female is similar, but with the elongated nuchal feathers shorter, and the tints somewhat duller.

HABITS.—All the species of this family feed occasionally, if not habitually, by night; and although the present has been distinguished in this respect from the rest, it is no more a nocturnal prowler than the Bittern, or even the common Heron. It frequents the margins of lakes, pools, or rivers, preferring those which are plentifully furnished with reeds, sedges, and other aquatic plants, among which it may search for its food in comparative security. Like the other birds of the group to which it belongs, it feeds on fishes, reptiles, mollusca, and worms. The nest is placed on the ground, and the eggs, three or four in number, are of

the usual pale greenish-blue colour. It occurs so seldom in this country, that opportunities of observing its habits are not to be expected by the ornithologist; and thus I have nothing to add to the above particulars, derived from other sources of information than those to which I usually have recourse. A few specimens have been obtained in Scotland, and in England it is not much more numerous. Mr. Thompson records two instances of its having been obtained in Ireland. It is rare even in Holland, but becomes of more frequent occurrence as we advance southward. Its distribution is very extensive, it being common in many parts of India and its islands. I have compared with ours the American bird said by some to be of the same species, but by others to be distinct, and could observe no appreciable differences; but not having specimens at hand, I am unable to speak with certainty on the subject.

YOUNG.—The young bird, when its plumage is completed, differs so much from the adult, that the older writers considered it as a distinct species. The bill is yellowish-green, with the ridge and tip of the upper mandible and the terminal portion of the lower black; the loreal space yellowish-green; the iris brown; the feet dull greenish-yellow. The feathers are shorter and of looser texture, and the long occipital plumes have not appeared. The upper parts are greyish-brown, all the feathers, excepting those on the hind part of the back, having an oblong or triangular medial and terminal spot of pale yellowish-red; the wings and tail bluish-grey, with a tinge of brown; the wing-coverts and secondary quills with a white triangular spot at the end. The throat and the lower parts are white, tinged with greyish-brown, and longitudinally streaked with dusky. In this state it is the Gardenian Heron of authors.

PROGRESS TOWARD MATURITY.—After the second moult the bill is darker, the iris lighter; the streaks on the neck less numerous; the lower parts more white, with the sides pearl-grey; the upper parts of a greyer tint, with the spots on the wings smaller; the head tinged with brown, and the

fore part of the back and scapulars with green. At the third moult the colours are nearly perfected. The long feathers on the nape fall off in autumn, and are renewed in spring.

REMARKS.—On the principle of retaining the Linnæan specific names, a different generic name ought to be given to this group; but as I find it extremely difficult to render the nomenclature in this family at all rational, I must be content with that given by Mr. Stephens, and generally adopted. Mr. Swainson, who is not willing to allow any but himself or a quarian to alter names, proposes to substitute *Nyctiardea* for *Nycticorax*, that is, Night Heron for Night Crow. The new word ought to be *Nycterodius*.

ARDEA. HERON.

THE Herons, properly so called, are among the larger and more robust species of the family to which they give name. Their body is moderately large, but much compressed; the neck very long and of considerable thickness; the head oblong and much compressed.

Bill longer than the head, stout, straight, compressed, tapering to a point; upper mandible with the dorsal line almost straight, the ridge broad and convex at the base, gradually narrowed to the point, the nasal depression narrow-oblong, with a groove extending from it to near the end, the sides convex, the edges sharp, serrulate, with a notch close to the tip, which is very acute; lower mandible with the angle very long and extremely narrowed, the dorsal line ascending and slightly convex, the sides concave and sloping outwards; the edges direct, sharp, serrulate; the tip acuminate; gape-line straight, commencing under the eye.

Mouth rather narrow, but extensile; the upper mandible slightly concave, with three longitudinal ridges, the lower deeply concave. Tongue emarginate and papillate at the base, long, slender, trigonal, tapering to a point. Œsophagus very wide in its whole length; proventriculus dilated. Stomach a hemispherical sac, with a round pyloric lobe. Intestine very long and extremely slender; no cæca, but an oblong sac at the commencement of the rectum; cloaca large and globular.

Nostrils linear in the lower and fore part of the nasal membrane. Eyes of moderate size. Aperture of ear small, roundish.

Feet very long, rather slender. Tibia bare for more than a third of its length, covered with hexagonal scales. Tarsus very long, covered with hexagonal scales, anteriorly with

scutella, posteriorly with an inner row of scutella. Toes very long, rather slender, scutellate above, flattened beneath; the first large, the second a little shorter than the fourth, which is connected with the third by a basal web. Claws moderate, arched, compressed, narrowed beneath, acute; that of the middle toe with a serrate inner edge.

Plumage soft and full. Feathers on the head elongated and pointed, generally forming a decurved crest; on the neck moderate, inclined backwards, on its fore part below elongated and tapering; on the fore part of the back much elongated, with close barbs, which are separated toward the end. Wings ample; the outer four quills nearly equal. Tail short, nearly even, of twelve feathers.

Species of this genus occur on both continents, *Ardea Herodias* of America and *Ardea cinerea* of Europe being among the most characteristic species. They feed on fishes, frogs, insects, sometimes small mammalia, and young birds; nestle on trees or bushes, sometimes on the ground, laying three or four broadly elliptical light blue eggs; have a sedate, heavy flight; and are generally shy and suspicious. The Night-Herons on the one hand, and the Egrets on the other, are intimately connected with this genus, of which the limits are, in fact, incapable of being strictly determined.

Two species occur in Britain—one resident and generally dispersed, the other an accidental visitant.

ARDEA CINEREA. THE GREY HERON.

HERON. HERONSHAW. COMMON HERON. CRESTED HERON. CORA-GHRIACHI.

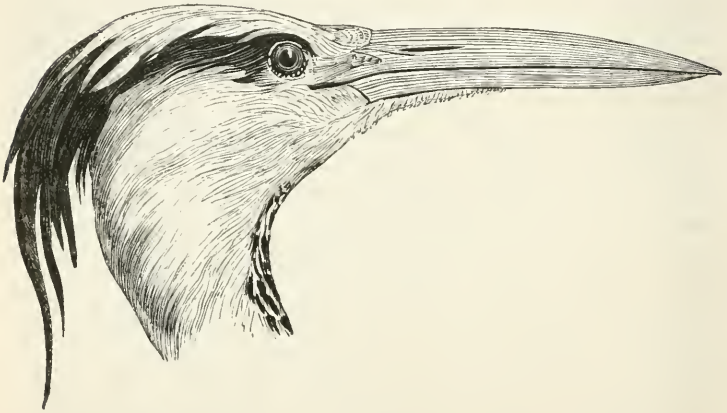


FIG. 37.

- Ardea major. Linn. Syst. Nat. I. 236. Adult.
 Ardea cinerea. Linn. Syst. Nat. I. 236. Young.
 Ardea cinerea. Lath. Ind. Orn. II. 691.
 Heron cendré. Ardea cinerea. Temm. Man. d'Orn. II. 567.
 Ardea cinerea. Common Heron. Flem. Brit. Anim. 95.
 Common Heron. Ardea cinerea. Selb. Illustr. II. 11.
 Ardea cinerea. Common Heron. Jen. Brit. Vert. Anim. 186.
 Ardea cinerea. Bonap. Comp. List, 47.

Adult with the forehead white; a black pendent occipital crest; the fore-neck white, with longitudinal black spots; the upper parts and sides bluish-grey; the breast black, with a white patch in front; the abdomen and lower tail-coverts white; the tarsus much longer than the middle toe and claw. Young with the upper part of the head dusky grey; the occipital crest short; the upper parts and sides bluish-grey; the lower white; the fore-neck white, with dark spots.

MALE.—The Common or Cinereous Heron, which in many respects is one of the most interesting of our native birds, is at least as worthy as most of a minute description, although there is little risk of its being mistaken by the student for any other bird. Its body is rather large, but much compressed, so as to be very light; the neck very long and of considerable thickness; the head rather large, oblong, and much compressed.

The bill is about half as long again as the head, stout, straight, compressed, tapering, and pointed; the upper mandible with the dorsal line almost quite straight, being but slightly declinate toward the end, the ridge broadly convex at the base, but gradually narrowed; the nasal space oblong and filled by a membrane, with a narrow groove extending to near the end, the edges sharp and irregularly serrulate, the tip acute; the lower mandible with the angle very long and extremely narrow, the dorsal line ascending and considerably convex, the sides concave and ascending, the edges direct and serrulate, the tip acuminate. The roof of the mouth is slightly concave, with three prominent longitudinal ridges. The posterior aperture of the nares wide, margined with small papillæ. The aperture of the glottis without papillæ on its edges. The tongue is sagittate and slightly papillate at the base, long, narrow, trigonal, fleshy, flat above, pointed, with the tip horny; its length three inches and two-twelfths. The mouth is rather narrow, but dilatible from the flexibility and elasticity of the crura of the lower jaw. The œsophagus, which is twenty-two inches long, is very wide, being, when inflated, two inches in diameter at the upper part, and in the rest of its extent an inch and a half. The proventricular portion is still wide, and with the stomach forms a large sac of an oblong form, three inches and a quarter in length and two inches in width. The breadth of the band of oblong proventricular glandules varies from an inch to an inch and a half. The walls of the œsophagus are very thin; the muscular coat of the stomach is also thin, its fibres pale, its tendons small, the posterior one inch, the anterior half-an-inch in diameter; the inner coat even, soft, and smooth. The pylorus is one-twelfth in width, and pre-

ceded by a semi-oblong lobe capable of admitting the point of the finger. The intestine, which is seven feet four inches in length, varies in diameter from three-twelfths to two-twelfths, or the thickness of a goose quill. The rectum, which is wider and eight inches long, has at its commencement a single short wide cœcum, six-twelfths long, three-twelfths broad at the base, and terminating in a small papilla. The cloacal dilatation globular. The lobes of the liver are very unequal, one being two inches in length, the other seven-twelfths more; the gall-bladder oblong, an inch and three-fourths in length. The two biliary ducts enter together, close to the pancreatic.

The nostrils are linear, four-and-a-half-twelfths long. The eye rather large, the width of its aperture being five-twelfths. The external ear circular, and three-twelfths in diameter. The legs are long and rather stout; the tibia bare for more than a third, and covered with hexagonal scales; the tarsus long, considerably compressed, with hexagonal scales, and about twelve scutella; the toes long, slender; the first proportionally shorter, with twelve scutella; the second with twenty-two, the third thirty-five, the fourth thirty; the third and fourth connected by a basal web. The claws are rather small, arched, compressed, acute, but blunted by use; the edge of the middle claw purely serrate.

The plumage is full, soft, and rather blended. The feathers on the upper part of the head are elongated, lanceolate; some of those on the occiput more than five inches long, slender, and decurved. On the neck the feathers are oblong, directed obliquely backwards; those at its lower part with an elongated narrow tapering point, and forming a pendent tuft. On the lower parts in general they are ovato-oblong, elongated, soft, and blended. On the fore part of the back they are rather blended, on its hind part downy, but concealed by numerous elongated, ovate feathers, with their filaments disunited toward the end, which proceed from the fore part of the back in four series. Behind those of the outer series are elongated scapulars of the ordinary texture. Wings long and very broad, extending when

closed to two inches beyond the tail; the second quill longest, the first and third slightly shorter. Tail short, somewhat rounded, of twelve decurved weak feathers. The ventral feathers are soft and tufty; the crural short and somewhat compact. On the breast is a large space, and behind the thigh on each side a smaller space, covered with slender down tufts. On the other parts the down is lax, and of ordinary texture.

The bill is yellow, with the ridge of the upper mandible brown toward the end; the bare space between the bill and the eye green. The iris is yellow; the feet dull green; the tibia yellow; the claws black. The fore and upper parts of the head are greyish-white. From the eyes to the occiput the feathers are black, tinged with blue and glossy. The neck in general is whitish, tinged with reddish-purple, passing below into purplish-grey. A band of numerous oblong black spots on a white ground down the fore part of the neck, and commencing about three inches from the bill. The upper parts in general are ash grey or bluish-grey: the acuminations of the scapulars bluish-white. The alular feathers and quills are deep indigo-black, tinged with ash-grey, the secondaries becoming ultimately of the latter colour. The edge of the wings is white, their lower surface bluish-grey. From the shoulders a broad band of bluish-black to the abdomen; the feathers in the angle or on the fore part of the breast white, with some black spots; the sides ash-grey; the tibial feathers whitish; the lower tail-coverts white. The tail ash-grey, of a darker tint toward the end.

Length to end of tail $39\frac{1}{2}$ inches; extent of wings 72; bill along the ridge 4, along the edge of lower mandible $6\frac{1}{2}$; wing from flexure 18; tail $6\frac{1}{2}$; bare part of tibia $2\frac{1}{2}$; tarsus $6\frac{1}{2}$; first toe $1\frac{1}{2}$, its claw $\frac{1}{2}$; second toe $2\frac{1}{2}$, its claw $\frac{7}{2}$; third toe $3\frac{1}{2}$, its claw $\frac{8}{2}$; fourth toe 3, its claw $\frac{6}{2}$.

A very large individual, shot on the coast of Kincardineshire, has the bill entirely yellow; the occipital plume seven inches long; the elongated feathers on the fore part of the neck from six to seven inches. The principal measurements of this specimen are as follows:—Length 40 inches; bill

along the ridge 5, along the edge of lower mandible $6\frac{1}{2}$; wing from flexure $19\frac{1}{2}$; tail $7\frac{1}{4}$; bare part of tibia $2\frac{1}{2}$; tarsus $5\frac{1}{2}$; hind toe $1\frac{1}{2}$, its claw $\frac{7}{12}$; middle toe $3\frac{7}{12}$, its claw $\frac{9}{12}$.

FEMALE.—The female is similar to the male, but somewhat smaller, and with the occipital crest less elongated.

HABITS.—The cold blasts of the north sweep along the ruffled surface of the lake, over whose deep waters frown the rugged crags of rusty gneiss, having their crevices sprinkled with tufts of withered herbage, and their summits crowned with stunted birches and alders. The desolate hills around are partially covered with snow, the pastures are drenched with the rains, the brown torrents seam the heathy slopes, and the little birds have long ceased to enliven those deserted thickets with their gentle songs. Margining the waters extends a long muddy beach, over which are scattered blocks of stone, partially clothed with dusky and olivaceous weeds. Here and there a Gull floats buoyantly in the shallows; some Oyster-catchers repose on a gravel bank, their bills buried among their plumage: and there, on that low shelf, is perched a solitary Heron, like a monument of listless indolence—a bird petrified in its slumber. At another time, when the tide has retired, you may find it wandering, with slow and careful tread, among the little pools, and by the sides of the rocks, in search of small fishes and crabs; but, unless you are bent on watching it, you will find more amusement in observing the lively Tringas and Turnstones, ever in rapid motion; for the Heron is a dull and lazy bird, or at least he seems to be such; and even if you draw near, he rises in so listless a manner, that you think it a hard task for him to unfold his large wings and heavily beat the air, until he has fairly raised himself. But now he floats away, lightly though with slow flappings, screams his harsh cry, and hies to some distant place, where he may remain unmolested by the prying naturalist.

Perhaps you may wonder at finding him in so cold and desolate a place as this dull sea-creek, on the most northern coast of Scotland, and that, too, in the very midst of winter;

but the Heron courts not society, and seems to care as little as any one for the cold. Were you to betake yourself to the other extremity of the island, where the scenery is of a very different character, and the inlets swarm with Ducks and Gulls, there, too, you would find the Heron, unaltered in manners, slow in his movements, careful and patient, ever hungry and ever lean, for even when in best condition he never attains the plumpness that gives you the idea of a comfortable existence.

Far away through the green valley winds the silver Tweed, now rolling its waters over the white pebbles, then gliding placidly between banks covered with fresh herbage and gaudy florets of many hues. The hum of the wild bee draws your eye toward those beautiful tufts of purple trefoil; the Weet-weet, ever vibrating its body as if delicately balanced on its slim legs, runs along the sunny beach, spreads out its pointed wings, and skims over the pool. There, in the water, nearly up to the knees, is the Heron, patiently waiting an opportunity of seizing some giddy trout. Those ducklings that swim so beautifully, and dive with such marvellous quickness, he seems to eye with hungry glance; but their watchful protectress is in the midst of them. That wary old water-rat is equally safe, as he nibbles the grass at the mouth of his hole, and at intervals trims his whiskers with his little paws. In short, go where you will, in summer or in winter, to the shores of the sea or the far inland lake, the source or the estuary of the hill-born streams, you may here and there find a solitary Heron.

But this bird, usually so careless of companionship, finds it meet to join its fellows, to select a mate, and ply its architectural labours in the midst of a busy crowd. About the middle of March individuals assemble in certain places, and soon after resort to their breeding stations, which are not in the rushy marshes nor on unfrequented islands, as one might expect, but on tall trees, sometimes in large woods, but more frequently in places near some old family mansion, where they are not always sure of protection. The nests, which are very large, nearly flat, and rudely constructed of sticks, with a lining of grass, wool, and similar materials, are

sometimes crowded together in great numbers, generally on the highest trees in the place, but in some instances on such as one might think not well selected for security, or even on an isolated tree of no great height. The eggs, from three to five in number, are of a light bluish-green colour, broadly elliptical, or having both ends nearly equally rounded, two inches and a quarter in length, an inch and nine-twelfths in breadth. Incubation continues about twenty days; and the young, at first sparsely covered with tufts of down, remain about six weeks in the nest.

It is stated by Mr. Yarrell, that "sometimes Herons build on precipitous rocks near the coast, as at South Stack Lighthouse, near Holyhead, mentioned by Mr. Eyton, and at the Great Orme's Head; they are said also to build occasionally on the ground, among reeds and rushes." Mr. St. John, in his *Field Sports of the Highlands*, p. 123, mentions a heronry on the rocks at the entrance of the Bay of Cromarty:—"Above our heads, and in every direction, were Herons' nests; some built in the clusters of ivy, and others on the bare shelves of rocks. The young ones were full-grown (early in June), but still in the nests, standing upright and looking gravely at us. Though I thought it a shame to make any of them orphans, I took the opportunity of killing three fine old male Herons, whose black feathers I coveted much for my salmon flies." Mr. Thompson, in his *Natural History of Ireland*, vol. ii. p. 146, gives an account of a heronry placed on the ground, in the Island of Islay:—"On the 15th of January, 1849, I visited this heronry, which is not more than three miles from Ardimersy Cottage, where I was staying. It was difficult of discovery, from being amid brushwood and much broken rocky ground of similar character; and I might have been long hunting for the exact site, had not six or seven Herons, by rising from the heath, guided me to the spot. The locality is at the seaward top of a bank raised by rock, greensward, and heath, and rising somewhat precipitously to the height of perhaps eighty feet above a beautifully secluded little inlet of the sea. The nests are built on the ground, about the roots of large plants of heath, and are formed of pieces of

light stick. Three of them are about two and a half yards distant from each other. They are all perfectly accessible to any person walking over the ground; but, fortunately, the birds are not disturbed when breeding. The birds are said to frequent the site on stormy days throughout the year, flying to it when the wind blows strong upon the neighbouring shore."

After the breeding season the Herons disperse, and are to be seen along the sea-coast and in the estuaries, as well as here and there by the rivers and inland ponds or lakes. On the east coast of Scotland the estuaries of the Findhorn, Ythan, South Esk, Tay, and Forth are favourite places of resort; but even on the exposed rocky coasts they are here and there to be met with, and in some places in great numbers. Thus, about two miles north of Stonehaven, I have repeatedly seen more than twenty in a single small bay at low water. It is to this tract that the following note by my friend Mr. Thomas Jamieson refers:—

"Several Herons frequent this part of the coast, searching for their food amongst the low weed-covered rocks and pools of water left by the receding tide. In autumn, when they appear to be most numerous, I have seen a hundred and twenty or more together, their numbers being made up probably in great measure by young birds of the year. When disturbed from one spot, they betake themselves round some corner of the rocks to a neighbouring bay, flying heavily along, generally within gunshot of the water's surface. During high tide they rest on detached rocks a short distance from the land, and occasionally on the face of some of the heughs (or high sea-banks). When coming from the inland parts they keep at a considerable height, moving along with sedate and regular flight till they pass the heughs a short distance, and then strike slantingly down to the rocks. I do not think they keep in company on these occasions, though two or three may be seen at once coming from the same direction. I have seen them make their descent to the rocks by an awkward zigzag movement. Though they generally fly high, yet, when coming from the sea, in the evening more especially, they will sometimes pass within shot of the

ground, though they will likely rise higher as they get from the coast. Once or twice I have seen them in the fields. I recollect of one forenoon seeing four of them standing in a ploughed field, in most grotesque attitudes, reminding one of a consultation of witches more than anything else. They appear to feed by night; but I do not think they see objects so well in the dusk, for I have seen two or three pass overhead within shot, whilst I was quite unconcealed. On another occasion, when I was down amongst the rocks by moonlight, one alighted close beside me (not a dozen yards distance, I suppose), and did not seem to be aware of me till I frightened it off. When looking for food, they stand by or in the pools of water, with partially outstretched neck, anxiously intent for their prey, stepping slowly about now and then, and taking a short flight for a few yards to some more likely spot, or leaving the bay altogether for some neighbouring one. They form a fine object in the landscape on their journey to their distant nests, as

“With expanded wings they steer their flight
Aloft, incumbent on the dusky air.”

“A few breed in the woods of Feteresso; and I have been told there is a heronry at Inglesmaldie, in the south corner of the parish of Fettercairn, in this county, and in a straight line, I suppose, about twenty miles from this.”

Heronries are numerous in the tract of country forming the eastern half of the middle division of Scotland. The most celebrated of them is that on the banks of the Findhorn.

The Grey Heron frequents the margins of rivers, pools, and lakes, as well as the shores of inlets of the sea, where it may often be observed patiently watching for its prey, or slowly walking among the mud or weeds. It seems to be possessed of little activity, and in this respect to contrast with the Curlew and other birds of the Scolopaceous family, which are incessantly in motion while looking for food. Perched on a stone by the water, reposing on one foot, with its neck retracted, it remains motionless for hours, until a fish, or frog, or other object attract its attention, or it is roused by the apprehension of danger. At low water, how-

ever, it assumes more activity, and wanders among the stones and in the shallows in quest of small fishes, crabs, and shrimps. It also feeds by moonlight, and is said to be in best condition when the moon is full. Although it is seldom plump, it is remarkable for its voracity and the rapidity of its digestion. Its food consists of fishes, frogs, newts, crustacea, insects, occasionally young birds and small mammalia, which it kills by striking them with its bill, and generally swallows entire. In performing this latter operation it sometimes finds great difficulty—in the case of an eel, for instance, which often slips from it. This circumstance has given rise to the popular belief of the eel's repeatedly passing through the intestine of the Heron, which, however, is a feat impracticable, the alimentary tube being in a great part of its length not thicker than the quill of a goose. Mr. Scott Moncrieff informed me that a Heron with an eel twisted round its neck was found dead in the Duke of Buccleuch's park at Dalkeith Palace, it having been unable to swallow or cast off its victim.

The Heron is generally shy and vigilant, so as to be almost inaccessible to the sportsman in open countries. Unless in the breeding season, it is unsocial, seldom appearing in company even with those of its own kind; and if it occasionally mingles with Curlews or Gulls, keeps them at a respectful distance. The sound which it utters is a grating scream, which, at night especially, comes harsh on the ear. In rising from the ground, it first spreads out its large wings, flaps them, then retracts its neck, and gradually stretches its legs out behind. Its flight is sedate and buoyant, but seems heavy, on account of its slowness. In moving to a distance it usually flies high, sailing at intervals with motionless wings, and, on account of its great size, forms an interesting object in the landscape.

“In the midland counties,” Mr. Harley writes to me, “we have only three heronries, and they are not very large. At Lord Warwick's, I believe about eighty pairs nestle annually, and their young go away after they are fledged. The other breeding-places are at Colwick, near to Nottingham, and at Harringworth, near to Oundle, in

Northamptonshire. About 1815, a pair or two used to nestle in a tall Scotch fir tree, in Mere-Hill Wood, near to Loughborough; but the keeper shot them down. I recollect taking eggs from thence, and I have seen young birds brought from the same place.

“Lord Warwick’s heronry is not more than a mile from the town from which he takes his title, and is situated within the confines of a spacious park, well wooded with oak, elm, ash, and horse-chestnut. The classic Avon, whose glassy stream has been sung by the immortal Shakspeare, flows silently along, laving castle and cottage, and bearing on its bosom the joyous Coot, the flirting Water-hen, the wary Wild Duck, and the stately Swan. Let us seat ourselves beneath this wide-spreading beech, and inhale the breath of summer morn. Yon towers betoken wealth, splendour, and fame. Yet there dwell not in the venerable mansion of the renowned Warwicks hearts so happy as those that now surround us, nor are there heard in those turrets voices so sweet as those that mingle their morning songs in gratitude to their great Creator. The Cushat cooes lovingly to his mate, the note of the Green Woodpecker is heard, and those wandering Nuthatches, Creepers, Tits, and Flycatchers, as they flit past us, enliven the scene. Not far off the Kestrel hangs on tremulous wing, and over head a pair of Buzzards are describing their ever-varied circles. A lake of considerable size adorns the park, part of which is open and exposed, while the rest has its banks overgrown with shrubs, brambles, and rushes. The Heron appears partial to the elm, although we find nests on the horizontal boughs of the cedar, pine, and spruce. On some of the elms are twelve or fourteen nests, large and unsightly; some very loosely put together, but others more firmly compacted. When the nests are on the elm, they are on those trees which are lofty and of great magnitude; but when on the cedar, Scotch fir, and spruce, they are not at a greater height than twenty-five or thirty feet. Mr. Wallis, head gamekeeper to Lord Warwick, informs me that the Heron sometimes nestles on the ground. He says that in 1839 a pair built their nest in a thick sedge beside the lake. It was

large, composed externally of sticks, but lined with rushes and fine fibrous roots. Five eggs were laid, and in due time hatched. In passing, a few days afterwards, he discovered the mangled remains of the parent bird, she having fallen a prey to some prowling fox; and found the young ones huddled together in the bottom of the nest, as cold as any stone. Of the obstinacy with which this species adheres to certain localities, we have an illustration before us. Part of the margin of the lake is abrupt, rocky, and covered with scrubs and underwood. In one place are a few low firs and cedars, which were surrounded with a dense thicket. Well, although the woodman cleared away the brushes that surrounded the trees on which some Herons had their nests, and plashed up nearly to the branches on which they were, yet the birds nestled on, and reared their young.

“The Heron is very voracious. In 1828, I saw one opened at Loughborough, which had in its gullet a full-grown water-rat. With us it is not numerous, although far from being uncommon. Being very destructive to fish, it falls a prey to gamekeepers, and is often found among the trophies which ornament the gable-end of the woodman’s cottage, or the side of the village barn. There, in company with the pretty Kestrel, the Barn Owl, and the Carrion Crow, its carcase bleaches in the sun and rain.”

This species is generally distributed in Britain, and in winter rather plentifully even in the northern islands of Scotland, where, however, I never heard of its breeding. Unless when occupied with the cares of rearing its young, it seems to shift about from one place to another, and, in particular circumstances, considerable numbers may be seen together. It is impossible, I think, to determine whether individuals visit this country from the continent or on migrations; but the number and extent of the heronries in Scotland and England suffice to account for the numerous Herons seen dispersed over the island in winter. It is at least equally common in Ireland. Mr. Thompson states that, “owing to the many suitable bays around the coast, and the prevalence of water in the island, it is particularly abundant.”

It is said to visit Norway, Faroe, and Iceland in summer ; to be found in Sweden, Russia, and Siberia ; to extend from thence over the whole continent of Europe. The north and even the south of Africa are visited by it ; and in Asia, the Caucasus, India, Java, and Japan are included in its range. It is nowhere found in America.

YOUNG.—When fully fledged, the young bird has the plumage less compact than the adult. The occipital crest is short ; the feathers on the fore part of the neck, although longish, are not acuminate ; and those on the back are of the ordinary form. The upper mandible is dusky brown, dull greenish-yellow toward the edges ; the lower mandible yellow ; the iris yellow ; the feet dusky, tinged with yellow. There is no white on the forehead, but the whole upper part of the head is dusky, with a mixture of ash-grey. The hind-neck is light grey ; the back and wing-coverts deep grey ; the quills and tail as in the adult. The fore part of the neck is white, with a band of longitudinal black spots, less numerous than in the adult ; and the lower parts of the body are white, with some dusky streaks, except the sides, which are ash-grey.

PROGRESS TOWARD MATURITY.—At the first moult the plumage is as described in the adult.

ARDEA PURPUREA. THE PURPLE HERON.

- Ardea purpurea. Linn. Syst. Nat. I. 236.
 Ardea purpurea. Lath. Ind. Orn. II. 697.
 Purple Heron. Mont. Orn. Dict.
 Heron pourpré. Ardea purpurea. Temm. Man. d'Orn. II. 570.
 Ardea purpurea. Flem. Brit. Anim. 96.
 Crested Purple Heron. Ardea purpurea. Selb. Illustr. II. 15.
 Ardea purpurea. Purple Heron. Jen. Brit. Vert. An. 186.
 Ardea purpurea. Bonap. Comp. List, 47.

Middle toe and claw longer than the tarsus. Adult with a longitudinal occipital crest of acuminate decurved feathers; neck longitudinally banded with greenish-black and light red; plumage of the body greyish-blue, dark green, and light red; bill yellow; feet yellow, with the scutella and claws dusky. Young without elongated feathers on the head, back, or fore-neck; the forehead black; occiput reddish; fore-neck yellowish-white, spotted with black; feathers of the back dusky grey, margined with light red; legs whitish; bill yellow, with a great part of the upper mandible dusky.

MALE.—The Purple Heron, which is somewhat less than the common species, is also of a more slender form, being in this and in some other respects intermediate between the Herons and Egrets. Its body is of moderate size, compressed; the neck very long and slender; the head rather small, oblong, and much compressed. The bill is very long, being nearly double the length of the head, stout, compressed, tapering; the upper mandible with the dorsal line almost straight, being but slightly declinate toward the end, the ridge broad at the base, narrowed beyond the nostrils, a groove from the latter to near the end, the edges sharp, toward the end irregularly serrulate, the tip pointed; lower mandible with the angle very long and extremely narrow,

the dorsal line ascending and slightly convex, the sides concave and ascending, the edges direct, the tip acuminate. The gape-line straight, commencing below the eye, and a little declinate at first. A large bare space on each side from the bill to behind the eye.

Nostrils linear, ten-twelfths of an inch long. Eyes small. The legs long and slender; the tibia feathered for more than half its length, scutellate before and behind; tarsus long, rather stout, a little compressed, with about twenty anterior scutella, the sides and hind part with large scales; toes long, slender; the first large, with eighteen scutella; the second a little shorter than the fourth, with twenty-four; the third with forty; the fourth with thirty-eight, and connected with the third by a basal web. Claws long, very slender, a little arched, compressed, acuminate, that of the middle toe with upwards of thirty teeth.

On the upper part of the head the feathers tapering, and forming a short occipital crest; on the neck short, unless at its lower part, where they are elongated, tapering, with loose filaments. On the fore part of the back ovate, behind short and downy. Four tufts of elongated feathers on the back; the two middle shorter than the outer; all ovato-oblong, but with the filaments, although numerous, disunited toward the end. Behind the lateral tufts are elongated scapulars of ordinary structure. On the fore part of the breast and along its middle the feathers are very long, curved, with loose filaments. On the middle of the breast anteriorly is a large space covered with short, buff-coloured, down-plumelets; and there is a smaller patch of the same nature, on each side, behind the thigh-joint. The wings are long, broad, of twenty-six quills, besides the humerals; the inner secondaries as long as the outer primaries when the wing is closed; the second, third, and fourth quills about equal; the first a little shorter. The tail is short, even, of twelve feathers.

The bill is bright yellow, with the ridge brown; the bare preocular space yellow; the bare part of the tibia, the hind part of the tarsus, and the soles yellow; the rest brown; the claws black. The upper part of the head and a line from

the occiput to the middle of the neck, a line on each side from the angle of the mouth to the occiput, and another from the cheek to the middle of the neck, bluish-black. The throat white, a band of light red down the fore-neck, with the medial feathers having a longitudinal black line, the sides of the neck reddish-white, and a band of the same from the eye to the occiput; on the hind-neck from the middle a band of bluish-grey expanding below. The elongated feathers in front black along the inner web, white on the outer, with the margin red. Upper parts light greyish-blue; the middle of the back darker, with a greenish gloss; the outer elongated plumes light blue, with the extremity light red. The edge of the wing light red; the quills externally light blue; toward the end and on the inner webs black. The tail blue at the base, black toward the end. Elongated feathers on the fore part of the breast of a rich reddish-purple colour; those along the middle of the breast greenish-black, tinged with grey, and with red on their outer webs; a longitudinal band of dull red on each side of the breast; the sides light bluish-grey. The lower surface of the wings light red, excepting the larger coverts, which are light blue, as is the under surface of the quills; the outer primaries obliquely and irregularly banded with blue and black toward the end. Feathers of the tibiæ light red; lower tail-coverts greenish-black, with some white.

Length to end of tail 36 inches; bill along the ridge $5\frac{1}{4}$, along the edge of lower mandible $6\frac{3}{4}$; wing from flexure $15\frac{1}{2}$; tail 6; bare part of tibia $3\frac{1}{4}$; tarsus $5\frac{1}{4}$; first toe 2, its claw $1\frac{1}{2}$; second toe $3\frac{1}{2}$, its claw $1\frac{1}{2}$; third toe $4\frac{7}{8}$, its claw $1\frac{1}{2}$; fourth toe $3\frac{8}{12}$, its claw $\frac{1}{2}$.

FEMALE.—The female resembles the male.

HABITS.—The Purple Heron appears to be very extensively distributed, being found in India, the Philippine Isles, the borders of the Red Sea, those of the Caspian Sea, the coasts of Africa, and the south of Europe. It extends northward as far as Holland, where it is not uncommon; and has several times been obtained in England, where, however, it

can rank only as an accidental straggler. Its food is said to consist of frogs, fishes, small quadrupeds, and young birds. M. Temminck states that it nestles among reeds or on bushes, seldom on trees, and lays three eggs. One in my collection is much inferior in size to those of the common Heron; of a broadly elliptical form, having both ends alike, its length two inches and a twelfth, its greatest breadth an inch and seven-twelfths, its colour pale greenish-blue.

YOUNG.—According to M. Temminck, “the young are destitute of crest, or have only slightly elongated reddish feathers in place of it. The elongated feathers at the lower part of the neck and those on the back are also wanting. The forehead is black; the nape and cheeks pale red; the throat white; the fore part of the neck yellowish-white, with numerous longitudinal black spots; the feathers of the back, scapulars, wings, and tail blackish-grey, bordered with light red; the belly and tibiæ whitish; a large portion of the upper mandible blackish; the lower, the bare skin around the eyes, and the iris of a very pale yellow.”

REMARKS.—The numerous errors into which the older writers fell with regard to this bird, which some of them have described in its different stages as forming several distinct species, it is hardly worth while to point out. My description of the adult has been taken from a Bengal specimen in my collection. The toes of this Heron are proportionally more elongated than those of the other species, and resemble those of the Bitterns, although in other respects it agrees with the true or typical Herons.

Specimens of this species have been obtained in the southern and eastern coasts of England—in Cornwall, Devonshire, Norfolk, and Suffolk. In the Magazine of Natural History, vol. x. p. 116, Mr. Hore states that, “some time in the month of November, 1835, a Purple-crested Heron was obtained on the borders of a large piece of water, known by the name of the King’s Fleet, near the mouth of the Woodbridge river, in Suffolk. I know of two other instances of this species of Heron occurring in this county; I have also

known two or three individuals to have been met with in Norfolk within a few years. One instance only of its occurrence in Scotland is mentioned: it is recorded in the *Zoologist* for July, 1849, p. 2497, by the Rev. James Smith, who, on the 18th of June of that year, on returning a skin of the Purple Heron which I had lent him for comparison, wrote as follows:—"I have now ascertained beyond a doubt that a specimen of the Purple Heron was shot in a small marsh adjoining a farm-house in this parish (Monquhitter) some time about the beginning of March, 1847. It came from the south-east when it alighted. It was a beautiful specimen, and measured five feet from tip to tip of the extended wings. As the individual by whom it was shot had never seen a Heron like it before, he sent it to a neighbouring village to be stuffed. While there it attracted general attention and admiration, all declaring that no such bird had come under their notice before. The stuffer having to be from home for a considerable time before he could get the process properly completed, he found to his mortification, on his return, that the specimen had been all but gnawed to pieces by rats." Enough, however, remained to enable Mr. Smith to ascertain the species. Mr. Thompson has recorded, in the *Proceedings of the Zoological Society* for 1834, and in the second volume of his *Natural History of Ireland*, p. 155, the occurrence of one in Ireland.

EGRETTA. EGRET.

THE Egrets differ from the Herons chiefly in being of a more slender form, with the neck and legs extremely elongated, and the latter having a larger portion of the tibia bare. The bill is also generally longer and more attenuated, with its dorsal outline a little deflected toward the end. Many of the species are also furnished with very long dorsal plumes, of which the filaments are disunited. But all the species are not equally marked by these characters, some of them approaching to the Herons on the one hand, and to the Bitterns on the other. The most characteristic may be described as follows:—

Bill much longer than the head, strong but rather slender, straight, compressed, tapering to a point; upper mandible with the dorsal line straight until toward the end, when it is a little deflected, the ridge broad and convex at the base, gradually narrowed to the point, the nasal depression narrow-oblong, with a groove extending from it to near the end, the sides convex, the edges sharp, often serrulate, with a notch close to the tip, which is very acute; lower mandible with the angle very long and extremely narrow, the dorsal line slightly ascending and almost straight, the sides concave and sloping outwards; the edges direct, sharp, often serrulate; the tip acuminate; gape-line straight, commencing under the eye.

Mouth rather narrow, but extensile; the upper mandible slightly concave, with three longitudinal ridges, the lower deeply concave. Tongue emarginate and papillate at the base, long, slender, trigonal, tapering to a point. Œsophagus very wide in its whole length; proventriculus dilated. Stomach a hemispherical sac, with a round pyloric lobe. Intestine very long and extremely slender; no cæca, but an

oblong sac at the commencement of the rectum ; cloaca large and globular.

Nostrils linear in the lower part of the nasal membrane. Eyes rather small. Aperture of ear small, roundish.

Feet extremely long, slender. Tibia bare for half its length or more, covered with hexagonal scales, tarsus very long, covered with hexagonal scales, anteriorly with scutella. Toes long, slender, scutellate above, flattened beneath ; the first large, the second a little shorter than the fourth, which is connected with the third by a basal web. Claws moderate, arched, compressed, narrowed beneath, acute ; that of the middle toe with a serrate inner edge.

Plumage soft and full. Feathers on the head more or less elongated ; on the neck short, oblong, inclined backwards, on its fore part below considerably elongated ; on the hind part of the back quite downy ; four longitudinal dorsal series of very elongated feathers, generally having distantly placed filaments, and often extending beyond the tail. Wings ample, of about twenty-eight quills, besides humerals, the outer three nearly equal. Tail short, nearly even, of twelve feathers.

Species of this genus occur on both continents—*Egretta Leuce*, *candidissima*, and *Ludoviciana* of America, and *Egretta nigrirostris*, *alba*, *flavirostris*, and *Garzetta* of the Old Continent being among the most characteristic. They feed on fishes, reptiles, crustacea, insects, small quadrupeds, young birds, and other animals. They are remarkable for their graceful movements, and in activity greatly surpass the Herons. Their flight is sedate, but buoyant. They nestle generally on trees or bushes, sometimes on the ground, laying three or four broadly elliptical light blue eggs. Equally shy and suspicious with the Herons, they are with great difficulty approached, unless during the breeding season.

None of the species are resident in Britain, but two or three have been met with there.

EGRETTA NIGRIROSTRIS. THE BLACK-BILLED
EGRET.

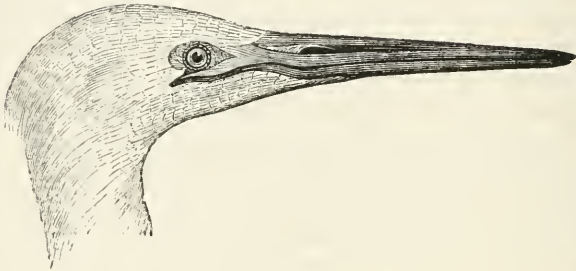


FIG. 38.

Egretta nigrirostris. Bonap. Comp. List, 47. (♀)

Length about three feet and two-thirds; occipital feathers very slightly elongated; dorsal plumes with the shaft stiffish, straight, and extending a little beyond the tail; plumage white; bill black, with the tip dull greenish-grey; bare pre-ocular space verdigris green; feet dingy flesh-coloured, but the tarsal and digital scutella dusky.

MALE.—This species is superior in size to the Common Heron, which it greatly exceeds in elegance of form. The body is of moderate size, much compressed; the neck very long and slender; the head rather small, oblong, and much compressed. The bill is long, stout, compressed, tapering; the upper mandible with the dorsal line straight for two-thirds from the base, then slightly declinato-convex, the ridge broad at the base, narrow but convex in the rest of its extent; the nasal depression narrow, elongated, with a groove from its fore part extending nearly to a third from the tip, the sides convex, the edges direct and sharp; lower

mandible with the angle long and extremely narrow, the dorsal line slightly ascending, the sides sloping outwards and concave, the edges sharp, the tip acute. The gape-line straight, commencing under the centre of the eye, at first somewhat sinuate, and toward the end slightly deflected. A large bare space on each side of the head, extending from the base of the bill to a little behind the eye and angle of the mouth.

The roof of the mouth is slightly concave, with three longitudinal sharp ridges; the palate convex; the lower mandible with a groove and ridge on each side, and a central ridge. Tongue very slender, sagittate at the base, tapering to the point, which is acute. The mouth is rather narrow, measuring only seven-and-a-half-twelfths across, but, in consequence of the flexibility of the crura of the lower mandible, is dilatable to an inch and a half. The œsophagus is twenty-eight inches long, an inch and a half in width at the top, about a third down an inch, afterwards an inch and a half, and at the proventriculus two inches and a quarter. The proventricular belt is one inch and three quarters in breadth; its glandules very numerous, oblong, about a twelfth and a half in length; at its upper margin are several groups of large mucous crypts having wide apertures. Beyond the proventriculus the stomach forms a sac two inches in diameter, its muscular coat very thin, being formed of slender muscular fibres converging toward two roundish tendinous spaces; its inner coat thin, soft, and smooth. Appended to the stomach is a pyloric lobe, ten-twelfths in diameter, internally smooth, its aperture half-an-inch in width. The intestine is nine feet one inch in length, its width varying from three to two-twelfths; the rectum five inches long, with a cœcal appendage at its commencement; its globular dilatation an inch and three-fourths in diameter. The lobes of the liver are very unequal, the right being three inches and a quarter in length, the left two inches and a half.

The nostrils are linear, half-an-inch long. The eyes are rather small, the diameter of their aperture four-twelfths and a half. The legs are very long and slender; the tibia

feathered for nearly half its length ; in the rest of its extent considerably compressed, and covered with large elongated hexagonal scales ; the tarsus long, compressed, rounded before and behind, with twenty large anterior scutella ; a posterior series of large scales on the inner, and of two rows of smaller on the outer side ; on the tarsal joint the scutella become very narrow, and finally divided. The hind toe is moderate, with eight scutella ; the second a little shorter than the fourth, and with twenty-three scutella ; the third very long, with thirty-three scutella ; the fourth with twenty-seven, and connected with the third by a basal web. The claws are moderate, arched, compressed ; that of the middle toe serrate, with thirty teeth.

The feathers on the head and neck are of moderate length, oblong or sub-ovate, of rather loose texture, excepting those on a longitudinal band along the fore part of the neck, which are small and more compact. The occipital feathers are very slightly elongated, the longest being an inch and a half in length ; but they scarcely form a crest. On the lower part of the neck the feathers are considerably elongated. On the lower parts of the body they are long and of loose texture, especially on the anterior portion of the breast, margining and covering a large space, which is bare in the centre, and on each side has a broad longitudinal band of singular downy plumules of a buffy colour, about three-fourths of an inch in length, with a long orange-coloured shaft, and extremely feeble so as to be easily torn across. On the sides and lower parts the down is of the ordinary kind ; but on each side of the abdomen, behind the femur, is a patch of buffy down. On the fore part of the back the feathers are large and ovate ; on the hind part perfectly downy. From the fore part of the back arise four bunches or series of very elongated feathers, having rather firm, though slender, straightish shafts, with widely separated, deflected, barbulate filaments. In each of the two middle series are twelve, in each of the lateral about eight long feathers, besides smaller. Posterior to the lateral series, on each side, are six very long, broad, and roundish scapulars, which extend beyond the closed wing. The longest plumes

extend two inches and a half beyond the tail, and are sixteen inches in length. The wings are long, broad, and rounded, of twenty-eight quills, besides eight humerals. The third quill is longest; the fourth a twelfth and a half shorter; the first five-twelfths shorter than the second, which is five-twelfths shorter than the third. The tail is short, of twelve broad, rounded, rather weak feathers; the lateral only three-and-a-half-twelfths shorter than the medial.

The bill is black; the tip of each mandible greenish-horn-colour to the extent of an inch; the base and the bare space on each side of the head verdigris green. The inside of the mandible is black; the fore part of the palate yellow, its hind part flesh-coloured. Tongue dusky, at the base flesh-coloured. Iris light yellow. The bare part of the tibia and the upper part of the surface are flesh-coloured; the scutella of the tarsus and toes dusky brown; its hind part and the soles dusky flesh-coloured. The claws are brownish-black. The plumage is white, with a faint tinge of yellowish.

Length to end of tail $44\frac{1}{2}$ inches; extent of wings 66; head and bill 8; ridge of upper mandible $4\frac{9}{12}$; gape-line $6\frac{2}{12}$; height of bill $1\frac{9}{12}$, its breadth $\frac{8}{12}$; wing from flexure $18\frac{1}{4}$; tail 7; bare part of tibia $5\frac{1}{2}$; tarsus $7\frac{9}{12}$; first toe $1\frac{7}{12}$, its claw $1\frac{1}{12}$; second toe 3, its claw $\frac{8}{12}$; third toe $4\frac{1}{2}$, its claw $\frac{8}{12}$; fourth toe $3\frac{1}{2}$, its claw $\frac{7}{12}$.

The individual above described was undoubtedly adult, its bones being well ossified, and its plumage perfect. The testes were highly developed, oblong, unequal, the right one inch, the left an inch and a quarter in length. It was killed by Mr. Martin, gamekeeper to the Earl of Haddington, on Tynningham Sands, on the 9th June, 1840. It had never been observed before that day, and was approached with difficulty. It having been sent to Mr. Macduff Carfrae to be prepared, I was favoured by him with a minute examination of it, in its recent state, and afterwards with an inspection of the body.

Mention has been made by various writers on British Birds of a White Heron or Great White Egret, which, according to report, had been several times seen, but never

obtained. Without showing that these birds were not albino varieties of the common Heron, most of our Faunists have admitted them as *Ardea alba* of Linnæus and Wagler, *Ardea candida* of Brisson. No individual had examined a large white Egret obtained in Britain until the specimen above described came into my hands, fortunately in a recent state.

On comparing it with a stuffed skin from France, and with the accurate descriptions of Brisson and Wagler, I find some differences which seem sufficient to indicate a species distinct from the bird described by them. In the adult *Ardea alba* or *candida*, the bill is yellow, or pale brown, or yellowish-brown, with the ridge blackish, and the bare space at its base dull green. In the young bird it is described as greenish-black or blackish-green tinged with yellow. In the individual which I have described the bill is of a decided black, with the tip dusky horn-colour. As to the feet, it is probable that no reliance can be placed upon the descriptions of authors, as they have not examined fresh specimens; and the other details which they give are applicable to several species alike. My specimen may, after all, be identical with *Ardea alba* or *candida*, but until that bird is more correctly described, I prefer considering the individual examined by me, adult as it certainly is, as the representative of a species, to confounding it with that obscurely indicated by the discordant accounts of authors.

EGRETTA ALBA. THE YELLOW-BILLED WHITE EGRET.

GREAT WHITE HERON.

- Ardea alba. Linn. Syst. Nat. I. 239.
 Ardea alba. Lath. Ind. Ornith. II. 695.
 Great White Heron. Mont. Orn. Dict.
 Heron Aigrette. Ardea Egretta. Temm. Man. d'Ornith. II. 672.
 Great White Heron. Ardea alba. Selb. Illustr. Brit. Ornith. II. 18.
 Ardea alba. Great White Heron. Jen. Brit. Vert. Anim. 187.
 Egretta alba. Bonap. Comp. List. 47.

Length nearly three feet and a half; occipital feathers very slightly elongated; dorsal plumes with the shaft stiffish, straight, and extending a little beyond the tail; plumage white; bill yellow; bare preocular space verdigris green; feet black.

MALE.—This species, although slightly inferior in size to the Black-billed Egret, is so very similar to it, that the one can be distinguished from the other only by the colour of the bill, and some differences in the length of the tarsi and the bare part of the tibiæ. The bill is long, stout, compressed, tapering; the upper mandible with its dorsal line straight for two-thirds from the base, then slightly declinato-convex, the ridge broad at the base, narrow but convex in the rest of its extent, the nasal depression narrow, elongated, with a groove from its fore part extending nearly to a third from the tip, the sides convex, the edges direct and sharp; lower mandible with the angle long and extremely narrow, the dorsal line slightly ascending, the sides sloping outwards and concave, the edges sharp, the tip acute. The gape-line straight, commencing under the centre of the eye, at first

somewhat sinuate, and toward the end slightly deflected. A large bare space on each side of the head extending from the base of the bill to a little behind the eye and angle of the mouth.

The nostrils are linear, six and a half twelfths long. The eyes are rather small. The legs are very long and slender; the tibia feathered for nearly half its length; in the rest of its extent considerably compressed, and covered with large elongated hexagonal scales; the tarsus long, compressed, rounded before and behind, with fourteen large anterior scutella; a posterior series of large scales on the inner, and of two rows of smaller on the outer side. The hind toe is moderate with nine scutella, the second considerably shorter than the fourth, and with twenty scutella; the third very long, with thirty scutella; the fourth with twenty-eight, and connected with the third by a basal web. The claws are moderate, arched, compressed, that of the middle toe serrate, with about thirty teeth.

The feathers on the head and neck are of moderate length, oblong, or rather subovate, of rather loose texture, excepting those on a longitudinal band along the fore part of the neck, which are small and more compact. The occipital feathers are very slightly elongated, the longest being an inch and four twelfths, scarcely forming a crest. On the lower part of the neck the feathers are considerably elongated. On the lower part of the body they are long and of loose texture, especially on the anterior portion of the breast margining and covering a large space, which is bare in the centre, and on each side has a broad longitudinal band of singular downy plumules of a buffy colour, about three-fourths of an inch in length, with a long orange-coloured shaft, and extremely feeble, so as to be easily torn across. On the sides and lower parts, the down is of the ordinary kind; but on each side of the abdomen, behind the femur, is a patch of buffy down. On the fore part of the back the feathers are large and ovate, on the hind part perfectly downy. From the fore part of the back arise four series of very elongated feathers, having rather firm, though slender, straightish shafts, with widely separated, deflected, barbulate filaments, the longest extend-

ing a little beyond the tail, and fourteen inches in length. The wings are long, broad, and rounded; the first quill three-twelfths of an inch shorter than the second, which exceeds the third by one-twelfth. The tail is short, even, of twelve broad, rounded, rather weak feathers.

The bill is yellow, the tip slightly dusky. The bare space on each side of the head verdigris green. The feet are black. The plumage is white, with a faint yellowish tinge.

Length to end of tail 40 inches; head and bill 8; ridge of upper mandible $4\frac{7}{2}$; gape-line $5\frac{1}{2}$; height of bill $1\frac{1}{2}$, its breadth $\frac{8}{2}$; wing from flexure 16; tail $6\frac{1}{2}$; bare part of tibia $3\frac{8}{2}$; tarsus $6\frac{5}{2}$; first toe $1\frac{8}{2}$, its claw $1\frac{1}{2}$; second toe $2\frac{7}{2}$, its claw $\frac{7}{2}$; third toe $3\frac{1}{2}$, its claw $\frac{8}{2}$; fourth toe $2\frac{1}{2}$, its claw $\frac{5}{2}$.

The above description is from a preserved specimen. Compared with *Ardea nigrirostris*, it has the bill a little higher at the base, the wing shorter, the tail even instead of being rounded, the legs much shorter, as are the toes; but otherwise there is no perceptible difference, excepting the colour of the bill. The two individuals are adult, with the dorsal plumes in the same state.

REMARKS.—The only detailed description of a White Heron killed in Britain that has hitherto been given is that of *Egretta nigrirostris* presented in this work. I have elsewhere remarked, and have now no reason to retract it, that “were the description of authors so detailed as those in my History of British Birds, one might easily refer to its species any individual bird that he might obtain; but this is by no means the case, insomuch that even the most recent works, namely, those of Mr. Gould and Mr. Yarrell, contain descriptions and figures of the Great White Egret so imperfect as to be useless for comparison with very nearly allied species. That bird has the shaft of the dorsal plumes straight; and yet they are represented in both works as arcuate or decurved, but in Mr. Gould’s with the tip a little recurvate. The bill in both works is bounded by right lines, which is not the case in any Egret known to me. The descriptions are, I regret being obliged to say it, good for nothing.”

In my Manual of British Birds I named the Tynningham Egret *Erodus Victoriae*, supposing it to be new, or at least of the species called *Egretta nigrirostris* by Mr. Grey and the Prince of Canino, but of which I could not find a description. This latter name is quite appropriate, however, and until it be determined what species it really is, I think it better to adopt it.

Egretta nigrirostris is much larger in all its principal dimensions than *Egretta alba*, which exceeds *Egretta Leuce*. Length $44\frac{1}{2}$ inches; extent of wings 66. The bill is long, stout, compressed, tapering, the dorsal line straight for two-thirds, then slightly declinato-convex, deep black, with the tips greenish-grey or horn-colour to the extent of an inch, the base as far as the nostrils verdigris-green, as is also a large bare space on each side of the head, extending from the base of the bill to a little behind the eye and angle of the mouth. The occipital feathers very slightly elongated, being an inch and a half in length. The dorsal plumes have rather firm, though slender, straightish shafts, the longest extending two inches and a half beyond the tail, and sixteen inches in length. The bare part of the tibia and the upper part of the tarsus are flesh-coloured; the scutella of the tarsi and toes dusky brown; the hind part of the tarsus and the soles dusky flesh-colour; the claws brownish-black. The plumage white, with a faint tint of yellowish.

Egretta alba, which is about 40 inches in length, has the bill long, stout, compressed, tapering, the dorsal line straight for two-thirds from the base, then slightly declinato-convex. A large bare space on each side of the head, extending from the base of the bill to a little behind the eye and angle of the mouth, said by authors to be pale green. Mr. Yarrell says the bill is "yellow at the base, black towards the point." Mr. Gould says it is "deep brown, tinged with yellow about the nostrils." No two authors agree on this subject. It was in the stuffed specimen above described yellow, with the tip slightly dusky. The occipital feathers very slightly elongated, the longest being an inch and four-twelfths in length. The dorsal plumes have rather firm, though slender, straightish shafts, the longest extending two

inches beyond the tail, and fourteen inches in length. The tibia, tarsus, toes, and claws are black. The plumage white, with a faint yellowish tinge.

Now the only differences in the above descriptions are in the general size, the colour of the bill, and that of the feet; but in the measurements of the bill and feet, as will presently be seen, the difference is great; and while the one has twenty tarsal scutella, the other has only fourteen.

Egretta Leuce, an American species, is smaller than *Egretta alba*. The bill is long, stout, compressed, tapering, its dorsal line straight for two-thirds, then slightly declinato-convex. The bill bright yellow, as is the bare space between it and the eye. The occipital feathers are slightly elongated. The dorsal plumes have very slender, slightly decurved, and slightly undulated shafts, the longest extending about ten inches beyond the end of the tail. The tibia, tarsus, toes, and claws black. The plumage white.

Some of the measurements of three individuals of these three species are here given:—

| | Nigrirostris. | | | Alba. | | | Leuce. | | |
|-----------------------|---------------|-----|----|-------|-----|----|--------|----|--|
| Length | 44 | 6 | .. | 40 | 0 | .. | 37 | 0 | |
| Extent of wings .. | 66 | 0 | .. | — | | .. | 55 | 0 | |
| Bill along the ridge | 4 | 9 | .. | 4 | 7½ | .. | 4 | 7 | |
| Gape-line | 6 | 2 | .. | — | | .. | 5 | 5 | |
| Height of bill | 0 | 10¼ | .. | 0 | 10½ | ∴ | 0 | 11 | |
| Wing from flexure . | 18 | 3 | .. | 16 | 0 | .. | 16 | 6 | |
| Tail | 7 | 0 | .. | 6 | 6 | .. | 6 | 3 | |
| Bare part of tibia .. | 5 | 6 | .. | 3 | 8 | .. | 3 | 6 | |
| Tarsus | 7 | 9 | .. | 6 | 5 | .. | 6 | 1 | |
| Third toe | 4 | 6 | .. | 3 | 6 | .. | 3 | 11 | |
| Its claw. | 0 | 8 | .. | 0 | 7½ | .. | 0 | 9 | |

It will be seen how greatly *Egretta nigrirostris* exceeds the others in the bare space on the tibia, in the tarsus, and in the middle toe. All the individuals described were adult, with the dorsal plumes in the same state.

It is clear that *Egretta nigrirostris* exceeds *Egretta alba* in size, as much as the latter exceeds *Egretta Leuce*. Its bill, however, is more slender than that of either, and its

tarsi and toes much longer; while the bare part of the tibia greatly exceeds that of the rest. I have examined the digestive organs of *Egretta nigrirostris* and *Egretta Leuce*, but not of *Egretta alba*. Of the first, the œsophagus was 28 inches long, $2\frac{1}{4}$ inches wide at the proventriculus; stomach 2 inches in diameter, with a pyloric lobe 10 twelfths in breadth; intestine 9 feet 1 inch long, from 3 to 2 twelfths in breadth. Of the second, the œsophagus was 26 inches long, $1\frac{1}{2}$ inch wide at the proventriculus; stomach $1\frac{1}{2}$ inch in diameter, with a pyloric lobe 8 twelfths in breadth; intestine 6 feet 7 inches long, its average width 2 twelfths.

EGRETТА GARZETTA. LITTLE WHITE EGRET.

- Ardea Garzetta. Linn. Syst. Nat. I. 937.
 Ardea Garzetta. Lath. Ind. Orn. II. 694.
 Egret. Mont. Orn. Dict.
 Ardea Garzetta. Flem. Brit. Anim. 96.
 Heron Garzetta. Ardea Garzetta. Temm. Man. d'Orn. II. 574.
 Ardea Garzetta. Wagler, Syst. Avium.
 Little Egret Heron. Ardea Garzetta. Selb. Illustr. II. 21.
 Ardea Garzetta. Little Egret Heron. Jen. Brit. Vert. Anim. 187.
 Egretta Garzetta. Bonap. Comp. List. 47.

Length about two feet; plumage soft and blended; occipital feathers considerably elongated; three of them very long, slender, tapering, compact; those of the lower part of the neck similarly elongated and tapering; dorsal plumes with the shaft very slender, straight, recurved at the end; plumage white; bill black; bare preocular space green; bare part of tibia and upper half of tarsus black; lower part and toes greenish-yellow. Young white, without occipital or dorsal plumes; the bill yellow for more than half its length.

MALE.—This beautiful Egret, which is inferior in size to *Egretta russata*, is of a very slender form, having the body much compressed, the neck very long and slender, the head rather small, oblong, and much compressed. The bill is about double the length of the head, straight, rather slender, tapering; the upper mandible with the dorsal line straight for three-fourths from the base, then slightly declinate-convex; the ridge narrow, unless at the base; the nasal depression narrow, elongated, with a groove from its fore part extending nearly to a third from the tip; the sides convex; the edges inflected and sharp, with a notch close to the narrow, rather blunt tip; lower mandible with the angle long and extremely narrow, the dorsal line straight

and very slightly ascending, the sides sloping outwards and a little concave, the edges sharp and inflected, the tip acute. The gape-line straight, commencing under the hind part of the eye, at first somewhat sinuate.

The nostrils are linear, four-twelfths of an inch long. The eyes of moderate size. The feet are very long; the tibia bare for half its length, and covered with large hexagonal scales; the tarsus long, compressed, rounded before and behind, with eighteen large anterior scutella. The hind toe is moderate, with ten scutella; the second a little shorter than the fourth, with eighteen; the third with twenty-six; the fourth with twenty-four scutella, and connected with the third by a basal web. The claws are rather long, arched, compressed, acute; that of the middle toe serrate, with twenty teeth.

The plumage is very soft and blended. The feathers of the occiput and nape elongated; three of them very long, slender, tapering, compact, decurved or pendent; the longest measuring five inches. On the lower part of the neck anteriorly are numerous elongated, slender, tapering, compact feathers; the longest four inches and a half. From the fore part of the back arise four series of very elongated feathers, having their shafts very slender, straight, but toward the end recurved; and their filaments long, distant, and pendent. The wings are long and broad, with the third quill longest, but scarcely exceeding the first two; one of the inner secondaries is only a quarter of an inch shorter than the longest primary when the wing is closed. The tail is short, nearly even, of twelve weak, rounded feathers. Part of the breast covered with down only; and the same patches of oily brittle down as in the other species occur in this.

The bill is black; a small part of the base and the bare space on each side of the head light green. The bare part of the tibia, the upper half of the tarsus, and its anterior scutella are black; the rest of the tarsus and the toes greenish-yellow; the claws black. The plumage is entirely white.

Length to end of tail 24 inches; extent of wings 38; wing from flexure $10\frac{3}{4}$; tail $3\frac{3}{4}$; bill along the ridge $3\frac{8}{12}$,

along the edge of lower mandible $4\frac{5}{12}$, its height $\frac{7}{12}$; bare part of tibia $2\frac{1}{2}$; tarsus $4\frac{2}{12}$; first toe $\frac{1}{12}$, its claw $\frac{8}{12}$; second toe $1\frac{8}{12}$, its claw $\frac{4}{12}$; third toe $2\frac{3}{12}$, its claw $\frac{6}{12}$; fourth toe $1\frac{0}{12}$, its claw $\frac{4}{12}$.

FEMALE.—The female is similar to the male, but a little less.

HABITS.—This species is said to occur in Japan, India, the countries bordering on the Red Sea, Egypt, various parts of Asia, the eastern portions of the south of Europe, as well as Turkey, Italy, Sicily, France, and Germany; being of rare occurrence, however, in the latter countries, where it is migratory. In England it is merely an accidental visitant, and in Scotland has not, I believe, been met with. Its habits may be supposed similar to those of other Herons; for I am not aware of anything very definite being known respecting them.

EGRETTA RUSSATA. THE BUFF-BACKED EGRET.

Ardea russata. Wagler Syst. Av.

Little White Heron. *Ardea æquinoctialis.* Mont. Orn. Dict. Suppl.

Buff-backed Heron. *Ardea russata.* Selb. Illustr. II. 24.

Ardea russata. Buff-backed Heron: Jen. Brit. Vert. An. 188.

Buphus russatus. Bonap. Comp. List. 47.

Bill stout, tail slightly emarginate. Adult with the feathers of the hind head and neck elongated, hairlike, and reddish-yellow; dorsal plumes slender, decomposed, and of the same colour; fore part of breast and back tinged with cream-colour; the rest of the plumage white; bill pale yellow; feet dusky anteriorly, yellowish behind. Young without elongated feathers, pure white, except the head, which is tinged with yellow; bill pale yellow; feet dusky green.

THIS beautiful Egret, of which only a single specimen has been obtained in England, has the bill proportionally stouter, the neck and legs shorter, and the toes longer than in many other species; but these, and other characters which it presents, do not seem to me sufficient to justify Boie and the Prince of Musignano in referring it to a genus by itself. *Egretta candidissima* and *rufescens*, both referred by the latter author to the same genus as *Egretta Leuce* and *alba*, differ from these species and from each other, quite as much as they differ from the present. In short, were this arbitrary formation of genera tolerated, every single species of the family ought to constitute a genus.

MALE.—Much inferior in size to *Egretta Garzetta*, and about equal to *Egretta candidissima*, although differing from

both in its proportions, in which it comes near to *Ardea speciosa*, the adult of this species may be described as having the body moderate, the neck long and rather thick, the head ovato-oblong. The bill is about a fourth longer than the head, rather stout, straight, compressed, tapering; upper mandible with the dorsal line straight until toward the end, when it becomes considerably decurved, the sides convex, the groove extending to a fifth from the end; the edges sharp, serrulate; the tip acute; the lower mandible with the angle very long and extremely narrow, the dorsal line very slightly ascending, the sides concave, the edges sharp and serrulate, the tip acuminate, the gape-line slightly arched.

The feet, although long and slender, are much shorter than those of some other species of about the same size, *Egretta candidissima*, for example. The bare part of the tibia is also scutellate in front, it being reticulate in most species; the tarsus has very broad anterior scutella; the toes are long, slender, scutellate; the claws long, very slender, tapering, compressed, arcuate; that of the middle toe serrate.

The plumage is soft and moderately full. The feathers on the upper part of the head, nape, and the hind part of the neck are elongated, with stiffish, hair-like glossy filaments; and there is a bare space at the base of the neck behind. On the fore part of the neck the feathers are moderate, but at the lower part enlarged, with the filaments disunited toward the end. On the breast and behind the thighs are yellow greasy down-plumelets, as in the other species. From the back arise four series of plumes, having disunited hair-like filaments, some of them extending nearly to the end of the tail. The other feathers on the fore part of the back are ovate, those on its hind part downy. The wings are long and broad; the third quill longest, the second half-a-twelfth shorter, and exceeding the first by only two-twelfths. The tail is a little emarginate, the lateral feathers being a twelfth and a half longer than those in the middle. The wings when folded are slightly longer than the tail, which is short and slightly emarginate.

The bill and loreal spaces are pale yellow; the bare part of the tibia is yellowish; the anterior part of the tarsus and toes dusky; their hind part tinged with yellow; the claws black. The general colour of the plumage is white; but the feathers on the upper part and sides of the head, those on the hind part and lower fore part of the neck, are of a golden-ochrey tint; as are the elongated plumes of the back, of which the fore part is also tinged with the same colour; the fore part and sides of the neck are of a tint approaching to cream colour, as is the fore part of the breast.

Length to end of tail 20 inches; bill along the ridge $2\frac{3}{12}$, along the edge of lower mandible $3\frac{4}{12}$; wing from flexure $9\frac{1}{12}$; tail $3\frac{9}{12}$; bare part of tibia $1\frac{8}{12}$; tarsus $3\frac{1}{4}$; middle toe $2\frac{5}{12}$, its claw $\frac{8}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—This species, according to Wagler, occurs in Greece, Spain, and Italy; in Persia, Egypt, Nubia, Cyprus, and Senegambia; is not unfrequent in Southern Africa, common in Java, and, as it would appear, in New Holland. Of its habits I find no account.

YOUNG.—An individual from Bengal in my collection is as follows:—The general form and the proportions of the parts are as described above. On the tibia are eight scutella, on the tarsus eighteen, on the hind toe ten, on the second eighteen, the third twenty-eight, the fourth twenty-four. The claws are long, very slender, and finely pointed; the edge of the third with twenty-five teeth.

The feathers are oblong or ovate, and rather blended. There are no elongated decomposed plumes on the back. The quills are thirty, besides eight humerals; the third longest, the second half a twelfth shorter, the first a twelfth and three-fourths shorter than the second. When the wing is closed, one of the inner secondaries is only two-twelfths of an inch shorter than the longest primary. The tail is a little emarginate, the lateral feathers being a twelfth and a

half longer than those in the middle. The wings when folded are slightly longer than the tail.

The bill is pale yellow, with the ridge light brown toward the end. The plumage is white; but the upper part of the head, a portion of the back, and the fore part of the breast, are tinged with cream-colour.

Length to end of tail 20 inches; bill along the ridge $2\frac{2}{12}$, along the edge of lower mandible $3\frac{1}{12}$; wing from flexure $9\frac{9}{12}$; tail $3\frac{8}{12}$; bare part of tibia $1\frac{8}{12}$; tarsus $3\frac{1}{4}$; first toe $1\frac{1}{12}$, its claw $\frac{1}{12}$; second toe $1\frac{8}{12}$, its claw $\frac{9}{12}$; third toe $2\frac{3}{12}$, its claw $\frac{9}{12}$; fourth toe $1\frac{0}{12}$, its claw $\frac{8}{12}$.

REMARKS.—The only specimen of this bird obtained in Britain is a female, shot near Kingsbridge, in the end of October, 1805, and presented to Montagu by Mr. Nicholas Luscombe of that place. The description, taken from the Supplement to the Ornithological Dictionary, is as follows:—

The length is about twenty inches; the bill two inches long to the feathers on the forehead, and of an orange yellow; the lore and orbits the same; irides pale yellow. The whole plumage is snowy white, except the crown of the head, and the upper part of the neck before, which are buff: legs three inches and a half long, and one inch and a half bare space above the knee; these parts are nearly black with a tinge of green; the toes and claws are of the same colour, the middle claw pectinated.

On the back of the head the feathers are a trifle elongated, but scarcely to be called a crest; on the lower part of the neck before, the feathers are more elongated, and though not slender, hang detached over the upper part of the breast: the tail when closed is in a slight degree forked, and so short as to be entirely covered by the wings when folded.

This elegant little species of Heron had been seen for several days in the same field attending some cows, and picking up insects, which were found in its stomach. It was by no means shy, but suffered a bungling marksman to fire twice before he could kill it. The situation where it was shot was the southernmost promontory of Devon, very near the coast, between the Start and the Prawl.

Montagu mistook it for *Ardea æquinoctialis* of Linnæus ; but the error was detected after it had, along with his collection, been transferred to the British Museum. Its dimensions, taken by Mr. Jenyns are as follows :—

Entire length $20\frac{1}{2}$ inches; length of the bill from the forehead $2\frac{2}{12}$, from the gape $2\frac{10}{12}$; of the tarsus 3; of the naked part of the tibia $1\frac{1}{12}$; of the middle toe, claw included, $2\frac{9}{12}$; of the tail 4; from the carpus to the end of the wing 10.

CICONIA. STORK.

THE Storks resemble the Herons, from which, however, they are distinguished by their more robust form, larger bill, and shorter toes, with convex and obtuse claws, that of the middle toe without serrature. They are also larger and more portly birds, some of them even gigantic. Their body, however, is compressed, the neck long and rather thick; the head ovate, convex above, moderately compressed.

Bill much longer than the head, straight, stout, conical, moderately compressed, tapering to a sharp point; upper mandible with the dorsal line nearly quite straight, the sides sloping and somewhat convex, the ridge obtuse, no nasal sinus or groove, the edges sharp and direct, the tip acute; lower mandible with the angle very long and narrow, the dorsal line ascending and very slightly convex, the sides inclined outwards and somewhat convex, the edges sharp, the tip acute; the gape-line straight, commencing under the eye.

Nostrils oblong, perforated in the bill near the ridge. Eyes small, surrounded by a bare space. Aperture of the ear roundish, rather large.

Legs very long, rather slender; tibia bare for about half its length, reticulated; tarsus long, compressed, reticulated; hind toe short, and slightly elevated; anterior toes of moderate length, webbed at the base, scutellate, but at the base reticulate; claws short, convex, obtuse.

Plumage moderately full, generally compact, sometimes glossy; feathers of the head and neck oblong, of the lower part of the neck elongated; scapulars very large and broad. Wings long, ample, of thirty quills, the third longest. Tail rather short, rounded, of twelve feathers.

The Storks belong chiefly to the warmer climates of the

old continent; but some of them perform very extended migrations, betaking themselves to more northern countries in summer. They reside chiefly in marshy places, where they feed on fishes, frogs, lizards, occasionally small quadrupeds and young birds. Some of the larger species are in a manner omnivorous, their vulturine appetite being pleased with any kind of garbage, dead animals, and vegetable substances. In migrating, they fly in continuous or angular lines, but chiefly by night. They nestle on the ground, or in high places, and lay three or four elliptical light-coloured eggs.

CICONIA ALBA. THE WHITE STORK.

- Ardea Ciconia. Linn. Syst. Nat. I. 235.
 Ardea Ciconia. Lath. Ind. Orn. II. 677.
 White Stork. Mont. Orn. Dict. and Suppl.
 Cicogne blanche. Ciconia alba. Temm. Man. d'Orn. II. 560.
 Ciconia alba. White Stork. Flem. Brit. Anim. 97.
 White Stork. Ciconia alba. Selb. Illustr. II. 45.
 Ciconia alba. White Stork. Jen. Brit. Vert. An. 192.
 Ciconia alba. Bonap. Comp. List. 46.

Bare part of the sides of the head very small and smooth; loreal spaces feathered; bill and feet red; plumage white; the quills, larger coverts, alula, and scapulars black.

ALTHOUGH the White Stork is of very rare occurrence in Britain, I have been so fortunate as to obtain for description an individual shot in Shetland, from which the following particulars are taken:—

MALE.—This stately bird has the body large and compressed, the neck long and rather thick, the head ovate and moderately compressed.

The bill is about twice the length of the head, straight, stout, conical, moderately compressed, tapering to a point; the upper mandible with the dorsal line straight, very slightly declinate at the end, the sides sloping and a little convex; the ridge, which is obtuse, not separated by grooves; the edges sharp and direct, the tip acute; the lower mandible with the angle very long and narrow, the dorsal line ascending and very slightly convex, the sides inclined outwards and somewhat convex, the edges sharp, the tip acute; the gape-line straight, commencing under the eyes.

The nostrils are ten-twelfths long, direct, sub-basal, perforated as it were in the bill, near the ridge. The eyes are small, surrounded by a bare space of small extent. The aperture of the ear roundish and rather large.

The legs are very long and rather slender ; the tibia bare for about half its length, reticulated with hexagonal scales ; the tarsus long, compressed, reticulated all round. The hind toe is short and slightly elevated ; the anterior toes of moderate length, webbed at the base, scutellate, but at the base reticulated. On the first toe are ten, on the second fifteen, the third twenty-five, the fourth twelve scutella. The claws are short, convex above, broadly rounded at the end ; the inner edge of the third thin, but not serrate.

The plumage is moderately full, and in general compact. The loreal spaces are not bare as in the Herons ; but there is a narrow longitudinal space, very slightly feathered, on each side of the throat. The feathers of the head and neck are oblong ; those of the lower anterior part of the neck elongated, but rather compact, the longest measuring five inches and a half. On the anterior part of the back they are broadly ovate, rounded, compact, and glistening ; on the hind part of the back smaller, but compact ; on the lower parts of the body of looser texture. Seven of the scapulars are very large, broad, rounded at the end, the largest twelve inches in length. The wings are long and broad, of thirty quills, and when closed reach the end of the tail ; the first quill two inches and two-twelfths shorter than the second, the third longest, exceeding the second by an inch and a twelfth, and the fourth by an inch and a half. The secondaries are very broad and rounded ; some of the inner elongated, one of them being only two inches and a half shorter than the longest primary when the wing is closed. The tail is rather short, a little rounded, the outer being an inch and two-twelfths shorter than the middle feathers. The down is soft and of ordinary texture ; but there are no patches of oily, brittle down, as in the Herons.

The bill, tibiae, tarsi, and toes are coral red ; the claws reddish-brown ; the iris brown ; and the bare skin around the eyes and throat vermilion. The general colour of the plumage is white ; but the primary and secondary quills, their coverts, the alula, and the elongated scapulars are black, with a purplish-blue gloss. Some of the quills have a greyish-white tinge on part of their extent.

Length to end of tail 42 inches; extent of wings 76; bill along the ridge $7\frac{1}{2}$, along the edge of lower mandible 9, its height $1\frac{5}{12}$; wing from flexure 25; tail 9; bare part of tibia $4\frac{3}{4}$; tarsus $8\frac{2}{12}$; hind toe 1, its claw $\frac{4}{12}$; second toe $2\frac{2}{12}$, its claw $\frac{5}{12}$; third toe 3, its claw $\frac{5}{12}$; fourth toe $2\frac{1}{2}$, its claw $\frac{4}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—It is not in Britain that the habits of the White Stork can be studied, its occurrence there being, in so far as is known, limited to a very few instances. I must therefore refer to the continental writers for the following particulars:—In the temperate parts of Europe the Storks arrive toward the end of spring, and depart in October, travelling in large flocks, and betaking themselves to Africa and Asia. In winter they are especially abundant in Egypt. Their northward migration extends as far as the Baltic, occasionally beyond it; yet in Britain their appearance is irregular and accidental.

In most countries, being unmolested on account of their usefulness in destroying reptiles, they are quite fearless of man, frequently residing in the towns, and nestling on chimneys and other elevated parts of buildings. The nest is flat, composed externally of sticks and twigs, internally of straws and dry herbage. The eggs, three or four in number, are of a yellowish-white colour, two inches and three-fourths in length, two inches in breadth. Incubation continues thirty days, the male occasionally assisting. The young are at first covered with brownish down, and remain in the nest till the end of summer. Their parents accompany them in their first attempts at flying; and from this circumstance, and their assiduity in procuring food, as well as other indications of affection for their offspring and for each other, these birds have generally been considered as patterns of conjugal fidelity and fraternal love. In these respects the Storks are probably not superior to many other birds, although from their great size, confidence in man, and remarkable habits, they attract more notice in places where

they are common. In Holland, Flanders, and some parts of Germany, wooden boxes or frames are placed on the tops of towers and chimneys to induce them to nestle there; and he who has a Stork's nest on his house is esteemed a fortunate mortal. In England, on the other hand, where the Stork's habits are unknown, the possession of all the virtues imaginable would not suffice to protect it from the prowling gamekeeper and bird-stuffer.

The only individual known to me as having been obtained in Scotland was shot in Mainland, Shetland, and presented by Mr. M. Cameron to Professor Jameson, who has deposited it in the Museum of the University of Edinburgh. Mr. Yarrell states that one specimen has been killed in Scotland, communicated to him by Thomas M. Grant, Esq., and that two examples are said to have been killed in Shetland. The Rev. Mr. Smith, Monquhitter, informs me that "during the unusually severe winter of 1837-8, a specimen of this rare bird was shot in a moss in the upper part of the parish of Lonmay. It was nailed to a barn-door, where it speedily went to decay. The people who obtained it compared its red legs to Turkey leather." In the New Statistical Account of the Parish of Craig, in Forfarshire, it is stated by the late Mr. Thomas Molison, Montrose, that "a Stork was lately (1835) seen in the basin, and afterwards shot at Ethic House." Montagu states that one was shot near Salisbury, in February, 1790; another at Sandwich, in Kent, in 1805; and a third in Hampshire, in 1808. Since the latter period several instances of its occurrence have been noted, chiefly in the southern and eastern parts of England. One instance of its having been obtained in Ireland is recorded, it being stated by Dr Harvey, of Cork, in the Annals of Natural History, vol. xviii. p. 70, that a fine specimen was shot in the summer of 1846, near Fermoy, in the county of Cork.

YOUNG.—When fledged, the young differ from the adult only in having the bill of a duller tint, and the black parts of the plumage tinged with brown, and less glossy.

CICONIA NIGRA. THE BLACK STORK.

- Ardea nigra. Linn. Syst. Nat. I. 235.
 Ardea nigra. Lath. Ind. Ornith. II. 677.
 Black Stork. Mont. Linn. Trans. XII. 19.
 Ciconie noire. Ciconia nigra. Temm. Man. d'Orn. II. 561.
 Ciconia nigra. Black Stork. Flem. Brit. Anim. 97.
 Black Stork. Ciconia nigra. Selb. Illustr. II. 48.
 Ciconia nigra. Black Stork. Jen. Brit. Vert. An. 193.
 Ciconia nigra. Bonap. Comp. List. 46.

Bare part of the sides of the head very small, and smooth ; loreal spaces partly bare ; bill and feet red ; plumage brownish-black, glossed with purple and green ; breast and abdomen white.

THE Black Stork being of so very rare occurrence in Britain that only four individuals are recorded as having been obtained there, I have been obliged to have recourse to a foreign specimen for the following description:—

MALE.—This species is inferior in size to the White Stork, and proportionally less robust. The bill is more slender, straight, stout, conical, considerably compressed, tapering ; the upper mandible with the dorsal line straight, the sides sloping and convex, the ridge convex, the lateral grooves faint and extending to about a third from the end, the edges sharp and direct, with a slight notch close to the small deflected tip ; the lower mandible with the angle very long and narrow, the dorsal line ascending and slightly convex, the sides inclined outwards and somewhat convex, the edges sharp and inflected, the tip acute ; the gape-line straight, commencing under the eyes.

The nostrils are nine-twelfths long, direct, sub-basal, perforated as it were in the bill, near the ridge. The eyes

are small, surrounded by a bare space of small extent. The aperture of the ear roundish and rather large.

The legs are very long, and rather slender; the tibia bare for about half its length, reticulated with hexagonal scales; the tarsus long, compressed, reticulated all round. The hind toe is small and slightly elevated; the anterior toes of moderate length, webbed at the base, the outer web much larger; all scutellate, but at the base more or less reticulate. On the first toe are six, on the second sixteen, on the third thirty, on the fourth twenty-eight scutella. The claws are small, arcuato-declinate, compressed, toward the end depressed, obtuse; the inner edge of the third not serrate.

The plumage is moderately full, generally compact. The loreal spaces are partially bare. The feathers of the head and neck are small and oblong; those of the lower anterior part of the neck moderately elongated; on the other parts large and ovato-oblong; some of the scapulars very large, broad, and rounded. The wings are long and broad, of thirty quills, and when closed reach to the end of the tail; the first quill nearly an inch shorter than the second, the second and third longest; the secondaries very broad and rounded, the inner elongated. The tail is of moderate length and rounded.

The bill and bare space around the eyes are orange-red; the iris brown; the feet orange-red, the claws brown. The head, the neck all round, the back, wings, and tail, are brownish-black, glossed with purple and green, the lower parts white.

Length to end of tail 38 inches; wing from flexure $20\frac{1}{2}$; tail 8; bill along the ridge $7\frac{1}{2}$, along the edge of lower mandible $8\frac{1}{4}$; bare part of tibia $4\frac{1}{4}$, tarsus $8\frac{1}{2}$; first toe $\frac{1}{2}$, its claw $\frac{3}{12}$; second toe $2\frac{5}{12}$, its claw $\frac{4}{12}$; third toe $3\frac{3}{12}$, its claw $\frac{5}{12}$; fourth toe $2\frac{1}{12}$, its claw $\frac{3}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—This species is generally dispersed over the eastern and middle parts of the continent, and occurs occasionally in the northern and western. It is said to live in wooded marshes, and to feed on fishes, frogs, and insects.

According to M. Temminck, it nestles on the tallest pines and firs, laying two or three eggs of a dull white shaded with green, and sometimes marked with a small number of brown spots. Wagler states that it is "not very rare in France, Hungary, Poland, Austria, Bavaria, Switzerland, Prussia, but never occurs in Holland. Frequent in Persia, as well as Nubia, Senagambia, and Caffraria. It prefers marshy places in forests, seldom betaking itself to the shores of rivers and marshes, nestles in extensive woods, building its ample nest on the tops of the trees, and laying two or three dull white eggs, tinged with green, and sometimes marked with a few dusky spots. It feeds on small fishes, frogs, locusts, and other insects, and is of a very timid disposition."

YOUNG.—According to M. Temminck, the young have the bill, the bare skin about the eyes, that on the throat, as well as the feet, olive-green; the head and neck brownish-red, with reddish borders; the body, wings, and tail blackish-brown, with slight bluish and greenish reflections.

TANTALINÆ.

TANTALI AND ALLIED SPECIES.

THE Tantalinae, of which there are only three genera, *Tantalus*, *Ibis*, and *Platalea*, are birds of large or moderate size, which in external aspect combine the characters of the Herons or Storks and Curlews, and in their internal organization are intermediate between these groups. They have the head bare in front, sometimes over its whole extent; rather large in the *Tantali*, but small in some of the *Ibises*. The neck is always elongated and slender. The tongue extremely short, triangular, flattened; the œsophagus generally wide; the stomach moderately muscular; the intestine long, and having two generally very small cœca, in which respect it differs from that of the Herons.

The legs are long, rather stout in some, slender in others; the tibia bare to a large extent; the tarsus reticulate, but sometimes scutellate in front; the four toes articulated on the same level, the anterior long and webbed at the base; the claws arched, compressed, and rather obtuse.

The plumage is blended, on the upper parts compact; its colouring in masses. The wings ample, with the second or third quill longest. The tail short, of twelve feathers.

The species belong exclusively to warm climates, and none of them migrate to very cold countries for the purpose of breeding. Their nests resemble those of the Heron family, being rudely constructed, and placed on trees or on the ground. Their eggs are few in number, oval or sub-elliptical, and spotted. The young remain in the nest or its vicinity until they are able to fly. Fishes, reptiles, crus-

tacea, mollusca, insects, and other small animals form the food of the Tantalinae, of which a few individuals only of two species are rarely met with in this country.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. IBIS. IBIS.

Head small, compressed, oblong, bare before the eyes, often to a greater extent. Bill very long, tapering, slender, compressed, arcuate, obtuse; the ridge convex, broader toward the end, the sides with a deep narrow groove extending to the tip. Legs very long, slender; tarsi reticulate, sometimes scutellate; anterior toes connected by membranes at the base. Wings ample, with the second quill longest.

1. *Ibis Falcinellus*. *Glossy Ibis*. Neck, breast, and lower parts chestnut-red; back, wing, and tail glossy green, with purple tints.

GENUS II. PLATALEA. SPOONBILL.

Head of moderate size, flattened above, bare before the eyes. Bill very long, depressed, contracted in the middle, at the end expanded into a large obovate flat disk. Legs long, rather stout; tarsus reticulate; anterior toes connected by membranes at the base. Wings ample, with the second quill longest.

1. *Platalea Leucorodia*. *White Spoonbill*. Plumage white; the crest tinged with yellow; the lower part of the neck and a portion of the breast buff-coloured.

IBIS. IBIS.

THE birds of which this genus is formed are intermediate between the Tantalii and Numenii, some of the larger species approaching the former, while some of the smaller are very similar to the latter. They are also most intimately allied to the Spoonbills, which, in fact, are Ibises with the bill singularly flattened and expanded. The gradation from Ibis *Falcinellus*, the only British species, to *Numenius Arquata*, is almost so direct as to leave room for no intermediate form. The digestive organs and many of the habits of these birds are similar, and it does not appear that any unprejudiced person could refuse to admit that the Ibises are very closely allied to the *Scelopacinae*, although they also have an affinity to the *Ardeinae*, the gradation to which is completed by the intervention of the genus *Tantalus*. They are generally of moderate size, with the body ovate, robust in the larger species, rather slender in the smaller; the neck long and slender; the head small, oblong, and compressed.

Bill very long, slender, rather thick at the base, arcuate, tapering, compressed, toward the end somewhat cylindrical and slightly enlarged at the end, which is obtuse; upper mandible with the dorsal line arched, the ridge rather narrow, more convex toward the end, separated from the sides by a narrow groove, which extends from the base to the tip; the sides, which at the base are erect and flat, toward the end narrowed and convex, the edges sharp and direct or somewhat inflected, the tip rather blunt and scarcely longer than that of the other; lower mandible with the angle long, very narrow, with a groove extending from it to the tip, the sides erect or a little inclined inwards, and flat or somewhat concave, beyond the middle convex, the edges inclinate and sharp, the tip obtuse; the gape-line arcuate, commencing before the eyes.

Mouth rather narrow; palate flattened, with an anterior

longitudinal ridge; upper mandible little concave, with two or four prominent lines. Tongue extremely short, triangular, flat, thin, broadly emarginate and papillate at the base, its tip obtuse. Œsophagus wide, proventriculus moderate; stomach large, broadly elliptical; its muscular coat very thick, with the lateral and inferior muscles distinct and strong; the epithelium thick, dense, longitudinally rugous; intestine rather long, ♂ moderate width; cœca very small and cylindrical; cloaca globular.

Nostrils linear or oblong, sub-basal, in the fore part of the narrow bare nasal membrane. Eyes rather small. Aperture of ear very small. Feet long and rather slender; tibia bare for a considerable space, and reticulated with hexagonal scales; tarsus rather long, reticulate in the larger species, scutellate in the smaller, or partially reticulate and scutellate; toes rather long, moderately stout; the first more slender, articulated on the same plane as the rest; the second a little shorter than the third; all scutellate in their whole length, flattened beneath; the anterior webbed at the base. Claws short or moderate, slender, compressed, slightly arched, acute, that of the middle toe with the inner edge thin.

In young birds the head is feathered, except the loreal spaces and the skin between the crura of the lower mandible; but in old birds, one species excepted, more or less of the head, sometimes the face and throat, sometimes the whole head, and sometimes nearly the whole neck besides, are denuded. Plumage moderate; feathers of the head and neck slender, on the other parts ovate and of moderate length. Wings long or of moderate length, broad, of about twenty-five quills; primaries firm, broad, rounded, the outer three somewhat sinuate on the inner web, the third generally longest, the second a little shorter, and not much exceeding the first; secondaries broad and rounded, some of the inner about as long as the longest primary when the wing is closed, or longer, decurved, with the filaments loose. Tail short or moderate, even or rounded, of twelve broad, rounded feathers.

From Tantalus to Ibis the transition is evident, while

between Ibis and Numenius there is scarcely any interval. With respect to the digestive organs, the Ibises nearly correspond with the Numenii, and differ entirely from the Herons, their œsophagus being the only part that in width approaches to theirs. In the Herons the stomach is large, round, and membranous, the intestine very long and extremely slender, the cœca wanting; whereas in the Ibises the stomach is of small capacity, but very muscular, the intestine of moderate length and rather wide, and the cœca present, although very small. The tongue of the Ibises is shorter than that of the Curlews, and resembles that of the Spoonbills, but differs entirely from that of the Herons.

The sexes are similar, the female being only a little smaller. The young, however, are differently coloured. The Ibises belong to the tropical and warmer regions of both continents, or if some reside also in the temperate parts, they migrate southward in autumn. While in the form of the feet, and also in some measure in that of the wings and tail, they bear a considerable resemblance to the Herons, they also resemble them somewhat in their mode of walking and flying. According to M. Savigny, the two species which occur in Egypt feed on worms and small fresh-water mollusca, but never attack serpents, as had long been believed. They are generally gregarious. Both have a powerful and elevated flight, their pectoral muscles being very thick; they fly with the neck and feet extended horizontally, and at intervals simultaneously emit low and very hoarse cries. When they have alighted on newly uncovered places, they may be seen for hours in the same spot, unceasingly thrusting their bill into the mud. They never, like our Curlews, start off and run with rapidity, but always advance step by step. M. Audubon states that the White Ibis nestles in trees or bushes, like some Herons, laying three spotted eggs. The young, at first covered with thick down, often leave the nest long before they are able to fly, and are easily caught. The flight of this species, he says, is rapid and protracted, and at times, like the Red Ibis and Tantalus Loculator, it rises to a great height, performing various evolutions. It feeds on crayfish, worms, and mollusca.

IBIS FALCINELLUS. THE GLOSSY IBIS.



FIG. 39.

- Tantalus Falcinellus. Linn. Syst. Nat. I. 241.
 Tantalus Falcinellus. Lath. Ind. Orn. II. 707.
 Tantalus igneus, T. viridis. Gmel. Lath. Young.
 L'Ibis noir. Savigny. Hist. Nat. et Mith. de l'Ibis. p. 36.
 Glossy Ibis. Mont. Orn. Dict.
 Ibis falcinelle. Ibis Falcinellus. Temm. Man. d'Orn. II. 598.
 Glossy Ibis. Ibis Falcinellus. Selb. Illustr. II. 194.
 Ibis Falcinellus. Glossy Ibis. Jen. Brit. Vert. An. 194.
 Ibis Falcinellus. Bonap. Comp. List, 49.

Head feathered, excepting the loreal spaces. Adult with the feathers of the head and neck lanceolate and glossy; the neck, breast, and fore part of the back, deep chestnut-red; the hind part of the back, wings, and tail green, glossed with bronze and purple, the plumage generally with silky lustre. Young with the feathers of the head and neck oblong, soft, without gloss, each with two marginal white streaks; the lower parts deep dull brown, the upper glossy, green tinged with bronze and purple.

MALE.—The Glossy Ibis, the only species of its genus that has been found in Britain, is one of those which approach nearest to the Numenius, and recede farthest from the Tantali. It is about the same size as our common Curlew, which it

greatly resembles in form, although it differs in several respects, as will be seen on comparing the description of the two species. The body is rather slender; the neck long, the head rather small, oblong, and compressed.

The bill is very long, slender, arcuate, tapering, compressed; the upper mandible with the dorsal line arcuate, the ridge rather narrow, more convex toward the end, separated by a narrow groove, extending to the point, from the sides, which at the base are nearly erect, but toward the end very narrow and convex, the edges sharp and inflected, the tip obtuse, but thin-edged and not probe-pointed as in the Curlews or Snipes; the lower mandible more slender, with the angle long, very narrow, with a groove extending from it to the tip, the sides erect and flat at the base, with a slight longitudinal groove, beyond the angle convex, the edges inclinate and sharp, the tip obtuse, the gape-line arcuate, commencing before the eyes.

The upper mandible is flat within, but extremely narrow, with a groove and median prominent line in its basal half, and four prominent lines toward the end; the lower mandible still narrower internally, with two prominent lines.

The legs are very long and slender; the tibia bare and reticulated for nearly half its length; the tarsi long, slender, compressed, anteriorly covered with twenty-eight broad scutella, behind and on the sides with small scales. The toes are rather long, compressed, scutellate above, flattened beneath, the anterior connected at the base by membranes, of which the outer is larger; the hind toe rather long, the second a little shorter than the fourth. The claws are rather small, slender, slightly arched, compressed, rather acute, that of the middle toe with the inner edge thin.

A bare space extends on each side from the bill to a little behind the eye. The plumage is moderate; the feathers of the head and neck slender and tapering, of the upper parts of the body ovate and compact, of the lower parts blended; those of all the upper parts glossy with silky lustre. The wings are long and broad, of twenty-three quills, the first quill is a quarter of an inch shorter than the second, which is scarcely exceeded by the third, and longer than the fourth,

the outer two a little sinuate on the inner web. Some of the inner secondaries, when the wing is closed, reach to about an inch of the end of the longest primary. The tail is short, even, or very slightly emarginate.

The bill is greenish-black, toward the end tinged with brown; the bare space on the sides of the head green; the irides brown; the feet greenish-black; the claws dusky. The upper parts in general are glossy dark purplish-green. The upper part and sides of the head dark purplish-brown; the neck all round, the fore part of the back, anterior margin of the wings, breast, abdomen, and tibial feathers, dark brownish-red; the lower wing-coverts dark green.

Length to end of tail 24 inches; bill along the ridge $5\frac{1}{2}$, along the edge of lower mandible $5\frac{1}{2}$; wing from flexure $11\frac{1}{2}$; tail $4\frac{1}{4}$; bare part of tibia $2\frac{1}{4}$; tarsus $3\frac{5}{2}$; hind toe $\frac{1}{2}$, its claw $\frac{6}{12}$; second toe $1\frac{1}{2}$, its claw $\frac{6}{12}$; third toe $2\frac{5}{2}$, its claw $\frac{7}{12}$; fourth toe $1\frac{1}{2}$, its claw $\frac{5}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—The Glossy Ibis is very extensively distributed on the old continent, being found from India and Egypt to Siberia, and the northern parts of Europe. Wagler states that it is frequent in Poland, Hungary, Turkey, Austria, Bavaria, Switzerland, many parts of Germany and Italy; also in the Uralian Desert, about the Caspian and Black Seas, in Siberia and the countries bordering upon it; as well as in Egypt and some of the Indian Isles. Several individuals have been obtained in various parts of England, from Cornwall and Devonshire to Northumberland; but in that country it is merely an occasional or accidental visitant; and, I believe, has very seldom been seen in Scotland, although I have seen skins of two individuals shot there: one in Ayrshire, the other near Banchory, Kincardineshire. It is not, it appears, permanently resident in any part of Europe, but migrates to Asia in the end of autumn. It is said to frequent the shores of rivers and lakes, and to feed upon insects, worms, mollusca, and vegetable substances.

Like the White Ibis, this species was held in high vene-

ration by the ancient Egyptians, and is not unfrequently found preserved in their sepulchres. It was distinguished from that bird by the name of "Black Ibis," as is shown by Savigny, who, in his *Histoire Naturelle et Mythologique de l'Ibis*, presents us with the following account of it:—"There is in Egypt another Numenius, which is as much attached to that country as the white species, and is even more numerous there. This second species, inferior in size to the first, is distinguished from it especially by the want of white in its plumage, and by the feathers with which the neck and head are always well clothed. All the upper part of the body is black with very rich green and purple reflections; all the lower part of a greyish-black, which also reflects the tints, but in a less degree; and these two colours are nearly the same as those seen in the decomposed feathers, and at the tips of the large quills of Numenius Ibis. It happens, however, that in the old individuals, the belly and thighs take a deep chestnut tint, which sometimes extends over the breast. The feathers of the head and the whole neck are blackish, slightly bordered with whitish, darker on the top of the head and on the nape, which are glossy. The bill and feet have exactly the same form as those of Numenius Ibis; only they are not so thick. They seem at first black, but on being more closely examined show a greyish-olive colour. The feet are also proportionally longer, and the bill is a little shorter. The tongue is smaller, somewhat lanceolate, and very obtuse; the irides are brown. In other respects the two species are very similar; and the only differences which the Egyptians consider as presented by them, and which may be remarked at a glance, and when the birds are not looked at closely, is that the one is black and white, and that the other appears entirely black. These two Numenii are the only species that regularly arrive in Egypt at certain periods. That of Belon, with the head, bill, and feet red, is so seldom seen there, that the people can only have the most imperfect idea of it. They are of a certainty the only species which the present inhabitants know, and are named by them; and in the course of more than three years, when the French army was in Egypt, neither I, nor any person whom I know,

saw any other species. Let it now be remembered that the ancient Egyptians honoured two species of Ibis; that the essential distinction established by Herodotus between these birds is equally obvious in ours, and moreover that which the Arabs still remark in them; that the White Ibis was very black on the head, neck, tips of the wings, and the rump, while the Black Ibis was very black all over; an expression which the Greek historian employs only with doubt and by contrast, and, in all cases, which he has evidently used to designate a black colour with rich reflections, and even a greyish-black, since both of these colours exist in the plumage of the White Ibis: let all this be remembered, and we shall be forced to agree that our second species of Numenius is also the Black Ibis of which the ancients have made mention. We come to this conclusion with perfect strictness, unless we reject all that we may consider as previously proved, namely, that our White Ibis is the true White Ibis of the ancient Egyptians. If it were necessary to add another proof to these various considerations, I would take one which would of itself confirm the opinion that I have just advanced: the bird which I present as the Black Ibis has not lost its ancient Egyptian name, that of *Leheras* or *Ieheras*, which Aristotle has recorded, and which recurs as it were without alteration in the Arabian name *El hareiz*, also pronounced *El hareis*, and even *El hereis*, which this bird receives at Menzala, Damietta, Rosetta, and in the whole of the Delta, from the Egyptians of the present day.

“The Black Ibis, as is known, occurs not only in Egypt, but in Europe, for example, in Denmark, Germany, and especially in Italy, where it is migratory, and arrives in spring in great numbers, according to Mauduit, who has given its colours in detail, but says nothing of its habits. However, I do not believe that it ever entered the mind of a European that this bird preys on serpents; and when I affirm the contrary, I assuredly have no fear of being contradicted by the naturalists who, engaging after me in the same subject, may easily judge of the accuracy of these first statements by their own observations. The anatomical inspection of the Black Ibis made me at first think that it had a nearly as

exclusive taste for fresh-water shell-fish as the White Ibis ; and this was afterwards demonstrated to me, since in fact, nothing else was found in the gizzard of more than twenty individuals which I successively opened, only the bird selects shell-fish sufficiently small for the width of its gullet ; for, as all its external forms are slender, and have not so much breadth as those of the White Ibis, its internal organs have been correspondingly contracted. The œsophagus is narrower, the gizzard, although still very muscular, is less thick, the intestines are more slender, the cœca more attenuated ; but these slight differences do not prevent the organization and the appetites from being the same in the two species.”

The same author has described this species as feeding chiefly on small univalve fluviatile shells, of the genera planorbis, ampullaria, cyclostoma, and others, which abound in the canals and ditches along the Nile. Its mode of nesting has not been ascertained.

YOUNG.—The young in the second year are thus described by Wagler :—“ Closely resembling the adult, with the head and upper part of the neck blackish-brown, with slender longitudinal white streaks ; the lower part of the neck, the breast, belly and tibiæ greyish-black (at a more advanced age more or less approaching to chestnut), the upper part of the back and scapulars of a more or less deep and bright chestnut-brown.” The young in the first year, he says, have the head and neck marked with broader and more numerous white streaks, the lower parts of the body verging more toward blackish-grey.

In a young individual, from Bengal, in my collection, the feathers of the head and neck are very small, oblong, soft, blended, without lustre, but of a dull dark brown colour, each with two marginal slender streaks of white ; the lower parts deep sooty brown, without gloss, excepting the sides ; the upper parts glossy blackish-green with bronze and purple tints ; the primary quills and some of the secondaries deep green. The bill is shorter and more slender than in the adult.

REMARKS.—In this species, the tarsi, which are about

the same length as, or very little longer than, the middle toe with its claw, are covered anteriorly with scutella in their whole length, excepting about half an inch at the upper part. *Ibis rubra* and *Ibis alba*, in which the bill is a little thicker, have the tarsi similarly proportioned as to length, but stronger, and with transverse rows of scales below as well as above. *Ibis religiosa* has the bill and tarsi much stouter, and the latter without any scutella, but in place of them hexagonal scales. Wagler says that both these species, and *Ibis Macei*, which differs extremely little, if at all, from *Ibis religiosa*, have scutella in the middle of the tarsus ; but in my specimens the acrotarsia, are entirely reticulate, as is also the case in Savigny's figures of the Egyptian Ibis. All these Ibises differ in the extent of the bare space on the head, it being in one confined to the lores, and in another extending over the whole head, and even the neck almost to its base. Now if, notwithstanding, all these birds are of one genus, certainly, a fortiori, scutellate tarsi and reticulate tarsi may exist in the same family. On the principle of the very minute division adopted by some, every single species of Ibis ought to form a genus. It is very strange that neither Mr. Swainson, nor the Prince of Musignano, both famous for instituting genera on slight grounds, should not have separated the *Ibis religiosa*, with its bare head and neck, decomposed and decurved secondaries, and reticulate acrotarsia, from *Ibis falcinellus*, which has not one of these characters. Surely the differences are much greater than those between *Tringa* and *Pelidna*, *Squatarola* and *Charadrius*, *Picus* and any one of its dismembersments, *Astur* and *Accipiter*. *Ibis Fulcinellus* has, however, been made the type of a genus ; and, I think, without much impropriety.

PLATALEA. SPOONBILL.

THE Spoonbills may be said to be Ibises, with the bill flattened and expanded toward the extremity. They are birds of rather large size, having the body ovate, the neck long and rather slender, the head of moderate size, ovate, and flattened above, but little compressed.

Bill very long, being at least three times the length of the head, nearly straight, extremely depressed, being, when viewed from above, nearly as broad as the head at the base, gradually narrowed toward the middle, then expanding into an obovate disk much broader than the head; but when viewed laterally extremely slender, unless at the base; upper mandible with the dorsal line at first descending, then nearly straight to the end, where it is decurved; the ridge extremely broad and flat, gradually widening beyond the nostrils; the sides rather broad, convex, and transversely rugose at the base, gradually narrowed to the middle, then widened, and again narrowed toward the tip, forming, as it were, in its whole length a margin to the flattened ridge, from which they are separated by a narrow groove; lower mandible with the angle very long and narrow, the dorsal line indicated by a groove, which is straight until at the end, where it is decurved, the crura narrow, gradually flattened, then expanded into a disk, similar to that of the upper mandible, the edges thin and obtuse. Both mandibles are covered with a thin and soft skin; the gape-line nearly straight.

Mouth rather narrow, its roof behind with two rows of obtuse papillæ; both mandibles internally flattened, with a medial groove, and beautifully marked with very narrow elevated lines and grooves parallel to the margins. Tongue extremely small, broader than long, at the base emarginate and papillate. There is a dilatible gular sac of small extent,

analogous to that of the Ibises and Cormorants. The œsophagus is rather wide; the proventriculus bulbiform, with large cylindrical glandules. The stomach is rather large, roundish, with the muscular coat thick, its fibres disposed in large fasciculi; the central tendons very large; the epithelium very thick, rather soft. The intestine is very long and of moderate width, or rather narrow; there are two extremely short cœca, and the cloaca is large and globular.

The nostrils linear-elliptical, sub-basal, vertical. Eyes small, in a bare space, which extends to the bill. Aperture of ear rather small and roundish.

Legs long, rather slender; tibia bare in its lower half, and reticulated with hexagonal scales; tarsus rather long, stoutish, roundish, also reticulated all round with similar scales; toes rather long, moderately stout; the first more slender, articulated on the same plane as the rest; the second considerably shorter than the third; all scutellate, unless at the base, flattened beneath; the anterior connected by basal webs. Claws small, slightly arched, compressed, tapering, pointed, that of the middle toe with a thin inner edge.

The bare space on the head varies, being in one species confined to the loreal spaces and gular sac, in another including the head and a portion of the neck; whence it is apparent that this character is of no value as indicative of distinct genera among birds otherwise similar; for which reason it cannot apply to the Herons. Plumage moderate; feathers of the head and neck slender; on the other parts ovate and of moderate length. Wings long, broad, of about thirty quills; primaries firm, broad, rounded, the outer three somewhat sinuate on the inner web, the second longest, the third next, the first and fourth nearly equal; secondaries very broad and rounded. Tail short, even, of twelve broad, rounded feathers.

Now, with regard to external form, the Spoonbills are obviously nearest to the Ibises, and also approximate to the Curlews. Their sternum is precisely similar to that of the Scolopacinae; their cervical vertebræ have no resemblance to those of the Herons, from which they differ also in

having two lateral cœca, these birds having none but a caput cœcum. The œsophagus and proventriculus are similar to those of the Curlews ; the stomach has some resemblance to that of a Heron, it having the muscular fasciculi similarly disposed, but differs in being much thicker ; and the intestines are much wider, and have thicker walls, than those of the Herons. In short, the most direct affinity of Platalea is to Ibis and Tantalus, while it approximates also to Numenius and other Scolopacinae ; or, as I have elsewhere remarked, “ the compact form of the body, its great muscularity, the form of the legs, the length and slenderness of the neck, the form and bareness of the head (in one specimen at least), and the elongation of the bill, especially when it is laterally viewed, all indicate an affinity to the Tantali and Numenii. But the Spoonbills are also allied in various degrees to the Herons and even the Pelicaninae, which latter they resemble in the bare gular sac especially ; so that they clearly present one of those remarkable centres of radiation, demonstrative of the absurdity of quinary and circular arrangements, founded merely on a comparison of skins.”

It is very remarkable that the trachea differs greatly in the two species known to me, it being in the American or Roseate divided high up on the neck, the bronchi being thus of extreme length ; while in the European it is not divided so high, but on reaching the furcula bends upon itself, and then in entering the thorax divides.

I have thought it necessary to make the above remarks on the structure of the birds of this genus, because of the erroneous ideas of affinity to which the arrangement of writers ignorant of the subject give rise.

PLATALEA LEUCORODIA. THE WHITE
SPOONBILL.

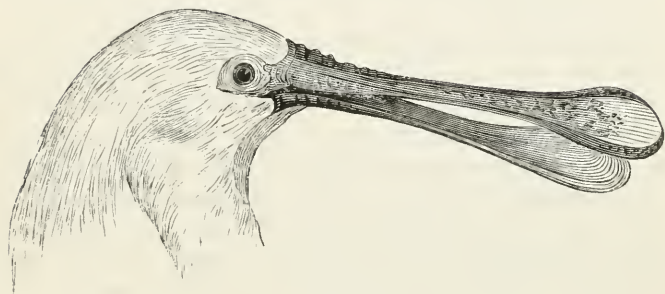


FIG. 40.

- Platalea Leucorodia. Linn. Syst. Nat. I. 231.
 Platalea Leucorodia. Lath. Ind. Orn. II. 667.
 White Spoonbill. Mont. Orn. Dict. and Suppl.
 Platalea Leucorodia. Spatule blanche. Temm. Man. d'Orn. II. 595.
 White Spoonbill. Platalea Leucorodia. Selb. Illustr. II. 51.
 Platelea Leucorodia. White Spoonbill. Jen. Brit. Vert, An. 193.
 Platalea Leucorodia. Bonap. Comp. List, 48.

Adult with a large occipital crest of linear feathers; the loreal spaces and throat bare; the bill black, variegated with grey or dull yellow; a large portion of the expanded part of the upper mandible yellow; the plumage white; the crest tinged with yellow; the lower part of the neck and a portion of the breast buff-coloured. Young crestless, with the bill darker, the plumage white, without yellow on the neck, and with the shafts of the quills and the tips of the primaries and their coverts black.

MALE.—The White Spoonbill, which is about equal in size to the Egyptian Ibis, occurs so rarely with us, that I am

obliged to take the following description from a specimen procured from Holland, where it is plentiful :—The body is ovate, rather full and muscular ; the neck long and slender ; the head ovate, flattened above and a little compressed. The bill is about four times the length of the head, straight, extremely flattened ; the upper mandible an inch and two-twelfths in breadth at the base, gradually narrowed to nine-twelfths, and enlarged at the end to two inches, forming there an obovate plate ; the dorsal line descending to beyond the nostrils, then straight, decurved at the tip, which is obtuse and formed by a broad short unguis having several prominent rugæ ; the sides at the base transversely undulated ; the margins as well as the terminal part of the plate finely scrobiculate ; the lower mandible with the angle very narrow, a groove from it to the tip, which is slightly decurved ; the crura narrow, gradually flattened, the extremity forming an obovate plate. Internally, both mandibles are marked with fine ridges and grooves, which may be said to be more or less parallel with the margins. On the upper are two longitudinal series of obtuse protuberances, and the inner edge of the crura of the lower is similarly marked.

The nostrils are linear-oblong, six-twelfths in length, sub-basal, vertical in the narrow grooves between the ridge and sides. The eyes are small, three-and-a-half-twelfths in width. The aperture of the ear is also small and roundish. The legs are rather long, somewhat slender ; the tibia bare for nearly half its length, and with the tarsus reticulated with sub-hexagonal scales ; the toes rather long and slender ; the first very slender, with twelve scutella ; the second considerably shorter than the fourth, with twenty-two, the third with thirty-six, the fourth with twenty-four scutella, besides basal scales ; the anterior largely webbed. The claws are small, little arched, tapering, much compressed, rather blunted.

The skin of the throat is bare to the length of two inches and a quarter, forming a kind of sac, and from thence for three inches more along a narrow space. The loreal spaces, circumference of the eyes, and narrow frontal margin are

also bare. The plumage is moderately full; the feathers with a rather large downy plumule; those of the head and neck narrow and blended, of the body ovate and rounded. On the occiput is a large crest, of numerous linear feathers, having the webs deflected or decurved, and the filaments disunited; the longest five inches. The wings are long and broad, of thirty quills; the primaries broad, tapering, but rounded; the outer three sinuate on the inner web; the second longest, exceeding the third by a twelfth and a half, and the first by eight-twelfths; the secondaries very broad and rounded. The tail is short, even, or very slightly emarginate and rounded; the feathers broad.

The bill is black, transversely variegated with bluish; the margins dusky toward the end, but about an inch in length of the expanded ridge or plate yellow; that of the lower mandible dusky, as is part of the intercrural membrane. The iris is red; the skin of the gular sac reddish-yellow; that of the loreal space pale yellow behind, dusky before. The bare part of the tibia, the tarsi, and toes are dusky; the claws black. The plumage is white; but there is a large buff-coloured patch on the lower part of the neck and fore part of the breast, and the feathers of the crest are tinged with yellow.

Length to end of tail 32 inches; bill along the ridge $8\frac{1}{2}$, along the edge of lower mandible, following the curves, $9\frac{8}{12}$; wing from flexure $15\frac{1}{2}$; tail 5 ; bare part of tibia $3\frac{1}{2}$; tarsus $5\frac{5}{12}$; first toe $1\frac{4}{12}$, its claw $\frac{1}{2}$; second toe $2\frac{2}{12}$, its claw $\frac{5}{12}$; third toe 3 , its claw $3\frac{6}{12}$; fourth toe $\frac{1}{2}$, its claw $\frac{5}{12}$.

FEMALE.—The female is similar to the male, differing only in having the crest considerably smaller, and less buff on the breast.

Length to end of tail 30 inches; bill along the ridge $7\frac{2}{12}$, its breadth at the end $1\frac{0}{12}$; wing from flexure 15 ; tail $4\frac{3}{4}$; tarsus $5\frac{1}{2}$; middle toe $3\frac{1}{12}$, its claw $\frac{5}{12}$.

An adult female, shot on the 16th of March, 1807, near Kingsbridge, is thus described by Montagu:—"This beautiful bird weighed three pounds three ounces; measured thirty-one inches to the end of the tail, and thirty-eight

inches to the end of the middle toe; length of the bill from the feathers on the forehead seven inches and a quarter; breadth of the spoon nearly two inches; the colour dusky, with transverse undulated ridges of black; the margin formed by a groove running from the nostrils, and surrounding the bill, is punctured; the point, which for an inch is nearly smooth, is of an orange-yellow; on the inside of both mandibles near the base are several protuberances on each side; from the bill to the eye, and the orbits bare of feathers, and of an orange-yellow, without any fine down, described by some authors. The whole plumage is white, except the lower part of the neck, which is yellowish-buff, becoming faint behind; the feathers on the top of the head increase in length by degrees; those of the hind head are from three to five inches long, forming a most beautiful flowing crest of slender yellowish-white feathers. The trachea is somewhat compressed, and the cartilaginous rings are very fine and tender; at the lower part is a flexure, reflecting and again returning, two inches or more in length, before it enters the cavity of the breast."

VARIATIONS.—In adult birds differences occur in size, in the length of the bill, that of the crest, and in the extent of yellow on the neck. Frequently the shafts and tips of the primary quills and primary coverts are more or less black.

HABITS.—The White Spoonbill is said by authors to be extensively distributed over the temperate and warmer parts of Europe, and to be especially abundant in Holland, where it is migratory. It resides on the margins of rivers and estuaries, feeding on small fishes, mollusca, worms, and insects. Montagu found in the female above described several half-digested small fishes, and some stickle-backs entire. According to M. Temminck, it nestles on trees or bushes, or among the rushes near the margins of the sea or large lakes, seldom far inland, laying two or three white eggs, marked with very scattered faint rust-red spots, or sometimes entirely white.

This beautiful bird is of rare and irregular occurrence in

England. A flock is mentioned by Pennant as having betaken themselves to marshes near Yarmouth, in April, 1774. Montagu states that it had sometimes been seen on the coast of South Devon, and that a young individual was shot in November, 1804, near Kingsbridge, and an adult female on the 16th of March, 1807, in the same neighbourhood. It has been killed in some of the southern counties of England, but I am not aware of its having been seen in Scotland.

YOUNG.—When fledged the young have the plumage of a looser texture, the feathers of the head oblong, those on the hind part not elongated. The bill is much shorter than in the adult, and of a dusky greyish colour. The plumage is white, but the shafts and tips of the primary quills and their coverts are black. According to M. Temminck, “the iris is grey, and the bare parts about the head dull white ;” that on the throat less extended.

XVI. LATITORES. SKULKERS.

THE birds of which this order is composed approximate in some respects to certain species of the Rasorial type. The Crakes, for example, are not very unlike some Quails and Partridges; and the Water-hens, both in form and in some of their habits, bear an obvious resemblance to the female of the domestic fowl. Some, however, having an elongated bill, which suggests an affinity to the Snipes, might be considered as approximating the group to the Tentatores. It is difficult, in fact, to determine their natural position, and, without pretending to have apprehended their relations, I have thought it expedient to place them here, at the end of the wading and at the commencement of the swimming birds. They who consider families as forming circular series, may be pleased with an arrangement which places them in relation to the Cursores, some of which are almost Rasorial. But, however this may be, they all agree in having the body much compressed, the neck of moderate length, the head small, oblong, and much compressed.

The bill varies from short to long, from stout to slender; is more or less tapering, with rather large nasal sinuses, and hard, thin-edged tips. The mouth is narrow; the œsophagus without crop; the proventriculus thick; the stomach a very muscular gizzard; the intestine of moderate length and width; the cœca rather large.

The nostrils are generally small, as are the eyes, and the aperture of the ears. The feet generally very large; the toes four, the first small, the anterior very elongated, compressed, slender, scutellate, sometimes margined, or even lobed; the claws slender, long, tapering, little arched.

The plumage is firm ; the wings short or moderate ; the tail very small.

They inhabit moist meadows, marshes, and the sides of lakes and rivers. Some of them are strictly terrestrial ; but by far the greater number readily betake themselves to the water, and many habitually reside upon it. They run with great speed, and make their way with wonderful ease among the rank and dense herbage, where they conceal themselves, and from which they are with difficulty raised. Their flight is heavy, but rather quick, and usually not extended, so that they seem unfitted for long migrations, which, however, some of them perform. They construct bulky nests, which are placed on the ground, or raised amidst shallow water ; and lay numerous spotted eggs. The young are covered with stiffish down, and are active from the first. Seeds, insects, worms, and other small animals, form their food. They are more numerous in warm climates, but one species or other is met with everywhere, and a few occur in the coldest.

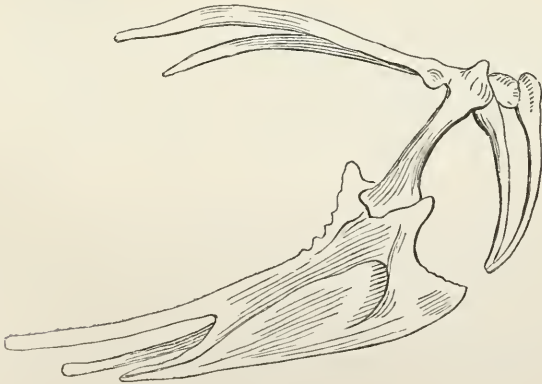


FIG. 41.

They can scarcely be disposed into families, their mutual affinity being so obvious that a separation of them into groups would be merely arbitrary. The genera *Aramus* and *Rallus*, however, have the bill so elongated, and so different in form from the short, thick, strong bill of the other genera, that they seem to constitute a group apart. At all events, a

division into the two families of Rallinæ and Gallinulinæ would not be productive of the least confusion, or give rise to any misapprehension of importance. Of the first of these groups, however, we have only one species in Britain, and, as the propriety of a division is doubtful, I shall consider all the birds of this order as forming a single family, of which the typical genus appears to me to be Parra.

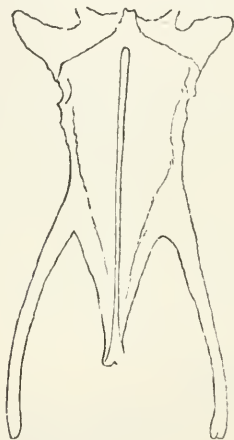


FIG. 42.



FIG. 43.

PARRINÆ.

JACANAS AND ALLIED SPECIES.

CONSIDERED collectively the birds of this family bear a general modified resemblance to the Rasores, or rather to the *Perdiciinæ*. Our Corn Crake is not very unlike some Partridges, and our Water-hen has been so named on account of its manifest similarity to the female of the domestic fowl. The genera of which it is composed, namely, *Aramus*, *Rallus*, *Parra*, *Crex*, *Gallinula*, *Porphyrio*, and *Fulica*, present the following characters:—

Their body is always much, often extremely compressed; their wings short, convex, and rounded, with a prominent sometimes horned knob on the head of the metacarpus; their feet very large, their toes are excessively elongated; their neck of moderate length; their head small, oblong, and much compressed.

The bill is of moderate length, straight, stout, much compressed; the upper mandible with its dorsal outline sloping, convex toward the end, the edges sharp, slightly inflected, with an obscure notch close to the hard rather acute tip, lower mandible with the angle narrow and long, the dorsal line ascending and straight, the sides nearly perpendicular, the nasal groove long, rather wide, and bare, or obliterated. The gape-line nearly straight.

Both mandibles are concave within, the lower more deeply; the palate flat and papillate. The tongue fleshy, oblong or slender, with a few short papillæ at the base, the tip thin, obtuse and lacerate. Throat narrow; œsophagus of moderate capacity, without crop or remarkable dilatation; proventriculus oblong, with large oblong glandules; stomach

a powerful gizzard, like that of a gallinaceous bird, with very large distinct muscles, and thick rugous cuticular lining; intestine long, of moderate width; cœca rather large, being about an eighth of the length of the intestine; rectum wider, with an elliptical cloaca.

Nostrils direct, pervious, varying from linear to circular, in the fore and lower part of the nasal groove. Eyes rather small; eyelids feathered. External aperture of the ear roundish and rather small. Feet long and stout; tibia bare for a considerable space below; tarsus large, compressed, covered anteriorly with curved scutella, posteriorly with two rows of large scales; toes very long, slender, free, the first directed backwards and very small, the outer longer than the inner, the third longest; claws generally long, straight or little arched, compressed, acute.

Plumage soft and usually blended, on the head very short, on the sides long; the feathers oblong, narrow, rounded. Wings rather short, moderately convex, broad, and rounded, of about twenty-four quills, the proximal secondaries long and pointed. Tail very short, much rounded, of twelve narrow, rounded, decurved, weak feathers.

The skeleton of the Parrinæ more resembles that of the Partridges than of any other tribe, although the differences are great, especially in the form of the feet. The skull is rather small, oblong, and narrow; the orbits of moderate size, incomplete below, their upper margins not elevated as in the Charadriinæ; the intermaxillary bones linear, as are the maxillary, an oblong interval being left between them. The lower jaw is slightly arched, entire, and very thin. The cervical vertebræ are generally thirteen, the dorsal nine, the lumbar and sacral twelve, the caudal nine. The ribs are nine, very slender and compressed, the first incomplete. The sternum (Figs. 41, 42, 43) is of a very singular form, being of moderate length, anteriorly of ordinary breadth, but narrowing backwards so as to end in a point, and from above the middle sending out two very long lateral processes; its ridge of moderate height, anteriorly concave. The coracoid bones are moderately stout and spreading; the furcula extremely slender and rather narrow; the scapula very slender and

uniform. The wings are short ; the cubitus shorter than the humerus, in which respect these birds differ from those of all the other families. The knob on the head of the metacarpus generally compressed and rounded, but in the Jacanas elongated and covered with horn ; the first finger has two phalanges, the second a large metacarpal bone and two phalanges, the third a slender metacarpal bone and one phalanx, both however united to those of the second finger. The pelvis is extremely narrow ; the sacrum distinct, as is the pubes, which is linear. The os femoris is of moderate size ; the tibia long ; the fibula about three-fourths of its length ; the tarsus rather short ; the toes extremely long and slender ; the first with a basal bone and two phalanges, the second with three, the third with four, the fourth with five.

The Parrinæ are generally distributed, some species being found in every part of the globe, excepting the most frigid regions. They reside among reeds, sedges, rushes, flags, or other aquatic plants, or among grass or corn ; are peculiarly fitted, by the extreme compression of their body, for making their way among the herbage, and by the great length of their toes and claws for supporting themselves upon the stalks or blades of vegetables floating upon the water or growing out of it. They all float lightly, and, with the exception of a few species, swim with ease ; some of them even move about in the exposed parts of rivers, lakes, and inlets of the sea, proceeding with nearly as much speed as Ducks or Grebes. They fly heavily, with their legs at first dangling, and afterwards stretched out behind them. In open places they run with considerable speed, and in their ordinary walk advance in a sedate manner, raising their feet high, and keeping their body nearly horizontal.

Many of them have frontal plates or appendages of a vascular tissue covered by the ordinary integument or by a horny cuticle, and becoming more tumid and often more highly-coloured in the breeding season. The nest is placed among reeds or other thick herbage, and is of great size, clumsily constructed of dry plants of various kinds, especially gramineæ and cyperacæ. The eggs are numerous, from

four to ten or twelve, oval, light-coloured, and spotted, dotted, or speckled all over with dusky. The young are at first covered with long, generally black down, and are immediately after birth capable of running about with great celerity, and even of swimming. They conceal themselves by squatting, but more frequently by diving and betaking themselves to the cover of leaves or tufts of grass, where they can thrust up their heads unperceived. The adult birds have the same habit.

Some of the Parrinæ are solitary, others in a great measure gregarious. Their food is various, consisting of worms, mollusca, insects, blades of grass, and seeds, especially of gramina. They use a large quantity of sand and gravel, like the gallinaceous birds, to whose digestive organs theirs are very similar, although they differ in wanting the crop, and in having the cœca much smaller.

The plumage is changed in autumn. The colours are various, and in many species extremely beautiful. The

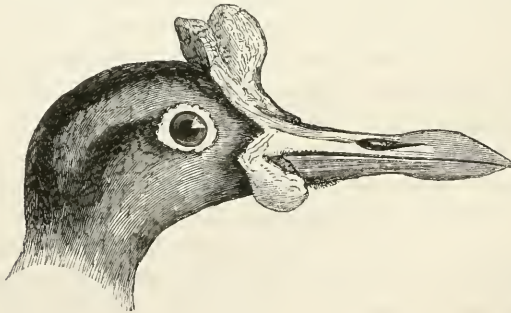


FIG. 44.

males and females are similar in most cases, and in general the young differ little from the adult. Their flesh is white, and affords delicate eating.

The genera may be briefly characterized as follows:—
 1. *Rallus* has the bill most elongated and slender, with the nasal groove extending to two-thirds of its length, the ridge scarcely enlarged at the base. 2. *Parra* has the bill of

moderate length, deeper than that of *Rallus*; the ridge with a loose or free expansion at the base; the feet very large, the claws extremely long and straight, or a little recurvate.

3. In *Crex* the bill is shorter than the head, tapering, its ridge slightly enlarged and angular at the base, the nasal groove long.

4. *Gallinula*

has the bill a little longer and stouter than *Crex*, the nasal groove still large, the ridge expanded into a plate covering the forehead, toes marginate.

5. *Porphyrio* has the bill short and stout, the ridge forming a frontal plate, the nasal groove obliterated, so that the nostrils, which are round or elliptical, seem perforated in the bone, the toes slightly margined.

6. *Fulica* has the bill similar to that of *Porphyrio*, the nasal cavity partially obliterated, the nostrils linear, the ridge expanded into a large frontal plate, the toes broadly margined with scolloped membranes. *Porphyrio* is more granivorous than the rest, *Rallus* more vermivorous, *Crex* more insectivorous, *Gallinula* more omnivorous, and *Fulica*, granivorous like *Porphyrio*, is the most aquatic; while *Parra*, with its excessively elongated toes and claws, is the best adapted for walking upon the aquatic plants. For this reason, and because it is intermediate in structure

between the rest, I have assumed it as the genus which ought to give its name to this very distinct family, which is in a manner connected by *Rallus* with the *Scolopacinae*, by

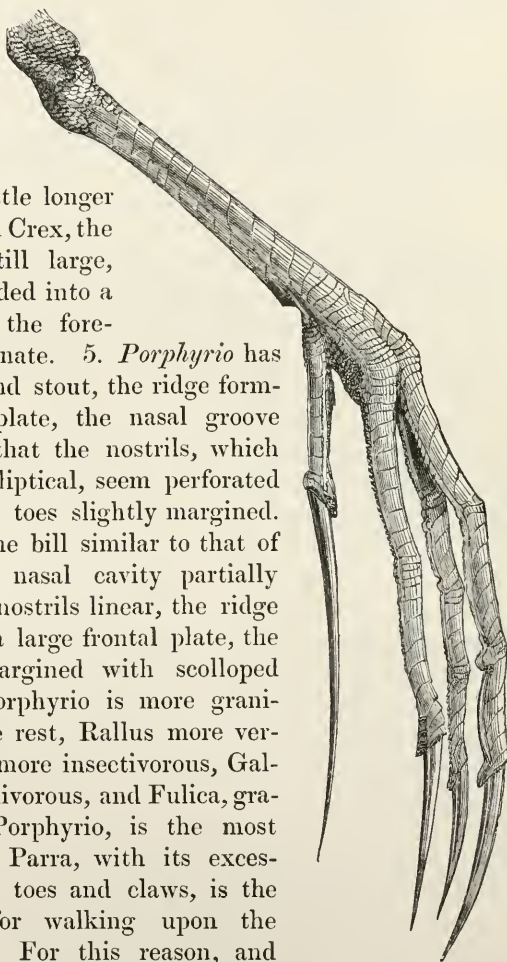


FIG. 45.

Crex and *Gallinula* with the *Perdiciinæ* and *Phasianinæ*, and by *Fulica* with the *Colymbinæ*.

In Britain there are no representatives of the genera *Parra* and *Porphyrio*, which belong especially to warm and temperate climates.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. RALLUS. RAIL.

Bill long, slender, tapering, very slightly arched, much compressed; upper mandible with the ridge a little flattened, rounded but not enlarged at the base, the edges inflected near the tip, the nasal groove extending to two-thirds of its length. Nostrils sub-basal, linear. Toes extremely compressed, not margined.

1. *Rallus aquaticus*. *Water Rail*. Upper parts olivaceous, streaked with dusky; fore-neck and breast purplish-grey; sides and abdomen barred with black and white.

GENUS II. CREX. CRAKE.

Bill not longer than the head, rather stout, tapering, much compressed; upper mandible with the ridge narrow, very slightly enlarged and angular at the commencement, the edges slightly inclinate, the nasal groove large. Nostrils linear-oblong, medial, sub-marginal. Toes much compressed, not margined.

1. *Crex pratensis*. *Corn Crake*. Yellowish-brown, streaked with dusky above, paler beneath, the sides barred with light red and whitish, the wings light red.

2. *Crex Porzana*. *Spotted Crake*. Olive-brown, with dusky streaks and white spots above; greyish-brown, spotted with white beneath; the wings olive-brown.

3. *Crex Baillonii*. *Baillon's Crake*. Yellowish-brown, spotted with white, and undulated with black above; sides and abdomen barred with black and white.

4. *Crex pusilla*. *Little Crake*. Olive-brown, with a few white streaks above, bluish-grey beneath; sides and abdomen faintly barred with brown and white.

GENUS III. GALLINULA. GALLINULE.

Bill not longer than the head, rather stout, tapering, much compressed; upper mandible with the ridge narrow, enlarged at the base into a soft tumid oblong plate covering the forehead, the edges direct, those of the lower mandible inclinate. Nostrils linear-oblong, medial, sub-marginate; the nasal groove large. Toes compressed, marginate.

1. *Gallinula Chloropus*. *Green-footed Gallinule*. Head, neck, and lower parts dark grey; back and wings deep olive-brown; lower tail-coverts white.

GENUS IV. FULICA. COOT.

Bill about the length of the head, strong, compressed; upper mandible with the ridge convex, and expanded into a large plate covering the forehead; edges direct, as are those of the lower mandible. Toes margined with a broad membrane contracted at the joints.

1. *Fulica atra*. *Bald Coot*. Head and neck greyish-black; upper parts dark bluish-grey, lower dark brownish-grey; tip of the bill and frontal plate white.

RALLUS. RAIL.

THE Rails are small birds, varying in size between the Woodcock and Jack Snipe, and having a slender, extremely compressed body, with a rather long neck, and small, oblong, much compressed head.

Bill longer than the head, slender, firm, straightish, being slightly arcuate, compressed in its whole length, slightly tapering; upper mandible, with its dorsal outline slightly declinate at the base, straight in the middle, a little declinate towards the end, the ridge convex, having a slightly enlarged angular commencement, the sides nearly erect, the edges sharp, hard, and slightly inflected; lower mandible, with the angle extremely long and narrow, the dorsal outline nearly straight, the edges slightly inflected, the tips narrow, but obtuse. The gape-line almost straight; the nasal groove extending to two-thirds of the length of the bill. Internal concavity of the mandibles very deep; palate extremely narrow, with a single row of compressed papillæ.

Eyes small, eyelids feathered. Nostrils sub-basal, linear, pervious. Aperture of ear small. Feet large; tibia muscular, its lower part bare; tarsus of moderate length, large, compressed, anteriorly covered with broad curved scutella; toes very long, slender, much compressed; the first proportionally small, the second considerably shorter than the fourth, the third longest. Claws long, slender, tapering, slightly arched, much compressed.

Plumage blended; the feathers on the head very short, those on the forehead with strong bristle points, of the body oblong and broadly rounded. Wings short, concave, rounded; quills twenty-two; primaries weak, broad, rather rounded, the first much shorter than the second, which is about the

same length as the third, the fourth a little shorter, the sixth about the length of the first. Tail extremely short, arched, much rounded, of twelve very weak, rather broad, rounded feathers.

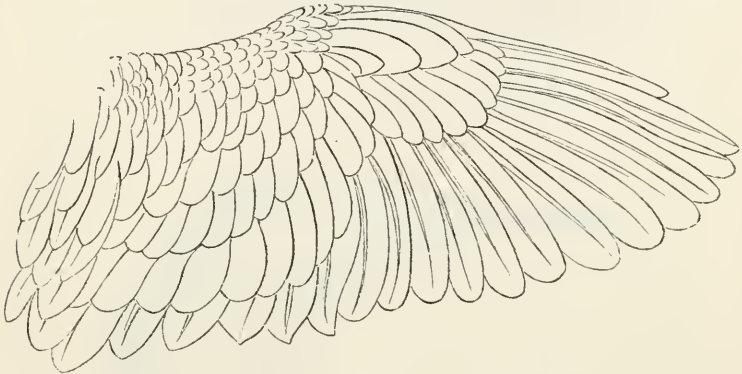


FIG. 46.

The Rails are very intimately allied to the Gallinules and Crakes, from which they differ chiefly in having the bill more elongated and slender, in which respect, on the other hand, they approximate to the Snipes. They inhabit the seedy and grassy margins of lakes and rivers, where they habitually conceal themselves. As in their form and the structure of their digestive organs, they manifest an affinity to the Scolopaciæ, on the one hand, and to the Rasores, on the other, so is their food a mixture of that appropriate to each of these families, being composed of worms, mollusca, small crustacea, insects, and seeds of reeds and other plants. They are capable of swimming, and even of diving on occasion.

All the species are more or less aquatic, and it is among sedges or reeds that they form their large bulky nest, composed chiefly of grass. The eggs are four or five, or sometimes more. The young run about, swim, and dive while yet covered with down, and when fledged differ little from the old birds. The females are similar to the males.

The Rails are separated from the Crakes and Gallinules

by no precise line, for the principal distinction between these genera lies merely in the length of the bill, which in the former is longer than the head, and in the latter shorter. The Gallinules in like manner pass into the genus *Porphyrio*, and the latter into *Fulica*.

Only one species of Rail occurs in Britain.

RALLUS AQUATICUS. THE WATER RAIL.

BILCOCK. RUNNER. SKIT. SKIDDY-COCK.

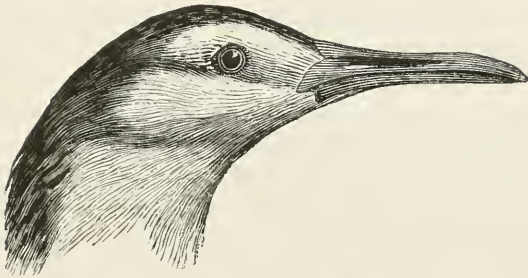


FIG. 47.

- Rallus aquaticus. Linn. Sys. Nat. I. 262.
 Rallus aquaticus. Lath. Ind. Orn. II. 755.
 Rail, or Water-Rail. Mont. Orn. Dict.
 Rale d'eau. Rallus aquaticus. Temm. Man. d'Orn. II. 683.
 Rallus aquaticus. Water Rail. Flem. Brit. Anim. 98.
 Common Rail. Rallus aquaticus. Selb. Illustr. II. 172.
 Rallus aquaticus. Water Rail. Jen. Brit. Vert., -An. 217.
 Rallus aquaticus. Bonap. Comp. List, 53.

Plumage above olivaceous, streaked with brownish-black ; fore neck and breast dull greyish-blue ; sides and haunches barred with brownish-black and white ; abdomen pale reddish-yellow ; proximal lower tail-coverts white, the rest banded with black.

MALE.—The Rail is about the size of the Corn Crake, and nearly of the same form, its body extremely compressed, its head small and very narrow, its wings flattened to its sides, its bill and feet also compressed ; in short, it looks as if it had been squeezed almost flat, and we cannot choose but admire

this adaptation of its structure to its habits, nor fail to perceive that were it as broad as a Partridge, it could not thread its way among the stiff reeds with that facility which seems to us so admirable. The details of its exterior will be found to agree with the generic character, so that little remains here to be said of it. The tarsi have thirteen anterior scutella, the first toe ten, the second twenty, the third twenty-six, the fourth also twenty-six. The claws are rather long, slender, tapering, compressed, acute, little arched. The plumage is blended, but the feathers of the back are a little stiff, and those of the forehead have their shafts enlarged and elongated. The wings are short, broad, and rounded, with twenty-three quills; the primaries very broad, rounded, and weak, the first as long as the seventh, seven-twelfths of an inch shorter than the second, which is longest, but scarcely exceeds the third; the secondary quills are long, broad, and rounded, the inner elongated. The tail is short, much rounded and arched, the feathers narrow and feeble.

The bill is dark brown, with the edges of the upper and two-thirds of the lower mandible light red. The iris red. The feet are light reddish-brown, approaching to flesh-colour; the claws greyish-brown. The upper parts are olive brown, streaked with brownish-black, the middle of each feather being of the latter colour. The alula, primaries, and outer secondaries are dusky, tinged with olive; some of the small feathers on the edge of the wing barred with white and black. The tail feathers and inner secondaries are like those of the back. A small portion of the throat is greyish-white; the fore part of the neck and the breast of a dull greyish-blue; the abdomen and inner part of the tibia cream-coloured; the sides and haunches, as well as the lower wing-coverts, barred with white and black; and the smaller lower tail-coverts cream-coloured at the end, but barred with black; the proximal or large coverts white.

Length to end of tail $11\frac{3}{4}$ inches; extent of wing 16; wing from flexure 5; tail $2\frac{1}{2}$; bill along the ridge $1\frac{9}{12}$; along the edge of lower mandible $1\frac{10}{12}$; tarsus $1\frac{8}{12}$; first toe $\frac{6}{12}$, its claw $\frac{3}{12}$; second toe $1\frac{4}{12}$, its claw $\frac{5}{12}$; third toe $1\frac{11}{12}$, its claw $\frac{5}{12}$; fourth toe $1\frac{7}{12}$, its claw $\frac{4}{12}$.

FEMALE.—The female is similar to the male, but with the tints paler; the red of the bill less bright, and the legs tinged with green.

Length to end of tail 11 inches; extent of wings $15\frac{1}{2}$ inches; bill along the ridge $1\frac{0}{12}$.

VARIATIONS.—In adult individuals I have not observed any remarkable variations of colour.

CHANGES OF PLUMAGE.—The moult takes place in autumn, and is completed by the middle of November, but induces very little change in the colours, which merely become a little fainter towards the end of summer.

HABITS.—The Water Rail, although generally distributed, is nowhere common. Various authors mention its occurrence in most parts of England, and it extends to the very northernmost parts of Scotland. I have even found it in the island of Lewis, as well as in Harris, on both occasions in winter. It frequents moist meadows, the sides of ditches, brooks, or streams overgrown with sedges, sedges, and other rank plants, as well as marshes, especially those abounding in the yellow iris. Concealed by the vegetation it there pursues its avocations, never venturing into the open fields or pastures, and seldom rising on wing even when close pressed, but running with great celerity, and threading its way through the most apparently impenetrable thickets of reeds. When forced to take wing, it flies slowly and rather awkwardly, with its legs dangling, and seldom proceeds far, but alights and skulks. Unlike the Corn Crake, which greatly resembles it in habits, it remains with us all the year. Its food consists of worms, slugs, helices, lymnææ, insects, and seeds of gramineæ.

Its nest, which I have not had the good fortune to meet with, is described by Montagu as “made of sedge and coarse grass, amongst the thickest aquatic plants, frequently in willow beds. In such a situation,” he continues, “we found one with six eggs of spotless white, and very smooth, rather larger than those of a Blackbird, the shape a short oval, with both ends nearly alike.” By Temminck, however, the eggs

are said to be “yellowish, marked with reddish-brown spots;” and Mr. John Smith, of Yarmouth, in a notice printed in the *Annals of Natural History*, vol. ii., p. 78, gives the following detailed account of the nest and eggs:—“The bird had selected for her nest a thick tuft of long grass, hollow at the bottom, on the side of the reed pond; the nest about an inch and a half thick, was composed of withered leaves and rushes; it was so covered by the top of the grass, that neither bird, nest, nor eggs, could be seen; the entrance to and from the nest was through an aperture of the grass, directly into the reeds, opposite where any one could stand to see the nest. The length of the eggs, on an average, were one inch and a half, some near a tenth more, others near a tenth less; weight, seven drachms; colour, light cream, thickly spotted at the larger ends with bright rusty red, intermixed with sunk faint lilac spots, thinly and finely spotted at the lesser ends with the same colours, with a blush of pink over the whole egg, but more towards the lesser ends; the yolk a bright blood-red, brighter than any egg I ever opened, and I think that the pink tint of the shell is owing to the redness of the yolk, for after emptying the eggs it was hardly perceptible. On the 20th of June I found another nest in the same reed pond; the eggs were destroyed; this nest was built among the reeds, and very near the water. On the 10th of July I obtained a third nest from the same place, of eleven eggs, within two or three days of hatching; the nest and situation much like the last.” It is very probable that the white eggs found by Montagu were those of the Little Bittern.

YOUNG.—The young are first covered with black hair-like down. When fledged they differ little from the adult, and might be described in the same terms, with the following slight exceptions:—“The bill is more dusky, the red of the lower mandible and edges of the upper being less bright, and the tarsi are of a dull greenish-brown tint. The white on the throat is more extended; the greyish-blue of the fore neck and breast paler, and most of the feathers narrowly tipped with yellowish-white; of which colour are the middle of the breast, the abdomen, and the inner part of the legs.

CREX. CRAKE.

THE Crakes, which are intermediate in form between the Rails and Water-Hens, are generally of small size, the largest not exceeding that of the Grey Partridge. Their body is slender, and very much compressed, the neck of moderate length, the head oblong, compressed and rather small.

Bill not exceeding the head in length, rather stout, tapering, much compressed; upper mandible with the dorsal outline declinate, towards the end convex, the ridge narrow, very slightly enlarged and angular at the commencement, the sides sloping, towards the end erect and convex, the edges a little inclinate, the tips somewhat deflected, with a slight notch; the nasal groove large; lower mandible with the angle long and slender, the dorsal outline very short and ascending, the sides sloping outwards and convex, the edges soft and blunt at the base, sharp and a little inflected towards the end, the tip narrow and rather sharp. The gape-line nearly straight. Upper mandible internally concave, with a central prominent line; lower deeply concave.

Eyes rather small; eyelids feathered, with a bare crenate margin. Nostrils linear-oblong, perforated, medial, sub-marginal. Aperture of ear roundish, of moderate size. Feet large, tibia muscular, its lower part bare; tarsus of moderate length, large, compressed, anteriorly covered with broad curved scutella; toes very long, slender, compressed, the first very small, the third longest, the fourth a little longer than the second; claws of moderate length, slender, compressed, acute, slightly arched.

Plumage blended, but with the barbs rather stiff, especially on the upper parts; the feathers on the head very short. Wings short, concave, rounded; quills twenty-four; primaries rather weak, very broad, rounded, the first much shorter

than the second, which is slightly longer than the third, the fifth about the length of the first. Tail extremely short, arched, much rounded, of twelve very weak, narrow, rounded feathers.

The Crakes inhabit meadows, corn-fields, marshes, and in general places covered with a rank growth of gramineæ and cyperaceæ, among which they conceal themselves. They run with great speed, but seldom rise on wing, unless closely pursued, when they fly off in a heavy manner, with their legs dangling. Their food consists of worms, mollusca, insects, and seeds. Most of them swim and dive with ease, but some, and especially our common species, confine themselves to dry places.

They nestle on the ground, forming a shallow cavity, in a place overshadowed by herbage. The nest is large, and rudely constructed. The eggs are numerous, oval, light coloured, dotted, spotted, or freckled with darker.

Four species occur in Britain, but of these three are very rarely met with, while the other, the Corn Crane, is generally distributed and familiarly known.

CREX PRATENSIS. THE CORN CRAKE.

LAND RAIL. LAND-HEN. DAKER-HEN. CORN CRAKER. DREAUN.



FIG. 48.

- Rallus Crex. Linn. Syst. Nat. I. 261.
 Gallinula Crex. Lath. Ind. Orn. II. 766.
 Crake Gallinule. Mont. Orn. Dict.
 Poule-d'eau de Genet. Gallinula Crex. Temm. Man. d'Orn. II. 686.
 Ortygometra Crex. Corn Crake. Flem. Brit. Anim. 98.
 Meadow or Corn Crake. Crex pratensis. Selb. Illustr. II. 176.
 Crex pratensis. Corn Crake. Jen. Brit. Vert. An. 217.
 Crex pratensis. Bonap. Comp. List, 53.

Plumage of the upper parts dull yellowish-red, streaked with brownish-black; wing-coverts light red; sides of the head grey; lower parts pale reddish; lower wing-coverts, axillaries, and sides, light red, barred with white.

MALE.—The Corn Crake, which although it rarely comes under the observation of unprofessional admirers of nature, is yet familiarly known by its cry, insomuch that to most people it is *vox et præterea nihil*, claims our especial regard, as of all the species of the genus which visit us, it is the most easily studied. Its body is much compressed; the neck rather long and slender; the head small and compressed. The bill is direct, shortish, compressed, and in all respects as described

in the generic character. The tongue is rather short, fleshy, emarginate and papillate at the base. The œsophagus is six inches long, of nearly uniform diameter; the stomach roundish, compressed, large, an inch and a quarter long; its muscles very large; the intestine twenty-five inches long; the cœca three and a quarter.

The tibiæ are bare for about five-twelfths of an inch; the tarsus has eighteen anterior, and about the same number of posterior scutella: the first toe eight, the second twenty, the third twenty-six, the fourth twenty-four. The claws are small, slightly curved, compressed, rather acute.

The plumage is blended, very short on the head, gradually more elongated on the hind parts; the feathers oblong, curved, with a slender plumule. The wings are rather short, broad, and rounded; the second primary longest, the third almost as long, the first four-twelfths of an inch shorter, and about the same length as the fifth; the secondaries fourteen, long, broad, rounded, the inner much elongated, slender, and like the scapulars. The tail is very short, much rounded, of twelve feathers, which are narrow, rounded, and considerably induplicate.

The bill is light brown, the lower mandible whitish at the end. The iris is light hazel. The feet bluish flesh-colour. The upper parts are light yellowish-brown, each feather marked with an oblong central spot of brownish-black, and laterally tinged with grey. The wing-coverts are light red, some of them imperfectly barred with white. A broad band of ash-grey passes over and behind the eye and ear, and the checks are tinged with the same. The face, fore part and sides of the neck, are light yellowish-brown, tinged with grey; the sides and breast barred with light red and white; the lower wing-coverts and axillar feathers light red; the chin and abdomen brownish-white. Quills and primary coverts light brown, their outer webs tinged with light red; the edge of the wing and outer web of the first alular feather and first quill, reddish white; the inner secondaries and tail feathers like the back.

Length to end of tail $10\frac{3}{4}$ inches; extent of wings 18; wing from flexure 6; tail 2; bill along the ridge $1\frac{1}{2}$; along

the edge of lower mandible $1\frac{1}{2}$; tarsus $1\frac{7}{2}$; first toe $\frac{5}{2}$, its claw $\frac{2}{2}$; second toe $1\frac{2}{2}$, its claw $\frac{2}{2}$; third toe $1\frac{6}{2}$, its claw $\frac{3}{2}$; fourth toe $1\frac{3}{2}$, its claw $\frac{3}{2}$.

FEMALE.—The female is similar to the male.

Length to end of tail $10\frac{1}{2}$; extent of wings $17\frac{1}{2}$.

VARIATIONS.—I have not observed any remarkable variations.

CHANGE OF PLUMAGE.—The Corn Crake arrives in this country with its plumage complete, and does not moult before leaving it.

HABITS.—Having made this interesting bird a special object of study, I hope to be able to present a correct account of its habits. Let us imagine ourselves strolling over those flowery pastures that skirt the sandy shores of the Hebrides, anticipating the rising of the sun, and listening, as we proceed in the grey twilight, to the cries of the distant gulls, and the loud crash of the little wavelet, whose fall on the sandy beach produces, it seems, a louder noise in the perfect calm than the rushing of the mighty billow would do in a storm. The bleating cry of the Snipe is heard on the hill-side, and already has the Lark sprung from its sandy couch to warble its merry notes over the corn-field. Here let us crouch behind the turf-wall, in view of that thicket of iris, and watch the Crakes, which I have often seen resort to it. There already, dimly seen, one is quietly walking along the grassy ridge, lifting high foot after foot, and sometimes stooping as if to pick up something. Now it stops, stands in a crouching posture, but on unbent legs, and commences its curious but monotonous song. Another is observed threading its way among the short grass of the adjoining piece of meadow-land. The ruddy streaks in the east betoken the sun's approach to the horizon. There along tidemark some dark-coloured bird approaches; it perceives us, wheels round, and comes up, announcing itself by its croak as the Hooded Crow. The Crakes seem to understand the warning, and immediately betake themselves

to the thicket, whence we can easily start them. Yet they sometimes allow you to come within a yard or two before they rise, and so closely do they sit that I have once or twice seen a small pointer, which I had trained to bird-nesting, spring upon and seize one.

The Corn Crake visits us in the latter part of April, or early in May. It may seem strange that a bird apparently so ill adapted for continued flight, should yet be capable of performing the long journeys necessary for its annual visits. Its ordinary haunts are fields of corn and grass, and in the less cultivated parts of the country the large patches of flags and other tall herbaceous plants, which occur in moist places. It runs with great celerity, so much so that I think a man could hardly overtake it, and it seems extremely averse from flying, for it seldom rises until one gets quite close to it. When it has started it flies heavily, with considerable speed, allowing its legs to hang, and soon alights.

In an oat-field in Harris I once shot at a Rail that suddenly rose among my feet, when, apparently not having been hit, it flew off in a direct course to the sea, about four hundred paces distant, where, to my surprise, it alighted and floated motionless, sitting lightly on the water, like a Coot or Gallinule. Soon after a Black-backed Gull coming up, spied it, and, uttering a loud chuckle of delight, descended with rapidity, and carried it off in its bill. In this case I think the bird was so frightened, although not hurt, that it entirely lost its presence of mind.

At all times of the day, but more especially in the early morning, and towards twilight, it utters its singular and well-known cry, resembling the syllables *crek, crek*, repeated at short intervals, and often continued for many minutes, probably a quarter of an hour or more, if the bird is not disturbed. It has the reputation of being an expert ventriloquist, and, whether or not it deserves that title, it is certain that one is very apt to be mistaken as to the spot in which the bird is when he listens to its cry, which is at one time loud, at another low, now seems to indicate a close proximity, now a remote position, and even appears to come from various directions. I have heard the Thrush and the Robin so sing,

close at hand, that I imagined them to be far away, and it is probable that other birds have the same faculty, which seems to depend upon the elongation or contraction of the trachea. When uttering its cry, the Corn Crake usually remains still, standing with its neck considerably drawn in. I have watched it so employed through a hole in the wall. But I have also often seen it walk leisurely along at the time. As to its neck being "stretched perpendicularly upwards," as alleged by Mr. Selby, I never had the pleasure of observing it perform in this manner. At the period when the nights are shortest I have heard it commence its cry so early as one in the morning.

Although not gaudily attired, the Corn Crake is richly coloured, and when observed in its wild haunts has an appearance of great elegance. It moves in a graceful manner, and when proceeding leisurely, walks with what might be called sedateness, lifting its feet rather high, jerking up its short tail, and bending its neck backwards and forwards at every step, like the Water-Hen. If alarmed, either while walking, or while uttering its cry, it instantly ceases, stands still or crouches, and if it judges it expedient, starts off, throwing its neck out and its body forward. It is not gregarious at any period of its residence with us, although in favourable situations, such as extensive meadows, many individuals may sometimes be found not far from each other. Its food consists of worms, tastaceous mollusca, and insects, especially lepidoptera.

Soon after it arrives it begins to form its nest, which is composed of a few straws, laid in a slight hollow, among corn, or herbage of any kind. The eggs, which are of an elongated oval form, and of a light cream-colour, or pale-greyish-yellow, patched, spotted, and dotted with unber or brownish-red, and light-purplish blue or grey, are generally about ten, or from eight to twelve. In colour they bear a remarkable resemblance to those of the Mistle Thrush. Their average length is two inches and one-twelfth, their greatest breadth an inch and four-twelfths. The young are at first covered with long hair-like down, of a blackish colour, and leave the nest immediately after they burst the shell, to follow

their mother among the grass or corn. When only a few days old they run with amazing celerity, and scatter about, so that when one falls in with a flock, it is very difficult to catch more than one or two of them. On such an occasion I have seen the old bird come up and run about in great distress.

Towards the middle of July, the Crake ceases to utter its cry, and one might suppose that it then leaves the country ; but the period of its departure is protracted to the beginning of September. I have seen young birds in the end of that month, and instances of their having been shot in winter have occurred in various parts of the country.

The flesh of this bird is white, and affords delicate eating ; but this sort of game is not easily obtained in the more highly cultivated tracts. In the Hebrides and West Highlands, however, few birds are more common, insomuch that there is hardly a patch of the yellow iris, or meadow-sweet, of the nettle, dock, or other tall weed, in which a Crake or two may not be found. Several individuals of my acquaintance in Harris have caught them alive, and I once secured one in the same manner, and afterwards allowed it to fly off. Hearing it utter its notes in an old deserted garden full of weeds and grass, I went up and peeped through a hole in the lower wall, when I, of course, had an excellent opportunity of observing it, as it stood half crouching, with its neck moderately retracted. I then rose up suddenly and leaped upon the wall, when the bird instantly squatted. Keeping my eye upon it, I pulled off my jacket, and crouching, advanced to within a yard or so, spread out the garment, and flinging it over the Crake, followed and secured the prize. Boys in the Hebrides also sometimes kill it by throwing a stick at it in a horizontal direction, at which they are rather expert. In those islands it is not uncommon to see it standing on a turf-wall or other eminence, and uttering its cry. Even "within a mile of Edinburgh," on the stone-wall of a park not far from Gardener's Crescent, I, one Sunday afternoon, saw one walking very deliberately along, until, some people coming up, it flew among the wheat.

The cry of the Crake may be so successfully imitated by

smartly drawing an edged stick along the teeth of a comb, or a thin piece of bone along another which has been notched by a saw ; that by this artifice the bird will sometimes be induced to come up. Pennant and Montagu state that on its first arrival it is very lean, but before its departure becomes excessively fat. I have never, however, seen any great difference in this respect, birds obtained early in the season being in as good condition as afterwards. In some parts of Scotland the Corn Crake ranks with the Red Grouse and Sky Lark, as a "blessed bird."

YOUNG FLEDGED.—The young when fully fledged differ from the old birds chiefly in wanting the bluish-grey markings on the head and neck. The description of one shot at Auchterarder, Perthshire, in August 1831, is as follows :—The bill is light brown ; the iris light brown ; the feet bluish-flesh-colour. The upper parts are dull yellowish-brown, each feather with an oblong central spot of brownish-black, the spots more elongated on the hind parts. The lower surface is lighter ; the chin and abdomen pale ; the lateral feathers barred with pale brownish-red, as are the lower tail feathers. The wing-coverts are bright brownish-red ; the quills and primary coverts dusky, their outer webs reddish, the inner secondaries like the back. The lower wing-coverts are of a delicate red, paler than that of the upper ; the edge of the wing and the outer web of the first alular feather and first quill reddish-white ; the shafts of the quills brownish-black.

Length to end of tail $10\frac{1}{2}$ inches ; extent of wings $17\frac{1}{2}$; bill $\frac{9}{12}$; tarsus $1\frac{1}{2}$; middle toe $1\frac{1}{2}$.

REMARKS.—Instances of the occurrence of a solitary Corn Crake in winter have been recorded, and one has been reported to me from Elgin. In some parts of Scotland, the people, observing this bird to be a bad flier, and not seeing either its arrival or its departure, believe that it hibernates, alleging that it creeps into holes in turf-walls, and remains there until spring. Were it really to choose such retreats, the weasels would leave very few for next season. Some, it is said, have declared that they have seen them dug out alive ; but I never

met with any of these persons, and had considered the statement made as discredited by all well-informed people, until, in the *Historia Naturalis Orcadensis*, published in 1848, I found the story solemnly repeated:—"There is good reason for believing that this bird remains the whole year in Orkney. This idea is supported by the fact that Land-Rails, even in good condition, as in harvest, are unequal for long flights, and on their first appearance in summer are so lean, and in such a weakly state, as to be unable to fly beyond a few yards. Moreover, they have never been observed taking their departure, as is the case with other birds of passage. Besides, we have the positive proof, that they have been frequently seen here during winter. One was observed at Lopness, in December, 1812, and another in Ronsay, in February, 1847; and upon several occasions, when digging up old turf-dykes, Land-Rails have been found in them in a torpid condition." A still more extraordinary "vulgar error" is cherished in Ireland, it being there, according to Mr. Thompson, "believed that the Corn Crane becomes a Water-Hen in winter."

CREX PORZANA. THE SPOTTED CRAKE.

SPOTTED RAIL, SPOTTED WATER-RAIL. SPOTTED WATER-HEN. SKILTY.

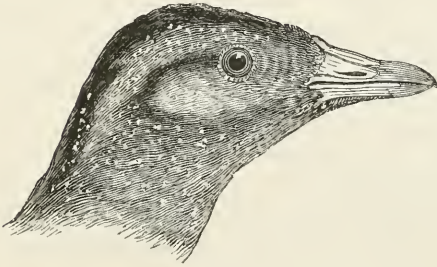


FIG. 49.

Rallus Porzana. Linn. Syst. Nat. I. 262.

Gallinula Porzana. Lath. Ind. Ornith. II. 772.

Spotted Gallinule. Mont. Ornith. Dict. and Suppl.

Poule-d'eau Marouette. Gallinula Porzana. Temm. Man. d'Orn. II. 688.

Gallinula Porzana. Spotted Gallinule. Flem. Brit. Anim. 99.

Spotted Crake. Crex Porzana. Selby, Illustr. Brit. Ornith. II. 179.

Crex Porzana. Spotted Crake. Jenyns, Brit. Vert. Anim. 219.

Ortygometra Porzana. Bonap. Comp. List, 53.

Length nine inches; bill along the ridge nine-twelfths; upper parts olive-brown, with oblong black spots and numerous white specks margined with black; those on the scapulars being linear and longitudinal, on the inner secondaries transverse; a greyish-blue band dotted with white over the eye; the fore part and sides of the neck greyish-olive, spotted with dull white; the sides of the body olivaceous, barred with white and black; the axillar and lower wing-coverts barred with black and white; the lower tail-coverts pale buff.

MALE.—This species differs in form from the last in no appreciable degree, nor is its style of colouring so dissimilar

as to justify any attempt to separate the two species generically. It is, however, much inferior in size, and somewhat more slender. Its body is deep and extremely compressed; the neck of moderate length; the head oblong, much compressed, and small. The bill is a third shorter than the head, straight, rather stout, much compressed, tapering. The upper mandible has the dorsal line declinate and straight for half its length, then convexly declinate; the nasal sinus large, extending to half its length; the ridge narrow and convex, a little enlarged and angular at the base; the edges slightly inclinate, the tip narrow, but bluntish. The lower mandible has the intercrural space rather long and very narrow, the dorsal line ascending and straight, the sides erect, the edges inclinate, the tip narrow; the gape-line nearly straight, toward the end a little decurved.

The nostrils are linear, sub-basal, three-twelfths long; the eyes small. The legs are of moderate length, rather stout; the tibia bare for nearly five-twelfths of an inch; the tarsus compressed, with twelve very broad anterior and more numerous posterior scutella; the hind toe with eight, the inner twenty, the third twenty-five, the outer twenty-eight scutella. The claws are rather small, little curved, extremely compressed, acute.

The plumage is blended, very short on the head, gradually more elongated on the hind parts; the feathers oblong, broadly rounded. The wings are rather short, broad, and rounded; the primaries broad and rounded, the second longest, the first almost half-an-inch shorter; the secondaries twenty-three; the inner much elongated and pointed, one of them being only five-twelfths shorter than the longest primary when the wing is closed. There is a distinct rudimentary bare blunt knob or spur at the flexure. The tail is very short, much rounded, of twelve narrow, rounded, and considerably induplicate feathers.

The bill is brownish-yellow, brighter at the base. The iris reddish-brown. The feet yellowish-green. The upper part of the head, the hind-neck, back, and scapulars are olive-brown, streaked with black, each feather having an oblong medial patch of the latter colour; the feathers of the

neck with marginal roundish, the scapulars with linear, the feathers of the hind part of the back with very small oblong white markings. The wings are of a lighter olive-brown, their margin and the outer edge of the first quill white; some of the secondary and smaller coverts with small spots, white in the middle, black at each end; the inner secondaries and coverts obliquely barred with white, their inner webs yellowish-olive and unspotted. The tail-feathers black, broadly margined with olive. Over the eye is a broad bluish-grey band, dotted with white. The forehead, throat, and cheeks bluish-grey, the latter speckled with black. The fore part and sides of the neck, with the anterior portion of the breast, pale greyish-olive spotted with white; the sides of the body olivaceous, barred with white and black; the middle of the breast and the abdomen greyish-white; the lower tail-coverts buff-coloured; the axillar feathers and lower wing-coverts barred with black and white.

Length to end of tail $9\frac{1}{4}$ inches; extent of wings $15\frac{1}{2}$; wing from flexure $4\frac{8}{12}$; tail $2\frac{4}{12}$; bill along the ridge $\frac{9}{12}$, along the edge of lower mandible $\frac{10}{12}$; tarsus $1\frac{4}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{3}{12}$; second toe $\frac{11}{12}$, its claw $\frac{3}{12}$; third toe $1\frac{1}{4}$, its claw $\frac{3}{12}$; fourth toe 1, its claw $\frac{3}{12}$.

FEMALE.—The female is similar to the male.

HABITS.—The Spotted Gallinule differs materially from the Crake in its habits, as it resides in marshes and by the margins of pools, lakes, and rivers overgrown with rank herbage, among which it searches for its food, betaking itself to the water on occasion, and swimming with ease. It feeds on worms, insects, and mollusca; is seldom to be seen, as it runs and skulks, like all the other species, and is with difficulty put up. In its mode of flight it resembles the Corn Crake, from which it is not easily distinguishable on wing. It is not quite certain that it does not reside with us all the year round, although it is generally understood to be migratory. Montagu says he has met with it in Devonshire as early as the 14th of March, and as late as the 23rd of October; and Mr. Jenyns states that it is certainly to be met with from

early in March to the middle of November. Although generally dispersed in England, it is nowhere numerous; and in Scotland is of rare occurrence. I have, however, seen many specimens obtained in Forfarshire, in the neighbourhood of Aberdeen, and in various parts of that county, as well as in Banffshire. Dr. Farquharson mentions it as breeding in Alford. The nest is said to be of very large size, formed of decayed aquatic plants, and often surrounded by water, being placed among the reeds. The eggs, from seven to ten, are ovato-oblong, an inch and a fourth in length, from ten and a half to eleven-twelfths in breadth, pale reddish-grey, spotted with unber or deep reddish-brown and brownish-grey. The young, at first covered with black down, are said to betake themselves at once to the water. I have never met with this species, however, and therefore am very reluctantly obliged to be content with a second-hand account of its manners. Its flesh, according to Mr. Selby, is sweet and well-flavoured, like that of the Corn Crake; and "in autumn it becomes loaded with fat, a layer of nearly a quarter of an inch in thickness covering the whole surface of its body.

YOUNG.—When fledged, the young differ from the adult only in having the tints duller, the cheeks and throat yellowish-white, the former faintly marked with brown, the abdomen with more greyish-white, the bill of a lighter tint, and the legs paler.

CREX BAILLONII. BAILLON'S CRAKE.

- Poule-d'eau Baillon. Gallinula Baillonii. Temm. Man. d'Ornith. II. 692.
 Crex Baillonii. Jard. and Selby, Illustr. of Ornith. part I. fol. 15.
 Baillon's Crake. Crex Baillonii. Selby. Illustr. Brit. Ornith. II. 182.
 Crex Baillonii. Baillon's Crake. Jen. Brit. Vert. Anim. 219.
 Ostygometra Bailloni. Bonap. Comp. List, 53.

Wings ending at the middle of the tail; bill dark green; feet flesh-colour; a great number of white spots on the back and wings. Female scarcely differing from the male.

HAVING neglected the opportunities which I have had of taking descriptions from skins or stuffed specimens of the two species of this genus that remain to be described, and not having any in my own collection, with the exception of a single specimen of *Crex Baillonii* from India, or being in a place well adapted for this kind of research, I must confine my account of them to a translation of that given by M. Temminck, and a few additional observations.

MALE.—“Throat, a streak over each eye, sides of the neck, breast, and belly bluish-grey, shaded on the sides of the body with olivaceous, these parts marked with a multitude of white spots; upper parts of a light olivaceous red, varied on the top of the head with black streaks; on the back and on all the wing-coverts are numerous white spots of various forms, and which are all surrounded with deep black; flanks, abdomen, and lower tail-coverts transversely marked with broad bands of deep black and narrow bands of pure white; bill very dark green; iris reddish; feet flesh-colour. Length 6 inches 7 or 8 lines.

FEMALE.—“The female differs from the male only in having less bright and less pure tints.

YOUNG.—“ The young resemble the adults in the colour of their upper parts ; but their throat and the middle of the belly are white, undulated with grey and olivaceous zigzag lines ; the flanks are olivaceous, marked with numerous spots of pure white ; the bill is of a greenish-brown.

HABITATION.—“ It inhabits the same places as the Little Gallinule, but almost always in marshy lagoons ; and is extensively distributed in the eastern parts, but is more common toward the south, in the neighbourhood of Genoa. It is also found in several provinces of France, and in the whole of Italy.

FOOD.—“ Insects, small slugs, aquatic plants, and their seeds.

PROPAGATION.—“ It always nestles as near as possible to water, without ever frequenting the fields ; and lays seven or eight eggs, of the shape of olives, and of an olivaceous-brown colour.”

It has several times been met with in England : near Cambridge, Beccles, and Derby ; at Dilham and Barton, in Norfolk ; and at Weston-super-Mare, on the Bristol Channel, as related with details by Mr. Yarrell. I am not aware of its having been found in Scotland. A single instance of its occurrence in Ireland, in a bog at Clay Castle, near Youghal, is mentioned by Mr. Thompson.

CREX PUSILLA. THE LITTLE CRAKE.

Rallus pusillus. Lath. Ind. Ornith. II. 761.

Little Gallinule. Gallinula minuta. Mont. Ornith. Dict. Suppl.

Olivaceous Gallinule. Gallinula Foljambei. Mont. Ornith. Dict. App. to Suppl.

Poule-d'eau poussin. Gallinula pusilla. Temm. Man. d'Ornith. II. 690.

Gallinula pusilla. Little Crake. Selby, Illustr. Brit. Ornith. II. 185.

Crex pusilla. Little Crake. Jen. Brit. Vert. Anim. 219.

Ortygometra pusilla. Bonap. Comp. List. 53.

“ Wings extending to the end of the tail; bill and feet of a beautiful light green; feathers of the middle of the back marked with a very few small white spots. Female differing much from the male.

MALE.—“ Throat, a streak over each eye, breast, and belly bluish-grey, without spots; upper parts olivaceous-grey, but all the feathers blackish in the middle; on the fore part of the back a large black space varied with some white marks, which are very thinly distributed; abdomen and flanks marked with rather indistinct white and brown bands; lower tail-coverts black, barred with white; bill of a beautiful green, reddish at the base; feet bluish-grey, without any spot; iris red. Length 6 inches 9 lines, rarely 7 inches.

FEMALE.—“ The female has the eye-streaks and the sides of the head of a light grey; throat whitish; fore part of the neck, breast, and belly reddish-grey; thighs and abdomen grey; lower tail-coverts tipped with white; upper parts reddish-brown; the large blackish space of the fore part of the back variegated with a small number of white spots; wing-coverts olivaceous-grey.

YOUNG.—“The young have the tints paler; nearly the whole of the throat is whitish; the white marks of the fore part of the back are in very small number, and the feathers of the flanks are brown with white bands.

HABITATION.—“It inhabits the same places as the last species, but more habitually marshes; often visits the fields, where it is met with rather commonly; lives in great numbers in the eastern countries of Europe; pretty common in Germany; rare in the provinces of the north of France; more abundant towards the south; common in Italy; accidentally in Holland.

FOOD.—“Insects, small slugs, aquatic plants, and their seeds.

PROPAGATION.—“Constructs its nest in the marshes, upon broken canes, rushes, and water plants; lays seven or eight yellowish eggs, sprinkled with longitudinal olivaceous spots.”

Montagu, who, for his time, added more to the knowledge of British birds than, I think, any of the several estimable ornithologists who succeeded him, was the first to make known an instance of the occurrence of this bird in England. The specimen alluded to was shot near Ashburton, in Devonshire, in 1809, and was sent to him by Mr. Tucker. He considered it as appearing “not only to be new as British, but to be a nondescript species, and named it the Little Gallinule, *Gallinula minuta*.” In the Appendix to the Supplement, he describes another individual, “discovered by Mr. Foljambe in a poulterer’s shop, early in May, 1812, together with some other valuable birds, which had recently been received from the fens in Norfolk.” He considered it also a new species, and named it “Olivaceous Gallinule, *Gallinula Foljambei*.” It is thus described:—“The length is seven inches and a half; breadth ten inches and a half. The bill is nearly three quarters of an inch long, of a greenish-yellow colour, the base red; irides and

orbits light red, inclining to orange; cheeks and forehead dusky cinereous; sides of the neck and throat pale cinereous; breast, belly, and thighs plain dark cinereous or slate-colour, like the Water-Rail, without spots or markings of any kind; the back of the head deep olive-brown; hind-neck lighter, being of a yellowish-olive; the feathers of the back have a mixture of olive-brown and dusky black, the margins being mostly of the former colour, with paler edges; scapulars dusky black, with broad olive margins; coverts of the wings olive-brown; quills dusky, the outer webs edged with olive; rump and upper coverts of the tail very dark olive-brown, with a mixture of dusky black; the feathers of the tail are of a deep dusky brown, the shafts paler and the lateral ones margined with olive-yellow; vent and under coverts of the tail dusky cinereous, some of the feathers deeply margined with sullied white; sides behind the thighs olive, slightly margined as the last; the legs, toes, and knees olive."

About the same time, as stated by Montagu, Mr. Plasted, of Chelsea, procured another that was shot there on the banks of the Thames. Several other individuals have since been obtained in various parts of England; near Arkrigg, in Yorkshire; near Cambridge, Manchester, Yarmouth, Shoreham, and Scarborough. It does not appear to have been met with in Scotland or Ireland.

GALLINULA. GALLINULE.

THE Gallinules differ in no very essential respect from the Crakes, as will be seen on comparing two species of these respective genera, or the generic characters here given. They are of moderate size, not exceeding that of a domestic fowl. Their body is slender and much compressed, the neck of moderate length, the head oblong, compressed, and rather small.

Bill not exceeding the head in length, rather stout, tapering, much compressed; upper mandible with the dorsal outline slightly declinate, towards the end convex, the ridge narrow, considerably enlarged at the base, and forming a soft tumid oblong plate, which varies in extent, sometimes extending to the crown of the head, the sides sloping, towards the end erect and convex, the edges direct, the tip somewhat deflected, with a very slight notch, the nasal groove large; lower mandible with the angle long, and very narrow, the dorsal outline very short and ascending, the sides nearly erect, the edges soft and blunt at the base, sharp and a little inflected towards the end, the tip narrow and rather sharp. The gape-line nearly straight.

Both mandibles internally concave, the lower more deeply so. Palate flattish, papillate, as is the nasal slit. Tongue fleshy, oblong, nearly flat above, having a few short papillæ behind, the tip thin, rounded, and lacerated. Aperture of glottis smooth, papillate behind. Œsophagus uniform in diameter; proventricular glands oblong. Stomach large, its muscles of great size, and distinct, its inner coat with very numerous and small rugæ. Intestine disposed in numerous close parallel folds, very long; the cæca large, cylindrical, with a slender curved tip.

Eyes rather small, eyelids with the margin bare. Nostrils

linear-oblong, perforated, medial, submarginal. Aperture of ear roundish, rather small. Feet large; tibia muscular, its lower part bare; tarsus of moderate length, large, compressed, anteriorly covered with broad curved scutella, posteriorly with two rows of scutella; toes very long, slender, compressed, anteriorly covered with numerous scutella, beneath flattened and distinctly marginate; the first very small, the third longest, the fourth a little longer than the second; claws long, slender, slightly arched, compressed, acute.

Plumage blended, soft, glossy above; on the head very short, gradually elongated backwards, on the sides long, on the tibiae short; the feathers narrow, oblong, with a longish, narrow plumule. Wings short, concave, rounded; quills twenty-two; primaries rather weak, very broad, rounded, the first considerably shorter than the second, which is the longest, being slightly longer than the third; the fifth about

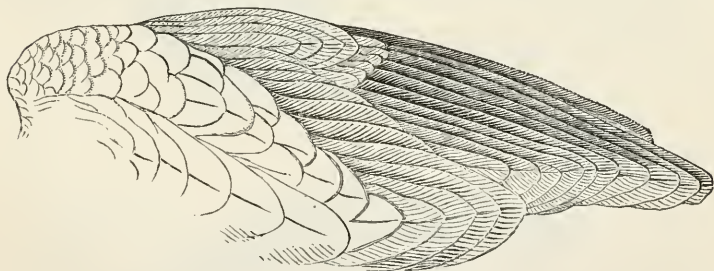


FIG. 50.

the length of the first. Tail very short, arched, much rounded, of twelve weak, narrow, rounded feathers.

The Gallinules, so named from their resemblance to the domestic hen, differ from the Crakes chiefly in having the base of the ridge of their upper mandible expanded into an oblong plate, which covers a greater or less extent of the forehead; and in the flattened soles of their toes, which are expanded into two narrow margins. They differ from the genus *Porphyrio* in a very slight degree, it having the bill much higher, the nostrils roundish, and the toes not laterally margined, but with a single projecting margin. But these differences are very slight, and the so-called genera Por-

phyrio, Ortygometra, and Gallinula, might with great propriety be considered as sections of one and the same genus.

The species of this genus inhabit meadows, marshes, and especially swampy places on the edges of rivers, lakes, or the inlets of the sea, covered with reeds, sedges, and other strong herbage. They run with great speed, seldom rise on wing, unless closely pursued, when they fly off in a heavy manner, with their legs at first dangling. Their food consists of worms, mollusca, insects, and seeds, chiefly of gramina, in search of which they make excursions into the neighbouring pastures. They swim and dive with ease, and when in danger, conceal themselves by diving and rising under a bank, or merely projecting their head under cover of the herbage.

They nestle on the ground among the reeds, or on a tuft of dry ground or a decayed tree, forming a very bulky nest of reeds, straws, or similar materials. The eggs are numerous, five or more, light coloured, dotted, spotted, or freckled with darker.

Only one species occurs in Britain.

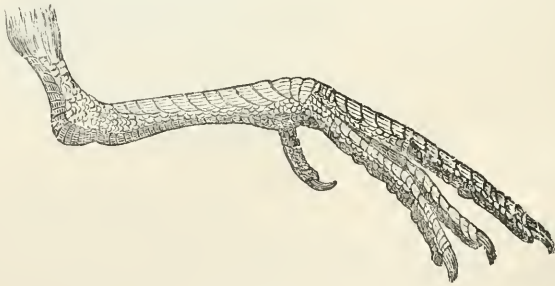


FIG. 51.

GALLINULA CHLOROPUS. THE GREEN-FOOTED GALLINULE, OR WATER-HEN.

MOOR-HEN. MARSH-HEN. STANK-HEN.

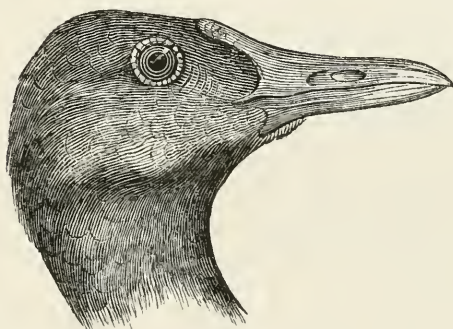


FIG. 52.

- Fulica Chloropus. Linn. Syst. Nat. I. 258. Adult.
 Fulica fusca. Linn. Syst. Nat. I. 257. Young.
 Gallinula Chloropus. Lath. Ind. Orn. II. 770. Adult.
 Gallinula fusca. Lath. Ind. Orn. II. 771. Young.
 Poule d'Eau ordinaire. Gallinula Chloropus. Temm. Mann. d'Orn.
 Gallinula Chloropus, Common Gallinule, or Water Hen. Flem. Brit.
 Anim. 99.
 Common Gallinule. Gallinula Chloropus. Selb. Illustr. II. 188.
 Gallinula Chloropus, Common Gallinule. Jen. Brit. Vert., An. 220.
 Gallinula Chloropus, Bonap. List. 53.

Plumage of the head, neck, and lower parts dark grey, of the back and wings deep olive-brown; edge of the wing and lower tail-covert white. Young similar, but with the feathers of the lower part edged with white.

MALE.—The Green-footed Gallinule, when seen running along the banks of a stream or pool, invariably calls to mind

the idea of a young bird of the domestic fowl, its form and attitudes being extremely similar. The body, although much compressed, is rather full anteriorly; but the proportions, as well as the plumage, being such as have been described in the generic character, it is unnecessary here to enter into details respecting them, farther than to state a few particulars which have been purposely omitted. The bill is about the same length as the head; the frontal plate oblong, rounded above, extending nearly as far as over the anterior edge of the eye. Tarsus with fifteen anterior scutella; first toe with eleven, second with twenty-four, third toe with thirty-eight, fourth with thirty-four. The claws are long, slightly arched tapering, much compressed, and, until worn, acute. The plumage is very soft and blended, on the lower part dull, on the back glossy. The wings short, of twenty-two quills; the third quill longest, the second scarcely shorter, the fourth nearly as long as the third, the first as long as the sixth, and nine-twelfths shorter than the second. The tail is very short, much rounded, of twelve arched, rounded feathers.

In the end of autumn, when the moult has been completed, the bill is greenish-yellow beyond the nostrils, the basal part and frontal plate crimson red, the latter somewhat paler. The iris, which is very narrow, seems red at a distance, but is composed of three rings, the outer hazel, the middle dusky, the inner bright red. The feet are dull green, with a ring of bright red above the tibio-tarsal joint; the claws dusky, the head, the neck, and the lower parts in general, are of a deep, dark, greyish blue, the abdomen tinged with pale grey, and the uppermost hypochondrial feathers, which are very long, have a longitudinal band of white on the outer web. The back and smaller wing-coverts are of a deep olive brown. The quills, alula, and primary coverts are dark brown, the secondary coverts the same, tinged with olive brown, the first quill and first alular feather with the outer edge white, of which colour also is the edge of the wing. The tail is blackish-brown; the proximal under tail-coverts white, and a tuft of feathers under the middle of the latter deep black.

The œsophagus is seven inches long, its average diameter

half an inch. The proventricular glands are oblong, comparatively few, as in a gallinaceous bird, and forming a belt an inch in breadth. The stomach is a powerful gizzard, obliquely situated, an inch and ten and a half twelfths broad, an inch and a half long, the right lateral muscle ten twelfths and a half, the left nine twelfths thick; the cuticular lining thick, with longitudinal rugæ. The intestine is thirty-one inches long, varying in diameter from three-twelfths to a twelfth and a half. The rectum is two inches and three quarters long; and the cœca are four inches and a half in length, their greatest diameter four and a half twelfths, half an inch of their extremity incurved. There is considerable analogy in the digestive organs to those of the Rasores. The stomach is precisely similar, the rectum is of the same form, the cœca approximate; but there is no crop, and the intestine is more slender. In an individual killed at Duddingston Loch, in April 1835, the dimensions of the digestive organs were somewhat different. Œsophagus six and a half inches long; stomach an inch and three quarters in diameter; intestine forty-one inches long; the cœca six inches in length, and coming off at the distance of four inches from the extremity.

The flesh is white in autumn and the beginning of winter, when there is a layer of fat under the skin. It affords good eating, not much inferior to that of the partridge.

The frontal plate is of a brighter red than the bill, yellowish at its upper margin. It is larger in the male than in the female. Its surface is smooth and glossy, being formed of cuticle continuous with that of the bill. The external pellicle is colourless, the inner layers tinged with red; but the principal seat of the colour, both of this plate and of the bill, is the rete mucosum, which is of dense texture. Beneath it is a pad of dense cellular tissue, of which the minute interstices are filled with adipose matter. This part has the appearance of being glandular, and resembles the substance of the uropygial gland, but has no duct, and is certainly condensed adipose tissue, the oil obtained from it being very pure. The colour of the frontal plate is not, then, as some assert, caused by its vascular texture, although it becomes brighter in spring than at any other season.

Length to end of tail, $13\frac{1}{2}$ inches, extent of wings, $22\frac{1}{2}$, wing, from flexure, 7; tail $3\frac{2}{12}$; bill, along the ridge, including the frontal plate, $1\frac{3}{4}$, along the edge of lower mandible, $1\frac{1}{4}$; bare part of tibia, $4\frac{1}{2}$; tarsus, 2; first toe, $1\frac{1}{2}$, its claw, $\frac{5}{12}$; second toe, $1\frac{9}{12}$, its claw, $\frac{6}{12}$; third toe, $2\frac{5}{12}$, its claw, $\frac{7}{12}$; fourth toe, $1\frac{1}{2}$, its claw, $\frac{6}{12}$.

FEMALE.—The female differs slightly in size, being somewhat smaller, but the difference in the colours of the plumage is inconsiderable, the head, neck, and especially the sides, being merely a little paler, the black beneath the tail less deep, and the abdomen with rather more white. The frontal plate is much smaller.

Length to end of tail, $12\frac{1}{2}$ inches; extent of wings, $20\frac{1}{2}$; bill and frontal plate, $1\frac{1}{2}$; tarsus, 2; middle toe and claw, $2\frac{3}{4}$; hind toe and claw, $1\frac{2}{12}$; wing, from flexure, 7; tail, $2\frac{1}{2}$.

VARIATIONS.—In size there is considerable difference between individuals, some being twelve inches in length, while others are fourteen. In many the middle toe has its claw obliquely truncate, while in some it is unworn and very long; and I have seen it worn on one foot and entire on the other, in the same individual. In birds several years old, the tints are deeper and purer, and in younger individuals the deep, greyish-blue parts are more or less tinged with grey, and there is more white on the abdomen.

CHANGES.—As the plumage becomes old, its colours fade a little, but the change produced by the weather is small. The moult is completed by the beginning of November. In spring, the frontal plate assumes a brighter tint, approaching to vermilion.

HABITS.—The Water-Hen is found in all parts of Scotland and England that are adapted to its nature. It frequents marshy places, pools, lakes, still streams, mill-dams, and even ditches, where it searches for food chiefly among the reeds and other aquatic plants along the shores. It swims with great ease and elegance, sitting lightly on the water, with its

neck erect, and its tail obliquely raised. It dives with equal facility, and in travelling among the reeds, sedges, and other aquatic plants, makes its way with surprising ease, owing to the compression of its body, and its elongated toes. When surprised in a narrow stream or ditch, it usually dives, and conceals itself among the plants or beneath the banks, often remaining for a long time submersed, with nothing but the bill above the water. I have seen it thus betake itself to the margin, when, on my going up to the spot, thinking the motion among the grass had been produced by a water rat, it sprung up from under the water, and flew away. On other occasions I have traced it under the overhanging earth, in a hole among the stones, and behind a waterfall. When disturbed in a large pool or lake, it either swims out to the open water, or betakes itself to the reeds or sedges, among which it remains concealed until the danger is over; and from its hiding-place it is not easily scared, for as its power of flight is not of a high order, it prefers the asylum of the water.

In swimming, it moves its head backward and forward, as a pigeon does when walking, a circumstance which becomes remarkable in this and some other birds, when compared with the Swan, Geese, and Ducks, which keep the head steady while advancing on the water. In general, it is not so ready on being disturbed to betake itself to the open water as the Coot, but prefers skulking along the shores. When a shot is fired at one, and has not hit, it often flies off, but often also keeps steadily swimming on. Being one evening with a friend at Seaton Marsh, on the Don, near Aberdeen, I started a Water-hen, and fired at it, on which it alighted at a very short distance, and concealed itself. My companion, however, having discovered it, took it up, when we could see no injury inflicted on it. We carried it home, and having satisfied ourselves with observing its form and attitudes, carried it back next day, and let it loose, when it flew directly off to a great distance. It had evidently been paralyzed by terror, as was the case with the Corn Crake already mentioned. I have seen another, when swimming right down the wind, after a shot had been fired near it, raise up the hind part of its body, and spread out its tail like a fan,

which thus answered the purpose of a sail, and would have carried the bird on at a good rate, even if it had not made use of its oars.

It often perches on the stumps or trunks of willows growing in the water or hanging over it, or rests on a tuft of turf, where it may be seen standing on one foot, with its neck drawn in. Its ordinary position when reposing, resembles that of the Heron, the body being oblique, the legs straight, the head retracted; and in walking, it raises its feet high, probably to prevent its long toes from being entangled. Early in the morning, often even at any time of the day, if it suspects no danger, it makes excursions into the fields or pastures adjoining its watery retreat, and walks along precisely with the air of a domestic fowl, searching for food. It is extremely vigilant when on shore, and on the least alarm, runs off with great speed, throwing its body forward, and stretching out its neck. Its flight is heavy, straight, performed by regular flappings, and very similar to that of the Corn Crake. When flying over a short space, it allows its legs to dangle, and when alighting on the water, enters it at a very low angle, splashing it up with its wings, as is the manner of the Coot and most species of the Duck tribe. In rising, also, it moves a considerable way before fairly quitting the water, which it strikes with its wings like the Gannet and most aquatic birds.

It is curious to observe with what facility the Water-hen makes its escape, in circumstances in which one might at first suppose it impossible for it to get off in security. Thus you may come upon one feeding in a narrow ditch filled with water. It instantly dives or flies off a short way, and when you run up to the place where it has just alighted, and think you are sure of it, you find no traces of its existence. Watch as long as you please, no bird makes its appearance; it has sunk, and concealed itself somewhere along the margin, and there it will remain, with nothing but its bill above the surface, until you have departed, for it would require an eye shaper than that of a lynx to discover it. Although, when accustomed to the molestation of man, it is very vigilant, easily alarmed, and always prepared for flight, it is less wary

in remote and unfrequented places. In some of the rushy lakes of the Island of Harris and North Uist, I have found it easier to get within shooting distance than in the mill-dams and streams of the lower districts of Scotland, where, should it observe you, even at a great distance, it is sure to be off instantly, and by the time you get to the place, it has concealed itself.

From the middle of April to the beginning of May, when vegetation has made some progress, but in the northern and more exposed parts of the country not until the middle of that month, the Water-hen commences the construction of its nest, which it places in the midst of a tuft of rushes or sedges, or fixes among reeds, or builds on a sedgy spot close to the water, or even sometimes on the trunk of a decayed or fallen willow. It is bulky, and composed of blades of reeds, grasses, fragments of decayed rushes or flags, and other aquatic plants. The eggs, which sometimes amount to eight or even ten, vary in form from regular ovate to nearly elliptical, and have a pale, dull, brownish-grey, or greyish-yellow ground, with irregularly dispersed spots and dots of a deep brown colour, varying in size from the smallest perceptible by the human eye, to a diameter of nearly a quarter of an inch. Their average length is an inch and three quarters, their breadth an inch and a quarter. The young, which are at first covered with long, stiffish black down, leave the nest soon after they are hatched, and follow their mother. The sight of a flock is interesting, especially if you come suddenly upon it, for then the young scatter about in all directions, dive and conceal themselves, the old bird meanwhile lingering, and displaying the greatest anxiety, until her brood is safe, when she, too, dives, and is no more to be seen.

To these observations of my own I have the pleasure of adding the following, kindly supplied by Mr. Harley, of Leicester:—"The Water-hen is a truly British bird, widely distributed and generally well known. Although in many parts of this island it bears the name of Moor-hen only, yet that appellation is not strictly true, as we may find it far away from the moor or marsh or sedgy swamp, the haunt of the Bittern, Curlew, and Snipe, affecting alike the expanded

lake, the glassy pool, and the flowing river, even down to its estuary, where its waters mingle with the mighty ocean, or high up at its rise, where it wells and ripples from the foot of the heath-clad hill or lichen-crowned rock. Rather domestic in its habits for a free denizen of nature, this bird becomes easy of approach where its species is protected and its haunts undisturbed. We may then find it feeding in company with the domestic Duck, and sometimes even with poultry. It is rather an early breeder, setting about the work of nidification towards the close of April or the beginning of May, and has two if not three broods in the year. Its nest is a rude structure, composed externally of rushes and flags, and internally lined with fine grass or bents, and may very generally be found placed on a hassock or osier stump, or amongst the roots of reeds or carices, in the immediate vicinity of water. But, although these spots are very generally chosen by this bird for nestling in, yet I have found its nest sometimes affixed to the stump or horizontal bough of the white willow, about two or three feet from the surface of a river or pool. The eggs, from five to eight, are dull white or yellowish, irregularly blotched with rust-coloured spots. The period of incubation lasts about twenty-one days, and the young soon follow their parents upon the surface of the water, or sport among the aquatic plants, pursuing various kinds of insects, which no doubt constitute almost their chief food. When they first come abroad, I have observed that they are incapable of diving, and, in their attempts to disappear under the water, when alarmed by the sudden approach of a person, make a very grotesque appearance, bobbing their heads up and down beneath the surface, and exposing their hind parts, in the manner of drowning puppies. This incapability of diving, which, perhaps, may result from a yet imperfect state of the respiratory organs, is not, however, of long continuance. The reason why I think there are two broods yearly is, that I have observed the young in this state late in August.

“There are several circumstances which tend very materially to prevent the increase of the species, which otherwise would become very abundant. As it almost invariably nestles

close to the water's edge, the nest and eggs are often destroyed by floods ; and it is not uncommon to notice many nests, both of this bird and of the Little Grebe, floating on the swollen and turbid stream, and often containing eggs, or sometimes young, which perish either from the absence of the parent, or from their being unable to contend with the current. The Water-hen has also various enemies, the more destructive of which to the young birds are the Heron, the Carrion Crow, the Moor Buzzard, and the Pike.

“ I know few sights more pleasing than that of a brood of young Water-hens, led forth by their parents to feed and sport along the silent margins of a lake or pool, thickly studded with water-lilies. The lime and walnut are beginning to shed their fragrance, hardly surpassed by that of the citron groves of Andalusia, or the odours of ‘Araby the blest.’ Yon castellated mansion, once the seat of lordly baron or gallant knight, but now hoary with age and crumbling into ruins, gives solemnity to the scene. The setting sun flings his golden rays across the lake, skirting the green woods, and tinting here and there the crested turret, the overhanging cliff, and the moss-crowned height. Beside yon pollard willows the cows crop the fresh grass, while forth sails the stately swan, giving her ample bosom to the watery expanse, now ruffled by the evening breeze. There too, afar, stands the Heron, watching his finny prey ; the garrulous Wild Ducks chequer the little islands, the Coot cries from amidst the sedge, the Sandpiper wails along the shingly beach, and the sonorous croak of the Carrion Crow is heard from the distant wood. Other sights and sounds mingle with these, reminding us that we are in happy England, but leading us to forget the object of our contemplation,—the Water-hen. Often this bird, partly crepuscular in its habits, startles the evening wanderer with its sharply reiterated chuck. In autumn it will haunt stubbles, for the purpose of feeding on different kinds of small seeds, which are found in abundance lying on the ground after the fields are cleared by the husbandman. I have repeatedly seen it perch on lofty trees after being flushed, and have known it to frequent the branches of willows and other shrubs growing

near the water. When pursued, it shews great adroitness in keeping its body beneath the water, leaving only its bill exposed, so that it may obtain the necessary supply of air until its enemies are past. In such cases I have more than once caught it by dragging it out of the water by the feet, when I have been trammelling for tench or carp. When domesticated it becomes pugnacious, and will drive away domestic poultry from their feeding-places, manifesting a disposition widely different from what might be expected from the timidity which it evinces when in its native liberty."

YOUNG.—When fully fledged the young have the bill oil-green, without any red; the exposed part of the tibia of the same colour; the tarsus and toes as in the adult. The upper part of the head and the hind-neck are dull greyish-brown; the sides of the head the same, mottled with greyish-white; the chin of the latter colour; the throat mottled with that and dark greyish-blue. The breast and sides are pale purplish-grey, the white marks on the latter duller than in the old bird; the abdomen greyish-white; the lower tail-coverts yellowish-white; the central black feathers lighter. The upper parts, quills, and tail are nearly as in the adult, but paler.

PROGRESS TOWARD MATURITY.—After the first moult the red of the bill and legs appears, and the bird assumes the colours of the adult; but the lower parts are much paler, most of the feathers being tipped with whitish, and the head is still tinged with brown. At the second autumnal moult the colouring is complete, although still not so pure as in older birds.

FULICA. COOT.

THE Coots differ from the Gallinules chiefly in having their toes furnished with a broad scalloped membrane. They are of moderate size, their body compressed but full, the neck of ordinary length, the head rather small and compressed.

Bill not exceeding the head in length, stout, tapering, much compressed; upper mandible with its dorsal outline declinate-convex, the ridge narrow, convex, enlarged at the base into an elliptical soft tumid plate, which covers the fore part of the head to beyond the eye, the sides sloping at the base, convex towards the end; the nasal groove large; the edges hard, sharp; the tip small, with a rather distinct notch; lower mandible with the angle long and narrow, the dorsal outline ascending and nearly straight, the sides erect at the base, sloping outwards at the end; the edges of both mandibles direct and meeting. The gape-line nearly straight.

Both mandibles internally concave, the lower more deeply. Palate papillate. Aperture of the posterior nares linear, margined with papillæ. Tongue fleshy, oblong, nearly flat above, emarginate with a few lateral papillæ at the base, the tip thin, rounded, and lacerated. Aperture of the glottis smooth, papillate behind. Œsophagus uniform in diameter, of moderate width; proventricular glands oblong. Stomach large, its muscles of great size, its inner coat with numerous small rugæ. Intestine disposed in numerous close parallel folds, very long; the cœca large.

Eyes rather small; eyelids with the margins bare. Nostrils linear-oblong, in the fore and lower part of the nasal groove. Aperture of the ear roundish, rather small. Feet large; tibia muscular, its lower part bare; tarsus of moderate length, large, compressed, anteriorly covered with broad

curved scutella ; toes very long, slender, compressed, covered above with numerous scutella, beneath flat laterally expanded into a broad membrane, which is contracted at the joints, and thus scalloped, each scallop having five series of plates, gradually diminishing outwards ; the first toe small, the second a little shorter than the fourth, which is considerably exceeded by the third. Claws long, slender, much compressed, tapering, acute.

Plumage soft, full, blended, glossy above, dull beneath, on the head very short, gradually elongated backwards, on the sides long, on the tibiae short ; the feathers much curved, narrow, oblong, broadly rounded, with a moderate plumule.

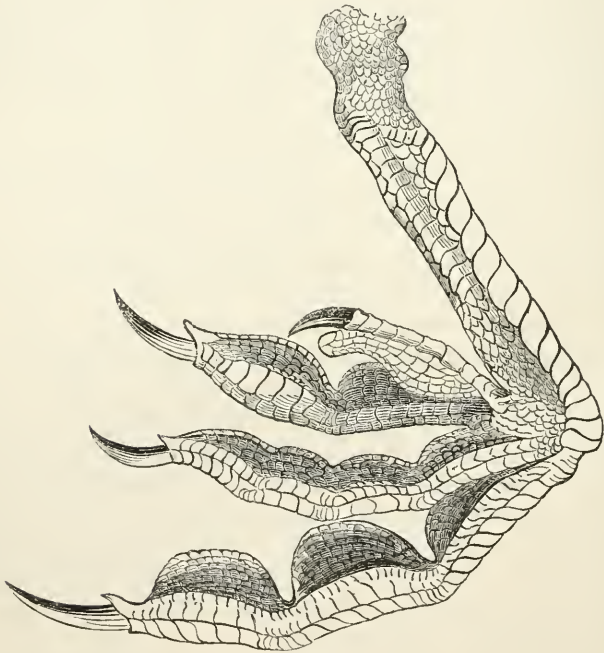


FIG. 53.

Wings short, concave, rounded ; quills twenty-four ; primaries strong, broad, tapering, the first considerably shorter than the second, which is about the same length as the third, the

sixth equal to the first. Tail extremely short, arched, much rounded, of twelve very weak, narrow, rounded feathers.

The Coots are proportionally stouter than the Gallinules, and decidedly aquatic. Their feet are accordingly better adapted for swimming, and they move on the surface of the water, and dive with as much dexterity and ease as many ducks and other palmipede birds. Their residence is on lakes, pools, rivers, and inlets of the sea, among the weeds, sedges, and other tall aquatic plants, and their food consists of mollusca, worms, insects, and especially seeds. They build a very large nest of grasses, flags, and other plants, in which are deposited from five to ten oval light-coloured eggs, dotted and spotted with dusky. The young, at first covered with stiffish black down, run about and swim immediately after they are hatched.

The species of this genus are few in number, and generally of dark and uniform colours. In Britain there is only one, which is extensively distributed, but much more abundant in the southern districts.

FULICA ATRA. THE BALD COOT.

COMMON COOT. CUTE. QUEET. BALD DUCK.

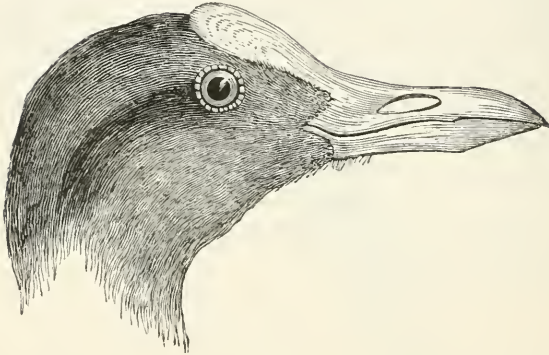


FIG. 54.

- Fulica atra. Linn. Syst. Nat. I. 257.
 Fulica atra. Lath. Ind. Orn. II. 777.
 Common Coot and Greater Coot. Mont. Ornith. Dict.
 Foulque macroule. Fulica atra. Temm. Man. d'Orn. II. 706.
 Fulica atra. Common Coot. Flem. Brit. Anim. 100.
 Common Coot. Fulica atra. Selb. Illustr. Brit. Ornith. II. 193.
 Fulica atra. Common Coot. Jen. Brit. Vert, Anim. 221.
 Fulica atra. Bonap. Comp. List, 53.

The head and upper part of the neck greyish-black; the upper parts dark bluish-grey, the lower brownish-grey; the frontal plate white, as are the ends of the mandibles.

MALE.—The Coot, which is the largest British bird of the Parrine family, is very similar in form to the Water-hen. Its body is bulky, but compressed; its neck of moderate length; its head rather small and oblong. The bill is about the length of the head, straight, stout, compressed, tapering,

its extremities hard and glossy. The frontal plate is broadly oblong, and extends to the top of the head, beyond the eyes.

The nostrils are linear, four-twelfths of an inch long; the aperture of the eyes four-twelfths; that of the ears three-twelfths. The roof of the mouth is narrow, flattened, with two medial series of acute reversed papillæ, and two lateral elevated lines. The tongue fleshy, thick, an inch long, concave above, its tip narrowed, but rounded. The œsophagus is about nine inches long, rather narrow, with the proventriculus somewhat bulbiform. The gizzard is very large, with extremely thick muscles, transversely elliptical, oblique, an inch and three-fourths long, two inches and three-fourths in breadth. The epithelium is dense, and forms two large grinding plates. The intestine, which is long and wide, has the duodenal fold very elongated, and is then convoluted in an elliptical form; its length is five feet, its width seven-twelfths in the duodenal part. The cœca are extremely elongated, being thirteen inches in length, very narrow for about two inches, then from four to five-twelfths in width, but again narrowed toward the end; the rectum of uniform width, without cloacal dilatation.

The legs are of moderate length; the tarsi with twenty-four anterior scutella; the first toe with fourteen, the second twenty-eight, the third thirty-eight, the fourth thirty-eight. The claws are long, slender, slightly arched, compressed, tapering, flat beneath, acute.

The bill is pale red at the base, white at the end; and the frontal plate is bluish-white. The iris crimson. The feet bluish-grey, tinged with olive; the bare part of the tibia orange; the claws olivaceous. The head and neck are greyish-black; the lower part of the neck and the upper parts of the body generally are of a dark bluish-grey, seeming black at a distance; the lower parts are dull brownish-grey. The edge of the wing, and the outer margin of the first alular feather and first quill, are whitish.

Length to end of tail 16 inches; extent of wings 22; wing from flexure $8\frac{3}{4}$; tail $2\frac{1}{2}$; bill along the ridge, including the frontal plate, $2\frac{1}{4}$, along the edge of lower mandible $1\frac{5}{12}$; tarsus $1\frac{2}{12}$; first toe $\frac{1}{12}$, its claw $\frac{4}{12}$; second

toe $2\frac{2}{12}$, its claw $\frac{7}{12}$; third toe $2\frac{1}{2}$, its claw $\frac{8}{12}$; fourth toe $2\frac{1}{2}$, its claw $\frac{4}{12}$.

FEMALE.—The female is similar to the male, the tints only not quite so pure, and the size somewhat less.

VARIATIONS.—Slight differences in the tints of the plumage may be seen, some individuals being darker than others; but in general there is little variation. A very remarkable variety, however, is not very unfrequently met with, in which the colour is of a light brownish-grey, or even brownish-white.

HABITS.—In summer the Coot is generally distributed in Britain, being found in suitable localities in all parts from the southern counties of England to the extreme north of Scotland, as well as in the remote Hebrides and the Orkney Islands; but in winter it retires from the northern districts, and accumulates in favourable places in the south. Viewed with reference to the whole of Britain, it is a permanently resident bird, though in most districts it is only a summer visitant. In spring the great flocks that have collected along the southern and eastern shores of England disperse. In the south of Scotland it arrives in April, but in the north not until the beginning of May. Its favourite places of resort are large pools, lakes, or rivers, overgrown or margined with reeds, flags, sedges, water-lilies, and other aquatic plants, among which it swims about in search of its food, which consists of seeds, fresh blades of grass, mollusca, and insects. In shallow pools or marshes densely covered with *Equisetum limosum* I have seen paths made by it, from which others diverged in all directions. Sometimes it makes excursions into the neighbouring fields, where it walks and runs precisely in the same manner as the Water-hen, and with equal ease, the lobes of its feet forming no impediment to its free action; but it is not so ready as that bird to quit its safe retreat on the waters. It is extremely shy and vigilant, instantly betakes itself to flight when approached, but very seldom flies off unless one come suddenly upon it, or a

shot be fired at it, when it rises at a very low angle, splashing up the water with its wings and feet, proceeds but to a short distance, and alighting conceals itself among the reeds or equiseta, and remains there until the danger be over. Its vigilance and distrust of man render it difficult to approach other birds, such as Ducks or Grebes, that may be on the same pool, it being almost sure to alarm them by its cries and flight. It floats lightly on the water, swims sedately, jerking its tail, and moving its neck backwards and forwards. When much disturbed it often prefers swimming off to a distance from the shore, and there, when the water is extensive enough for its safety, it may frequently be seen remaining for hours, even apparently after it has ceased to be apprehensive of danger from the land. It dives with ease, and sometimes eludes pursuit by retreating under the surface of the water to emerge in a concealed part. In summer it emits a very loud, abrupt cry, resembling the note of a trumpet.

Its nest, which is extremely large, and composed of decayed flags, reeds, equiseta, and other plants, is placed among reeds, equiseta, or willows, or sometimes in shallow water, being built up to a considerable height. Sometimes the nests are placed on small islands covered with herbage, or in unfrequented places on the shores. Mr. Hewitson, from personal inspection, says :—" They are large, and apparently clumsy at first sight, but are amazingly strong and compact ; they are sometimes built on a tuft of rushes, but more commonly amongst reeds ; some are supported by those that lie prostrate on the water, whilst others have their foundations at its bottom, and are raised till they become from six to twelve inches above its surface, sometimes in a depth of one and a half or two feet. So firm are some of them that, whilst up to the knees in water, they afforded me a seat sufficiently strong to support my weight. They are composed of flags and broken reeds, finer towards the inside, and contain from seven to eight eggs." The materials vary according to the locality, and frequently the nests are formed entirely of *equisetum limosum*. " These birds," says Montagu, " place their nest amongst the flags upon the surface

of the water ; but by heaping a large quantity of the same materials together, raise the fabric sufficiently above water to keep the eggs dry. In this buoyant state a sudden flood, attended by a gale of wind, has been known to drive them from their moorings ; and we are assured by an intelligent observer of nature, that he has seen a nest floated from one side of a large piece of water to the other, with the bird upon it." The eggs, which vary in number from six to ten, are much larger than those of the Water-hen, but very similar, being of an elongated oval light yellowish-grey or stone-colour, marked all over with dots and small spots of brownish-black ; their average length two inches and one-twelfth, their greatest breadth an inch and five-twelfths. The young are at first covered with stiffish black down, tipped with white ; the hind part of the head yellow ; the frontal membrane blood-red ; the feet dusky-green.

In the more exposed and colder parts of Britain, the Coots leave their summer haunts toward the end of autumn. Montagu remarks that " the vast flocks seen in Southampton River, and other salt-water inlets, in winter, most probably breed farther north, at least a great part of them ;" and this is no doubt the case, for there are many breeding places of the Coot in Scotland, which are entirely deserted in winter. Nor are Coots usually in that country to be seen even in the estuaries or on muddy sea shores, as in England and Ireland. In the Hebrides, however, I have seen them remain all winter, betaking themselves to the sea when the reedy lake to which they resort was frozen ; and on Duddingston Loch, near Edinburgh, some continue all the year.

Although the flesh of the Coot does not afford an agreeable food, delicate and white as it appears, and often plentifully mixed with fat, which, however, has an unpleasant taste, vast numbers are shot on the coast of England in winter, not only for the markets, but as a pleasant and gentlemanly amusement. " The plan that I have found best," says Colonel Hawker, " for slaughtering the Coots by wholesale is, either to listen for them before daylight, and rake them down at the grey of a white frosty morning, or watch them at some distance in the afternoon, and set in to them as late

in the evening as you can see to level your gun, taking care, if possible, to keep them under the western light." The same respectable person informs us how to prepare them for cooking :—"The recipe for this is, after picking them, to take off all the black down, by means of powdered resin and boiling water, and then to let them soak all night in cold and spring water, by which they are made to look as white and as delicate as a chicken, and to eat tolerably well ; but, without this process, the skin in roasting produces a sort of oil, with a fishy taste and smell ; and if the skin be taken off, the bird becomes dry, and good for nothing."

In Shetland the Coot is seldom met with ; but in Orkney it is not unfrequent, and is said to breed and remain through the year. In the Outer Hebrides it occurs in a few lakes in Lewis and Harris, and is plentiful in the Uists. It is also met with in Skye, as Mr. Robert Jamieson informs us. On the mainland, from the extreme north to the English border, it is found breeding in ponds, lakes, and marshes. In England it is generally distributed, as we learn from the statements of authors, and in many localities continues all the year. In Ireland also, according to Mr. Thompson, it is general. On the continent of Europe it extends from Norway to the Mediterranean. In Asia it is said to occur in India, China, and Japan. In America it has not been met with ; but a species very similar, though smaller, occurs there. Its habits, as described by Audubon, are almost precisely the same as those of the European Coot.

"Although the curious form of their feet, and the situation of their legs, might induce one to suppose these birds incapable of moving on land with ease, experience proves the contrary, for they not only walk with freedom, but can run with great speed when necessary. They are accustomed to leave the water, too, and resort to open lands on the margins of streams and lakes, for the purpose of feeding, both in the morning and in the evening. While ascending the Mississippi, being about fifty miles above New Orleans, on the 21st of March, 1822, the weather cloudy, I had the pleasure of seeing about six or seven hundred of these birds feeding on the grass of a savannah bordering the river. I took them

while at some distance for a great flock of Guinea Fowls. Their movements were brisk, they often struck at each other in the manner of the domestic fowl, and ran with surprising celerity. As I approached nearer, I plainly saw them nibble the tender grass, in the same manner as poultry; and having found a place of concealment behind a rise of the ground, I laid myself flat, and observed their motions at leisure; but during twenty minutes spent in that situation, I did not hear a single note from the flock. I fired among them and killed five; on which the rest, after running a few steps, all rose and flew off with speed towards the river, mounted high in the air, came curving over me, their legs hanging behind, their wings producing a constant whir, and at length alighted on a narrow channel between the shore, where I was, and a small island. Following them with caution, I got sufficiently near to some of them to be able to see them leap from the water to seize the young leaves of the willows that overhung the shores. While swimming, they moved with ease, although not with much speed, and used a constantly repeated movement of the head and neck, corresponding to that of the feet. Now, twenty or thirty of them would close their ranks, and swim up the stream in a lengthened body, when they would disperse, and pick up the floating substances, not one of them diving all the time. On firing at a large group of them that had approached me, they started off in various directions, patting the water with their feet, and rushing with extended wings, for thirty or forty yards, but without actually flying."

YOUNG.—When fledged, the young have the bill of a greyish-green; the frontal plate, which is very small, being of the same colour; the iris brown; the feet dusky-green, the upper parts are dark green, the lower light dull brownish-grey.

PROGRESS TOWARDS MATURITY.—After the first autumnal moult, the bill is still dusky, and the frontal plate greenish. The upper parts are more grey, the lower pure ash-grey; the head and upper part of the neck blackish-grey. In spring the frontal plate becomes white, and the yellow band appears on the tibia.

REMARKS ON THE SWIMMING BIRDS.

CRIBRATORES. URINATORES.
MERSATORES.

IN the simple, but not altogether physiologically correct division of the feathered tribes into Land Birds and Water Birds, the species which have been described in this volume are usually referred to the latter, those of the order Cursores, although not of aquatic habits, being included in that series on account of their general resemblance to the Tentatores. The Water Birds themselves have by most authors been sectioned into Littoral and Natatory, Shore Birds and Swimming Birds, Waders and Swimmers. Those which peculiarly deserve the name of Littoral Birds and Waders, are the Tentatores and Aucupatores, while the Cursores might be referred to the Terrestrial, and the Latitores, while they present affinities of structure and habits to the Rasores, are in many instances as aquatic as a large proportion of the birds peculiarly so called. The Waders of authors are thus transitional, being placed between the series of truly terrestrial and that of truly aquatic birds.

If the Littoral Birds are thus incapable of being strictly defined, the case is different with those of which the species

that occur in the British seas and fresh waters remain to be described. They all agree in possessing one obvious common character, that of having their digits connected by flexible membranes, formed by an upper and lower layer, or induplication of the skin, modified so as to adapt the feet for swimming by converting them into paddles. The instrument thus formed may be more or less complete, all the digits being connected in some, the anterior three only in most, and the webs being extended to the full length of these flexible shafts, or shortened by excision, as it were, of their anterior part, or even partially cut into lobes; and birds of other groups may have feet partially webbed, so as to fit them in various degrees for the same office; but all of them are web-footed, and all swim. They can all walk on the water—for the natation of a bird that floats on the surface is but a kind of walking, though the feet be immersed in the liquid. Gradation on land they are also in some measure adapted for, some in a very efficient manner, others very imperfectly, a few so ill that they are usually described as incapable of walking. But these Palmipede or Natatory Birds present no other common character, excepting those which belong alike to all the groups, their organization differing so as to render it impossible to include them all in one ordinal category. And why, it may reasonably be asked, should all the web-footed birds form a single order, when those that are free-toed form several? If they did, it would be contrary to analogy.

If an order be anything else than a mere arbitrarily limited aggregation of specific forms, surely a bird that has a broad bill covered with a thin dense skin, and furnished on the inner sides of the upper mandible, and the outer sides of the lower, with series of parallel plates, of a peculiar kind of cutaneous tissue, arranged like the laminæ of a whale's baleen, presents in these very features of its organization characters so different from those of all other Water Birds, as to merit for them, not family, but ordinal distinction, especially as no gradation is presented between them and any other groups whatever, they being as perfectly isolated as the Parrots or the Pigeons.

These birds, which some, considering them as a family, name Anatidæ, others Lamellirostres, constitute the order CRIBRATORES. Others, essentially Divers, and feeding on fish, are named URINATORES. A third ordinal series, consisting of birds incapable of diving in pursuit of their prey, though they occasionally plunge or dip into the water, to obtain it, may be named MERSATORES. Of these three orders, which are all into which the extensive series of Water Birds admits of being divided, the characters will be given elsewhere at considerable length. Here it is only necessary to present short definitions, sufficient to enable a person who may have obtained a web-footed bird to refer it to its peculiar order.

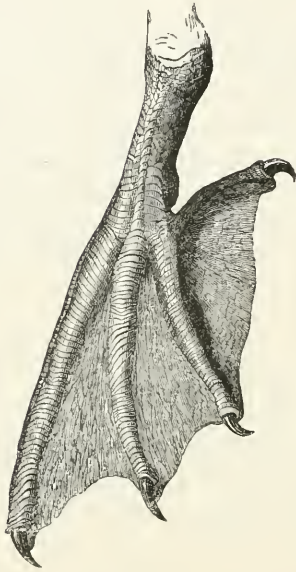
CRIBRATORES. SIFTERS. Bill covered with soft skin, obtuse, and furnished with internal or marginal lamellæ. Tongue large, fleshy, lamellate or papillate on the sides. Œsophagus narrow; stomach an extremely muscular gizzard. Intestine long, rather wide; cœca large. Feet with four toes; the anterior rather long, the hind toe small and free. Wings convex; tail short.

URINATORES. DIVERS. Bill strong, tapering, compressed, pointed, opening rather widely, and dilatable at the base. Tongue slender, pointed. Œsophagus wide; stomach rather large, roundish, with the muscular coat rather thick. Intestine long, and rather wide, with moderate cœca. Tarsus extremely compressed. Wings narrow, pointed; tail extremely short, or of moderate length.

MERSATORES, PLUNGERS. Bill generally stout, straight, compressed, opening to beneath the eyes. Tongue fleshy, tapering, pointed. Œsophagus very wide; stomach small, muscular. Intestine rather long, narrow; cœca very small, cylindrical. Tarsus not much compressed. Wings very long, much pointed.

The accompanying figure represents the foot of a Cor-

morant, and is here introduced as typical of the perfect webbed foot.



IG. 55.

XVII. CRIBRATORES. SIFTERS.

By the ordinal name of CRIBRATORES I designate the extensive, beautiful, and to man very important, and therefore very interesting group of birds, which Cuvier has named LAMELLIROSTRES,—his appellation being indicative of structure, while mine, in this as in other cases, is descriptive of function. It is, in fact, the lamellated bill that renders them Sifters, and the structure and function of that organ are peculiar and distinctive, being found in no other birds. Nay, more, they belong to every species of the entire series, although, of course, presenting considerable modifications.

The birds of which this order is composed are known by the familiar names of Geese, Swans, Ducks, Teals, Wigeons, Pochards, Shovellers, and others ; together with the Flamingoes and Mergansers. These all agree in having the bill covered with soft skin, the only hard or horny parts being the two ungues or nail-like bodies situated one at the tip of each mandible, and in the presence of numerous transverse or oblique elevated lamellæ on the inner sides of both mandibles ; at the margins of which they are generally enlarged, and assume various forms in the different species, of which the bill may thus be described as marginally lamellate, pectinate, serrate, or denticulate. It is impossible to mistake any member of the family, and therefore much time needs not be occupied with its distinctive characters ; but a single genus and a small group seem, at first sight, to stand aloof from the rest. Of the group alluded to, that of the Mergansers, the characters will subsequently be given in detail ; and the genus, that of the Flamingoes, with which, as stu-

dents of British Ornithology, we are not concerned, I have shewn, by the description of its digestive organs, in the fifth volume of Mr. Audubon's Ornithological Biography, to be nothing else, as some would say, than "a modified Goose." Setting aside these for the present, let us take a general view of the main body.

The species generally known as Swans, Geese, and Ducks appear to form a single, well-defined family, of which the members present various gradations. Thus, the bill may be as long as the head, or a little longer, or shorter in all degrees to half its length. It is always higher than broad at the base, but it may be of the same uniform breadth to the end, or it may become narrower, or in a few instances broader. Its terminal unguis may be round, elliptical, oblong, obovate, triangular or linear, very convex or nearly flat; moderately, much, or abruptly decurved, sometimes, though very rarely, so much as to have its edge directed backwards. The margins of the upper mandible may be arched, sinuate, or straight. The lamellæ may be large or small, distant or close, prominent or scarcely elevated, and their outer ends may be rounded, triangular, tooth-like, or sometimes acicular or capillary, projecting far beyond the margin, or moderately, or slightly, or not at all. So is it with the other organs. The legs may be long, short, or very short; the tarsi roundish or compressed. The hind toe, always small and elevated, may be free, or with a slight membrane, or having a membranous lobe, connecting it in some degree with the base of the two-lobed membrane of the inner toe. The interdigital membranes may be full, even at their margin, or emarginate in various degrees, or in a few instances dimidiate. The claws, never large, may be compressed or flattened, acute or obtuse. The wings may be long, of moderate length, or very short, convex in various degrees, and with a varying number of quills; the tail extremely short, short, moderate, or long, with from twelve to twenty-four feathers. The digestive organs vary less in their general characters, but yet exhibit differences of considerable amount. The trachea, however, presents extraordinary peculiarities, being sometimes nearly of uniform width, some-

times having enlargements of various forms ; the lower larynx small or moderate, compressed, or bulging out into curiously varied bony saes or cells.

Differences in habits are also conspicuous. Thus some, as the Geese and Swans, feed entirely on vegetable substances ; others, as the Pochards, chiefly on shell-fish. Some resort to fresh-water marshes, lakes, or rivers, while others are peculiarly marine. Most of them nestle on the ground, but some on rocks, and even on trees, or rather in their decayed cavities. Some make a plain nest of rushes, grass, and other plants ; but others line the nest with down which the female plucks from her breast. Some are easily domesticated, while others seem untameable. Their flesh, too, varies in quality, depending on the nature of the food.

As the species graduate into each other, both in form and in habits, from the grass-eating Geese to the fish-eating Harelds, it is difficult, notwithstanding the facility of describing species afforded by the diversities above alluded to, to divide this large group into sections. In fact, neither families nor genera can be strictly defined among them ; so that, were it not to facilitate the examination of a group, numerous and rather difficult sometimes to be individually distinguished, it might be expedient to leave it undivided. At first sight a Goose seems sufficiently different from a Duck, to induce one to suppose that Geese and Ducks form distinct families ; but, then, birds present themselves which one may call a Goose, another a Duck, and a third neither. However, I think we may venture on assuming four families—Geese, Swans, Ducks, and Pochards.

The Geese, ANSERINÆ, have the body ovate, large, and full ; the neck long ; the head small ; the bill stout and somewhat conical ; the legs rather long ; the wings of great length and breadth. They feed entirely on vegetable substances.

So do the Swans, CYGNINÆ, which, however, have the body very large and elongated ; the neck excessively long, but the feet very short and thick ; the bill rather long, and of equal breadth throughout.

The Ducks, properly so called, or ANATINÆ, have a rather

elongated, elliptical body, a moderate neck, large but compressed head, longish bill, depressed, and rather narrow or not very broad, with short or moderate feet, of which the hind toe has merely a compressed rudimentary expansion beneath, not sufficiently developed to be called a web. They are radicivorous, graminivorous, granivorous, insectivorous, reptilivorous; in short, some of them eat almost anything eatable.

The Pochards, or Diving Ducks, *FULIGULINÆ*, differ from the rest, which never dive in search of food, in being habitual divers. They have the body shorter, broad, being flattened or depressed; the neck short, the head large, the bill generally short and broad or thick, the feet very short and placed farther back, the hind toe with a lobiform membrane. They feed on mollusca, crustacea, and fish, occasionally only on vegetable matters.

A "typical" Goose seems quite distinct from a typical Duck; yet not even their skeletons shew very tangible characters.

In the Geese the skeleton is strongly constructed. The skull rather broad, the interorbital space wide, the maxillary bones large and stout, the lower strong, both concave and rounded at the end. The neck is long, with eighteen vertebræ; the dorsal ten, the lumbar and sacral sixteen, the coccygeal seven. The pelvis long and of moderate breadth, its bones leaving two large oblong interspaces; the pubes slender, enlarged and decurved toward the end. There are ten flattened ribs, the first not reaching the sternum, and both it and the three last without processes. The sternum large, broad, with a prominent carina, its posterior margin even, with two deep notches. The clavicles stout, short, moderately spreading; the furcula strong, wide, and much curved. The bones of the wing stout, the humerus and cubitus of equal length, the pollex tapering, the metacarpals united at both ends, two digits, the outer with two bones, the inner of one. The femur stout and short; the tibia long, with the fibula partially united; the tarsus moderate, broad below; the digits with two, three, four, five phalanges.

In the Swans the skeleton is also strong. The skull is more elongated, the interorbital space broader, the maxillary bones longer and less strong, both more concave. The neck is extremely long, with twenty-two vertebræ; the dorsal ten, the lumbar and sacral fifteen, the coccygeal seven. The pelvis is longer and narrower. There are ten flattened ribs, the first and four last without processes, and the last not connected with either the spine or the sternum. The latter is narrower than in the Geese, but otherwise similar, only the carina is generally hollowed for the reception of a curve of the trachea; in which case there is a hollow on the fork of the furcula, which is more slender, narrower at the fork, and more curved than in the Geese. Unless as to length, the wings and feet are as in them.

The Ducks have the skeleton proportionally less stout, with the head more like that of the Swans than of the Geese, the skull less elevated, and the jaws more flattened. There are from fourteen to sixteen cervical vertebræ, eight dorsal, fourteen lumbar and sacral, seven coccygeal. Of the nine slender ribs the first and two last have no processes, and the last has an appendage projecting backwards from the upper end of its sternal portion. The pelvis is long, as in the Swans. The sternum of moderate length, broadish, with two deep notches behind. The furcula is moderately stout and arched. The cubital bones a little shorter than the humerus.

The Diving Ducks have the body shorter, as is the neck, in which, however, the vertebræ are from fourteen to sixteen. The jaws are shorter and broader. The dorsal vertebræ eight, the lumbar and sacral twelve, the coccygeal seven. The pelvis is shorter and broader, as is the sternum. The furcula less curved. Of the ten ribs the first and two last have no processes. The tarsal bone is shorter and narrower than in the Ducks; but the bones of the wing are similar.

One skeleton graduates into another, as is the case with the exterior generally, and the organs in particular. Without attempting to define the groups by unvarying characters, let us see in what respects they agree.

The body in all is large, full, and muscular, with a thick

tough skin, attached to which is a considerable layer of adipose tissue; the head oblong, compressed. The bill never very long, and sometimes short, is always covered with soft skin, and furnished with internal marginal lamellæ. The tongue is fleshy, papillate at the base, medially grooved, laterally ciliated or furnished with reversed bristles, and having a flattened, thin, roundish tip. The œsophagus is narrow, without crop, but sometimes considerably dilated at the lower part of the neck. The stomach is always an extremely muscular gizzard, with a dense epithelium, having two grinding plates. The intestine is long, and rather wide, with two long and moderately wide cœca; the rectum cylindrical. The trachea in the female is uniform, of moderate bony rings; but in the males are diversiform enlargements at its lower extremity. The contractor muscles, which are very large, give off two slips, which are attached to the clavicle, and end in two others, which go to the sternum, there being no inferior laryngeal muscles.

The skin is covered with a fine close elastic down. The feathers are of moderate size, ovate or oblong, curved, with the basal filaments very downy, and a downy plumule of considerable length; the feathers of the head and neck very small, slender, in the male blended and glossy. The quills are strong, and the tail feathers generally firm.

All the species form a regular, though not generally neatly constructed nest. The eggs are always numerous, nearly elliptical, smooth, and of a uniform light tint, white, or light greenish or cream-colour. The young, clothed with thick stiffish down, run, swim, and dive from the first. I know of no other general characters. Those peculiar to the different groups will be given in order.

The Cribratores, among the swimming birds, are apparently analogous to the Rasores among the Land Birds, and have generally been considered as such. Next to the Gallinaceous Birds they are those which are most directly useful to man. To this series belong some of our most important domesticated species: the Common Goose, the Duck, the Swan, and several others of less value. Their feathers, superior to those of other birds in elasticity and softness, afford

the best materials for beds and pillows ; the down of some species is used in the colder countries for quilts and coverlets ; the skin with the down attached affords articles of clothing ; and the quills of others, especially the Grey Goose, have supplied for ages the instruments by which the philosopher, the historian, and the poet, have communicated to their contemporaries and transmitted to posterity their discoveries and thoughts. Many species afford most savoury food, and of some the flesh is lauded by the epicure as superlative ; but, in general, they are inferior to the Gallinaceous Birds as articles of food, at least to persons not of robust habit, or not engaged in laborious occupations.

In the wild state, all the birds of this family are very shy and vigilant, but several of them are very easily domesticated ; and it appears strange that we should not have reduced more of them to a state of servitude, The reason, however, seems to be that the common Goose and Duck, already subjugated, answer nearly all the purposes that could be accomplished by the domestication of other species. Their sense of sight and hearing are moderately acute ; their smell we have no means of estimating ; but their taste and touch, if we may judge from the size and distribution of the nerves with which the bill, covered by soft skin, is furnished, and the fleshy nature of the tongue, must be superior to that of most birds. Their instincts are varied and remarkable. In flying to a distance, and especially when migrating, they have a tendency to form files or angular lines ; they are all in some degree gregarious, living together in the greatest harmony, and communicating their feelings by repeated cries and modulations of their voice ; when their wants are satisfied they exhibit a great degree of sportiveness, especially when on the water, shooting along, diving, and splashing with their wings. Their intellectual faculties, if not of a high order, are not inferior to those of most Water Birds. Like the ass, and all submissive drudges, however useful, the Goose has obtained a character for stupidity by no means merited, its intellect being far superior to that of the Domestic Fowl, Turkey, or Peacock.

This order may be divided into six subordinate groups or families :—The Flamingoes, Geese, Swans, Ducks, Pochards,

and Mergansers, respectively named, according to the mode of speech employed by the naturalist, Phœnicopterinae, Anserinae, Cygninae, Anatinae, Fuligulinae, and Merganserinae ; of all which, the first excepted, representatives occur in Britain. The Phœnicopterinae, of which only three species are known, are characterized by a very peculiar formation of the bill, which is suddenly deflected in the middle, and by the extreme elongation of the neck and legs, insomuch that these birds have by many ornithologists been placed among the Waders. The Merganserinae are distinguished by an attenuated bill, of which the lamellæ are dentiform, resembling the teeth of a saw. But even these groups blend with the rest, Phœnicopterus being connected with the Geese by the genus Cereopsis, and Merganser passing into the Fuligulinae by means of the genus Mergus. The other families are so connected that it is impossible strictly to define them ; and therefore in giving their characters, I shall confine myself to general and comprehensive terms, applicable only with some latitude.

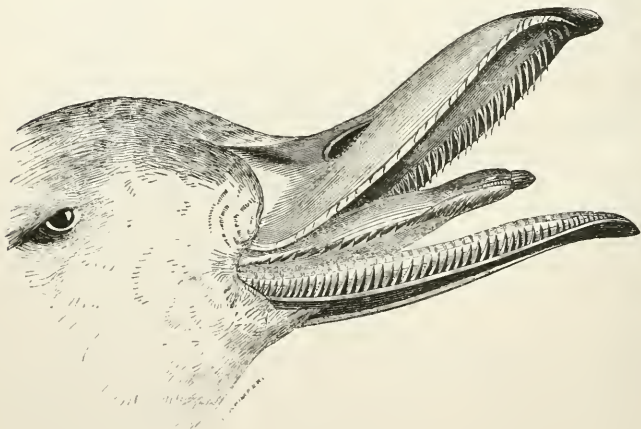


FIG 56.

ANSERINÆ.

GEESE AND ALLIED SPECIES.

THE birds popularly known by the names of Geese, Swans, and Ducks, although so intimately connected by the complex modification of their organs, as to render it impossible to institute well defined sections among them, are too numerous to be considered as forming a single family, their analogical relations to other groups rendering it necessary to subdivide them into families and genera. In instituting these sections it seems to me that we must be guided more by the general form than by the modifications of particular organs. Were we, for example, to place together all the species which have the bill short, and in some degree tapering or conical, then those in which it is longer and of nearly equal breadth throughout, and those distinguished by an elongated bill, enlarged toward the end, we should find our groups composed of birds in other respects very unlike each other. A similar result would ensue from our associating the species furnished with long legs, placing those with moderate legs in another group, and those with short legs in a third. But if, on the other hand, we take all the large-bodied, long-necked, moderate-legged, and strong-billed species, and place them together, we constitute a group of which all the members have a great mutual resemblance, although many of them may differ in some respects, one having the feet larger, another the bill broader, and the third the neck longer than the standard or typical species. According to this latter method then, we may associate all the very large, full-bodied species, known by the names of Geese and Bernicles, forming them into a family, to which the name of Anserinæ may be given, and of which the general characters seem to be the following :—

The body is ovate, or elliptical, very large and full, of

nearly equal height and breadth ; the neck long, or extremely elongated, and rather slender ; the head rather small, oblong, compressed, and arched above. The bill is stout, short, or of moderate length, much higher than broad at the base, gradually depressed toward the end, narrowed or of equal breadth throughout, with large convex unguis. The upper mandible internally concave, with a median tuberculate ridge, one or two series of tubercles on each side, then a series of flattened lamellæ, and along the margin numerous lamellæ, often enlarged at the end, but varying in form. The tongue is fleshy, thick, margined with pointed papillæ or fibres. The œsophagus long, narrow, enlarged at the lower part. The stomach an extremely developed, oblique, transversely elliptical gizzard, having the lateral muscles excessively thick, the tendons large, and the epithelium forming two circular, somewhat concave, thick grinding plates. The intestine is long, rather narrow, in numerous folds ; the cœca long, narrow at the base, then enlarged and nearly cylindrical. The trachea of numerous broad, considerably flattened rings, has no remarkable dilatations, and the inferior larynx is simple, that is, destitute of labyrinth, and compressed in the typical genera ; but in those which graduate into the *Anatinæ* is usually furnished with an enlargement.

The nostrils are small, or moderate, submedial, oblong ; the eyes small ; the aperture of the ear rather small. The legs, placed considerably forward, so as to balance the body in a horizontal or little inclined position, are very strong, but vary in length. The toes are four ; the hind toe very small, either rounded beneath, or with a small thickened lobe ; the anterior toes rather long, the outer little shorter than the medial ; the interdigital membranes full ; the claws short, rather compressed, obtuse.

The plumage is rather full, close, and firm, unless on the head and neck, where it is short, soft, more or less blended. The wings are very long and broad ; the humerus and cubitus proportionally shorter than the outer part ; the primaries decurved, the second and third longest, the first little shorter. The tail short, rounded, of from sixteen to twenty-four feathers.

These birds inhabit chiefly the arctic and antarctic regions in summer, migrating in autumn toward the equator. They are all decidedly gregarious, fly in lines when journeying, have a strong and rapid flight, usually keep at a great height, and being conspicuous by their size and loud cries, as well as important in an economical point of view, gladden the inhabitants of the colder regions by their annual appearance as the harbingers of summer. Their nests are bulky, placed on the ground, in marshy situations; their eggs numerous, ovate or elliptical, white, or tinged with various hues, but always of one colour. They walk slowly, but swim with ease, although they never dive, unless in sport or when wounded, and feed entirely on vegetable substances, chiefly grass and seeds. Their quills, feathers, and down, are employed for various purposes, and their flesh is savoury and nutritious, although rather difficult of assimilation. Next to the Swans they are the largest birds of the order to which they belong, and those small species which some consider as Geese in miniature are in reality Ducks.

Those which occur in Britain may be arranged and briefly characterized in the following manner:—

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. ANSER. GOOSE.

Bill as long as the head, or considerably shorter, stout, straight, sub-conical, of much greater height than breadth at the base, narrowed toward the end, where it is somewhat depressed, and broadly rounded, with a large, very convex, firm-edged unguis; the lamellæ of the upper mandible externally triangular, dentiform, and projecting; tarsus strong, moderately compressed, reticulated all round with small angular scales; hind toe free, flattened beneath, anterior toes rather long, scutellate, unless toward the base; interdigital membranes full; claws short, strong, arched, obtuse; feathers of the neck oblong, convex, arranged in oblique

ridges ; wings long, broad, of twenty-six quills, the second longest ; tail short, rounded, of sixteen rounded feathers.

1. *Anser ferus*. *Thick-billed Grey Goose*. About thirty-two inches long ; with the bill very thick, as long as the head, yellowish-orange, with the unguis grey or white ; tarsus three inches long, flesh-coloured ; head and neck greyish-brown ; hind part of back light ash-grey.

2. *Anser segetum*. *Narrow-billed Grey Goose*. About thirty inches long ; with the bill moderately thick, nearly as long as the head, yellowish-orange, with the base and unguis black ; tarsus three inches long, orange-yellow ; head and neck greyish-brown ; hind part of back blackish-brown.

3. *Anser brachyrhynchus*. *Short-billed Grey Goose*. About twenty-eight inches long ; with the bill shorter than the head, carmine, with the base and unguis black ; tarsus two inches and a half long, pale purplish pink ; head and neck greyish-brown ; hind part of back deep ash-grey.

4. *Anser albifrons*. *White-fronted Goose*. About twenty-eight inches long ; with the bill thick, short, carmine ; with the unguis white ; tarsus orange-red ; forehead white, with a black band behind ; lower parts greyish-white, irregularly patched with black.

5. *Anser Canadensis*. *Canada Goose*. About forty-two inches long ; with the bill moderate, black ; the tarsi and toes black ; the head and two-thirds of the neck black ; a broad band of white across the throat ; upper parts greyish-brown, lower greyish-white.

GENUS II. BERNICLA. BERNICLE GOOSE.

Bill much shorter than the head, moderately stout, straight, sub-conical, higher than broad at the base, narrowed toward the end, where its breadth does not exceed its height, rounded, with the unguis large, very convex, and firm-edged ; the lamellæ of the upper mandible rounded, and scarcely projecting ; tarsus stout, moderately compressed, reticulated all round ; hind toe free, flattened beneath, anterior toes rather long, scutellate, unless toward the base ; interdigital membranes full ; claws short, arcuate, rather depressed,

obtuse ; feathers of the neck narrow, flat, not arranged in ridges ; wings long, broad, of twenty-eight quills, the second longest ; tail short, rounded, of sixteen rounded feathers.

1. *Bernicla leucopsis*. *White-faced Bernicle Goose*. About twenty-six inches long ; with the fore part and sides of the head and the throat white ; the hind head and neck glossy black ; scapulars and wing-coverts ash-grey, banded with black.

2. *Bernicla Brenta*. *Black-faced Bernicle Goose*. About twenty-four inches long ; with the head and neck glossy black, a patch of white dotted with black on each side of the upper neck ; scapulars and wing-coverts brownish-grey.

3. *Bernicla ruficollis*. *Red-necked Bernicle Goose*. About twenty-two inches long ; with the throat, upper part of the head, and a band down the neck, black ; a white spot before the eye, behind it a white space inclosing a brownish-red patch ; fore neck red ; breast black.

GENUS III. CHENALOPEX. FOX-GOOSE.

Bill nearly as long as the head, stout, straight, sub-conical, of not much greater height than breadth at the base, slightly narrowed toward the end, where it is broadly rounded, with the unguis large, very convex, much decurved, and strong-edged ; the lamellæ of the upper mandible externally thin and concealed ; tarsus stout, moderately compressed, reticulated with small angular scales ; hind toe free, with a thick narrow lobe beneath ; anterior toes rather long, scutellate unless toward the base ; claws short, strong, little arched, rather compressed, obtuse ; wings rather long, broad, with the second quill longest ; tail short, rounded, of fourteen rounded feathers.

1. *Chenalopex Ægyptiacus*. *Egyptian Fox-Goose*. About twenty-eight inches long ; with a prominent margin at the base of the upper mandible, and a bare knob on the wing ; the bill reddish flesh-colour, with the unguis and part of the margin of the upper mandible black ; a roundish space about the eye light chestnut-red ; the wing-coverts white, the

secondary coverts with a transverse black band near the end ; the lower parts cream-coloured, with a large chestnut-red patch on the breast.

GENUS IV. PLECTROPTERUS. SPUR-WINGED GOOSE.

Bill nearly as long as the head, stout, straight, sub-conical, of nearly equal height and breadth at the base, where there is a protuberance broadly rounded at the end, with the unguis large, very convex, much decurved, and strong-edged ; the lamellæ of the upper mandible externally thin and concealed ; tarsus stout, moderately compressed, reticulated ; hind toe with a thick narrow lobe ; anterior toes rather long ; claws short, strong, arcuate, obtuse ; wings rather long, broad, with a projecting pointed spur on the tarsal joint ; tail short, rounded.

1. *Plectropterus Gambensis*. *Gambo Spur-winged Goose*. Bill reddish-yellow ; feet orange ; upper part of head and neck brown ; lower part of the neck, sides of the breast, and upper parts, black, glossed with green ; lower parts white.

ANSER. GOOSE.

THE Geese, properly so called, are birds of large size, having the body remarkably full, ovate, rather higher than broad; the neck long and slender; the head rather small in proportion to the general size, arched above, oblong, and compressed.

Bill as long as the head or considerably shorter, stout, straight, sub-conical, of much greater height than breadth at the base, narrowed toward the end, where it is somewhat depressed and broadly rounded; upper mandible with the lateral and superior basal margins semicircular, forming two short, moderately pointed angles; the ridge broad and flattened at the base, gradually narrowed and convex; the dorsal line declinate and straight to near the unguis, which is round, very convex, decurved, and strong, with a firm edge, the sides sloping and convex, the nasal space oblong from near the base to the middle, covered by the soft membrane of the bill; the edges soft, arcuate, denticulate with the triangular projecting outer ends of the oblique lamellæ; lower mandible with the intercrural space long, rather wide, its membrane anteriorly bare, the short dorsal line convex, the crura long, rather narrow, their lower outline somewhat re-arcuate, their sides sloping outwards and convex; the edges elevated, inclinate, denticulate with the short outer extremities of the numerous oblique lamellæ; the unguis roundish and moderately convex; the gape-line arcuate, commencing under the upper basal angle of the mandible.

Mouth of moderate width. Anterior palate concave, with a lateral series of flattened papillæ on each side, separated by a groove from the marginal lamellæ, a medial row of prominent tubercles, and on each side of it one or two

series of scattered papillæ. The tongue is fleshy, thick, rather narrow, convex, with a deep median groove above, furnished with straight sub-acicular papillæ at the base, laterally margined with numerous slender, acuminate, reversed, horny papillæ; its tip thin, concave, rounded, and horny. Œsophagus long, narrow, with the lower part enlarged; the glandular belt broad. Stomach an extremely developed, oblique, transversely elliptical gizzard, of which the lateral muscles are excessively thick, their tendons large and radiated, the lower muscle narrow and prominent, the epithelium forming two circular, very thick, smoothish, marginally grooved, slightly concave, grinding plates. The intestine is long, rather narrow, arranged in about ten or twelve oblique folds; the cœca long, slender at the base, then of moderate width, somewhat narrowed toward the end, which is obtuse.

The trachea, of numerous broad, considerably flattened rings, enlarges a little toward the furcular space, where it forms a slight curve, then contracts, and becomes much compressed at the end; the bronchi very short and wide.

Nostrils moderate, oblong, sub-medial, in the lower and fore part of the nasal groove. Eyes small, eyelids feathered, with bare crenulate margins. Aperture of ear rather small. Feet rather short or moderate, strong, placed well forward, so that the body is nearly horizontal; tibia bare for a very short space; tarsus moderately compressed, reticulated with small angular scales. Hind toe very small, elevated, thick and scabrous beneath; anterior toes rather long, the outer little shorter than the third, the second considerably shorter; all scaly at the base, but with numerous scutella in the rest of their extent; the interdigital membranes reticulate, full, the outer more or less emarginate, the second or inner toe with a narrow, slightly two-lobed marginal web. Claws short, arched, rather compressed, obtuse, that of the third toe curved outwards, with the inner side expanded and the tip rounded.

Plumage full, close, firm, unless on the head and neck. Feathers of the head very small and oblong; of the neck narrow, arranged in oblique series into ridges and grooves,

of its lower part broad and rounded ; those of the fore part of the back and the larger wing-coverts very broad and abruptly terminated, of the hind part of the back ovate and rounded, of the breast small, but of the sides very large, much curved, and abrupt ; the scapulars very large ; the humerals eight or ten, narrow, rounded. The wings long, broad, with twenty-six quills and pointed, the first quill being slightly shorter than the second, which is longest, the outer four or five quills more or less cut out toward the end ; the secondaries broad and rounded ; the inner elongated. Tail short, rounded, of sixteen rather broad, rounded feathers.

Yellow, orange, or red are the predominant colours in the feet, as well as in the bill, which is sometimes partially black. Grey, brown, and white prevail in the plumage.

The Geese inhabit chiefly the temperate and arctic regions of both continents. They reside mostly in marshes, but frequently betake themselves to dry pastures and fields. Their food consists of vegetable substances, chiefly grasses, but also the leaves, stems, and roots of various herbaceous plants, as well as seeds. Although they feed chiefly on land or in marshy places, and walk strongly, generally in a sedate manner, they also, when swimming in shallow water, pull up the submersed parts of vegetables by immersing the head and neck ; but in searching for food they never dive. The strong-curved, thin-edged unguis, of which the inner surface is grooved or scrobiculate, are the instruments used in cutting plants for food ; and the action of the gizzard is aided by a great quantity of fine quartz sand. They sit lightly on the water, and swim with considerable speed, keeping the neck erect. Their flight is strong, moderate as to speed, sedate, with short movements of their outspread wings, the neck stretched forward. When flying to a distance they arrange themselves in lines, either continuous or angular, and when migrating keep at a great height. Their cries are strong, harsh, and creaking, but not disagreeable when coming from a distance. They are at all seasons gregarious. The nest, composed of grass and other herbage, is placed in marshes or on islands. The eggs, numerous,

elliptical, and white, variously tinged. The male remains with the female and young. The Geese appear to moult only once yearly, in the end of summer. Their flesh is highly esteemed, although difficult to be digested. As no two species agree precisely in the form of the bill, I see no reason for separating the Snow Goose from this genus, of which five species are met with in Britain.

ANSER FERUS. THE THICK-BILLED GREY GOOSE.

WILD GOOSE. MARSH GOOSE. GREY LAG. GREY-GOOSE. FEN GOOSE.

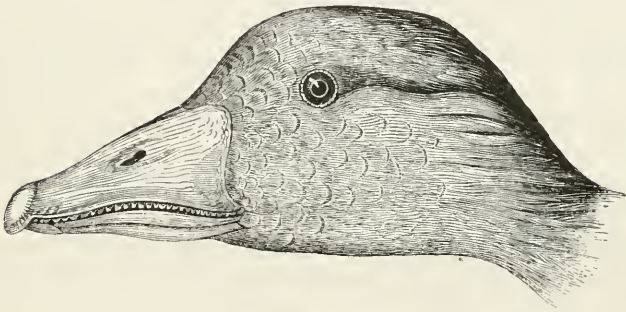


FIG. 57.

Anas. Anser. Linn. Syst. Nat. I. 197.

Anas Anser. Lath. Ind. Orn. II. 841.

Grey Lag Goose. Mont. Orn. Diet. and Suppl.

Oie cendrée ou première. Anas anser ferus. Temm. Man. d'Orn. II. 818.

Anser ferus. Temm. Man. d'Orn. IV. 517.

Grey Lag Wild Goose. Anser palustris. Selb. Illustr. II. 261.

Anser ferus. Wild Goose. Jen. Brit. Vert. An. 222.

Anser cinereus. Bonap. Comp. List, 55.

Male thirty-three inches long ; bill very thick, as long as the head, two inches and a half in length, an inch and a half in height at the base, ten-and-a-half-twelfths in breadth behind the circular unguis, yellowish-orange, with the unguis white or bluish-grey ; the tarsus three inches long, flesh-coloured ; the wings scarcely shorter than the tail ; feathers of the neck linear-oblong, disposed in ridges ; head and neck greyish-brown ; upper parts grey and brown, barred with the whitish terminal margins of the feathers ; hind part of back ash-grey ; lower parts pale brownish-grey, becoming white behind. Female similar, but smaller. Young with the upper parts darker, the head and neck of a lighter brown.

MALE IN WINTER.—The Wild Goose, although not of an elegant form, has none of the awkward appearance of our domestic species, which is generally supposed to owe its origin to it, being a strong, vigorous, and moderately active bird. The body is very large and full; the neck long, at its upper part slender; the head proportionally small, ovate-oblong, and compressed.

The bill is about the length of the head, much larger than in any other of our species, higher than broad at the base; the upper mandible with the ridge broad and flat at the base, gradually narrowed and convex toward the end, terminated by a nearly circular convex unguis; the dorsal line sloping, on the unguis arcuato-decurvate, the sides sloping, the edges arcuate, marginate, with eighteen oblique lamellæ, of which the outer ends are dentiform, rather acute, and prominent; the lower mandible with the intercrural space rather narrow, rounded anteriorly, extending nearly to the unguis, which is smaller than the upper, but of the same form; the lower outline of the crura considerably convex, their sides rounded, the edges sloping inwards, and having thirty lamellæ.

The mouth is an inch and a half in width. The anterior palate concave, with two lateral rows of short laminæ, separated from the marginal laminæ by a groove, and five rows of small dentiform papillæ. The tongue is fleshy, narrow, with marginal series of spicular horny papillæ directed backwards, and a rounded, concave, thin, horny tip. The œsophagus is eighteen inches long, of nearly uniform width; the proventricular part a little dilated. The gizzard is extremely large and muscular, transversely elliptical; its epithelium dense, of a cartilaginous hardness, rugous, with distinct oblique fibres. The lateral muscles of extreme size, with large radiating tendons, of which the fibres are interlaced at their junction. The intestine is eight feet long; one of the cœca eight, the other nine inches in length.

The nostrils are oblong, four and a half twelfths in length, about the middle of the bill, in the anterior and lower part of the oblongo-elliptical nasal space, which is covered by membrane, and parallel to the ridge. The eyes are rather small, their aperture being four-twelfths. The legs rather short and

strong ; the tibia bare for about nine-twelfths of an inch ; the tarsus compressed, covered all round with angular scales, of which the anterior are sub-hexagonal, flat, with a small central circular prominence, the posterior rhomboidal. The toes are large, except the first, which is very small, elevated, and free ; the third a little longer than the fourth ; the second considerably shorter ; the middle toe with thirty narrow scutella extending nearly its whole length, the lateral similarly scutellate, but with small scales on the first phalanx ; the inner having eighteen, the outer thirty-two scutella. The soles flattened and rough ; the inner toe with an expanded, thin-edged, two-lobed membrane ; the interdigital membranes with roundish scales, the inner with its margin straight, the outer concave. The claws are short, strong, slightly curved, obtuse, that of the middle too dilated internally, and rounded.

The feathers of the head are very small and short, rounded, and blended ; of the upper part of the neck small linear-oblong, imbricated, and arranged in ridges, with deep intervening grooves. The feathers of the fore part of the back and wings very close, large broad, abrupt ; the scapulars very large ; the feathers of the hind part of the back short, rounded, flatter, and less close ; those of the breast ovate, rather small ; of the sides very large and abrupt. The wings are rather long, reaching nearly to the end of the tail, broad ; the quills twenty-six ; the humerals ten, narrow, and rounded ; the secondaries broad, abruptly and obliquely rounded. The second primary is longest, the first three-fourths of an inch shorter, the third a quarter of an inch shorter than the first, the second and third slightly cut out externally, the first and second cut out toward the end internally. The tail is very short, direct, rounded, of sixteen broad, rather rounded but acuminate feathers ; the lateral half an inch shorter than the medial.

The bill is yellowish-orange, with the upper unguis bluish grey, nearly white, the lower darker. The iris brown. The feet flesh-coloured ; the claws purplish-grey. The head and neck are greyish-brown, the fore-neck and breast gradually shaded into paler, the latter fading into greyish-white ; the hind part of the abdomen and lower tail-coverts, the sides of

the rump, and the upper tail-coverts white. The smaller wing-coverts, the secondary coverts, the primary coverts, alula, and lower wing-coverts, are pale bluish-grey; the middle and hind part of the back of the same colour, more tinged with blue. The anterior dorsal feathers, scapulars, secondary coverts, and four rows of larger wing-coverts, are dark brown, grey in their concealed parts, and narrowly margined with pale reddish-brown, or greyish-white. The primaries are blackish-brown, the outer grey toward the base, all with the shafts white; the secondary quills brownish-black, the inner dark brown, grey toward the base; the middle tail feathers are dark grey, with narrow white margins, the white gradually increases on the rest, enlarging more on their inner webs, so that the outer is entirely of that colour; the breast is faintly barred, the edges of the feathers being paler; on the sides, under the wings, the feathers are greyish-brown, edged with pale grey; the tibial feathers are pale grey; and on the breast are two or three feathers which are black toward the end.

Length to end of tail, 33 inches; extent of wings, 64; bill, along the ridge, $2\frac{1}{2}$, along the edge of lower mandible, $2\frac{1}{2}$, its height at the base, $1\frac{1}{2}$, breadth just behind the unguis, $\frac{1}{2}$; wing, from flexure, $17\frac{1}{2}$; tail, $5\frac{1}{2}$; tarsus, 3; hind toe, $\frac{1}{2}$, its claw, $\frac{1}{12}$; second toe, $1\frac{5}{12}$, its claw, $\frac{1}{2}$; third toe, $3\frac{1}{2}$, its claw, $\frac{1}{2}$; fourth toe, $2\frac{1}{2}$, its claw, $\frac{1}{12}$.

FEMALE.—The female is considerably smaller, but otherwise similar.

HABITS.—Whatever may have been the case formerly, when it was said to be very abundant, and permanently resident in England, this species is not now of common occurrence in any part of Britain, and does not remain to breed with us. In Ireland it “is of occasional but rare occurrence in winter.” Not being able to distinguish it at a distance from the Bean and Short-billed Geese, I can say nothing respecting its peculiar habits, and, for the same reason, even those which are common to it and them, cannot be spoken of with certainty. However, this much may be said:—It makes

its appearance in various parts of the country toward the beginning of winter, and departs in the end of April. It resorts, not to marshy places only, but to open pastures and cultivated fields; its food consisting of the root-stems of aquatic grasses, young corn, clover, and other green herbage. Being very shy and vigilant, it is not easily shot, and when feeding in the fields, on the alarm being given by some individual, they all erect their necks, run forward, and uttering their loud grating cries, spring into the air. Their flight is rather heavy and sedate, performed at a great height, when they are proceeding to a distance, the birds on such occasions advancing in a line, or in two lines forming an acute angle. The flesh of this species is savoury, having a higher flavour than that of the tame Goose; but it is not often seen in our markets, the "Common" Goose of which is the next species.

According to M. Temminck, it "inhabits the seas, coasts, and marshes of the eastern countries; seldom advances northward beyond the fifty-third degree; is abundant in Germany and towards the centre of Europe; and occurs only on its migrations, and in very small numbers, in Holland and France." It has not been met with in any part of America."

REMARKS.—By the older writers, this species was confounded with the two next. The three are so very similar in plumage, that, until one has compared specimens of them, it is not easy to determine them separately. The present may, however, be known by its much larger bill, which is flesh-coloured, with its unguis whitish.

The common Domestic Goose appears to be the civilized offspring of the Grey Goose, to which, in bulk and proportion, it bears the same relations as other tame animals to their prototypes: as a short-horned ox to a Devonshire ox, or a domestic drake to a mallard. Mr. Yarrell is of opinion that the White-fronted Goose has concurred with the Grey Lag in producing our domestic race. It is impossible to say what proportion it bears to the other species in Scotland; but that it occurs there is certain, for in the end of September 1843, I inspected three specimens from Dee-side, in the Aberdeen

market, and have also seen it in the Edinburgh market in winter and spring. Mr. St. John represents Wild Geese as very numerous in the lower parts of Morayshire; but he does not appear to distinguish between this and the Bean Goose. In the Natural History of Orkney, it is stated that "Wild Geese of this species visit Orkney every winter, but not in great numbers. They always leave in spring, and have never been known to breed. Others occasionally touch here in spring, during their journey north.

ANSER SEGETUM. THE NARROW-BILLED GREY GOOSE.

WILD GOOSE. BEAN GOOSE. SMALL GREY GOOSE.

Anas Anser. Linn. Sys. Nat. I. 197.

Anas segetum. Lath. Ind. Orn. II. 843.

L'Oye Sauvage. Anser Sylvestris. Briss. Ornith. VI. 265.

Bean Goose. Mont. Orn. Dict.

Oie vulgaire ou sauvage. Anas segetum. Temm. Man. d'Orn. III.

Anser segetum. Temm. Man. d'Orn. IV. 517.

Bean Goose. Anser Ferus. Selb. Illustr. II. 263.

Anser segetum. Bean Goose. Jen. Brit. Vert, Anim. 222.

Anser segetum. Bonap. Comp. List, 55.

Male thirty inches long ; bill moderately thick, nearly as long as the head, two inches and a third in length, and an inch and two twelfths in height at the base, nine twelfths in breadth behind the circular unguis, yellowish-orange, with the base and unguis black ; tarsus three inches long, dull orange-yellow ; the wings longer than the tail ; feathers of the neck linear-oblong, disposed in ridges ; head and neck greyish-brown ; upper parts dark brown and grey, barred with the whitish terminal margins of the feathers ; hind part of back blackish-brown ; lower parts pale brownish-grey, becoming white behind. Female similar, but smaller. Young with the upper parts darker, the head and neck of a lighter brown, three small patches of white feathers at the base of the bill.

MALE IN WINTER.—This species is in most respects very similar to the last, from which it differs in being somewhat smaller, in having the bill more slender, although not much shorter, the hind part of the back dark brown, and in other particulars noted in the specific character. The body is very bulky, the neck long and slender, the head oblong, much compressed.

The bill, similar in form to that of the last species, but smaller, is about the length of the head, higher than broad at the base ; the upper mandible with the ridge broad and rather convex at the base, gradually narrowed and convex towards the end, terminated by a circular convex unguis, the dorsal line sloping on the unguis, arcuato-decurvate, the sides sloping, the edges slightly arched, marginate, with twenty-four oblique lamellæ, of which the outer ends are dentiform and rather acute ; the lower mandible with the intercrural space rather narrow, rounded anteriorly, extending nearly to the unguis, which is smaller and less convex than the upper, the lower outline of the crura a little convex, their sides rounded, the edges sloping inwards, and having about forty lamellæ.

The nostrils are medial, lateral, longitudinal, oblong, pervious in the anterior and lower part of the narrow oblong nasal space, which is covered by membrane, and parallel to the ridge. The eyes are small, their aperture being four-twelfths. The legs rather short and strong ; the tibia bare for about eight-twelfths of an inch ; the tarsus compressed, covered all round with angular scales, of which the anterior are sub-hexagonal, flat, with a small central prominence, the posterior rhomboidal. The first toe is very small and free, the anterior toes large, the third considerably longer than the fourth, the second shorter than the latter ; the middle toe with thirty narrow scutella extending to near the base, the inner with eighteen, the outer twenty-eight scutella. The margin of the inner expanded, thin, somewhat two-lobed, the interdigital membranes with roundish scales. The claws are short, strong, slightly curved, obtuse, that of the middle toe dilated internally, and rounded.

The feathers of the head are very small and short, oblong, rounded, and blended ; of the upper part of the neck small, linear-oblong, imbricated, and arranged in lines so as to present deep intervening grooves ; the feathers of the fore part of the back and wings very close, large, broad, abrupt, and curved ; the scapulars very large ; the feathers of the hind part of the back smaller, flatter, rounded at the end, and less close ; those of the breast ovate, rather small, of the sides very large and abrupt. The wings are broad, and rather

long, extending, when closed, a little beyond the tail; the quills twenty-six; the second primary longest, the first half an inch shorter, and with the third slightly cut out externally. the first and second cut out toward the end internally; the secondaries broad, the outer abruptly rounded; the humerals ten, narrow, and rounded. The tail is very short, direct, rounded, of sixteen broad, rounded feathers, the lateral an inch shorter than the medial.

The bill is orange, with the unguis of both mandibles, the basal half of the lower, and the ridge of the upper, with a streak on each side as far as the nostrils, black. The iris hazel. The feet dull orange-yellow, the claws dusky. The head and neck are greyish-brown; the fore neck and breast gradually shaded with pale wood-brown, the latter fading into greyish-white; the hind part of the abdomen, and lower tail-coverts, the sides of the rump, and the upper tail-coverts, white. The feathers of the fore part of the back, the scapulars, and the wing-coverts, are deep greyish brown, narrowly edged with brownish-white; those of the middle and hind part of the back blackish-brown. The edge of the wing and the primary coverts are ash-grey, the outer secondary coverts tinged with the same, and terminally margined with greyish-white. The primaries are blackish-brown, the outer grey toward the base, all with the shafts white; the secondary quills brownish-black, the inner dark brown, grey toward the base. The tail feathers greyish-brown, tipped with white, the lateral almost entirely white. The large feathers of the sides, under the wings, are greyish-brown, margined with pale brownish-grey; the lower wing-coverts purplish-brown.

The mouth is an inch and two-twelfths in width. The anterior palate concave, with two lateral rows of close-set, strong, blunted protuberances, between each of which rows and the marginal series of lamellæ of its own side is a distinct groove, into which the marginal lamellæ of the lower jaw enter. Besides these rows, there are on the arched roof five rows of small, short, conical, distantly set, hard protuberances.

Length to end of tail, 31 inches; extent of wings, $64\frac{1}{2}$; wing, from flexure, $18\frac{1}{2}$; tail, $5\frac{1}{2}$; bill along the ridge, $2\frac{4}{12}$, along the ridge of lower mandible, $2\frac{4}{12}$, its height at the base,

$1\frac{2}{12}$, its breadth behind the unguis, $\frac{9}{12}$; tarsus, $3\frac{2}{12}$; hind toe, $\frac{8}{12}$, its claw, $\frac{4}{12}$; second toe, $\frac{4}{12}$, its claw, $\frac{5}{12}$; third toe, 3, its claw, $\frac{6}{12}$; fourth toe, $2\frac{10}{12}$, its claw, $\frac{4}{12}$.

FEMALE.—The female is similar to the male, but smaller.

VARIATIONS.—The differences in the colours of the plumage are not remarkable. The bill varies in having the black at its base more or less extended. I have a specimen in which none remains unless on the ridge, as far as the nostrils. It appears that the orange colour is more extended the older the individual is.

HABITS.—This species occurs in various parts of Britain during the winter and spring, and in Ireland “is a regular winter visitant.” It does not breed in any part of England, or in the southern and middle divisions of Scotland. In the outer Hebrides, however, flocks are seen in summer and autumn. I find by one of my journals that, in 1819, I examined four individuals that had been shot by my uncle’s shepherd in the small island of Copay, on the west coast of Harris, where I have often in autumn gathered the quills that had been shed by them, as they fed undisturbed on the rich pasturage. But, although I have been informed that they breed on several islands there, especially on Gasker, which is farther out in the ocean, and a favourite resort of seals, I never found its nest, or met with unfledged young. In early autumn, when the barley begins to ripen, flocks commit great havock among it in unfrequented places, often at night, but mostly at early dawn. It is almost impossible to approach them while thus feeding, however irregular the ground may be, as they see at night much better than their enemy. In the end of autumn, when they often feed at night in the pools and shallow lakes, I have often tried to steal upon them in the dark; but, although creeping among sand-banks, never succeeded. Once, when, after long crawling in the most cautious manner, I got within what I conceived to be the proper distance, hearing the geese puddling in the water before me, I let fly into the thickest part of the

flock, on which they flew off in haste, uttering their loud trumpet-like cries. Rushing into the water, gun in hand, to secure my prizes, I found that I had shot into the midst of some tall weeds, which I had mistaken for the geese. A worse mistake was made by a man in Harris, who, hearing the geese on the marsh of Nisbost close to his house, went out in the dark, and having shot across a narrow creek where he conceived them to be, returned. In the dawn, when he went to pick up the geese, he found dead on the opposite bank his own horse, which had been reposing there.

From my own observation I have little more to say of the Bean or Corn Geese than that they sit lightly on the water, floating beautifully with their heads to the wind, like a fleet of merchantmen; swim with good speed; but rise heavily, striking the water with their large wings, which, when rising from the ground, they spread out and flap, running forward some paces; that they feed chiefly by night, unless in remote places, eating the soft pasture-grass, and frequently the long juicy root-stems of agrostrides, glyceriæ, and arundines that occur in the pools and by the margins of lakes; that their flight is heavy and rather slow, the birds disposing themselves in lines, now straight, now angular, or waving, when they are proceeding to a distance; and that their loud cries, rather harsh and grating when heard at hand, are pleasant to the ear when coming from a distance, especially in the stillness of night. In the beginning of winter most of them leave those northern isles; but I have seen them there until as late as Christmas, and am informed that many remain in South Uist all the year.

In the eastern and southern parts of Scotland they appear in October, betaking themselves to particular localities, generally open pastures or large fields. There they feed on grass, young wheat, clover, and other plants. In March and April they visit the newly-ploughed fields to pick up the oat-seed, beans, pease, and roots of *Potentilla anserina*, and various grasses. It is tantalizing on such occasions to see them so far from any wall or bush, and so vigilant, as to be quite secure. Although flocks remain in

the south of Scotland all the winter, these birds are much more numerous there in spring; and great numbers are brought to the markets in March and April, when they are on their way northward.

Vast numbers frequent the Montrose Basin in winter, betaking themselves to the water by day, and feeding in the fields at night. All over the extended plain country stretching from the Tay to Inverness flocks are to be met with here and there from October to April, but in much greater number at the periods of the autumnal and vernal migrations. In the large open fields they there feed mostly by day, at night betaking themselves to marshy places or to estuaries. In the Bay of Findhorn multitudes are seen coming from the surrounding country to repose at night. Early in the morning they betake themselves to the fields, where they feed until evening if not disturbed. It thus appears that their habits vary in different circumstances, at least as to the times of repose and feeding. They are very cautious in alighting, and fly over and around the intended place several times, until, observing nothing suspicious, they come down irregularly, usually run together, stand for some time with their necks erected, and then disperse or proceed in a line, an individual always acting as sentinel or observer, and giving instant warning of danger, instantly responded to by all the members of the flock, which come running up to him, and after satisfying themselves as to the cause of alarm, fly off or resume their previous occupation.

As this species has been confounded with the next, I think little more can be said respecting its habits; for I must refrain from following the example of those who, without having seen a Goose's nest, or alluding to any one who has, describe both it and the eggs as minutely as those of a Sparrow or Chaffinch.

Mr. Selby, however, has, in his account of the quadrupeds and birds observed by him in Sutherland in the summer of 1834, furnished some very acceptable information on this subject:—"We were agreeably surprised to find that the Bean-Goose annually breeds upon several of the Sutherland lakes. The first intimation we received of this interesting

fact was at Lairg, where we were informed that a few pairs bred upon some islands about twelve miles up Loch Shin. We accordingly took boat the following morning, and upon arriving at the place discovered a single pair, attended by four or five young goslings. None were obtained, as the old birds, being wild, escaped seemingly uninjured, although repeatedly fired at; and the goslings immediately dived, and escaped into the reeds and other herbage. Upon Loch Naver we also found several pairs attended by their young, seemingly about a fortnight or three weeks old, one of which, after a severe chase, we procured. Upon the islands of Loch Laighal from thirty to forty pairs, we were informed, annually had their nests. We saw several old birds and the nests that had been used, which are concealed in heath upwards of three feet in height that covers the islands. The eggs were all hatched, and most of the young had betaken themselves to the neighbouring moors, where they continue till able to fly, secreting themselves, when disturbed, in the highest heather. At Tongue we saw some goslings about a month old (following a hen), which had been hatched from eggs taken at Loch Laighal. We were told that they became nearly as tame as common Geese, but refuse to intermix or breed with them. The eggs, from five to seven in number, are smaller than those of the common Goose, but of a similar shape and colour." Mr. St. John also mentions their breeding in Loch Shin, and other lonely and unfrequented pieces of water in Sutherland.

YOUNG.—The young in winter have the head and neck of a lighter tint, approaching to yellowish-grey; the feathers there of a softer texture, almost silky, with numerous small bristle plumelets projecting on the cheeks. There are three narrow, semilunar, white spots at the base of the upper mandible, the small feathers there being of that colour, and those immediately behind them dark brown; so that one, not attending to the form of the bill, might imagine them to be the young of the White-fronted Goose. The upper parts are darker than in the adult, and the lower less white.

ANSER BRACHYRHYNCHUS. THE SHORT-BILLED GREY GOOSE.

WILD GOOSE. PINK-FOOTED GOOSE.

“Anser brachyrhynchus. Baill. Mem. de la Soc. d’Emul. d’Abbeville, 1833.”
Oie à bec court. Anser brachyrhynchus. Temm. Man. d’Orn. IV. 520.

Male twenty-eight inches long ; bill (comparatively) very small, shorter than the head, nearly two inches in length, an inch and two-twelfths in height at the base, seven-and-a-half-twelfths in breadth behind the unguis, bright carmine, with the broadly elliptical unguis, and the base of both mandibles black ; the tarsus two inches and a half long, pale purplish pink-colour ; the wings a little longer than the tail ; feathers of the neck linear-oblong, disposed in ridges ; head and neck greyish-brown ; upper parts ash-grey, barred with the whitish terminal margins of the feathers ; hind part of back deep ash-grey ; lower parts pale grey, becoming white behind. Female similar to the male, but smaller. Young with the upper parts brownish-grey, barred with brownish-white ; the lower hind-neck reddish-brown, the lower parts more grey.

MALE IN WINTER.—If the name of “Grey Goose” could with propriety be claimed by any one of our three Grey Geese, it is this species to which it ought to be given, it having more grey on the upper parts than even the thick-billed Goose. It is scarcely inferior in size to the Bean Goose, with which it has generally been confounded, although easily distinguishable by its small and differently coloured bill. In its general form and proportions it closely resembles the two species above-named, having the body very large and full, the neck long and slender, the head rather small, ovate-oblong, compressed, and much rounded above.

The bill is shorter than the head, higher than broad at the base, tapering rapidly toward the end, where it is more depressed than in the other species; the upper mandible with the ridge broad and flattened at the base, rapidly narrowed and convex toward the end, terminated by a broadly elliptical very convex unguis, the dorsal line rapidly sloping, on the unguis arcuato-decurvate, the sides sloping, the edges moderately arcuate, marginate, with twenty-four flattened laminae, of which the outer ends are dentiform, and little prominent; the lower mandible with the intercrural space anteriorly pointed, extending nearly to the unguis, which is of the same form as the upper, but much smaller; the lower outline of the crura considerably convex, anteriorly ascending and rather concave, their sides rounded, the edges sloping inwards, with forty-five lamellae, of which the dentiform tips are small and rounded.

The roof of the mouth is concave, with five longitudinal series of flattened tubercles. The tongue is fleshy, rather narrow, convex and grooved above, at the base with a slender papilla, a large double papilla on each side, and several smaller; the lateral margins with slender, flattened, acuminate, horny, reversed papillae; the tip thin, concave, and horny. The width of the mouth is an inch and a twelfth.

The nostrils are linear-oblong, three-twelfths and a quarter in length, about the middle of the bill, in the anterior and lower part of the oblong-elliptical nasal space, which is covered by membrane, and parallel to the ridge. The eyes are small, their aperture three-twelfths and a half; that of the ear nearly three-twelfths. The legs are short and strong; the tibia bare for half an inch; the tarsus compressed, covered with hexagonal scales, of which the anterior are larger, flat, with a small central circular prominence; the hind toe is very small and elevated, with four scutella; the second with fourteen, the third with twenty-five, the fourth with sixteen scutella; the fourth nearly as long as the third; the second with a thin expanded two-lobed margin; the outer interdigital membrane emarginate, the inner even. The claws are short, moderately arched, compressed, obtuse, that of the middle toe internally expanded, and rounded at the end.

The feathers of the head are very small and oblong ; of the upper part of the neck linear-oblong, rather acute, imbricated, and arranged in lines so as to present deep intervening grooves ; of the fore part of the back, scapulars, and wings, very close, large, broad, and abrupt ; the scapulars very large ; the feathers of the hind part of the back smaller, flatter, oblong, and rounded ; those of the lower part of the neck and fore part of the breast large and broadly rounded, of the sides still larger and more abrupt, of the rest of the lower parts gradually smaller and oblong. The wings are broad and rather long, extending about half an inch beyond the end of the tail ; the quills twenty-seven ; the humerals eight, narrow, and rounded ; the second primary is longest, the first half an inch shorter ; the first and second cut out on the inner web, the second and third on the outer ; the secondaries broadly rounded, the inner elongated. The tail is very short, direct, rounded, of sixteen broad, rounded feathers, of which the lateral are an inch shorter than the medial.

The ridge, nasal spaces, and a portion of the sides at the base of the upper mandible are black, that colour terminating anteriorly with three rounded points ; more than half of the lower mandible, and the unguis of both, also black ; the space not thus coloured is bright carmine. The iris is brown. The feet are pale lake, or purplish pink ; the claws black, bluish-grey at the base, the outer with a white ridge. The head and neck are brown, the latter of a lighter tint, gradually becoming paler, at its lower part above changing to reddish-brown ; the breast greyish-white, or faintly barred with pale grey and greyish-white, with a tinge of brown anteriorly ; the large feathers of the sides ash-grey, with two terminal narrow bars, the inner light brown, the outer grey ; the inner margins of the upper white ; the feathers of the tibiæ light ash-grey. The abdomen, sides of the rump, and lower tail-coverts pure white. The axillars and lower wing-coverts ash-grey. All the upper parts of the body are ash-grey, as are the wing-coverts, which are of a much lighter tint, while the hind part of the back is darker. The feathers of the back and the scapulars have two narrow terminal bars, the inner brown, the outer white. The secondary coverts are rather

largely tipped with white, the middle coverts narrowly, the smaller coverts and primary coverts without white. All the quills have white shafts, and are greyish-black, but the primaries are grey to some extent from the base, and the inner secondaries tinged with brown, and narrowly margined externally with white. The sides of the rump and the upper tail-coverts are white; the tail feathers ash-grey, largely tipped with white, that colour gradually enlarging from the middle of the tail outwards.

The œsophagus is seventeen inches long, eleven-twelfths in width until it reaches the furcula, when it contracts considerably, but enlarges on entering the thorax, and from the proventricular belt to the stomach has a width of an inch and three-fourths. The proventriculus itself is an inch and a half in external diameter, an inch and three-fourths in length. The stomach is an extremely muscular gizzard, situated obliquely, transversely oval, its breadth being three inches and three-fourths, its length two inches; the left muscle an inch and ten-twelfths thick, the other an inch and a half; the epithelium forming two very thick lemon-yellow smoothish, somewhat concave plates, about an inch in diameter. The intestine is five feet nine inches long, from nine-twelfths to four-twelfths in breadth, arranged in thirteen folds; the duodenum six inches to the first curve. The cœca are nine inches and a half in length, their greatest width half an inch. One of the lobes of the liver is three inches and three-fourths in length, the others two inches and three-fourths.

Length to end of tail 28 inches; extent of wings 62; wing from flexure $17\frac{1}{2}$; tail $5\frac{3}{4}$; bill along the ridge $1\frac{1}{2}$; along the edge of lower mandible $1\frac{1}{2}$; its height at the base $1\frac{1}{2}$; its breadth behind the unguis $\frac{8}{12}$; tarsus $2\frac{1}{2}$; hind toe $\frac{6}{12}$, its claws $\frac{3}{12}$; second toe $1\frac{1}{2}$, its claw $\frac{5}{12}$; third toe $2\frac{7}{12}$, its claw $\frac{6}{12}$; fourth toe $2\frac{1}{2}$, its claw $\frac{5}{12}$.

Another adult male, shot in February, 1835, had the bill orange, tinged with carmine anterior to the nostrils and along the edges to near the base of the upper mandible, the base and unguis of both mandibles black. The eyes hazel. The feet orange-red, tinged with carmine. The head and upper-neck dark greyish-brown, the lower part pale yellowish-

brown, the breast much paler and tinged with grey; abdomen and lower tail-coverts white, as are the sides of the body behind, and the upper tail-coverts. The feathers of the sides are dark ash-grey, the anterior terminally margined with light yellowish-brown, the posterior with white. The feathers of the fore part of the back and the scapulars are ash-grey, terminally edged with brownish-white; those of the hind part of the back deep ash-grey. The wing-coverts, alula, and primary coverts are light ash-grey, the former margined with white, as are the secondary coverts, of which the inner are darker. The primaries are grey at the base, greyish-black toward the end; the secondaries black, narrowly margined with white, the inner five grey, more broadly margined. The tail feathers are ash-grey, largely terminated, and narrowly edged with white; nearly the whole of the outer feathers of the latter colour.

Length to end of tail 31 inches; extent of wings 58; bill along the ridge 2; along the edge of lower mandible $2\frac{1}{8}$; wing from flexure 18; tail $5\frac{1}{2}$; tarsus $2\frac{7}{12}$; hind toe and claw $\frac{6}{8}$; second toe and claw $2\frac{1}{2}$; third toe and claw 3; fourth toe and claw $2\frac{5}{8}$.

FEMALE.—The female is similar to the male, but smaller.

Length to end of tail 26 inches; extent of wings 60; wing from flexure $16\frac{1}{2}$; bill along the ridge $1\frac{1}{2}$; tarsus $2\frac{1}{3}$; middle toe $2\frac{6}{12}$, its claw $\frac{6}{12}$.

VARIATIONS.—Considerable variations occur as to size. In adult birds the plumage varies little, the tints being merely a little darker or lighter. Frequently there are some white feathers close upon the base of the upper mandible in adult as well as young birds. The bill varies in tint from bright carmine to purplish-red, and the black at its base is of variable extent, sometimes being confined to the ridge of the upper and the basal part of the lower mandible; the unguis always remaining of a black tint. The colour of the feet is bright carmine, or carmine with an orange tint, or purplish-red. The claws have more or less greyish-blue, or whitish, at the base.

HABITS.—As this species has by some been confounded with the *Anser segetum*, and by others entirely overlooked, very little can be said of its habits or distribution. It has been met with in various parts of England, and not very uncommonly in the south of Scotland, it being frequently seen in the Edinburgh market. The first specimen described above as an adult male was shot about the 20th of November, 1840; the second was killed in 1835; but it is more frequently obtained in February and March, as is the case with both the other species. Two specimens in the Montrose Museum were shot in the neighbourhood of that town, and I have seen it in winter in Aberdeen market.

Mr. John MacGillivray, in his notes on the Zoology of the Outer Hebrides, published in the *Annals and Magazine of Natural History*, vol. viii., p. 13, has the following very instructive notice respecting this species:—"The Pink-footed or Short-billed Goose breeds in great numbers in the small islands of the Sound of Harris, as well as those of the interior of North Uist. This bird was seen in flocks so late as the beginning of May, was observed in pairs among the islands in the sound about the middle of the month, and had the young fully fledged and strong upon wing about the end of July; it had again collected into flocks by the beginning of August, for late in the night of the 8th of that month, as I was riding in great haste towards the ferry-boat for Berneray, while crossing the sandy margin of a shallow pool, I came suddenly upon a flock of Geese, amounting to several hundreds, judging from their cries, which startled my horse, and, I may add, myself also."

My friend, Mr. Thomas Jamieson, who has favoured me with a list of birds observed by him in Skye, in 1850, makes the following statement:—"Pink-footed Goose. I shot a Goose in the month of April, out of a party of six that had frequented a locality on Monkstadt for some time. It turned out on examination to belong to this species, and not to be a Bean Goose. On the farm of Monkstadt there was once a shallow lake, now imperfectly drained by open ditches, which used to be frequented during winter by great numbers of Swans, Geese, and Ducks, of various descriptions. Throughout the

winter a few Geese may still haunt the spot, and a stray Duck or two, but no Swans. They, on the year it was dried up, are said to have come and hung over the well-known spot, uttering melancholy cries, and then sailed slowly away to seek some as yet undisturbed placid lake, where they might rest their wing unmolested by any drainage speculations; and it is thought that it would have been as well for his Lordship's purse to-day if he had turned his cash to some other improvements and let the Swans float still on the bosom of St. Columba's Loch. Geese come to the islands of Ascrib and Fladda in the autumn, before they arrive in Skye, settling in great numbers to feed on the grass of those unfrequented spots. The first Geese I saw in autumn were on the 24th of September, when I saw about half a dozen, but observed no large flock pass until the beginning of October. They breed in Uist, I was informed by those who had seen them there."

REMARKS.—Among the various distinctions between the Bean Goose and the Short-billed, is a very remarkable one derived from the knobs on the roof of the upper mandible; the former having five series besides the two lateral rows separated each by a deep groove from the marginal series of lamellæ; whereas the latter has only three series of knobs, besides the two lateral rows of shorter and more flattened knobs, separated each by a very shallow groove from the marginal lamellæ.

In a paper read to the Zoological Society, on the 11th December, 1838, Mr. Bartlett first distinguishes this species as British, giving it the name of *Anser phœnicopus*, Pink-footed Goose. I think the dimensions which he gives are rather small, for, although I have seen a specimen which measured only twenty-eight inches in length, fifty-four in extent of wing, with the bill an inch and three-fourths along the ridge, yet the average size is larger; and to give the smallest measurement in one case, and the largest in the other, is apt to mislead the student. The shorter and much more slender bill of the present species, shorter and proportionally thicker tarsi, and ash-grey instead of dark-brown rump, enable one at once to distinguish it from the Bean Goose.

ANSER ALBIFRONS. THE WHITE-FRONTED GOOSE.

LAUGHING GOOSE. BALD GOOSE.

Anas erythropus. Linn. Syst. Nat. I. 197.

Anas albifrons. Gmel. Syst. Nat. I. 509.

Anas albifrons. Lath. Ind. Ornith. II. 842.

White-fronted Goose. Mont. Ornith. Dict.

Anas albifrons. Oie rieuse ou à front blanc. Temm. Man. d'Orn. II. 821.

Oie riense. *Anser albifrons.* Temm. Man. III. 518.

White-fronted Wild Goose. *Anser erythropus.* Selby, Illustr. II. 266.

Anser albifrons. White-fronted Goose. Jenyns, Brit. Vert. Anim. 223.

Anser albifrons. Bonap. Comp. List. 55.

Male twenty-eight inches long; bill thick, short, an inch and two-thirds in length, an inch in height at the base, carmine red, with the unguis white; tarsus three inches long, bright orange-red, the claws whitish; the wings longer than the tail; feathers of the neck linear-oblong, disposed in ridges; head and neck greyish-brown; forehead white, with a black band behind; upper parts brownish-grey, barred with the whitish terminal margins of the feathers; hind part of back deep grey; lower parts pale greyish-white, irregularly patched with black, and becoming pure white behind. Female similar to the male, but smaller. Young with the upper parts darker, the head and neck of a lighter brown, the white band on the forehead very narrow, and tinged with orange.

MALE IN WINTER.—This, which is considerably inferior in size to our other species, has, like them, the body large and full, the neck long and slender, the head rather small, oblong, and compressed.

The bill is shorter than the head, much higher than broad at the base; the upper mandible with the ridge broad

and flattened, but presently narrowed and convex, the dorsal line sloping to the unguis, which is circular, convex, and decurved; the sides sloping; the edges arched, marginate, with twenty-eight oblique lamellæ, of which the outer ends are dentiform and triangular; the lower mandible with the intercrural space long and rather narrow, the lower outline of the crura a little convex, the edges sloping inwards, and having about forty lamellæ.

The nostrils are medial, lateral, longitudinal, narrow-elliptical, four-twelfths long, pervious, in the anterior and lower part of the oblong nasal space, which is covered by membrane, and parallel to the ridge. The eyes are small, their aperture three-twelfths. The legs are rather short and strong; the tibia bare for half-an-inch; the tarsus compressed, covered all round with sub-hexagonal scales, of which the anterior are larger. The first toe is very small and free, the third longest, the fourth little shorter; the anterior scaly on the first joint, scutellate in the rest of their extent, the outer with a thick margin, the inner edged with a thin two-lobed expansion; the outer interdigital membrane emarginate, the inner straight on the edge. The claws are small, arcuate, rather compressed, obtuse, that of the middle toe dilated internally and rounded.

The feathers of the head and upper neck are very narrow, on the latter disposed into ridges and grooves; those of the fore part of the back and wings large, broad, abrupt, and curved; the scapulars very large; of the hind part of the back smaller, flatter, ovate, and less close; of the breast ovate and rather small; of the sides very large, much curved, abruptly terminated. The wings are broad and rather long, extending a little beyond the tail, of twenty-six quills; the second primary longest, the first a quarter of an inch shorter; the first and second cut out on the inner web, the second and third on the outer; the secondaries broad and rounded, the inner elongated. The tail is very short, rounded, of sixteen broad, rounded feathers, the lateral an inch shorter than the medial.

The bill is orange-carmine, with both the ungues white. The iris hazel, the edges of the eyelids orange. The feet

are orange-red, the claws greyish-white. The head and neck are greyish-brown, the upper part of the former of a darker tint, becoming black anteriorly, that colour forming a ring, anterior to which the feathers are white on the forehead. The general colour of the back is deep brownish-grey, the feathers of its fore part terminally margined with brownish-grey; those of its hind part pure dark grey. The smaller coverts toward the edge of the wing, and the primary, are light ash-grey; the other coverts are brownish-grey, edged with white. The basal part of several of the outer primaries is ash-grey, the rest greyish-black, the secondaries black, the shafts of all the quills white; the fore part of the neck is light greyish-brown, the breast is of a paler tint passing into greyish-white, but irregularly patched with black; the feathers of the sides grey, terminally margined with brown and white; the hind part, sides of the rump, and upper tail-coverts pure white. The tail-feathers are brownish-grey, broadly tipped with white, that colour increasing from the middle outwards.

Length to end of tail 28 inches; extent of wings $5\frac{1}{2}$; wing from flexure 17; tail $5\frac{1}{2}$; bill along the ridge $1\frac{8}{12}$, along the edge of lower mandible $1\frac{3}{12}$; tarsus 3; third toe 3, its claw $\frac{6}{12}$.

FEMALE.—The female is similar to the male, but smaller.

VARIATIONS.—Individuals differ considerably in size, as well as in colour. On the upper parts of the body brown sometimes prevails over grey, and sometimes the reverse; and on the breast the black transverse patches, usually large and numerous, are sometimes reduced to a few. The white on the fore part of the head also varies in extent, and is sometimes tinged with orange or brown.

HABITS.—The White-fronted Goose makes its appearance with us in the end of October, disperses over the country, remains all winter, and departs about the beginning of April. Its habits are similar to those of the other species, but have not been studied with sufficient care. . Montagu

states that he "found 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." 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 or stubble-fields. A specimen sent to me (and which was killed near Alnwick, in Northumberland) had its stomach gorged with the tender shoots and leaves of the common clover (*Trifolium pratense*), upon which it was feeding on the breaking up of a severe snow-storm."

I believe little more can be said as to its distribution in Europe than that in winter it is dispersed over the temperate parts, and in summer betakes itself to the regions bordering on the arctic circle. It occurs equally in America, where in winter it advances as far as the Gulf of Mexico, and in spring was seen by Dr. Richardson travelling over the fur countries at the same time as the Snow Geese, but in separate flocks. He states that they breed in the woody districts skirting Mackenzie's River, to the north of latitude sixty-seven degrees, as well as on the islands of the arctic sea. According to Mr. Audubon, the eggs are dull yellowish-green, with indistinct patches of a darker tint of the same colour, their length two inches and three quarters, their breadth an inch and three quarters.

According to Messrs. Baikie and Heddle it is an occasional winter visitant in Orkney, and not so rare there as the Bean Goose. Mr. St. John informs us that the White-fronted Goose makes its appearance in the lower parts of Morayshire at an earlier period than the other species. It is never seen there, he says, in large flocks, but in small companies of from eight or nine to twenty birds; appears to be wholly graminivorous; and, when undisturbed, usually rests at night in any grass field where it may have been feeding in the afternoon, whereas the Grey Goose betakes itself every night to Findhorn Bay. I have seen a specimen

shot in the neighbourhood of Aberdeen, in the end of September, 1843; another in the Dundee Museum, shot on the estuary of the Tay, and it is mentioned by Mr. Molison in the list of birds that frequent the Montrose Basin in winter. Mr. Thompson states that it "is a regular winter visitant to Ireland."

REMARKS.—It is clear enough that this species is the one named *Anas erythropus*, or Red-footed, by Linnæus. It was subsequently, by Gmelin and Latham, named *Anas albifrons*, or White-fronted; and this name has been more frequently used by later writers than the former. I retain it because, although *erythropus* is correct and has the priority, it does not point to a character distinctive of the species, "red-footed" applying equally, or in some measure, to *Anser brachyrhynchus*.

ANSER CANADENSIS. THE CANADA GOOSE.

CRAVAT GOOSE.

Anas Canadensis. Linn. Syst. Nat. I. 198.

Anas Canadensis. Lath. Ind. Ornith. II. 852.

Anser Canadensis. Flem. Brit. Anim. 128.

Cygnus Canadensis. Canada Swan. Jen. Brit. Vert. An. 227.

Canada Goose. Anser Canadensis. Audub. Orn. Biogr. III. 1; V. 607.

Anser Canadensis. Bonap. Comp. List. 55.

Male about forty-two inches long ; bill and feet black ; head and two-thirds of the neck, all round, glossy black, as are the rump and tail feathers ; a broad band of white across the throat, ascending to behind the eyes ; upper parts greyish-brown ; wing-coverts ash-grey ; all the feathers margined with pale brown ; lower parts greyish-white ; sides pale brownish-grey ; the feathers margined with white ; abdomen pure white.

THIS species, which in its form, and especially in the elongation of its neck, somewhat resembles the Swans, and in its colouring the Bernicles, is admitted into the British Fauna with hesitation, because, as is alleged, many perfectly wild individuals have been seen, and some shot, in various parts of England, where, however, individuals are often kept in a tame or semi-domesticated state. Its native country is North America ; and as many birds of that country occasionally visit Britain, the Canada Goose may come at times as a straggler, or winter visitant.

It is of larger size than the species already described ; with the body bulky, rather elongated, and somewhat depressed ; the neck long and slender ; the head rather small, oblong, compressed ; the bill shorter than the head, rather higher than broad at the base, depressed toward the end, rounded at

the tip ; the marginal lamellæ short, about thirty on each side in both mandibles ; the upper unguis obovate, convex, denticulate on the inner edge ; the lower unguis roundish, slightly convex ; the feet short, stout, placed rather back ; the tarsi reticulated ; the toes scutellate only toward the end ; the claws small, arched, rather compressed.

The plumage is close, compact on the upper part, blended on the neck and lower parts ; the wings, which are of moderate length, extend when closed to about an inch from the end of the tail ; the second quill longest ; the tail very short, rounded, of eighteen stiff, rounded, acuminate feathers.

The bill, feet, and claws, black. Head and two-thirds of the neck, glossy black ; forehead, cheeks, and throat, tinged with brown ; a broad band of white across the throat to behind the eyes ; lower eyelid white ; upper parts greyish-brown, shaded with ash-grey on the wing-coverts ; all the feathers margined with very pale brown ; rump and tail black ; lower parts greyish-white ; the sides pale-brownish-grey ; the feathers terminally margined with white ; abdomen pure white ; as are the sides of the rump and the upper tail-coverts.

At page 607 of the fifth volume of Audubon's Ornithological Biography, is a short account of the digestive and respiratory organs, derived from the dissection of a specimen brought from Boston. I have there shown that the stomach and intestines differ in no essential respect from those of the Swans ; that the sternum also is very similar ; that the trachea " at first inclines a little to the left side, then on the anterior concave curve of the neck passes gradually to the right side, along which it proceeds as far as the lower part of the convex curve, when it separates in front from the neck, and forms a loop or abrupt curve, which is attached to the anterior part of the sternum, between the coracoid bones, thus approximating to the trachea of the Swans, but not entering the crest of the sternum. It then passes directly along the spine to behind the middle of the heart, where it bifurcates. In this respect also it is singular, in being more elongated than in the other species, of which the bifurcation is considerably anterior to the heart. At the commencement

its breadth is six-twelfths ; presently after it enlarges to eight-twelfths, then contracts to six-twelfths, and so continues until it begins to form the loop, on which its breadth is again eight-twelfths ; after this it gradually tapers, so as to be only two-and-a-half-twelfths wide at the inferior larynx, where its depth, however, is five-twelfths. The form of that part is much the same as in the Swans, there being a similar elevated, bony, curved edge on each side, projecting beyond the commencement of the membrane of the bronchus, which is half an inch in length before the first ring appears. These membranes form a pretty large sac of triangular form ; and the continuation of the bronchus is extremely diminutive, with only ten very small and slender cartilaginous half-rings. The lateral muscles are large ; their anterior part gives off the sterno-tracheal at the distance of $2\frac{1}{4}$ inches from the inferior larynx ; but the posterior part, which is much larger, runs down one inch farther, and then terminates in a pointed form, not extending so far as to constitute an inferior laryngeal muscle. The rings of the trachea are broad, very firm, considerably flattened, 220 in number."

Length to end of tail 42 inches ; extent of wings 64 ; bill $2\frac{1}{2}$; tarsus $3\frac{6}{12}$; middle toe and claw $4\frac{1}{4}$.

FEMALE.—The female is considerably smaller, but resembles the male in colouring.

HABITS.—This species is represented by those who have had opportunities of seeing it in the wild state, in its native country, as occurring in great numbers, during the breeding season, in the northern states of North America, and especially in Labrador, and other desert tracts. In autumn they migrate southward, and disperse in flocks all over the middle and southern states. Their habits, however, present nothing very remarkable, but are similar to those of other Geese, their migrations being performed in lines varying in form, their food consisting of grass, corn, and other herbage, and their nests bulky, and placed among rank grass or sedges, or under a bush. It is, however, a bird of considerable importance to the inhabitants of Arctic America. Its arrival in the fur

countries, Dr. Richardson remarks, "is anxiously looked for, and hailed with great joy by the natives of the woody and swampy districts, who depend principally upon it for subsistence during the summer. It makes its first appearance in flocks of twenty or thirty, which are readily decoyed within gun-shot by the hunters, who set up stuffed skins, and imitate its call. Two or three, or more, are so frequently killed at a shot, that the usual price of a Goose is a single charge of ammunition. One Goose which, when fat, weighs about nine pounds, is the daily ration for one of the Company's servants during the season, and is reckoned equivalent to two Snow Geese, or three Ducks, or eight pounds of buffalo and moose meat, or two pounds of pemmican, or a pint of maize and four ounces of suet. About three weeks after their first appearance, the Canada Geese disperse in pairs throughout the country, between the 50th and 67th parallels, to breed, retiring at the same time from the shores of Hudson's Bay. They are seldom or never seen on the coasts of the Arctic Sea. In July, after the young birds are hatched, the parents moult, and vast numbers are killed in the rivers and small lakes, when they are unable to fly. When chased by a canoe and obliged to dive frequently, they soon become fatigued and make for the shore, with the intention of hiding themselves, but as they are not fleet, they fall an easy prey to their pursuers. In the autumn they again assemble in flocks on the shores of Hudson's Bay for three weeks or a month, previous to their departure southwards. It has been observed, that in their migration, the Geese annually resort to certain passes and resting-places, some of which are frequented both in the spring and autumn, and others only in spring. The Canada Goose generally builds its nest on the ground, but some pairs occasionally breed on the banks of the Saskatchewan in trees, depositing their eggs in the deserted nests of ravens or fishing eagles."

According to Mr. Audubon, when it remains to breed in the United States, it begins to form its nest in March, constructing it carefully of dry plants of various kinds, and raising it to the height of several inches. The eggs are generally about six, the greatest number nine. They are of a very dull

yellowish-green colour, thick-shelled, rather smooth, three and a half inches long, The period of incubation is twenty-eight days. The young very soon accompany their parents to the water, but pass the nights on land, under their mother. The parents remain with their brood until the following spring.

Having been long fostered in England, in some parts of which it is not uncommon in a tame or semi-domesticated state, it is said occasionally to attempt a free life, and to roam in small flocks ; sometimes, however, it appears perfectly wild, and, possibly enough, individuals may occasionally migrate into England. I am not aware of its having been met with in a state of liberty anywhere in Scotland.

BERNICLA. BERNICLE GOOSE.

THE Bernicles, or "Tree Geese," as they have been named from a foolish notion, long entertained by the learned and not yet entirely renounced by the illiterate, of their being produced from a kind of shells adhering to trees or wood floating in the sea, differ little from the true Geese, unless in having the head smaller, the bill short and more conical, the feathers of the neck not arranged into grooves and ridges, those of the breast much larger, and in the predominance of black in their plumage, bills, and feet. From *Anser brachyrhynchus* to *Bernicla leucopsis*, the transition as to form in the head and bill is perhaps slight; but so it is from the genus *Anser* to several other genera, and, according to the system of subdivision now generally adopted, we can hardly avoid separating the Bernicles from the Geese, they being, I think, as different from them as the smaller Gulls are from the larger, or *Budytes* from *Motacilla*.

The body is full, ovate, of nearly equal height and breadth; the neck long and slender; the head small, oblong, compressed.

Bill much shorter than the head, moderately stout, straight, subconical, higher than broad at the base, narrowed toward the end, where its breadth does not exceed its height; upper mandible with the lateral and superior basal margins angular, the ridge broad and flattened for a short space at the base, then convex, the dorsal line declinate and straight to the unguis, which is round or broadly obovate, very convex and much decurved, with a thin but strong edge, the sides sloping and convex, the nasal space elliptical from near the base to the middle, covered by the soft membrane of the bill; the edges soft, straight, denticulate with the rounded outer ends of the lamellæ, which are scarcely

apparent from without ; lower mandible with the intercrural space long, rather wide, and partially bare, the short dorsal line convex, the crura rather narrow, their lower outline straight, their sides sloping outwards and convex, the edges elevated, inclinate, denticulate with the short outer extremities of the numerous lamellæ ; the unguis roundish and moderately convex ; the gape-line straight, commencing under the upper basal angle of the mandible.

Mouth of moderate width. Tongue, digestive organs, and trachea as in the genus *Anser*.

Nostrils moderate, oblong, submedial. Eyes small, eyelids feathered, with bare crenulate margins. Aperture of ear rather small. Feet rather short or moderate, strong, placed well forward ; tibia bare for a very short space ; tarsus moderately compressed, reticulated with small angular scales. Toes as in the genus *Anser*, but with fewer scutella, there being more of the basal space occupied with scales ; membranes similar. Claws small, arcuate, rather depressed, obtuse, that of the middle toe broadly rounded, and with its inner edge expanded.

Plumage full, close, firm, very soft, and glossy. Feathers of the head short, of the neck narrow, blended, and not disposed into ridges ; those of the lower parts larger than in the Geese ; but the plumage in other respects similar. Quills twenty-eight, the second longest, the first slightly shorter. Tail short, rounded, generally of sixteen broad, rounded feathers.

The bill and feet are black, and that colour predominates on the head and neck, as well as partially obtains on the back ; the other principal colours are grey and white.

The Bernicles inhabit the temperate and cold climates of both continents in winter, and in summer betake themselves to the arctic regions, where they breed, forming their nests of grass and other herbage in the marshes or on islands, and laying numerous elliptical white or greenish eggs. They are gregarious, like the Geese, which they resemble in their habits, feeding like them on vegetable substances, but are more strictly maritime, and derive the greater part of their nourishment in winter from *Zostera marina* and Algæ. They

are more active than the Geese, and their flesh is still more highly esteemed.

To this genus belong the Canada Goose and Hutchins's Goose of North America, as well as two species common to it and Europe, and which occur plentifully in Britain during winter. Another species also has several times been met with there.

Although the name *Bernicla*, first given by Mr. Stephens to this genus, is barbarous, I feel unwilling to adopt another, simply because I cannot find a better. The *Anas Bernicla* of Linnæus seems to include both the Bernicle Goose and Brent Goose of British authors; and as some have taken the former to be *Anas erythropus* of Linnæus, while others name it *Anser leucopsis*, and the Brent Goose *Anser Bernicla*; and as the extrication of all this confusion is worth no one's while, seeing the birds are common and can be described at length, and named anew or reasonably, I think it best to call the Bernicle, *Bernicla leucopsis*, as Bechstein and Temminck have done, and the Brent, *Bernicla Brenta*, as some have named it, although *melanopsis* would be a much better name, it having an entirely black head and face. With such names, all others being discarded, it is quite impossible that the student should fall into any mistake.

BERNICLA LEUCOPSIS. THE WHITE-FACED BERNICLE-GOOSE.

CLAIKIS. CLAKIS. CLAIK-GOOSE. BARNACLE. WHITE-CHEEKED BARNACLE.
LAND BARNACLE.

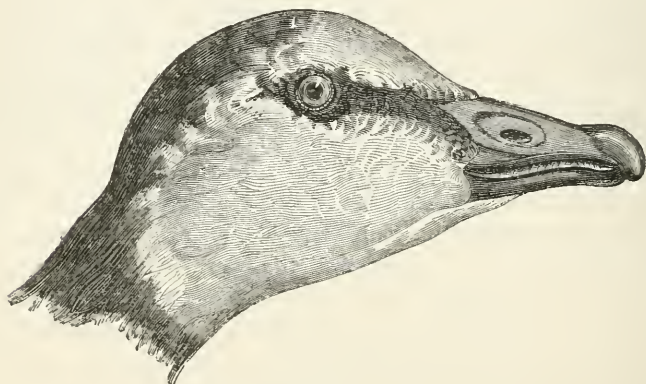


FIG. 58.

- Anas Bernicla. Linn. Syst. Nat. I. 198.
 Anas erythropus. Lath. Ind. Ornith. II. 843.
 Bernicle Goose. Mont. Ornith. Dict. and Suppl.
 Oie Bernache. Anas leucopsis. Temm. Man. d'Ornith. II. 823.
 Oie Bernache. Anser leucopsis. Temm. Man. d'Ornith. IV. 520.
 Bernicle Goose, or Clakis. Anser Bernicla. Selby, Illustr. II. 268.
 Anser leucopsis. Common Bernicle. Jenyns, Brit. Vert. Anim. 224.
 Bernicla leucopsis. Bonap. Comp. List, 55.

Male twenty-seven inches long; bill small, much shorter than the head, an inch and a third in length, black; tarsus two inches and ten-twelfths in length, black; the fore part of the head, its sides, and the throat white; hind head and neck glossy black; fore and hind parts of back black; its middle part, the scapulars, and wing-coverts ash-grey, banded with black; the lower parts white, the sides faintly barred with ash-grey, Female similar, but smaller.

MALE IN WINTER.—This very beautiful Goose, much inferior in size to any of the preceding species, and considerably larger than the next, has the body full, the neck long, slender toward its upper part, the head small, oblong, and compressed.

The bill is much shorter than the head, of greater height than breadth at the base, somewhat conical, at the end considerably depressed; the upper mandible with the dorsal line straight and sloping as far as the unguis, which is roundish and very convex, the ridge flattened at the base, presently narrowed and convex, the sides sloping, the edges almost straight, soft, and marginate, with about thirty oblique lamellæ, of which the outer dentiform extremities are scarcely apparent; the lower mandible with the intercrural space long, rather wide, anteriorly rounded, the lower outline of the crura nearly straight, their sides convex, sloping outward, with a groove along the margin, the lamellæ about forty, the unguis roundish, slightly convex.

The nostrils are medial, lateral, longitudinal, oblong, three-twelfths and a quarter in length, pervious, in the anterior part of the large, elliptical nasal space, which is filled by membrane. The eyes are small. The feet short and stout; the tibia bare for half-an-inch; the tarsus rather short, compressed, covered all round with small angular scales. The hind toe is extremely small, elevated, with two scutella; the second toe with fourteen, the third with twenty, the fourth with six scutella, a great part of their extent being covered with scales; the hind toe with a slight inferior web; the inner with an expanded, thin, two-lobed margin; the interdigital membranes reticulated, the outer with its margin concave. The claws are small, arcuate, rather depressed, obtuse, that of the middle toe with its inner side expanded and the tip rounded.

The mouth is of moderate width; the tongue fleshy, convex, and medially grooved above, with the sides parallel and serrated, the tip thin, horny, and rounded. The œsophagus is twelve inches long, and has a general width of about an inch, but is somewhat wider toward the lower part of the neck. The stomach is transversely oblong, its greatest

diameter three inches, its lateral muscles extremely large, with large tendons; the epithelium dense, with two thick, somewhat concave grinding plates. The intestine is seven feet nine inches in length, its duodenal portion twelve inches, the rectum six. The duodenum is three-fourths of an inch in width, the rest of the intestine half-an-inch, but toward the cœca gradually enlarged to eight-twelfths. The cœca are seventeen inches long, for three inches only a quarter of an inch in width, then enlarging to an inch and a half, and toward the end narrowed, but terminating obtusely; their aperture two-twelfths in width.

The plumage is full, close, very soft, and glossy; on the head, neck, and lower parts blended; the feathers on the head small and oblong, on the neck narrow, on the fore part of the back and wings broad and abruptly rounded, on the hind part smaller and broadly rounded, on the lower parts moderate, on the sides very large and abrupt. The wings are long, extending almost to the end of the tail, broad, with twenty-eight quills; the primaries strong, tapering; the first and second distinctly cut out on the inner, the second and third on the outer web; the second longest, the first four-twelfths of an inch shorter, the rest rapidly decreasing; the secondaries broad and rounded, the inner elongated, with their outer webs somewhat undulated. The tail is very short, rounded, of sixteen broad, rounded feathers, of which the outer are an inch shorter than the longest.

The bill is black; the iris hazel; the feet black. The anterior half of the head, the sides of its hind part, the cheeks, ear-coverts, and the throat, to the length of two inches and a quarter from the bill, are white; some of the feathers margining the upper mandible, the loreal space, and both eyelids brownish-black; the posterior half of the head and the neck are glossy black, that colour ending abruptly below; the lower parts of the body greyish-white, the sides barred with pale ash-grey; the tibial feathers brownish-black; the axillar feathers and lower wing-coverts grey. The fore part of the back is glossy black continuously with the neck, the feathers grey at the base; farther back the grey appears, is succeeded by a broad band of black and a

terminal narrow band of greyish-white; the grey most apparent on the scapulars. The middle, concealed part of the back is grey and black, its hind part black; the sides of the rump and the upper tail-coverts white; the tail black. The wing-coverts are light grey, with a band of black and greyish-white narrow margin; the primary coverts ash-grey, black at the end. The quills are grey at the base and along the outer web, black toward the end, that colour gradually diminishing on the inner; the shafts of all dusky.

Length to end of tail $27\frac{1}{2}$ inches; extent of wings 55; wing from flexure 17; tail $5\frac{1}{2}$; bill along the ridge $1\frac{4}{2}$, along the edge of lower mandible $1\frac{4}{2}$; tarsus $2\frac{1}{2}$; hind toe $\frac{1}{2}$, its claw $\frac{3}{2}$; second toe $1\frac{8}{2}$, its claw $\frac{5}{2}$; third toe $2\frac{1}{4}$, its claw $\frac{5}{2}$; fourth toe 2, its claw $\frac{4}{2}$.

FEMALE.—The female is similar to the male, but considerably less.

Length 24 inches; extent of wings 52; bill along the ridge $1\frac{4}{2}$; wing from flexure 16; tarsus $2\frac{0}{2}$; middle toe $1\frac{6}{2}$, its claw $\frac{5}{2}$.

VARIATIONS.—Considerable differences as to size occur. The grey on the feathers of the upper parts is more or less extended, the white of the lower more or less pure.

HABITS.—This very beautiful bird occurs in the Northern Hebrides, Shetland and Orkney Islands, where it arrives in October and remains until April. It there more frequently retires to the sea than to the lakes during its periods of repose, or when driven from its feeding grounds. A large flock then presents a beautiful spectacle as the birds sit lightly on the water, and when advancing elevate their necks. Not less beautiful do they seem when on wing, now arranged in long lines, ever undulating, at one time extending in the direction of their flight, at another obliquely or at right angles to it, sometimes in an angular figure, and again mingling together. Their voice is clear and rather shrill, and comes agreeably on the ear when the cries of a large flock come from a considerable distance.

The Islands of Ensay and Religray, in the Sound of Harris, used to be much frequented by these birds. In December, 1823, hearing that a large flock had taken up its residence in the former of these islands, I went to see it; and on arriving soon found the birds, five or six hundred in number, dispersed over a flat piece of ground, intersected by the ridges and furrows of the lazy bed system of agriculture which so disfigure the pastures there; but on reconnoitering found it impossible to get within a reasonable distance of them. However, having watched them until dusk, when they seemed to have settled themselves for repose, I crept along a low wall forming an angle about two hundred yards from them. Finding that I could not get nearer, I fired at the thickest part of the flock, aiming very high, having in the obscurity over estimated the distance, and on running up found a single bird which had been hit by a single grain in the eye. Next day I walked all over the island without seeing the Bernicles, and amused myself with chasing the Redshanks, which were not uncommon along the western beach. At length the birds arrived, and alighted on a gentle slope in an open place, to which there seemed no access without exposure. Being there in apparent security they soon began to feed; on seeing which I crept up to an eminence, and finding the nearest birds not more than five hundred paces distant, I cocked my musket, suddenly started, and ran down the declivity with all speed. Before the birds were well on wing I was almost up to them, and as they flew over head I fired into a group, on which three came with a thump to the ground. Two were quite dead, but the third presently got on his feet, and with flapping wings, of which the tip of one was damaged, ran off. I tried to overtake him, but failed, and therefore charged, pursued, fired without hitting, ran, charged, fired a second time to as little purpose, but at length, after a chase of nearly half-a-mile, shot him dead. Having thus obtained my object, I left the island with four Bernicles and a Northern Diver, which I had killed the day before.

It thus appears that these birds can on occasion run with very considerable speed. In ordinary cases they walk se-

dately and prettily, being more active than the larger Geese. Their food consists of grass, especially the juicy stems of *Agrostis alba*, as well as the blades and roots of other plants. They also feed in marshes, and by the margins of pools and small lakes. I have not seen them betake themselves to the sand-shoals^s covered with sea-grass at low water, nor have I had any other opportunity of seeing them, unless at a distance, when I could not distinguish them from the Black-faced Bernicle. The œsophagus of the individual whose intestinal canal is described above was packed full of grass in its whole length, none of it in the least macerated; the duodenal contents were greenish, and the cœca filled with a pulpy fluid of a yellowish-green colour.

I am not aware of any good account of its habits given, from his own observation, by any British ornithologist. Some of our writers, in speaking of it, endeavour to conceal their ignorance, or to atone for it, by amusing their readers with the once prevalent notion of its deriving its origin from the Bernicle shell, the *Lepas anatifera* of Linnæus. This curious fancy, which no doubt arose from the slight resemblance of the filaments of that animal to the sprouting feathers of a young bird, is still entertained by many persons along our coast; but, like the milking propensity of the Goatsucker and the winter submersion of Swallows, it might now, I think, be allowed to rest in its grave.

According to the statements of authors, the White-faced Bernicles arrive and depart at the same periods as the Brent Geese, frequent the same situations, and have similar habits, but are of less frequent occurrence; and being usually confounded with them by those whose ornithological knowledge is not very perfect, they do not attract particular regard. Dr. Edmondston informs us that they are only occasionally seen in Shetland; but Messrs. Baikie and Heddle state that numbers arrive in September and October, and remain until spring, at which time they receive considerable additions from flocks migrating northwards. They have been seen in the Clyde and Solway friths, as well as on the Lancashire coast, but seem to be rare in England. On the east coast of Scotland I have seen a few individuals shot at Peterhead and

Aberdeen. It is included by Mr. Molison in the list of birds frequenting the Montrose Basin ; and Mr. Lamb, taxidermist at Perth, informs me he has several times had it from the estuary of the Tay. In Ireland it "is a regular winter visitant to the coast."

Dispersing in winter along the shores of Europe, they repair in summer to the arctic regions, whence to return in autumn with their young. They have also been found in the glacial regions of North America. The nest is said to be formed of grass, and to contain six or eight eggs. I have examined several specimens from Parry's Arctic Expeditions. Of two presented to Professor Jameson by Mr. Edwards, one is two inches and seven-eighths long, an inch and eleven-twelfths broad ; the other two inches and six-eighths long, an inch and seven-eighths in breadth. They are of an elliptical form, the two ends equal, and of a greyish-white tint.

BERNICLA BRENTA. THE BLACK-FACED BERNICLE-GOOSE.

BRENT GOOSE. BRAND GOOSE. BARNACLE. BLACK-HEADED BARNACLE.
RING-NECKED BARNACLE. CLATTER GOOSE. HORRA GOOSE.
WARE GOOSE.

- Anas Bernicla. Linn. Syst. Nat. I. 198.
Anas Bernicla. Lath. Ind. Orn. II. 844.
Brent Goose. Mont. Orn. Diet. and Suppl.
Oie cravant. Anas Bernicla. Temm. Man. d'Orn. II. 824.
Oie cravant. Anser Bernicla. Temm. Man. d'Orn. IV. 522.
Brent Goose. Anser Brenta. Selb. Illustr. II. 271.
Anser torquatus. Brent Bernicle. Jen. Brit. Vert., An. 224.
Bernicla Brenta. Bonap. Comp. List. 56.

Male twenty-four inches long; bill small, much shorter than the head, an inch and a half in length, black; tarsus two inches and a quarter long, black; head and neck glossy black; a patch of white, dotted with black, on each side of the upper part of the neck; the upper parts of the body brownish-grey, the lower greyish-white, the sides barred with ash-grey. Female similar, but smaller.

MALE IN WINTER.—The “Brent Goose” is much inferior in size to the “Bernicle Goose,” and easily distinguishable from it by its having the head entirely black. In form and proportions, however, it is very similar to that species. The body is full; the neck rather long, slender toward its upper part; the head small, oblong, and compressed.

The bill is much shorter than the head, of greater height than breadth at the base, somewhat conical, considerably compressed, at the end a little depressed; the upper mandible with the dorsal line nearly straight and sloping, the ridge flattened at the base, presently narrowed and convex, the sides sloping, the edges almost straight, soft and marginate, with about twenty-five oblique lamellæ, of which the outer

dentiform extremities are scarcely apparent, the unguis nearly circular, very convex; the lower mandible with the intercrural space very long, rather wide, anteriorly rounded, the lower outline of the crura slightly convex, their sides convex, the edges soft, with about forty lamellæ, the unguis roundish, moderately convex.

The nostrils are medial, lateral, longitudinal, oblong, three-twelfths in length, pervious, in the anterior part of the elliptical nasal space, which is filled by membrane. The eyes are small; the feet short and stout; the tibia bare for a third of an inch; the tarsus short, compressed, covered all round with small angular scales. The hind toe is extremely small, elevated, with two small scutella; the second toe with eighteen scutella, and much shorter than the third, which has thirty-two, while the outer, a little shorter, has about twenty-four, they being all scaly at the base. The hind toe has a slight inferior web, the second an expanded thin two-lobed margin; the interdigital membranes reticulated, the outer with its margin concave. The claws are small, arcuate, rather depressed, obtuse, that of the middle toe with its inner side expanded.

The plumage is close, compact, and glossy; on the head and neck the feathers blended, small, oblong; on the fore part of the back and wings broad and abruptly rounded; on the hind part smaller and ovate; on the lower parts large, broadly rounded; on the sides very large. The wings are long, extending a little beyond the tail, broad, with twenty-eight quills; the primaries strong, tapering, the first and second much cut out on the inner web, the second and third on the outer; the second longest, the first slightly shorter, the rest rapidly decreasing; the secondaries broad and rounded, the inner elongated, with their outer webs somewhat undulated. The tail is very short, rounded, of sixteen moderately broad, rounded feathers.

The bill is black; the iris hazel; the feet black. The head and neck are glossy black, tinged with blue. There is a small semilunar white mark on the lower eyelid, and on each side of the upper part of the neck an obliquely elliptical patch of the same colour, the two patches almost meeting

behind. The feathers on these species are not entirely white, but have a broad band of that colour near the end. The general colour of the upper parts is brownish-grey, but the feathers are terminally margined with light greyish-brown. The quills are greyish-black, with brown shafts, the inner secondaries lighter; the primary coverts grey, becoming blackish toward the end; the secondary coverts dull grey. The breast and sides are pale brownish-grey, transversely interruptedly barred with greyish-white, the terminal edges of the feathers being of the latter colour; the tibial feathers grey, as are the axillary, and the lower surface of the wing; the abdomen, lower and upper tail-coverts, white. The tail-feathers are greyish-black.

Length to end of tail 25 inches; extent of wings 48; wing from flexure $13\frac{1}{2}$; tail $4\frac{1}{2}$; bill along the ridge $1\frac{1}{2}$, along the edge of lower mandible $1\frac{5}{12}$; tarsus $2\frac{1}{4}$; hind toe $3\frac{4}{12}$, its claw $\frac{4}{12}$; second toe $1\frac{5}{12}$, its claw $\frac{4}{12}$; third toe $1\frac{0}{12}$, its claw $\frac{5}{12}$; fourth toe $1\frac{0}{12}$, its claw $\frac{4}{12}$.

FEMALE.—The female is somewhat smaller, but otherwise differs from the male only in having the upper parts more tinged with brown.

Length to end of tail 23 inches; extent of wings 46; wing from flexure 13; tail $4\frac{1}{2}$; bill along the ridge $1\frac{5}{12}$; tarsus $2\frac{1}{4}$; middle toe $1\frac{1}{12}$, its claw $\frac{5}{12}$.

HABITS.—This species is very abundant on many parts of our coasts, from the end of October to the middle of April. I have seen it in the Hebrides, both on the sea and on fresh-water. Being in the Bay of Cromarty, in the middle of March, 1837, I met with some very large flocks, dispersed over the shoals of mud and sand, which were covered with a luxuriant crop of *Zostera marina*, the rhizomata of which being juicy and saccharine, affords them a nutritious food. When the banks were covered by the tide, they floated in repose over the bay, or flew off to a distant part. Several thousands were seen, but their numbers were said to have been greatly diminished. I have also met with them, in smaller numbers, in the Beaully Frith, the Montrose Basin,

the Firth of Tay, and other parts. In those to the southward, on both sides of Scotland, they are to be seen during the winter. Very considerable numbers are sent to the Edinburgh market, where they are in some request, their flesh being not unsavoury, and rather tender.

According to Mr. Selby, "a very large body of these birds annually resorts to the extensive muddy and sandy flats that lie between the mainland and Holy Island, and which are covered by every flow of the tide." He states that they there feed on "the leaves and stems of a species of grass that grows abundantly in the shallow pools left by the tide," and on various algæ, remaining until the end of February, when they migrate in successive flocks, the whole disappearing before April.

It may readily be conceived, that the numbers in the different places of resort may vary according to circumstances. "The late Mr. Boys of Sandwich," says Montagu, "informed us, that in the year 1739-40, when these birds were so abundant on the Continent, especially on the coast of Picardy, where the inhabitants were raised *en masse* in order to destroy them, they were so plentiful on the coast of Kent, that they were in so starving a condition as to suffer themselves to be knocked down with stones and sticks; and were carried in carts to the neighbouring towns, where a purchaser was allowed to pick and choose for sixpence a-piece. We learn from the same respectable source, that in the year 1803 they were innumerable about Sandwich; and were so miserably poor and debilitated as not to be able to rise after alighting, and many were taken by hand. 'It is remarkable,' says Mr. Boys, 'not a Bernicle, Grey-Lag Goose, nor Bean Goose, have been seen with this superabundance of Brent Geese, and yet the weather has been sufficiently severe to compel the Hooping Swan so far south.' It is a curious circumstance that such occasional excesses in migration of some particular species should occur so locally. Thus, when the Brent was so plentiful on the eastern coast of the kingdom, not a single instance occurred in the west, to our knowledge; yet in the year 1800, about Christmas, they were common, contiguous to the coast of South Devon."

It does not appear that any remain with us during the breeding season, even in our most northern islands. In summer, they are found in the arctic regions of both continents, and in winter are dispersed along the coasts of America, as well as Europe. The nest, which is placed in marshy ground, is formed of withered herbage. Of two eggs, from Parry's second expedition, presented to Professor Jameson by Mr. Fisher, one is two inches and a half in length by an inch and five and a half eighths, the other two inches and five eighths by an inch and six and a half eighths. They are of a nearly elliptical form, the broadest part being almost central, and one end a little larger than the other; the colour of one asparagus-green, or pale greyish-green, of the other paler, and approaching to apple-green,

Mr. Thomson, who states that it is abundant in Ireland, occurring on both sides of the island, wherever there is plenty of its favourite *Zostera marina*, gives a very lengthened account of its habits as observed in Belfast Bay. They generally arrive there by the first week of September, and sometimes remain until May. Strictly marine, they fly to the deep water in the afternoon, and remain there during the night at sunrise return to their feeding grounds, generally proceeding in small flocks, and alighting altogether about the same place. They are very wary, and avoid in their flights objects with which they are not familiar. Their mingling cries, heard from a distance, resemble those of a pack of hounds. They swim quickly, but are not expert at diving, and remain but a short time under water. "The food contained in Brent Geese from the loughs of Larne, Belfast, and Strangford, examined by myself, was always *Zostera*, of which were portions of the leaf from one to two feet in length, as well as of the root: in addition to the plant, there was always sand. An observant shooter and bird-preservee (Mr. Darragh), who has looked to the food in a considerable number of these geese, never found anything but *Zostera*. This was generally in pieces about a foot in length, which, when so long, were always folded neatly up, sometimes as much so as a ribbon, but short pieces were not so arranged."

BERNICLA RUFICOLLIS. THE RED-NECKED BERNICLE-GOOSE.

RED-BREADED BERNICLE.

Anas ruficollis. Gmel. Syst. Nat. I. 511.

Anas ruficollis. Lath. Ind. Orn. II. 841.

Red-breasted Goose, Mont. Orn. Dict.

Oie à cou roux. *Anas ruficollis.* Temm. Man. d'Ornith. II. 826.

Red-breasted Goose. *Anser ruficollis.* Selb. Illustr. II. 275.

Anser ruficollis. Red-breasted Bernicle. Jen. Brit. Vert. An. 225.

Bernicla ruficollis. Bonap. Comp. List, 56.

Male twenty-two inches long; bill small, an inch and a fourth in length, reddish-brown, with the unguis black; tarsus two inches and a half in length, brownish-black; throat, upper part of the head, and a narrow band down the neck behind, black; a patch between the bill and the eye, behind the latter a large oblong space, enclosing a brownish-red patch, and becoming narrow along the neck, white; fore-neck brownish-red, margined below with a narrow band of black, which is succeeded by a white ring; breast black; sides banded with black and white; the rest of the lower parts and the rump white; upper parts brownish-black; the larger wing-coverts tipped with white.

MALE.—This beautiful bird, which is somewhat inferior in size to the Black-faced Bernicle, but similar in form, has occurred so seldom in Britain, that I have not seen an individual obtained there. The body is full, as in the other species; the neck long and rather slender at its upper part; the head small, oblong, compressed, arched above.

The bill is much shorter than the head, of greater height than breadth at the base, somewhat conical, at the end a little depressed; the upper mandible with the dorsal line straight

and declinate as far as the unguis, which is roundish and convex, the ridge flattened at the base, presently narrowed and convex, the edges almost straight, the ends of the lamellæ not apparent; the lower mandible with the intercrural space long and rather wide; the lower outline of the crura almost straight; the unguis roundish, slightly convex.

The nostrils are sub-medial, lateral, oblong, three-twelfths in length. The eyes small. The legs short and stout; the tibia bare for nearly half an inch; the tarsus compressed, covered with small angular scales. The hind toe is extremely small and elevated, with two scutella, the second with fourteen, the third with twenty, the fourth with eight, a great part of their extent being covered with scales; the membranes reticulated, with their margin concave. The claws are small, arcuate, rather depressed, obtuse, that of the middle toe with its inner edge expanded, and the tip rounded.

The plumage is full, close, soft, and glossy; on the head and neck blended, on the latter linear-oblong, those behind somewhat elongated; on the fore part of the back and wings broad and abruptly rounded, on the sides very large and rounded. The wings are large, and when closed extend almost to the end of the tail; the primaries strong, tapering, the second longest. The tail is very short, rounded, of sixteen broad, rounded feathers.

The bill is reddish-brown, with the unguis black; the iris reddish-brown; the feet brownish-black. The throat, upper part of the head, and a narrow band along the hind-neck, are black. A large patch between the bill and the eye is white. Behind the eye is an ovate-oblong, brownish-red patch, surrounded by a white band, which runs down the neck in a narrow streak. The fore part of the neck is bright brownish-red. At the lower part of the neck the red is bordered with a narrow band of black, beyond which is a white ring. The breast and upper parts are brownish-black; the feathers of the sides, and the larger upper wing-coverts tipped with white. The hind part of the breast, abdomen, lower tail-coverts, and rump, are white. The tail is brownish-black, like the quills.

Length to end of tail 22 inches; wing from flexure 14;

tail $4\frac{1}{4}$; bill along the ridge $1\frac{1}{4}$; along the edge of lower mandible $1\frac{1}{4}$; tarsus $2\frac{1}{2}$; hind toe $\frac{5}{1\frac{1}{2}}$, its claw $\frac{2}{1\frac{1}{2}}$; second toe $1\frac{1}{2}$, its claw $\frac{4}{1\frac{1}{2}}$; third toe $2\frac{1}{1\frac{1}{2}}$, its claw $\frac{5}{1\frac{1}{2}}$; fourth toe $3\frac{1}{1\frac{1}{2}}$, its claw $\frac{4}{1\frac{1}{2}}$.

FEMALE.—Is said to be similar to the male.

HABITS.—The Red-necked Bernicle, according to M. Temminck, inhabits the arctic regions of Asia, and occasionally makes its appearance in various parts of Europe. In Britain it is only known as a very rare and accidental visitant, not more than about a dozen instances of its occurrence being on record. Dr. Latham informs us that, in the severe frost of 1766, one was shot in the neighbourhood of London. Montagu states that another was taken alive in Yorkshire about the same time. Mr. Selby says a third, shot near Berwick-on-Tweed, was sent to Mr. Bullock; and, according to Mr. Stephens, several were killed in Cambridgeshire in the severe winter of 1813. A few other instances are mentioned of its occurrence in Norfolk and Devonshire. The only instance of its appearance in Scotland known to me is related in a notice with which I have been favoured by the Rev. Mr. Smith of Monquhitter:—"Many years ago, an individual of this rare and beautiful species, was seen, for several days, in the immediate vicinity of the Loch of Strathbeg. It was recognised by more than one individual well conversant with ornithology. There was, however, no opportunity obtained of securing it."

CHENALOPEX. FOX-GOOSE.

THIS genus appears to me to be intermediate between those of *Anser* and *Tadorna*, resembling the former in some respects and the latter in others. From the Geese properly so called, the Egyptian Fox-Goose, the best-known representative of this genus differs very little in form, and in colour approaches to the Shiel Ducks, of which the bill is very different. In few words *Chenalopex* may be defined as similar in form to *Anser*, but with the bill somewhat more depressed toward the end, and less narrowed, with the nail more curved, the lamellæ not apparent externally, the wings with a prominent rounded knob on the flexure, the colours of the plumage more varied than in the Geese.

Bill of nearly the same length as the head, stout, straight, sub-conical when viewed laterally, but when seen from above little narrower toward the end than at the base, where it is not much higher than broad; upper mandible with the lateral and superior basal margins forming a small segment of a circle, the angles between them short and rather obtuse, the basal margin thickened and fleshy, the ridge rather broad and flattened at the base, gradually narrow and convex, the dorsal line declinate, between the nostrils and unguis rather concave, the sides convex, the edges soft and marginate, with the outer ends of the oblique lamellæ thin and not projecting, the unguis roundish, at the base somewhat angular, very convex, and much decurved; lower mandible with the intercrural space long, rather wide, its membrane bare unless at the base, the short dorsal line little convex, the crura long, narrow, their lower outline straight, the edges elevated, inclinate, externally ridged, and above denticulate with the short outer extremities of the numerous, oblique lamellæ, the unguis broad, roundish, and transversely convex.

Nostrils rather small, elliptical, sub-medial, in the lower and fore part of the oblong, sub-basal, nasal sinus. Eyes small; eyelids feathered. Feet of moderate length, stout, placed well forward; tibia bare for a short space; tarsus moderately compressed, reticulated with small angular scales, of which, however, the anterior are scutelliform. Hind toe very small, elevated, with a thick scabrous lobe beneath, the outer a little shorter than the third, the inner considerably shorter; all scaly at the base, but with numerous scutella; the interdigital membranes reticulate, full, the outer emarginate, the inner toe with a slightly two-lobed thick web. The claws short, strong, little arched, rather compressed, obtuse, that of the third toe with the inner side expanded, and the tip rounded.

Plumage full, close, firm, blended. Feathers of the head very small, oblong; of the neck narrow, not arranged in oblique ridges and grooves as in the Geese; those of the back oblong and rounded; of the lower parts ovate and rounded, as are the elongated feathers of the sides; the scapulars very large, oblong. The wings of moderate length, broad, rather pointed, the second quill being longest, and the first little shorter, the outer five having their outer web narrowed toward the end; the secondaries broad and rounded, the inner elongated, broad, and also rounded. The tail short, rounded, of fourteen broad, rounded feathers.

The female is similar to the male, but with the colours duller.

CHENALOPEX ÆGYPTIACUS. THE EGYPTIAN FOX-GOOSE.

EGYPTIAN GOOSE.

Anas Ægyptiaca. Linn. Syst. Nat. I. 197.

Oie Ægyptienne. Anser Ægyptiacus. Temm. Man. d'Orn. II. 523.

Anser Ægyptiacus. Egyptian Goose. Jen. Brit. Vert. An. 225.

Chenalopez Ægyptiaca. Bonap. Comp. List, 56.

About twenty-eight inches long ; with a prominent margin at the base of the upper mandible, and a bare knob on the wings ; the bill red ; the unguis and part of the upper mandible black ; a roundish space about the eye light chestnut-red ; the wing-coverts white ; the secondary coverts with a transverse black band near the end ; the lower parts cream-coloured, with a large chestnut-red patch on the breast.

MALE IN WINTER.—This beautiful bird is easily distinguishable from any British species of the Goose family, on account of its more gaudy plumage, in the colouring of which it somewhat resembles the Shiel Duck, the prominence at the base of its upper mandible, and the obtuse bare knobs at the flexure of the wings. In its general appearance it differs very little from the Geese, properly so called, and is about equal in size to the White-faced Bernicle. The body is full ; the neck rather long, and somewhat slender ; the head oblong, compressed.

The bill is a little shorter than the head, stout, sub-conical, of nearly equal breadth throughout, being a little narrowed toward the end ; the upper mandible with a prominent basal margin, the dorsal line sloping, a little concave between the nostrils and the unguis, which is roundish, at the base angular, very convex, and much decurved, the sides

nearly erect at the base, then sloping, a little concave about the middle, convex toward the end, the margins soft, concealing their lamellæ, their outline nearly straight, the nasal sinus oblong, sub-basal near the ridge; the lower mandible straight, with the intercrural space long and of moderate width, the edges a little inclinate, with little elevated external lamellæ, the unguis broad, roundish, little convex.

Internally the upper mandible is broadly concave, and covered with small scattered papillæ, with a medial papillate ridge, and on each side a series of small depressed lamellæ, separated by a slight groove from the lateral lamellæ, which are oblique, little elevated, flattened, curved, and tapering toward the outer end, which is thin and not prominent, their numbers about forty-five. The marginal lamellæ of the lower mandible very small, about sixty, the outer nearly forty.

The nostrils are elliptical, sub-medial, two-twelfths and a half long. The aperture of the eye four-twelfths. The feet are strong; the tibia bare for nearly an inch; the tarsus a little compressed, with sub-hexagonal scales, and an anterior series of larger scales, hardly, however, deserving the name of scutella. The hind toe is small, elevated, with five scutella, and an inferior thick lobe; the anterior toes rather long, the inner with twelve scutella, the middle toe with thirty, extending almost to the base, the outer with twenty-three; both it and the inner being scaly toward the base; the interdigital membranes a little emarginate, that of the inner toe narrow. The claws are short and stout; that of the hind toe nearly straight and blunt, the rest a little arched, the lateral obtuse, that of the middle toe considerably dilated and rounded.

The plumage is full, soft, and elastic; on the head short and imbricated; on the upper-neck short and blended, the feathers narrow; those on the lower neck all round, the breast, and the rest of the lower parts soft and blended, and as well as those on the fore part of the back ovate and rounded, but on the rest of the back short and imbricated. The wings are of ordinary length, broad, and rather pointed; the primaries ten, slightly curved, tapering, but rounded; the secondaries sixteen, broad, rounded, the outer curved inwards; the second quill longest, the third scarcely shorter, the first

slightly longer than the fourth. The tail is short, much rounded, of fourteen nearly straight, rounded feathers, the shaft of which is prolonged a little beyond the terminal filaments. The lower coverts reach to within an inch of the tip of the tail.

The prominent roundish tubercle on the wing is not horny, but covered by skin.

The bill is of a reddish flesh-colour, with the unguis and part of the margins of the upper mandible black; that of the lower dusky brown. The eyes are orange-red. A roundish space about the eye, with a band from thence to the base of the bill, and the feathers along the margin of the latter light chestnut-red; the rest of the head cream-colour, shaded with glossy brownish-red along the hind part of the neck for half its length, where it enlarges and passes across the neck in front; the throat reddish cream-colour. The lower part of the neck all round is pale reddish, minutely undulated with transverse dusky lines. The fore part of the back and the scapulars brownish-red, undulated with dusky and grey, the larger scapulars chiefly red. The rest of the back and the tail feathers glossy black. The smaller wing-coverts are white; the secondary coverts with a transverse black band near the end. The primary quills are black, with a tinge of brown; the secondary quills greyish-black, but with part of their outer webs of a glossy deep green, and four of the inner grey internally and light red on the outer web. The lower parts cream-coloured, paler in the middle, on the sides finely undulated with brownish-grey. On the fore part of the breast is a large patch of deep chestnut-red; the feathers under the tail are pale yellowish-red; the axillary feathers and most of the lower wing-coverts white.

Length to end of tail 28 inches; extent of wings 58; wing from flexure $5\frac{3}{4}$; tail $5\frac{1}{2}$; bill along the ridge $2\frac{2}{12}$; along the edge of lower mandible $1\frac{1}{12}$; tarsus 3; hind toe $\frac{9}{12}$, its claw $\frac{2}{12}$; second toe 2, its claw $\frac{6}{12}$; third toe $2\frac{1}{2}$, its claw $\frac{6}{12}$; fourth toe $2\frac{4}{12}$, its claw $\frac{5}{12}$.

FEMALE.—The female, which is considerably smaller, is less richly coloured than the male, but otherwise similar.

HABITS.—The claims of this species to be admitted as a British bird are somewhat similar to those of the Pheasant. Its proper country is Africa, over the whole extent of which it is said to occur, as well as occasionally in the south-eastern parts of Europe. But, having been introduced into this country on account of its beauty, it thrives remarkably well in a semi-domesticated state, and being always apt to stray, individuals have withdrawn themselves from the protection of man, and in some parts are said to have become completely wild, and to breed as in their original country. Specimens are thus often obtained at great distances from any place where they are fostered. Even large flocks are met with, which it would be difficult to show to be even naturalized. Thus, in 1832, I was permitted by Captain Sharp, of the Royal Navy, to take a drawing and description from one which was shot on the 3d November, by Mr John Hay, on the banks of the river Tyne, near Tynningham, the seat of Lord Haddington, in East Lothian. The flock consisted of nineteen, flying in a line from the sea to the southward, in stormy weather. The one killed was the leader, and the largest of the string. On being shot at they turned and flew to sea. It would be useless to indicate particular instances of its occurrence in England, where it is more common in the semi-domesticated state than in Scotland. It has also “occasionally been shot on the coast of Ireland.”

PLECTROPTERUS. SPUR-WINGED GOOSE.

THIS genus differs very little from the preceding, except in presenting, instead of a soft, or skin-covered knob, on the tarsi, a projecting, pointed, hard spur, analogous to that so conspicuous in the Jacanas and some members of the Plover family.

The bill is nearly as long as the head, stout, straight, of nearly equal height and breadth at the base, where there is a protuberance, and becoming depressed toward the end, which is broadly rounded, with the unguis large, very convex, much decurved, and strong-edged; the lamellæ of the upper mandible externally thin and concealed. The general aspect is that of an ordinary Goose; the legs, however, rather longer; the wings rather long and broad; the tail short and rounded.

PLECTROPTERUS GAMBENSIS. GAMBO SPUR- WINGED GOOSE.

Spur-winged Goose. Bew. Brit. Birds, II. 296.

Plectropterus Gambensis. Steph. in Shaw's Gen. Zool. XII. pt. II. 6.

Anser Gambensis. Jen. Brit. Vert. Anim. 226.

Bill reddish-yellow; feet orange; upper part of the head and neck brown; lower part of the neck, sides of the breast, and upper parts black, glossed with green; lower parts white.

OF this species, which is indigenous to Northern and Western Africa, a specimen was killed near St. Germain, in Cornwall, in June, 1821, and, after being mutilated, was sent to Mr. Bewick, who thus describes it:—"The bill is reddish-yellow, with a jointed protuberance at the base of the upper mandible. The upper part of the head and neck are dingy brown; the auriculars and sides of the throat are white, spotted with brown; the lower part of the neck, sides of the breast, and all the upper plumage appear black, but this colour is lost, particularly in the scapulars and tertials, which are most resplendently bronzed and glossed with brilliant green, and most of the outer webs of the feathers partake of the same hue; on the bend of the wing or wrist is placed a strong white horny spur, about five-eighths of an inch in length, turning upwards and rather inwards; the whole of the edges of the wing from the alula spuria to the elbow and shoulder are white, all the under parts the same. This beautiful bird is nearly of the bulk of the Wild Goose, but its legs and toes are somewhat longer, and of a red or orange-yellow."

Mr. Mewburn, of St. Germain, who sent the skin to

Mr. Bewick, has supplied the following particulars respecting its capture to Mr. Fox, in whose Synopsis of the contents of the Newcastle Museum they are recorded:—"When first seen it was in a field adjoining the cliffs at Port Wrinkle, a small fishing-place about four miles from St. Germans, near which it remained for two or three days. Being several times disturbed by attempts to shoot it, it came more inland, to a low situated farm called Pool, and there associated with the common Geese; but was wild, and immediately took wing upon being approached. Here it kept to and fro for a day or two, but being much disturbed, left, and came down upon the shore of the St. Germans river or estuary, when the following day, the 20th of June, 1821, it was shot by John Brickford in a wheat-field at Sconnor, about a mile from St. Germans. When killed it was in the most perfect state, having only one shot in the head. Some gentlemen who saw it the following day requested him to let me have it, which he promised; but though he knew I was a bird-stuffer he had a wife, who, from some strange infatuation, thought she could stuff it; but being soon convinced of her inability she cut off the wings for dusters, and threw the skin away; and it was not till three weeks afterwards that I heard of the circumstance, when I sent a servant, who brought it covered with mud, the head torn off, but luckily preserved, as also one wing, when I had it washed, and put it together as well as I was able." The skin, on being sent to Mr. Bewick, was reset by Mr. R. Wingate, and is now in the Newcastle Museum.

CYGNINÆ.

SWANS AND ALLIED SPECIES.

THE small group of very large birds commonly known by the name of Swans presents forms intermediate between those of the Anserinæ and Anatinæ, although to the ordinary observer they seem much more allied to the former than to the latter.

They have the body of an elongated, somewhat elliptical form; the neck very long; the head of moderate size, oblong, compressed, flattened in front; the bill rather longer than the head, high at the base, depressed toward the end, of nearly equal breadth throughout, and rounded at the end; the upper mandible internally concave, with a middle row of prominent blunt tubercles, a row of flattened tubercles, and a row of slender, little elevated lamellæ on each side. The tongue is fleshy, thick, with the edges thin, fringed with slender, flattened papillæ, under which is a smaller row of filaments. The œsophagus is narrow, a little dilated at the lower part of the neck; the stomach transversely elliptical, extremely muscular; the intestine long, rather narrow, with long cylindrical cœca. The trachea has the inferior larynx laterally compressed.

The eyes are small: the nostrils elliptical, medial. The legs, placed a little behind the centre of equilibrium, are short, stout, with the tibia bare for a short space; the tarsus considerably compressed; the toes four, the first very small and free, the anterior longer than the tarsus, the outer a little shorter than the third; the webs full; the claws strong, arched, compressed, rather obtuse.

The plumage of the head and neck is soft and blended, of the other parts full, close, and firm. The wings very

long, rather broad, convex, the second and third quills longest, the first little shorter; the tail short, rounded, of from eighteen to twenty-four feathers.

Gregarious, migratory, flying in lines when journeying. They feed on vegetable substances, swim with ease and very gracefully, keeping the neck curved and the wings somewhat raised. They have a strong and rapid flight, never dive when searching for food, and walk slowly and rather ungracefully. They differ little from the Anserinæ and Anatinæ, from which, however, they are easily distinguishable by their great size, together with their comparatively short legs and very elongated neck, as well as their large and peculiarly shaped bill, of which the breadth is nearly uniform. A curve or loop of the trachea, which is contained in a cavity in the substance of the sternum, exists in most of the species.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. CYGNUS. SWAN.

Bill rather longer than the head, large, higher than broad at the base, gradually becoming depressed, of nearly equal breadth throughout, and rounded at the end; a bare space between the eye and the base of the bill; tarsus short, stout, considerably compressed, reticulated with small angular scales; hind toe free, very small, elevated, compressed beneath; anterior toes longer than the tarsus, reticulate as far as the second joint; interdigital membranes full; claws strong, arched, compressed, rather obtuse; feathers of the head very small and oblong, of the neck narrow and soft, of the other parts ovate and rounded; wings very long, with about thirty-two quills, the second and third longest; tail short, rounded, of from eighteen to twenty-four rounded feathers.

1. *Cygnus immutabilis*. *Changeless Swan*. About sixty inches long; bill orange-red, with the unguis and a compressed

knob at the base black ; feet dull grey ; plumage pure white, as is that of the young

2. *Cygnus musicus*. *Whooping Swan*. About sixty inches long ; bare space on the forehead, and between the eyes and bill, bright yellow, as is the base of both mandibles, that colour extending in an angular form on the sides of the upper mandible to beyond the nostrils, the rest black ; feet black ; plumage pure white, the head tinged with orange-red.

3. *Cygnus Bewickii*. *Bewick's Swan*. About forty inches long ; bare space on the forehead, and between the eyes and bill, bright yellow, as is the base of the upper mandible, that colour extending in an angular form, but not reaching the nostrils, the rest black ; feet black ; plumage pure white, the head and neck tinged with orange-red.

4. *Cygnus Americanus*. *American Swan*. About forty-four inches long ; bill and bare space on the fore part of the head black, with an oblong orange patch, never more than an inch in length, between the eye and the base of the bill ; feet black ; plumage pure white, the head tinged with orange-red.

CYGNUS. SWAN.

THIS genus is formed of a small number of species, remarkable for their great size, they being the largest birds of the order to which they belong, and distinguishable from the Geese and other allied genera by the extreme bulk of their ovato-oblong, full, and somewhat depressed body ; their excessively elongated and slender neck ; and short, considerably compressed tarsi. The head is of moderate size, oblong, compressed, and rather flattened in front.

The bill rather longer than the head, large, higher than broad at the base, gradually becoming more depressed, of nearly equal breadth throughout, and rounded at the end ; upper mandible with the lateral and superior basal margins at first semicircular, forming two short angles, but ultimately obliterated by the disappearance of the feathers, which leave a large space extending to the eye bare ; the ridge broad and flattened at the base, gradually narrowed, convex toward the end, the dorsal line sloping, a little concave at first, the sides nearly erect at the base, gradually more decline and convex toward the end ; the unguis generally roundish, large, and convex ; the edges soft, marginate, and scrobiculate, straight, and concealing the narrow, blunt tips of the slender, little elevated lamellæ ; lower mandible with the intercrural space very long, of moderate width, its membrane bare for two-thirds, the short dorsal line convex, the crura long, narrow, their lower outline slightly re-arcuate, their sides sloping outwards and convex, the edges elevated, inclinate, denticulate with the short outer extremities of the lamellæ, the unguis roundish and little convex ; the gape-line nearly straight, commencing anteriorly to the margin of the feathers on the forehead.

Mouth of moderate width. Anterior palate deeply concave, with a lateral series of obscure flattened lamellæ on each side, not separated by a groove from the slender, little elevated marginal lamellæ, a medial row of prominent blunt tubercles, and an intermediate oblique series of flattened tubercles. The tongue is fleshy, thick, with the sides parallel, the base with a dorsal row of conical papillæ, a soft large prominence near it; a deep medial groove, having on each side acute, flat, spreading papillæ, the edges thin, fringed with slender flattened papillæ, of which the posterior are large and serrulate, the anterior small; and under this series a smaller row of filaments extending behind the base of the tongue. Œsophagus extremely long, narrow, dilated a little toward the furcula, then contracted, but with the lower part enlarged. The stomach an extremely developed, oblique, transversely elliptical gizzard, of which the lateral muscles are excessively thick, their tendons large, the lower muscle distinct, with its tendons passing under the others; the epithelium forming two very thick, considerably concave, smoothish grinding surfaces. The intestine is long, rather narrow, arranged in about sixteen folds; the cæca long, narrow at the base, then of moderate width and cylindrical; the cloaca globular.

The trachea of very numerous, broad, considerably flattened rings, in some species curved and entering the sternum before passing into the thorax, in others following the usual course. The inferior larynx laterally compressed, with its last rings united. Appended to the last or semilunar ring on each side is a narrow membrane, terminated by a very slender half-ring, and standing free from the large membrane intervening between the last tracheal and first bronchial rings. The bronchi short, wide, varying in form in the different species.

Nostrils elliptical, medial, near the ridge, in the fore part of the oblong nasal sinus. Eyes small; eyelids feathered, with bare crenulate margins. Aperture of ear small. Feet short, stout, placed a little behind the centre of equilibrium; tibia bare for a short space; tarsus considerably compressed, reticulated with small angular scales. Hind toe very small,

elevated, compressed beneath ; anterior toes longer than the tarsus, the outer a little shorter than the third, all reticulate as far as the second joint, then scutellate ; the inner with a broad, somewhat two-lobed margin, that of the outer thick and narrow ; the interdigital membranes reticulate, full. Claws strong, arched, compressed, convex above, rather obtuse, that of the third toe with the inner side expanded and the tip rounded.

Plumage moderately full, close, firm, unless on the head and neck. Feathers of the head very small and oblong, of the neck narrow and soft, of the other parts ovate and rounded. The scapulars large ; the humerals eight or ten. The wings very long, rather broad, convex, with about thirty-two quills ; the outer four or five quills more or less cut out toward the end, the second and third longest, the first little shorter ; the secondaries broad and rounded. The tail is short, rounded, of from eighteen to twenty-four rather broad, rounded feathers. In each species the number is not very definite. Thus, in *Cygnus Bewickii*, it is generally eighteen, but sometimes twenty.

The Swans inhabit chiefly the temperate and cold regions of the globe. Eight species are known, of which some have a bare fleshy knob at the base of the upper mandible above, while in others that part is flat or concave. Another remarkable difference occurs with respect to the trachea, which in some follows the usual course, while in others it first enters the sternum, forming a loop, in the same manner as in the Cranes. Notwithstanding these differences, it seems injudicious to separate the group into distinct genera, as the species otherwise agree in all essential respects. Nor do their habits appear to be affected by these modifications of structure. Hence we may infer that in other cases, when two birds resemble each other in form, the presence of a frontal knob in one is not sufficient to induce its generic separation. Similar differences in the windpipe occur in the genus *Platalea*.

The Swans reside in marshes, on lakes, pools, and rivers. They frequently search for food in the pastures close to the water, walking slowly and heavily ; but in general they

obtain it while swimming. It consists of soft grass, seeds, and especially the roots and stems of grasses and other plants, which they pull up from the mud, immersing their long necks for the purpose, elevating the hind part of the body, and maintaining their position by means of their feet, in the same manner as the Geese and graminivorous Ducks. Like the former, they utter a hissing sound when irritated, and strike with their wings. They float rather lightly, swim with considerable speed, but are incapable of diving. In swimming they sometimes keep the neck erect, like the Geese, and sometimes curved, like the Ducks. Their flight is direct, strong, rapid, with short undulating movements of their outstretched wings, the neck extended to its full length. During their migrations they usually fly at a vast height, in files or angular lines, the individual at the head of the string retiring to the rear after a time. Their cries are loud, trumpet-like, and, when proceeding from a distance, clear, mellow, and resembling the sounds from a distant band of music. They are described as having a peculiarly exciting effect on the human mind, especially in desert regions, and to give rise to the most agreeable feelings in those who depend chiefly upon the chase for their subsistence. This I can well understand, having experienced the like on seeing and hearing a flock of Wild Swans in the Hebrides. They are at all seasons gregarious. The nest, very bulky, and composed of grass and herbage, with fragments of turf, peat, or other light substances, is placed on the ground, in marshes or on islands. The eggs, elliptical, and generally of a greenish-grey tint, are not very numerous. The male remains with the female and young, and after the breeding season the families unite into flocks. The Swans moult only once in the year, in the end of summer. The sexes are coloured alike; the young at first grey; the males larger than the females. Their flesh, as an article of food, is similar to that of the Geese, but is not now held in much esteem, although that of young individuals is tender and sapid, having a peculiar rich flavour.

The Common Tame Swan, *Cygnus Olor*, is admitted by Mr. Yarrell into the series of British Birds; but, as there

appears no evidence of its having ever been shot or caught, in a truly wild state, in any part of Britain, I am constrained to omit it. I have known an instance of its occurrence, during a snow-storm, on the coast, in the neighbourhood of Aberdeen; but as tame Swans often wander in stormy weather, and in many cases are scarcely half domesticated, I do not see how a truly wild individual could be recognized.

CYGNUS IMMUTABILIS. CHANGELESS SWAN.

POLISH SWAN.

Cygnus immutabilis. Polish Swan. Yarrell. Proceed. of Zool. Soc. p. 9
Brit. Birds. III. 131.

Cygnus immutabilis. Bonap. Comp. List, 55.

Adult male about sixty inches in length ; ninety-eight in extent of wings ; bill from the joint to the tip of the upper mandible four inches and two-twelfths, from the knob three and a half, from the eye five and four-twelfths, its greatest breadth one and four-and-a-half-twelfths ; the forehead elevated, with a compressed, fleshy, wrinkled lobe occupying the upper basal angle of the bill ; tarsus four inches and a quarter ; middle toe five inches and eight-twelfths, its claw an inch ; tail of twenty-four feathers, rounded ; bare space on the forehead and between the eyes and bill black ; the bill orange-red, except the unguis, which is black, and of a narrow oblong form ; feet dull grey ; plumage pure white. Female similar to the male, but considerably smaller. Young white in their first plumage.

MALE IN WINTER.—The following description is taken from an individual, kept for some time in the Edinburgh Zoological Garden, but respecting the capture of which I can obtain no other information than that afforded by its fractured and reunited humerus, which shows that it has probably been shot.

The body is of an elongated form, rather depressed ; the neck extremely long and slender ; the head rather small, oblong, compressed, anteriorly elevated above, and furnished in front with a thick bulging compressed fleshy knob, covered with corrugated skin. The bill is longer than the head, straight, of nearly equal breadth throughout ; the

upper mandible with its outline declinate and concave, at the end decurved, the sides slightly sloped at the base, gradually more inclined and convex toward the end, the edges soft and marginate, with the lamellæ projecting a little, the unguis oblong, broad at the end, convex, decurved, strong-edged; the lower mandible very slightly rearcuate, its unguis triangular.

On the concave roof of the mouth is a medial series of large flattened tubercles, and on each side at the base an oblique row of similar tubercles, then a lateral series of very slender, inconspicuous elevated lines and grooves, and fifty-two marginal lamellæ, of which the outer extremities are compressed and obtuse. On the lower mandible are about fifty external lamellæ, of which about twenty-two only are very distinct, and ninety marginal lamellæ. The tongue is three inches and a quarter in length, ten-twelfths in breadth, fleshy, with the sides parallel, the base with a double semi-circular series of conical papillæ, a large soft prominence above, a deep medial groove having on each side flat, acute, spreading papillæ, the edges fringed with papillæ, of which the posterior are large, the anterior small, and an inferior series of filaments, extending behind the base of the tongue. The œsophagus, thirty-eight inches long, varies in width from eight-twelfths to an inch and a quarter, being dilated at the lower part of the neck. The proventriculus is an inch and eight-twelfths in breadth. The stomach is obliquely situated, three inches and a half in length, four inches and a quarter in breadth, a little compressed, less oblong than in the other species, with extremely developed lateral muscles, very large tendons, and rugous epithelium, with two concave grinding surfaces. The intestine is sixteen feet and a half in length; its duodenal part an inch in width, the rest six-twelfths. The duodenum curves at the distance of eight inches, and receives the gall-ducts at that of twenty. The rectum is nine inches and a half in length, at first nine-twelfths in width, at the end dilated to an inch and a half. The cœca are fifteen inches long, for five inches only two-twelfths and a half wide, then enlarged to ten-twelfths, and toward the end decreasing to five-twelfths.

The trachea, on reaching the infrafurcular space, forms a slight curve outwards, and then directly enters the thorax. Its width at first is seven-twelfths, then six-twelfths, at the lower part of the neck nine-twelfths. It is composed of a hundred and ninety rings, and five united rings forming the inferior laryngeal bone, which is moderately compressed, its breadth being six-twelfths, and its posterior margin, which is very oblique, almost an inch in height. It differs from that of the other species in having the terminal margin thus oblique, and in wanting the external, lateral, narrow, free membranes, there being in this species none besides those intervening between the last tracheal and first bronchial rings, about the middle of which, however, is seen the very slender bone appended to the narrow membrane in the others. The bronchi are very short, only an inch and a half in length, with fifteen incomplete, slender, and feeble rings.

The skin at the base of the bill, including the frontal knob, and the large triangular space from the lateral base of the upper mandible to the eye, and surrounding it, is bare. The nostrils are oblong, patulous, seven-twelfths in length, in the lower anterior part of the oblong nasal sinus. The eyes are very small, their aperture measuring five-twelfths and a half. The legs are very short and strong; the tibia bare for an inch and a quarter; the tarsus compressed and reticulate. The first toe very small, with an inferior slight, compressed lobe, reticulated above, but having also four scutella; the second toe with eighteen, the third twenty-five, the fourth thirty-one scutella; the inner with a broad margin or web; the interdigital membranes full. The claws stout, moderately arcuate, rather obtuse, that of the middle toe dilated and rounded.

The plumage rather full, dense, soft, and elastic; on the head and neck the feathers oblong, obtuse, blended; on the other parts ovato-oblong. The wings are very long, of moderate breadth, convex; the quills thirty-five; the primaries strong, decurved, the outer three strongly sinuate on the inner web, the second and third longest and about equal. The tail is short, rounded, of twenty-four feathers.

The bill is orange-red, with the margins of the upper

mandibles and unguis black; the lower mandible yellow in the middle only. The bare space at the base of the tail black. The feet dusky grey, on the inner side light grey; the membranes darker; the claws brownish-black, pale at the base. The plumage pure white.

Length to end of tail 64 inches; extent of wings 96; wing from flexure 25; tail 8; bill from joint $4\frac{2}{2}$; from the knob $3\frac{1}{2}$; from the eye $5\frac{4}{2}$; its height at the base, including the knob $2\frac{4}{2}$; breadth $1\frac{5}{2}$; tarsus $4\frac{1}{4}$; first toe $1\frac{1}{2}$, its claw $\frac{6}{2}$; second toe $4\frac{1}{2}$, its claw 1; third toe $5\frac{8}{2}$, its claw $\frac{1}{2}$; fourth toe $5\frac{8}{2}$, its claw $\frac{1}{2}$.

FEMALE.—There having been a great mortality among the birds of the Zoological Garden in Edinburgh, I obtained in March, 1841, an inspection of a female, the mate or companion of the male above described. As represented by that individual, the female differs from the male only in being smaller, and in having but a very slight protuberance in place of the elevated knob at the base of the bill. The bare space between it and the eye is greyish-black; the bill orange-red, with the nasal space, the margins and unguis of the upper mandible, and a great part of the lower, black. The bare part of the tibia, the tarsus, and the toes, are pale bluish-grey; the webs blackish-grey; the claws black, light-coloured at the base. The plumage white.

Length to end of tail 58 inches; extent of wings 88; wing from flexure 22; tail $7\frac{1}{2}$; bill from the joint along the ridge $3\frac{8}{2}$; from the eye $5\frac{2}{2}$; its height at the base $1\frac{5}{2}$; breadth at the base $1\frac{4}{2}$; middle $1\frac{5}{2}$; behind the unguis $1\frac{3}{2}$; bare part of the tibia $1\frac{1}{2}$; tarsus $4\frac{2}{2}$; hind toe $1\frac{4}{2}$, its claw $\frac{7}{2}$; second toe $4\frac{1}{2}$, its claw $\frac{1}{2}$; third toe $5\frac{7}{2}$, its claw $\frac{1}{2}$; fourth toe $5\frac{1}{2}$, its claw $\frac{9}{2}$.

HABITS.—This species which, being very similar to the Common or Tame Swan, had been confounded with it, was first distinguished and described by Mr. Yarrell. He states that “the London dealers in birds have long been in the habit of receiving from the Baltic a large Swan, which they distinguish by the name of the Polish Swan.” “During the

severe weather of January, 1838, several flocks of these Polish Swans were seen pursuing a southern course along the line of our north-east coast, from Scotland to the mouth of the Thames, and several specimens were obtained. The circumstance of these flocks being seen, without any observable difference in the specimens obtained, all of which were distinct from our Mute Swan; the fact also, that the Cygnets, as far as observed, were of a pure white colour, like the parent birds, and did not assume, at any age, the grey colour borne for the greater part of the first two years by the young of the other species of Swans; and an anatomical distinction in the form of the cranium, which was described by Mr. Pelerin in the Magazine of Natural History, induced me to consider this Swan entitled to rank as a distinct species, and, in reference to the unchangeable colour of the plumage, I proposed for it the name of *Cygnus immutabilis*."

CYGNUS MUSICUS. THE WHOOPING SWAN.

HOOPER. WILD SWAN. WHISTLING SWAN. ELK.

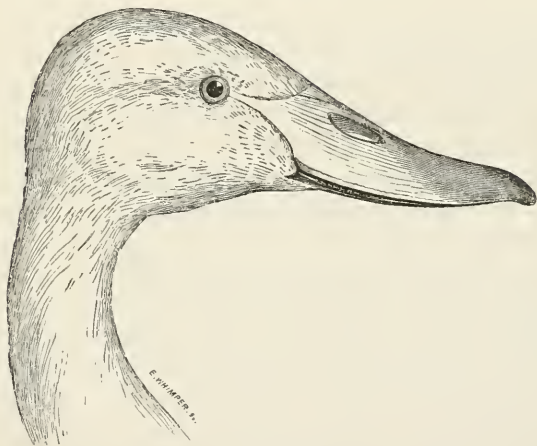


FIG. 59.

Anas Cygnus ferus. Linn. Syst. Nat. I. 194.

Anas Cygnus. Lath. Ind. Ornith. II. 833.

Whistling or Wild Swan. Mont. Ornith. Dict. and Suppl.

Cygne à bec jaune ou sauvage. Anas Cygnus. Temm. Man. d'Orn. II. 828

Whistling Swan. Cygnus ferus. Selby, Illustr. II. 278.

Cygnus ferus. Whistling Swan. Jenyns, Brit. Vert. Anim. 227.

Cygnus musicus. Bonap. Comp. List, 55.

Adult male about sixty inches long, ninety-five in extent of wings; bill from the joint to the tip of the upper mandible three inches and a half, its greatest width about the middle an inch and a quarter; from the eye to the tip of the bill five

inches and two-twelfths; tarsus four inches and two-twelfths; middle toe four inches and ten-twelfths, its claw an inch; tail of twenty feathers, rounded; bare space on the forehead, and between the eyes and bill, bright yellow, as is the base of both mandibles, that colour extending in an angular form on the sides of the upper mandibles to beyond the nostrils; feet black; plumage pure white, the head tinged with orange-red. Female similar to the male, but considerably smaller. Young with the bill dusky at the end, reddish toward the base, the partially bare skin at its base flesh-colour; the feet reddish-grey; the plumage pale bluish-grey.

MALE.—The body of this, the largest wild bird, except the Polish Swan, that occurs in Britain, is of an elliptical, rather elongated, and somewhat depressed form; the neck extremely long and slender; the head of moderate size, oblong, compressed. The bill is rather longer than the head, straight, higher than broad at the base, gradually depressed, of nearly equal breadth throughout, being very slightly narrower toward the end; upper mandible with the dorsal line, not including the space behind the joint, descending, and almost straight to the unguis, then decurved, the ridge broad and flat at the base, gradually narrowed, beyond the nostrils convex, the sides nearly erect and somewhat concave at the base, gradually sloping and becoming more convex, the margins soft, the unguis large, obovato-triangular, convex, thick-edged, and internally grooved. The lower mandible with the intercrural space very long and of moderate width, its membrane bare for more than two-thirds, the crura convex beneath, with their lower outline very slightly re-arcuate, the laminated margins inclinate, the unguis very large, obovato-triangular, little convex, with a wide groove on each side; the gape-line slightly re-arcuate.

The upper mandible deeply concave, with a medial prominent papillate ridge, and on each side an oblique series of transverse flattened tubercles, a submarginal series of inconspicuous slender lamellæ, and a marginal series of transverse, more or less oblique, slender, little elevated, obtusely termi-

nated lamellæ, not projecting beyond the margin. The lower mandible has an external and an internal series of lamellæ.

The mouth is an inch and four-twelfths in width. The tongue three inches and two-twelfths long, ten-twelfths in breadth, fleshy, with the sides parallel; the base with a double row of conical papillæ arranged in a circular manner, and a soft large prominence above; the upper surface with a deep longitudinal median groove, having on each side acute, flat, spreading papillæ; the edges fringed with flattened tapering papillæ, of which the posterior are large and serrulate, the anterior small, together with an inferior series of filamentary papillæ. Behind the aperture of the glottis a large pad of acuminate papillæ. The œsophagus is thirty inches long, very narrow, about half an inch in width, but at the lower part of the neck dilated into a peculiar kind of crop, averaging an inch in width, and in this individual compactly filled with roots and blades of *Zostera marina*; the proventriculus an inch and a half in breadth. The stomach, obliquely situated, is an extremely developed gizzard, of an elliptical form, three inches and a fourth in length, five inches in breadth, the right lateral muscle two inches thick, the left an inch and three-fourths; the epithelium thick, dense, with two smoothish, considerably concave grinding surfaces. There is a large pyloric sac. The intestine, thirteen feet long, has a width of from an inch to eight-twelfths, and forms sixteen turns. The duodenum, in curving along the edge of the stomach, forms three-fourths of a circle. The rectum is ten inches in length, enlarges from nine-twelfths to an inch and three-fourths, which is the width of the cloaca. The cœca are thirteen inches and a half long, for four inches about three-twelfths wide, then enlarging to one inch, and toward the end diminishing to four-twelfths.

The trachea, three feet two inches in length, has at first a breadth of nine-twelfths, gradually contracts to six-twelfths, then enlarges to eight-twelfths, and is considerably flattened until about six inches from the furcula, when it becomes nearly cylindrical, seven-twelfths in diameter, enters a cavity formed in the crest of the sternum, along which it passes to

the length of three inches and a half, bends upon itself vertically, returns, emerges from the cavity, bends upwards and backwards, and ends on the anterior edge of the sternum. In this part it is cylindrical, at first seven-twelfths and a half in width, on emerging ten-twelfths. The inferior larynx, composed of several united rings, is laterally much compressed, measuring in height an inch and two-twelfths, and in breadth only two-twelfths. Appended to the last or semilunar ring on each side is a narrow membrane, to which is attached an extremely slender half-ring. Within this small membrane, and separate from it, is a large membrane extending to the first bronchial ring. The bronchi, composed of about thirty branched bony rings, curiously united by processes so as to have a reticulated appearance, are very large, and four inches in length; for two inches seven or eight-twelfths in diameter, then enlarged to nine-twelfths, and ultimately contracted to four-twelfths. The rings of the trachea are osseous, firm, flattened, alternately narrowed on one side, in the part within the sternal cavity much broader, thinner, and anchylosing like the bronchial rings, but in a less degree. The lateral or contractor muscles do not accompany that part which enters the sternum, but pass over to join it as it emerges, and continue to the commencement of the large terminal compressed ring, at which place come off the sterno-tracheales. The inferior larynx thus has no muscles.

The nostrils are oblong, seven-twelfths in length, direct, medial, in the lower anterior part of the oblong nasal sinus. The eyes are very small, their aperture measuring five-twelfths. That of the ear round, four-twelfths in diameter. The legs are short, very stout; the tibia very muscular, bare for an inch and four-twelfths; the tarsus short, considerably compressed, reticulated with angular scales, of which the anterior are large and rounded; the hind toe very diminutive, and not reaching the ground; the middle toe longer than the tarsus; the outer much longer than the inner, and reticulated to the third joint, the inner as far as the second joint, the middle toe nearly as far; the hind toe with four scutella, the inner with twenty, the next thirty-five, and the

outer twenty-five; the interdigital webs full, reticulate, the marginal web of the inner toe slightly bilobate. The claws are strong, arched, compressed, convex above, rather acute, that of the middle toe with the inner edge dilated and the tip rounded.

A portion of the forehead, and the space between the bill and the eyes denuded. The plumage rather full, dense, soft, elastic; on the head and neck the feathers oblong, obtuse, blended, and very soft; on the lower parts rather small, much curved, ovato-oblong; on the upper parts larger, broader, and little curved; the scapulars large. The wings are very long, of moderate breadth, convex; the humerus and cubitus proportionally longer; the quills thirty-five, together with eight humerals; the primaries strong, decurved, the outer three strongly sinuate on the inner web, the first eight-twelfths shorter than the second, which exceeds the third by two-twelfths. When the wing is closed, some of the inner secondaries extend considerably beyond the longest primary. The tail is very short, rounded, of twenty stiffish rounded feathers, of which the lateral are an inch and three fourths shorter than the medial.

The bare space on the forehead, and from the base of the upper mandible to the eyes, is bright yellow, as is the basal part of the bill, that colour occupying about an inch of the ridge, and passing in a pointed form along the sides of the upper mandible to beyond the nostrils; part of the base of the lower mandible, and its intercrural membrane, also yellow; the rest of the bill black. The iris brown. The feet and claws black. The plumage entirely pure white.

Length to end of tail 60 inches; extent of wings 95; wing from flexure $25\frac{3}{4}$; tail $7\frac{1}{2}$; bill along the ridge, including the bare space on the forehead $4\frac{3}{4}$, from its tip to the eye-joint $3\frac{1}{2}$, to the eye $5\frac{2}{12}$, its height at the joint $1\frac{1}{2}$, breadth at the middle $1\frac{1}{4}$, toward the end $1\frac{2}{12}$; bare part of tibia $1\frac{4}{12}$; tarsus $4\frac{2}{12}$; first toe $\frac{9}{12}$, its claw $\frac{5}{12}$; second toe $3\frac{1}{2}$, its claw 1; third toe $5\frac{1}{12}$; its claw $1\frac{1}{12}$; fourth toe $4\frac{1}{12}$, its claw $\frac{1}{12}$.

FEMALE.—The female differs from the male only in being smaller.

Length to end of tail 56 inches ; extent of wings 88 ; bill along the ridge, from the joint $3\frac{2}{12}$, to the eye $5\frac{1}{12}$; tarsus 4 ; middle toe and claw $6\frac{1}{2}$.

An individual killed in the south of Scotland, in February 1841, had the œsophagus twenty-eight inches in length, about half an inch in width, at the lower part of the neck enlarged to an inch, then contracted ; the proventriculus an inch and a half in breadth. The stomach obliquely situated, transversely elliptical, three inches and two-twelfths in length, five inches in breadth. The intestine eleven feet and a half long ; the widest part of the duodenum one inch, gradually contracting to eight-twelfths, and in some parts half an inch. The cœca are, one eleven inches and a half, the other twelve inches in length, their width for four inches three-twelfths, then enlarged to ten-twelfths, toward the end contracting to four-twelfths, and finally three-twelfths. The rectum is nine inches long, at first ten-twelfths wide, gradually enlarging to an inch and three-fourths. The intestine is simply convoluted in an oblique direction, with sixteen turns. The duodenum returns on itself at the distance of eight inches and a half, and receives the biliary ducts at that of nineteen inches.

The trachea, having at its lower part a diameter of seven-twelfths, enters the crest of the sternum to the depth of three inches, returns, and terminates on the edge of the sternum, in an extremely compressed inferior larynx, of which the narrowest part is only two-twelfths-and-a-quarter in breadth, the lower edge being one inch in height. The structure of this part is the same as in the male. The bronchi are four inches and a quarter in length, at first eight-twelfths in height and four-twelfths in breadth, then round and five-twelfths in diameter, afterwards suddenly enlarged to nine-twelfths, and finally contracted ; the number of rings forty-two, slender, and most of them ankylosed.

The extreme compression of the inferior larynx, and the elongated bronchi, are peculiar to this species, and by these characters, together with the entrance of the trachea into the crest of the sternum to the distance of from three to four

inches only, never into its hind part, the bird may always be distinguished.

Length to end of tail 52 inches ; extent of wings 85 ; wing from flexure $23\frac{1}{2}$; tail $7\frac{1}{2}$; bill along the ridge, including the bare space on the forehead $4\frac{1}{2}$, from its tip to the joint $3\frac{1}{2}$, to the eye $4\frac{1}{2}$; its height at the joint of upper mandible $1\frac{9}{12}$, breadth toward the end $1\frac{1}{4}$; bare part of tibia $1\frac{4}{12}$; tarsus 4 ; hind toe $\frac{9}{12}$, its claw $\frac{5}{12}$; second toe $3\frac{5}{12}$, its claw $\frac{1}{12}$; third toe $4\frac{1}{12}$, its claw $\frac{1}{12}$; fourth toe $4\frac{3}{4}$, its claw $\frac{9}{12}$.

VARIATIONS.—Adult individuals vary in size, and in having the head white or tinged with dull orange-red. The size of the stomach, and the length of the digestive organs, as well as the diameter of the trachea, and the extent to which it enters the crest of the sternum, also vary.

HABITS.—As this species was not until recently distinguished from two others, the one belonging to Europe, the other to North America, its habits and distribution as given by authors cannot be considered as satisfactorily known. Formerly it was considered certain that it regularly visited the Orkney Islands, and some of the outer Hebrides, on which it remained during the winter ; but until it be ascertained that this species, and not Bewick's Swan, is the one which frequents these Islands, we can only say that they are visited by wild Swans, probably of both species. I have seen, in Harris, a flock come in from the Atlantic after a gale, and listened with delight to their loud and clear trumpet-like cries, as they sped their way in lengthened files ; but whether they were of this species or not I cannot affirm. In South Uist a vast number remain from October to May on some of the lakes, and in Lewis and Harris they are frequently seen in winter ; but these are certainly not the birds that in severe weather are found dispersed over Scotland and England. In England, when the winter is mild, few, or perhaps none, may be met with, whereas in boisterous weather they appear in flocks, dispersed here and there, chiefly on the estuaries and rivers. It is the same in Scotland, where in some seasons great numbers are killed, and they may be procured even in

the markets, while at other times the ornithologist who wishes to obtain a recent specimen will fail in his endeavours. Under these circumstances, it appears that very little can be said of the peculiar habits of this species. The substances which I have found in its stomach were roots and rhizomata, together with some herbage, and, in the case of the adult male described above, which I obtained in February 1838, the roots and leaves of *Zostera*. Along with the food is always found a large quantity of fine quartz sand. Instead of fairly admitting their utter ignorance of the habits of this bird, our ornithologists interlard its obscure and imperfect history with conjectures and disquisitions of various kinds. Mr. Thomson, however, who states that it visits Ireland occasionally in winter, gives a good deal of information respecting its habits; and Mr. St. John, in his *Wild Sports of the Highlands*, has an excellent description of the manners of Wild Swans in Scotland.

Montagu relates that a female Whistling Swan, shot near Bridgewater in 1805, got the better of her wound, and was kept by Mr. Stone with his Geese for nearly two years, in which time she laid an egg. That gentleman presented her to the naturalist, who thus further details her history:—“This beautiful and docile bird is now alive and in high health, living with many sorts of Ducks in the greatest harmony. Towards the spring she becomes more clamorous, and impatient of confinement; but at all times will approach those persons in the habit of feeding her, and will take food from the hand, at the same time uttering those plaintive and harmonious notes for which the species has been remarkable, and which are always attended with a singular jerk of the head. She usually carries her neck straight and erect, either upon the water or when stationary on land; but in walking the head is lowered, and the neck reclining over the back. In the season of love she frequently flaps along the surface of the water, and would undoubtedly fly, if the precaution of annually cutting the feathers of one wing was omitted, for whatever might have been the wound that was the cause of captivity, nature has performed a perfect cure. Her nature is gentle, timid, and sociable; she will follow those with

whom she is acquainted from one side of the menagerie to the other, especially ladies of the family dressed in white ; is often turned out of her course by a pugnacious male Sheldrake, and acts only offensively when food is the object, and then only when resentment is not expected. She eats but little grass on land, but will devour aquatic plants occasionally. Barley, however, is her principal food, and she never attempts to touch bread, which is sometimes thrown to other birds ; nor will she devour small fish, which some of the diving Ducks greedily eat.

“The egg is very small in proportion to the bird, being not near so large as that of a China Goose, and is regularly oval, about three inches long, and of a ferruginous colour, with some white blotches about the middle, appearing as if artificially stained.” This, however, was an egg produced under unfavourable circumstances ; for, as described by Mr. Jenyns, the egg is “dull white, faintly tinged with greenish, four inches one line in length, two inches eight lines in breadth.”

Dr. Edmondston represents it as an occasional visitant in Shetland in autumn and spring. Messrs. Baikie and Heddle state that “Swans arrive in Orkney in October, and remain until the end of March. When there has been a severe winter north, they are occasionally seen so late as the end of April. During the severe season of 1838, several Swans were found dead, probably from the extreme cold. While here they frequent the loch of Stennis, and are also abundant in Ronsay, in Sanday, and some other islands. Formerly they used to breed on some of the small islets in the loch of Stennis, but they have not been known to breed there for many years.” Mr. St. John states that they frequent the estuary of the Findhorn, and feed in various retired places of Morayshire. They are also sometimes seen on the loch of Spynie, near Elgin. I have seen specimens of this species killed at Peterhead, New Deer, Fyvie, Aberdeen, and Montrose. Swans often appear on the Loch of Strathbeg, the Lochs of Skene, Achlossan, and Cannar, in Aberdeenshire ; not unfrequently in the Basin of Montrose, and in severe winters in the estuary of the Tay.

YOUNG.—The young are brown in their plumage for the first year. One examined on the 6th of March, 1809, and which measured three feet eight inches in length, and weighed eight pounds and a quarter, had the bill flesh-colour at the base; the irides dusky; the feathers on the forehead and before the eyes dull orange; the rest of the head and upper neck behind, brown; the under parts white, tinged with rufous; the lower neck behind, the upper parts of the body, scapulars, coverts, and tail, cinereous-grey.

CYGNUS BEWICKII. BEWICK'S SWAN.

- New species of Swan. Wingate. Trans. Nat. Hist. Soc. North. Durh. and Newcastle I. 1.
 Cygnus Bewickii. Yarrel, Trans. Linn. Soc. XVI. 445.
 Cygnus Bewickii. Selby, Trans. Nat. Hist. North. Soc. Durh. and Newc. I. 17.
 Cygnus Bewickii. Wingate, Bewick's Swan. Jard. and Selb. Illustr. of Ornith. II. pl. xcv.
 Cygne de Bewick. Cygnus Bewickii. Temm. Man. d'Orn. IV. 527.
 Bewick's Swan. Cygnus Bewickii. Selby, Illustr. II. 284.
 Cygnus Bewickii. Bewick's Swan. Jenyns, Brit. Vert. Anim. 228.
 Cygnus Bewickii. Bonap. Comp. List, 55.

Male about forty-five inches long ; seventy-two in extent of wings ; bill from the joint to the tip of the upper mandible three inches, its greatest breadth toward the end an inch and a twelfth ; from the eye to the tip of the bill four inches and five-twelfths ; tarsus three inches and nine-twelfths ; middle toe four inches and a half, its claw ten-twelfths ; tail of twenty (often eighteen) feathers, much rounded ; bare space on the forehead, and between the eyes and bill, bright yellow, as is the base of the upper mandible, that colour extending in an angular form, but not reaching the nostrils ; feet black ; plumage pure white, the head and neck tinged with orange-red. Female similar to the male, but considerably smaller. Young with the bill dusky at the end, flesh-coloured toward the base, the partially bare skin at its base flesh-colour ; the feet reddish-grey ; the plumage pale bluish-grey, the upper part of the head darker.

MALE IN WINTER.—This species, which is about a third less than the Whooping Swan, differs little from it in its general appearance, but presents peculiarities by which it may easily be distinguished. The body is of an ovato-elliptical form, rather depressed, especially at its fore part ; the neck

extremely long and slender; the head of moderate size, oblong, compressed. The bill is slightly longer than the head, straight, higher than broad at the base, gradually depressed, of almost equal breadth throughout, very slightly enlarged near the end, which is rounded. The upper mandible has the dorsal line sloping, the ridge at first broad and flattened, gradually narrowed, toward the end convex, the unguis broadly obovate, large, and convex, the edges soft, marginate. The lower mandible with the intercrural space very long, and of moderate width, its membrane bare for two-thirds, the crura convex beneath, with their lower outline slightly rearcuate, the laminated margin inclinate, the unguis very large, obovato-elliptical; the gape-line slightly rearcuate.

The upper mandible deeply concave, with a medial tuberculate ridge, and on each side an oblique series of flattened tubercles, a sub-marginal series of inconspicuous slender lamellæ, and a marginal series of about thirty-five oblique, slender, little elevated, obtusely terminated lamellæ, not projecting beyond the margin. The lower mandible has about twenty-two external, and sixty internal lamellæ. The tongue is two inches and seven-twelfths in length, nine-twelfths in breadth, fleshy, with the sides parallel, at the base a double row of conical papillæ arranged in a somewhat semi-circular manner, a large soft prominence near the base, a deep medial groove, having on each side acute, flat, spreading papillæ; the edges thin, fringed with tapering flattened papillæ, of which the anterior are small, the posterior large and serrulate; and beneath this series a smaller of filamentary papillæ, extending behind the base of the tongue. The œsophagus extremely long and slender, its length twenty-six inches, for fifteen inches its width eight inches, then dilated for a short space to ten-twelfths, and within the thorax contracting to five-twelfths. The proventriculus two inches long, and an inch and two-twelfths in its greatest breadth. The gizzard oblique, sub-elliptical, sub-compressed, two inches and a half in length, three inches and three-fourths in breadth; with extremely thick muscles, very large tendons, and rugous epithelium, having two slightly concave grinding surfaces. The intestine eight feet and a half in length, ten-twelfths in width

in part of the duodenum, gradually contracting to five-twelfths. The cæca come off at the distance of seven inches from the extremity, and are ten inches in length, at the commencement two-twelfths and a half in width, their greatest breadth eight-twelfths, narrowed to four-twelfths.

The trachea at first eight-twelfths in breadth, contracts to five-twelfths, then enlarges to seven-twelfths; it is considerably flattened until near the furcula, when it becomes cylindrical, enters a cavity formed in the crest of the sternum, and is continued into a vacant space beyond it, and extending to within half an inch of the posterior extremity of the bone, in which it forms a horizontal loop, returns, becomes vertical, and curving in the furcula enters the thorax to the length of three inches. The inferior larynx, composed of several united rings, is laterally compressed, measuring at the end in height an inch, and in breadth six-twelfths. Appended to the last or semi-lunar ring on each side is a narrow membrane, to which is attached an extremely slender half-ring. Within this small membrane is a larger extending to the first bronchial ring. The bronchi, composed of about twenty thin bony rings, some of which are united by processes, are two inches in length, enlarged beyond the middle into a somewhat globular sac, half an inch in breadth, and ultimately contracted to four-twelfths.

The nostrils are oblongo-elliptical, five-twelfths and a half in length, direct, medial. The aperture of the eyes four-twelfths and a half. The legs are short, very stout; the tibia bare for an inch and a quarter; the tarsus considerably compressed, reticulated; the hind toe very diminutive, the outer reticulated to the third joint, the middle toe nearly as far as the second joint, the inner to that joint, their scutella respectively thirty-five, thirty-three, and twenty; the membranes full. The claws of moderate size, strong, arched, compressed, rather acute, that of the middle toe with its inner edge dilated, and the tip rounded.

A portion of the forehead, and the space from the bill to the eyes, and margining them, bare. The plumage as in the other species; the wings very long, with thirty-three quills, the second and third equal and longest, the outer three deeply

sinuate on the inner web ; the tail short, much rounded, of twenty feathers.

The bill is black, with the exception of a bright yellow triangular space on each side at the base, not extending so far forward as the nostrils ; the bare skin at its base orange-yellow. The iris brown. The feet black. The plumage pure white ; the head and neck tinged with reddish-yellow.

Length to end of tail 45 inches ; extent of wings 74 ; wing from flexure $20\frac{1}{2}$; tail $5\frac{1}{2}$; bill along the ridge $3\frac{1}{2}$; from the joint 3 ; from the eye to the tip $5\frac{5}{12}$; its height at the base $1\frac{4}{12}$; its breadth near the end $1\frac{2}{12}$; bare part of tibia $1\frac{3}{12}$; tarsus $1\frac{9}{12}$; hind toe $\frac{7}{12}$, its claw $\frac{4}{12}$; second toe $3\frac{5}{12}$, its claw $\frac{8}{12}$; third toe $4\frac{1}{2}$, its claw $\frac{10}{12}$; fourth toe $4\frac{4}{12}$, its claw $\frac{7}{12}$.

FEMALE.—The female is similar to the male, but smaller. The digestive organs of an individual examined in Edinburgh, in January, 1836, were as follows:—The tongue two inches and a half in length, three-fourths in breadth. The œsophagus twenty-five inches long, for fifteen inches and a half averaging half an inch in width, but in two places dilated to tenths, and at the lower part of the neck forming a kind of diminutive crop ; within the thorax contracted to three-tenths ; the proventriculus two inches long, and one inch in its greatest breadth. The gizzard three inches and a half in breadth, two and a quarter in length, sub-elliptical, convex on the sides, with the edges rather thin. Immediately after the pylorus the intestine enlarges to half an inch, soon after to three-fourths, and so continues to the entrance of the biliary ducts, at eleven inches from the pylorus, after which it gradually contracts to the cœca, where it is four-tenths and a half. The rectum, at the commencement six-tenths and a half in width, gradually enlarges, and at the end forms an oblong cloaca. The cœca come off at the distance of six inches and a half from the end ; one is nine inches and a half in length, the other eight, at the commencement only two-tenths in breadth, but enlarging to seven-tenths, then gradually narrowing to four-tenths, their termination rounded ; one much smaller there than the other. The heart

two inches and ten-twelfths in length, two inches and three-fourths in breadth at the base. The right lobe of the liver three inches and a half, the left two and a half in length.

The dimensions of this individual, if taken at the time, have been lost.

HABITS.—This species had been confounded with the Common Wild Swan until Mr. Richard Wingate of Newcastle-on-Tyne, in a paper read before the Literary and Philosophical Society of that city, showed the difference between the two species, which were further particularly described by Mr. Yarrell, who disclosed the anatomical differences between them, and by Mr. Selby. Subsequently, it was considered the same as the smaller species of Swan common in many parts of North America, which, however, has been shown to be distinct by Dr. J. T. Sharpless of Philadelphia, in an elaborate paper published in the twenty-second volume of the American Journal of Science and Arts. These circumstances I here mention only as introductory to the remark, that the habits of Bewick's Swan, although they may not differ materially from those of either *Cygnus musicus* or *Cygnus Americanus*, have not hitherto been made a subject of observation. Since its discovery it has been frequently shot in England, and in several instances found in collections. In 1836 I had an adult female, and in 1838 a male, both obtained in Edinburgh, and no doubt shot in Scotland. All that I can learn respecting its habits is, that it appears to visit us annually in winter, and to be more numerous, or more easily obtained, during severe or long-continued snow-storms, when it betakes itself to estuaries or the open sea-coast. We may presume that it is gregarious, has a rapid direct flight, and in these, as well as in other respects, resembles the larger species. Like them it feeds on the roots of aquatic plants. Mr. Thompson finds it more common than the Hooper in Ireland. "In addition to my own observations on the subject, Mr. R. Ball considers that four-fifths of the Wild Swans brought to Dublin market are *C. Bewickii*. A similar proportion, too, occurred in Connaught, to Mr. G. Jackson,

gamekeeper, as of about forty or fifty Wild Swans killed there by him during several winters, all excepting five or six were of this species. It is the only Swan which has been observed on the coast of Kerry, where it appears in very severe winters." M. Temminck says it "inhabits Iceland, migrating southward."

CYGNUS AMERICANUS. THE AMERICAN SWAN.

Cygnus Americanus. American Wild Swan. Dr. Sharpless, Amer. Journ. Sc. and Arts, vol. XXII.

American Swan. Cygnus Americanus. Audubon, Amer. Ornith. Biogr. V. 133; Birds of America, pl. 411.

Adult male about fifty-four inches long, eighty-five in extent of wings; bill from the joint to the tip of the upper mandible three inches and four-twelfths, its greatest width near the end an inch and a quarter; from the eye to the tip of the bill four inches and nine-twelfths; tarsus four inches; middle toe four inches and three-fourths, its claw ten-twelfths; tail of twenty feathers, moderately rounded; bill and bare space on the fore part of the head black, with an oblong orange patch, never more than an inch in length, between the eye and the base of the bill; feet black; plumage pure white, the head tinged with orange-red. Female similar to the male, but considerably smaller. Young at first with the bill reddish-white, brown at the end; the feet light grey; the plumage of a deep leaden tint. In winter with the bill flesh-coloured, dusky toward the end; the feet dusky, the plumage light bluish-grey; the upper part of the head dusky grey, the feathers margining the forehead and cheeks reddish.

THE occurrence of a single individual of this species, an immature male, in the south of Scotland, has induced me to present a somewhat detailed history of it, such as may prove useful to those who may chance to meet with other specimens. The following descriptions are entirely original, being taken from an adult male presented to me by Mr. Audubon, and an entire female preserved in spirits:—

MALE IN WINTER.—The body is of an elliptical, some-

what depressed form ; the neck extremely long and slender ; the head of moderate size, oblong, compressed. The bill is rather longer than the head, straight, higher than broad at the base, gradually depressed, a little wider toward the end ; upper mandible with the dorsal line, not including the concave space beyond the joint, descending and very slightly convex to beyond the nostrils, then slightly concave, and ultimately decurved ; the ridge broad and flat at the base, gradually narrowed, beyond the nostrils convex, the sides nearly erect and somewhat concave at the base, gradually sloping, and becoming more convex ; the margins soft, nearly parallel, but toward the end widening a little ; the unguis large, broadly obovate, convex, thick-edged, and internally grooved. The lower mandible with the intercrural space very long and of moderate width, its membrane bare for more than two-thirds, the crura convex beneath, with their lower outline slightly re-arcuate, the laminated margins inclinate, the unguis very large, obovato-elliptical, with a wide groove on each side ; the gape-line slightly re-arcuate.

The upper mandible deeply concave, with a medial prominent papillate ridge, and on each side an oblique series of transverse flattened tubercles, a submarginal series of inconspicuous slender lamellæ, and a marginal series of about thirty-five transverse, more or less oblique, slender, little elevated, obtusely terminated lamellæ, not projecting beyond the margin. The lower mandible has twenty-two external and about sixty internal lamellæ.

The nostrils are oblong, nearly half an inch in length, direct, medial, near the ridge, in the lower anterior part of the oblong sinus. The eyes are very small, their aperture measuring five-twelfths. That of the ear round, four-twelfths in diameter. The legs are short, very stout, placed a little behind the centre of the body ; the tibia very muscular, bare for nearly an inch and a half ; the tarsus short, considerably compressed, reticulated with angular scales, of which the anterior are large and rounded ; the hind toe very diminutive, with a slight thickened lower margin ; the middle toe longer than the tarsus ; the outer considerably longer than the inner, and reticulated to the third joint, the inner reticu-

lated as far as the second joint, the middle toe nearly as far; the inner with twenty, the middle toe thirty-three, the outer twenty-five scutella; the interdigital webs full, reticulate, the marginal web of the inner toe slightly bilobate. The claws are of moderate size, strong, arched, compressed, convex above, rather acute, that of the middle toe with the inner edge dilated and the tip rounded.

A portion of the forehead, and the space between the bill and the eyes, denuded. The plumage moderate or rather full, dense, soft, and elastic; on the head and neck the feathers oblong, obtuse, blended, and very soft; on the lower parts rather small, much curved, ovato-oblong; on the upper parts larger, broader, and little curved; the scapulars large. The wings are very long, of moderate breadth, convex; the humerus and cubitus proportionally longer than the digital portion; the quills thirty-five, together with eight humerals; the primaries of moderate length, decurved, the outer three strongly sinuate on the inner web, the second longest, exceeding the first by eight-twelfths of an inch, but not more than half a twelfth longer than the third; the secondaries of moderate breadth and rounded. The tail is very short, rounded, of twenty stiffish, rounded feathers, of which the lateral are an inch and eight-twelfths shorter than the medial.

The bill is black, as is the bare space on the fore part of the head, with the exception of an orange-yellow oblong patch from the anterior angle of the eye, nearly an inch in length; the erect sides of the lower mandible and the inside of the mouth yellowish flesh-colour. The iris brown. The feet and claws black. The plumage entirely pure white.

Length to end of tail 54 inches; wing from flexure $22\frac{1}{2}$; tail $7\frac{1}{4}$; bill along the ridge, including the bare space 4, from its tip to the eye $4\frac{8}{12}$; hind toe $\frac{8}{12}$, its claw $\frac{3}{12}$; second toe $3\frac{8}{12}$, its claw $\frac{10}{12}$; third toe $4\frac{0}{12}$, its claw $\frac{1}{12}$; fourth toe $4\frac{8}{12}$, its claw $\frac{0}{12}$.

Dimensions of an individual described by Dr. Sharpless:—Length 54; bill from the edge of the forehead $4\frac{1}{8}$, from the eye 5; extent of wings 86; wing from flexure 23; middle toe 6.

FEMALE IN WINTER.—The female is similar to the male, but considerably smaller. An individual dissected by me, as detailed in Mr. Audubon's work, had about forty lamellæ on each side of the upper mandible, about sixty inner and twenty-two outer on each side of the lower. The width of the mouth one inch five-twelfths. The diameter of the aperture of the eyes five-twelfths, of that of the ears four-twelfths. The heart three inches two-twelfths in length, two inches ten-twelfths in breadth. The œsophagus twenty-six inches long, only four-twelfths wide, but at the lower part of the neck dilating to eight-twelfths; the proventriculus an inch and two-twelfths in breadth. The stomach, which is obliquely situated, is an extremely developed gizzard, of an elliptical form, two inches and a half in length, three inches and ten-twelfths in breadth; the right lateral muscle an inch and three fourths, the other an inch and a third in thickness; the epithelium thick, dense, with two smoothish, considerably concave grinding surfaces. There is a large pyloric sac, from which the duodenum comes off. The intestine measures eleven feet five inches in length. It first curves round the edge of the stomach to the length of eight inches and a half, reaching the sixth rib, then returns, enclosing the pancreas to before the stomach, passes along the spine nearly to the end of the abdomen, returns to the edge of the stomach, forms a small loop, comes forward, then backward, forward, backward, and forward, becomes anterior, curves parallel to the duodenum to the seventh rib, passes backward, curving up to the liver, returns, comes back, then stretches nearly to the cloaca, where it becomes accompanied by the cœca, comes forward on the right side to the anterior edge of the stomach, and bends abruptly backwards, forming the rectum. There are thus sixteen bends or eight folds. The average width is half an inch. The rectum seven inches long, eight-twelfths in width; the cœca eleven inches long, for three inches only two-twelfths wide, then expanded to from three-twelfths to four-twelfths-and-a-half; the cloaca of moderate size and globular.

The trachea, twenty inches in length, has at first a breadth of nine-twelfths, gradually contracted to seven-twelfths, and

is much flattened, until about six inches from the furcula, when it gradually becomes cylindrical, and seven-twelfths in diameter, on reaching the curve of the furcula bends a little upwards, enters a cavity formed in the crest of the sternum, along which it passes to the length of six inches, bends upon itself horizontally, forming a loop, returns, emerges, bends upwards and backwards, entering the thorax. The inferior larynx, composed of several united rings, is laterally compressed. Appended to the last or semilunar ring, on each side, is a narrow membrane, terminated by an extremely slender half ring. Within this small membrane, and separate from it, is a large membrane extending to the first bronchial ring. The bronchi are very short, at first compressed, then enlarged into a roundish cavity seven-twelfths-and-a-half in diameter, afterwards cylindrical; their entire length an inch and three fourths; the right bronchus with twenty-three, the left with twenty-one slender rings, a few of which anastomose.

Length to end of tail 50 inches; bill along the ridge $4\frac{1}{4}$, from its tip to the eye $4\frac{1}{2}$; lower mandible, along the edge $3\frac{1}{2}$, its height at the basal angles of the mouth $1\frac{9}{12}$, breadth at the nostrils $1\frac{4}{12}$, near the end $1\frac{5}{12}$.

VARIATIONS.—In the adult state, the principal variations are in size, and in the extent of the orange-red, or rusty tint on the head and neck. According to Dr. Sharpless, the trachea in young birds forms a vertical fold within the keel of the sternum, but in those of more advanced age, in which a cavity forms in the body of the sternum, makes a horizontal loop, which varies in size, until in very old birds it has a width of two inches or more. Of three sterna figured by him to show these gradations, one, in which the trachea has only a vertical fold—the bird being very young—the length of the sternum was six inches and a half, the length to which the tracheal loop extended three inches and a half; in another, the length of the sternum was six inches and a half, that of the loop, horizontal at the end, four inches and three fourths; in the third the sternum was seven inches and a half in length, the loop circularly expanded at the end, and extending to the posterior edge of the sternum.

HABITS.—This species, the common Swan of North America, long confounded with the common Wild Swan of Europe, and afterwards with Bewick's Swan, was first accurately distinguished and described by Dr. Sharpless, in a paper read before the Academy of Natural Sciences of Philadelphia, on the 7th of February 1832, and printed in the twenty-second volume of the American Journal of Sciences and Arts. In the first volume of the Cabinet of Natural History, published, in 1831, in Philadelphia, he has also given a detailed and most agreeable account of its habits, respecting which, however, it is not expedient to present more than the following epitome:—

The Swans leave the shores of the Polar Sea about the 1st of September, and resort to the lakes and rivers in about the latitude of Hudson's Bay, where they remain until October, when they collect into flocks of twenty or thirty, and in favourable weather commence their southward flight, mounting high in the air, in the form of a prolonged wedge. "When mounted, as they sometimes are, several thousand feet above the earth, with their diminished and delicate outline hardly perceptible against the clear blue of heaven, their harsh sound softened and modulated by distance, and issuing from the immense void above, assumes a supernatural character of tone and impression that excites, the first time heard, a strangely peculiar feeling." In flying, they extend their necks to their full length, advance with an undulating motion of their outspread wings, and, when favoured by a moderate wind, proceed at the rate of an hundred miles an hour. In October and November they reach their winter homes, generally arriving in the night, and making the shores ring with their vociferous congratulations. The Chesapeake Bay is a great resort during the winter, flocks of from one to five hundred feeding on the flats near its western shores. They always select places where they can reach their food by the length of their necks, they being never seen to dive. The food to which they are most partial is the *Valisneria Americana*, worms, insects, and shell-fish. They are exceedingly watchful, so as to be with difficulty approached; but seldom fly off, even from the pursuit of a boat, unless very closely

followed. While feeding and dressing, they make much noise, and through the night their vociferations can be heard for several miles. "Their notes are extremely varied, some closely resembling the deepest base of the common tin horn, whilst others run through every modulation of false note of the French horn or clarionet. They are often killed by rifle-balls from the shore, as well as by sailing down upon them whilst feeding, or as they pass a point of land between two feeding coves, and sometimes by means of a boat covered with ice, and paddled or allowed to drift among them at night." When wounded in the wing only, a large Swan will readily beat off a dog, and is more than a match for a man in four feet water; a stroke of the wing having broken an arm, and the powerful feet almost obliterated the face of a good-sized duck-shooter.

"This species requires five or six years to reach its perfect maturity of size and plumage, the yearling Cygnet being about one-third the magnitude of the adult, and having feathers of a deep leaden colour. The smallest Swan I have ever examined weighed but eight pounds. Its plumage was very deeply tinted, and it had a bill of a very beautiful flesh-colour, and very soft. By the third year the colour of the bill becomes black, and the colour of the plumage less intense, except on the top of the head and back of the neck, which are the last parts forsaken by the colour. Swans of the sixth year have assumed all the characters of the adult. When less than six years of age, these birds are very tender and delicious eating, having the colour and flavour of the Goose; the latter quality, however, being more concentrated and luscious."

In the paper published in the American Journal of Science and Arts, he states that the youngest and smallest specimen he had met with "had a very soft reddish-white bill, with a brown point, and measured three inches from the point of the beak to the forehead, six inches and one-eighth to the occiput, and the usual position of the coloured spot was covered to one inch and three-eighths in front of the eye, with small orange feathers, which extend down to the gape. The plumage, to the end of the tail and primaries,

was of a deep leaden tint, and the feet and legs were of a light grey colour. This specimen measured six feet and eight inches between the points of the extended wings, four feet two inches from the point of the beak to the tail, and weighed eleven pounds," the greatest weight of an adult being about twenty-one pounds.

This species has not hitherto been known to visit any part of Europe, although the occurrence there of a bird capable of flying a hundred miles an hour would not be surprising.

In February, 1841, having been informed that there was in a poulterer's in Edinburgh a Swan, somewhat remarkable on account of the dark colour of its head and small size, I went to see it; but not being at the time engaged with birds of this family, did not purchase it. However, a gentleman having bought it on my account, I found that it presented some of the characters of Bewick's Swan, but was considerably larger than even adults of that species. It was a young bird in pale grey plumage, with the upper part of the head dusky, the bill partially flesh-coloured, the feet black, and the tail-feathers eighteen. This latter circumstance induced me to incline to the opinion of its being *Cygnus Bewickii*; and on dissecting it I found the vertical bend of the trachea, and the form and position of the inferior larynx and bronchi, to agree with that species; but the sternum was larger, the stomach vastly superior in size, and the intestine longer and wider. I then compared it with a stuffed adult specimen of the American Swan, and a prepared head and bill of a young bird of the same species, together with my notes and drawings of dissections of *Cygnus musicus*, *Bewickii*, and *Americanus*, and became satisfied of its belonging to the latter species. Its description is as follows:—

The body is of an ovato-elliptical form, rather depressed, especially at its fore part; the neck extremely long and moderately thick; the head of moderate size, oblong, and compressed. The bill is slightly longer than the head, straight, higher than broad at the base, gradually depressed, of almost equal breadth throughout, being however a twelfth of an inch.

wider toward the end, which is rounded. The upper mandible has the dorsal line sloping, the ridge at first flat and broad, but gradually narrowed to beyond the nostrils, then convex, the sides nearly erect at the base, gradually sloped and more convex, the unguis broadly obovate, large, and convex, with the edge strong and internally striated, the edges soft, marginate, and scrobiculate. The lower mandible with the intercrural space very long and of moderate width, its membrane bare for two-thirds, the crura convex beneath, their lower outline slightly rearcuate, the laminated margins inclinate, the unguis very large, obovato-elliptical, with a broad groove at each side; the gape-line slightly rearcuate.

The upper mandible is deeply concave, with a medial papillate ridge, and on each side an oblique series of transverse flattened tubercles, a sub-marginal series of inconspicuous, slender lamellæ, and thirty-five oblique and transverse slender, elevated, obtusely terminated laminæ, of which the slightly elevated free tips do not project beyond the margin. On each side of the lower mandible are about twenty-two external and sixty-five internal lamellæ. The œsophagus, thirty-three inches and a half in length, averages ten-twelfths in width, but toward the lower part of the neck is enlarged to one inch, and in the proventricular part measures an inch and a half in breadth. The stomach, which is placed very obliquely on the left side, measures three inches in length, four inches and eight-twelfths in breadth, being of a transverse elliptical form, a little compressed, with the lateral muscles extremely developed, the tendinous fibres covering nearly the whole surface, the tendons very narrow in the middle; the inferior muscle distinct and small. The intestine, eleven feet ten inches in length, varies in width from an inch and a quarter in the first part of the duodenum to eight-twelfths of an inch. The duodenum curves round the edge of the stomach in three-fourths of a circle, returns at the distance of nine inches, receives the biliary ducts at nineteen inches from the pylorus, then passes along the right side, near the end of the abdomen, ascends, forms several curves beneath the kidneys, and then forms several nearly transverse parallel folds, extending from the duodenal fold to the anus, after

which it curves to above the stomach, and proceeds nearly straight to the end, forming in all sixteen curves. The rectum is ten inches in length, eleven-twelfths in breadth, and at the end is expanded into a cloacal dilatation, an inch and a half in width. The cœca are fifteen inches long, for four inches and a half only three-twelfths in breadth, then enlarging to one inch, and toward the end contracting to four-twelfths. The right lobe of the liver is five inches in length, the left three inches, the gall-bladder elliptical, an inch and a half. The spleen is only ten-twelfths in its greatest diameter. The heart two inches and ten-twelfths in length, an inch and ten-twelfths in breadth.

The trachea, formed of about two hundred and eighty flattened rings, is at first nine-twelfths in breadth, then contracts to six-twelfths, and becoming round enlarges to seven-twelfths, and entering the cavity in the crest of the sternum to the distance of three inches, forms a vertical loop, returns, curves in the furcula, and enters the thorax to the distance of two inches. The syrinx is formed of five united rings, and is compressed, being half an inch in breadth, and an inch in depth. Appended to the last half ring on each side is a narrow membrane terminating in a very slender half ring, and external to the large membrane between the last tracheal and first bronchial half ring. The bronchi are very short, an inch and a half in length, at first compressed, half an inch in height, then round, and half an inch in diameter, finally cylindrical and narrower. The rings are slender, incomplete, a few anchylosed; the right bronchus with twenty, the left twenty-four.

The nostrils are linear-oblong, nearly half an inch in length, situated beyond the middle, in the fore part of the oblong nasal space. The eyes are small, their aperture only four-twelfths and a half. That of the ear round, four-twelfths in diameter. The legs are short, very stout; the tibia very muscular, bare for an inch and a quarter; the tarsus short, considerably compressed, reticulated with angular scales, of which the anterior are larger and rounded; the hind toe very diminutive, with a slight thickened lower margin, the middle toe longer than the tarsus; the outer considerably longer than

the inner ; the inner with twenty, the middle toe with thirty-three, the outer with twenty-seven scutella ; the interdigital webs full, reticulate, the marginal web of the inner toe slightly bilobate. The claws are small, strong, arched, compressed, convex above, obtuse, that of the middle toe much larger, with the inner edge dilated, and the tip rounded.

The parts at the base of the bill, which ultimately become bare, that is, the space between the frontal angles above, and those between the lateral sinuses and the eye, are sparsely covered with very small, somewhat downy feathers. The plumage is moderate, soft, dense, and elastic. On the head and neck the feathers are oblong, obtuse, blended, and very soft ; on the lower parts ovato-oblong, much curved ; on the upper larger, broader, and little curved. The wings long, of moderate breadth ; the quills thirty-five, besides eight humerals ; the primaries rather short, decurved, the outer three strongly sinuate on the inner web, the second and third equal and longest, the first nine-twelfths of an inch shorter. The tail is very short, rounded, of eighteen rounded feathers, of which the lateral are about an inch shorter than the medial.

The bill is reddish flesh-colour, gradually shaded into dusky, and at the end blackish. Part of the partially bare space between the base of the bill and the eye of a dull lemon-yellow. The intercrural space is flesh-coloured, as is the interior of the mouth. The iris dusky-brown. The feet are black, but on the tibia anteriorly is a small flesh-coloured patch ; the claws purplish-grey, paler at the base. The general colour of the plumage is a very pale ash-grey, seeming a soiled white at a distance ; the breast and abdomen greyish-white. The head and neck are dusky-grey, that colour being deeper on the upper part of the head, gradually fading on the neck, paler on the throat and lower eyelids. When closely examined, each feather on the head, and part of the neck, is found to be marginally tipped with paler. Some of the minute feathers on the fore part of the head are yellowish. The larger wing-coverts, quills, scapulars, and tail-feathers are nearly pure white at the base, with a dusky tinge at the end.

Length to end of tail $46\frac{1}{2}$ inches ; extent of wings 80 ;

wing from flexure $20\frac{1}{2}$; tail $5\frac{1}{2}$; bill along the ridge $3\frac{4}{12}$, from the joint $3\frac{2}{12}$, from the eye $4\frac{7}{12}$, its height at the base $1\frac{5}{12}$, its breadth near the end $1\frac{1}{4}$, about the middle $1\frac{2}{12}$; bare part of tibia $1\frac{2}{12}$; tarsus 4; hind toe $\frac{8}{12}$, its claw $\frac{4}{12}$; second toe $3\frac{7}{12}$, its claw $\frac{8}{12}$; third toe $4\frac{8}{12}$, its claw $\frac{7}{12}$; fourth toe $4\frac{4}{12}$, its claw 4.

REMARKS.—The tail, although apparently complete, having only eighteen feathers, induced me at first to consider this bird as a Bewick's Swan; but its length and extent of wing, it being obviously a young bird, being considerably greater than those of an adult male of that species—the former being $46\frac{1}{2}$ to 45, the latter 80 to 73, and young Swans being in their first winter a third less than adults—I conceived it might prove merely the young of *Cygnus musicus*. On dissecting it, however, I found reason to alter my opinion. There are three Swans—*Cygnus Buccinator*, *Americanus*, and *Bewickii*—of which the trachea, after forming a fold within the sternum, enters the thorax to a considerable distance, and terminates in very short bulging bronchi. Now, as will be seen from the description of the trachea given above, this was the case with the bird in hand. The syrinx of *Cygnus musicus* scarcely enters the thorax, being situated on the anterior edge of the sternum, while the bronchi are so much elongated as to reach their usual place of insertion in the other species. *Cygnus Buccinator* is so very much larger that it could not belong to that species, and *Cygnus Bewickii* so much smaller that its belonging to it seemed scarcely probable. Its tongue half an inch longer, its gizzard an inch broader, the intestine much longer and wider, and the trachea, instead of being almost uniform, considerably dilated below, seemed all in favour of its belonging to *Cygnus Americanus*. On comparing its sternum with that of an adult *Cygnus Bewickii*, I found it nearly an inch longer, and of considerably greater breadth, while it agreed in all respects with that of an adult female *Cygnus Americanus*, excepting that it formed no horizontal loop, this circumstance depending merely on age. A stuffed head of a young *Cygnus Americanus* in my collection was found to be precisely similar

in every respect, with the exception of its having more buffy or rufous feathers; and the bills of the two showed not the slightest difference in form, measurements, or lamellæ. In fact, so perfect an agreement could not take place in two different species. The wings also agreed as to the number and form of the quills—which, however, were smaller—with those of an adult *Cygnus Americanus*, and the tail was precisely similar to that of a young bird in my collection, only that the one had eighteen the other twenty feathers. The tarsi and toes were exactly similar; the scutella the same in number and form; but the claws of my young bird were shorter and paler than those of the adult. As to the tail-feathers, M. Temminck, Mr. Blythe, and others, have found them to vary as to number in Swans generally, and Mr. Thompson and others have shown that even of *Cygnus Bewickii*, the normal number is not eighteen but twenty. If it, then, should frequently have eighteen, there is no reason to suppose that *Cygnus Americanus* may not also sometimes have two less than usual.

On the whole, then, the result of my examination is, that the individual in question is shewn by the structure and curve of its trachea to be similar to *Cygnus Americanus* and *Cygnus Bewickii*; that, although a young bird, it greatly exceeds the adult of the latter species in all its dimensions, and especially in those of its digestive and respiratory organs; and that it agrees in all essential respects with the former species, its identity being especially established by the perfect agreement of the bill and head with those of a young bird of that species; finally, that if not *Cygnus Americanus*, it is a species not hitherto described, differing from it only in having eighteen instead of twenty tail-feathers. But as the variation of the tail-feathers in Swans is notorious, this circumstance appears to be of no importance whatever.

The proventriculus of this individual contained some fleshy roots and rhizomata, with quartz sand. In the anterior half of the intestine was a great number, forty or fifty, slender tape-worms. Probably the examination of these animals might be of importance, as each species of Swan

may be infested with a particular species of tape-worm. The flesh of this bird, judging from a portion of the muscles of the leg roasted on the tongs in the dissecting-room, is tender, and of exquisite flavour; but to give it justice, one would require to have it better cooked, and eaten under more favourable circumstances. It is certainly far superior to the best beef.

The number of ribs in this individual is eleven, which also is the number in an American specimen dissected by me; whereas in Bewick's Swan, as well as in *Cygnus musicus*, I find the number to be ten.





DIGESTIVE ORGANS OF TENTATORIES

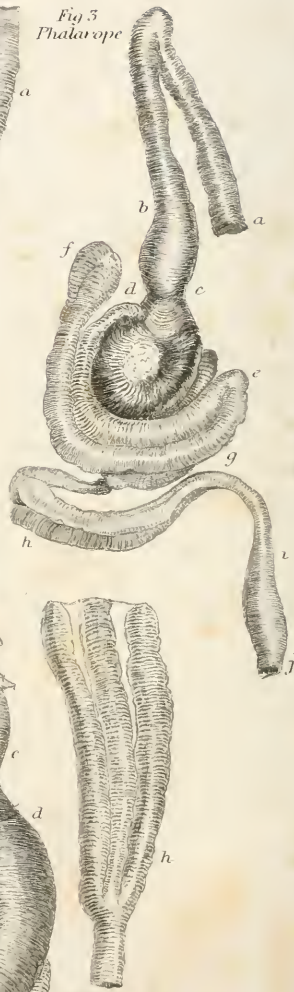
Fig 2 Dunlin



Fig 1 Lapwing



Fig 3 Phalarope



DIGESTIVE ORGANS OF TENTATORIES

Fig 1
Oyster Catcher

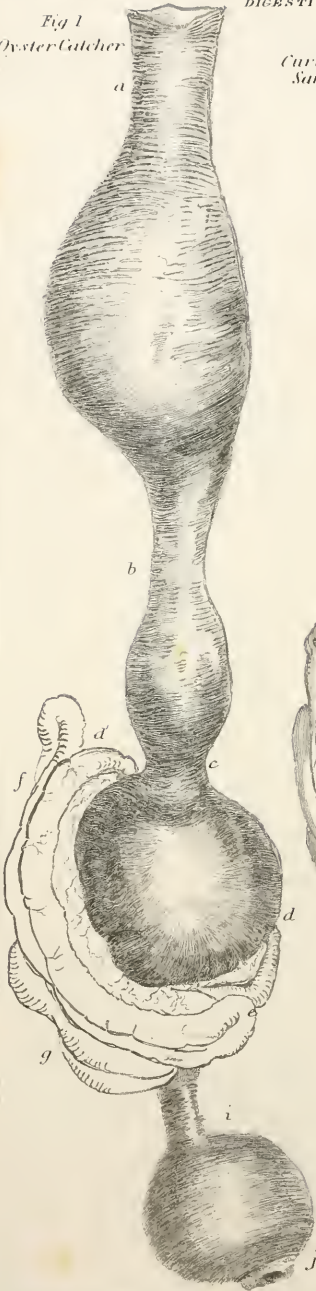


Fig 2
Curlewylled
Sandpiper

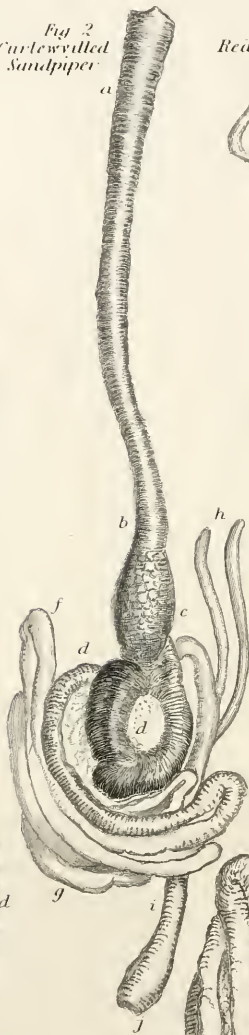
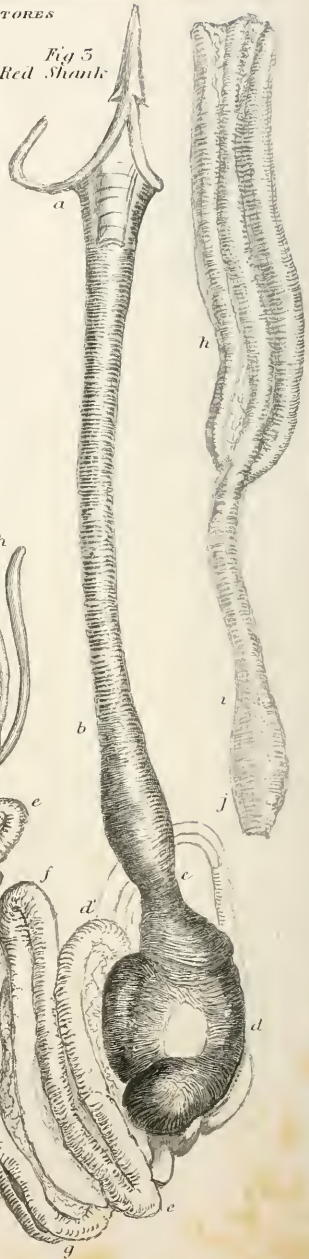


Fig 3
Red Shank



DIGESTIVE ORGANS OF GREAT WHITE EGRET



DIGESTIVE ORGANS OF SKULKERS

Fig 1 Crake

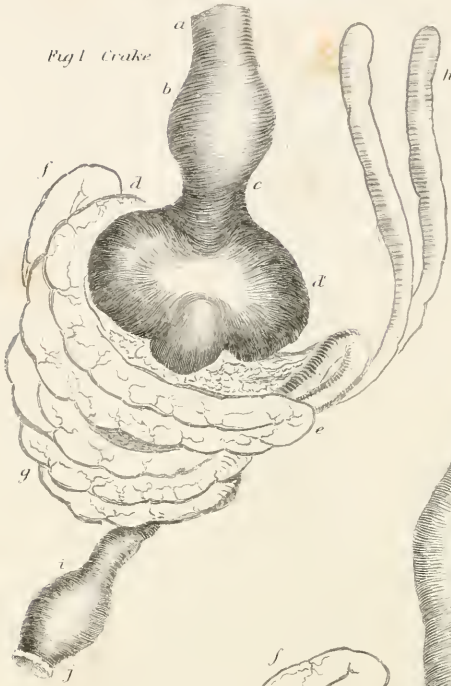


Fig 2 Coot



EXPLANATION OF THE PLATES.

PLATE I. Digestive Organs of Probers. The same letters refer to the same parts in all.

FIG. 1. *Digestive Organs of the Lap-wing, Vanellus cristatus.*

a, b, c, the œsophagus.
b, c, proventriculus.
d, stomach.
d, e, f, duodenum.
g, rest of intestine.

h, cœca.

i, j, cloacal dilatation of the rectum.

FIG. 2. *Digestive Organs of the Dunlin, Tringa Cinclus.*

FIG. 3. *Digestive Organs of the Gray Phalarope, Phalaropus lobatus.*

PLATE II. Digestive Organs of Probers.

FIG. 1. *Digestive Organs of the Oyster-catcher, Hæmatopus Ostralegus.*

FIG. 2. *Digestive Organs of the Curlew-billed Sandpiper, Tringa subarquata.*

FIG. 3. *Digestive Organs of the Red-shank, Totanus Calidris.*

PLATE III. Digestive Organs of Stalkers.

FIG. 1. *Digestive Organs of the Black-billed Egret, Egretta nigrirostris.*

The great width of the œsophagus, the roundish thin stomach, its pyloric lobe, the very slender elongated intestine, destitute of cœcal appendages, and the large globose cloaca, are characteristic of this order.

PLATE IV. Digestive Organs of Skulkers.

FIG. 1. *Digestive Organs of the Corn-Crake, Crex pratensis.*

FIG. 2. *Digestive Organs of Bald Coot, Fulica atra.*

The powerful gizzard and large cœca agree with those organs in the Rasores, but the œsophagus differs in having no crop or dilatation.

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*The Approved Names only are employed, the Synonymes and Provincial Names
being excluded.*

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