In Twelve Sections: THE BRITISH BIRD BOOK

200 PLATES IN COLOUR AND NUMEROUS PHOTOGRAPHS,

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A COMPLETE WORK ON THE BIRDS, NESTS AND EGGS OF GREAT BRITAIN

London and Edinburgh ~ T.C. & E.C. JACK
THE SKUAS


PRELIMINARY CLASSIFIED NOTES

[F. C. R. JOURDAIN. F. B. KIRKMAN. W. P. PYCRAFT. A. L. THOMSON]

GREAT-SKUA [Megaléstris skua (Brünnich); Megalestris catarrháctes (Linnaeus). Old hen, Tom Harry (Devon), bonxie, skoë (Shetlands). French, labbe cataracte; German, grosse Raub-Möwe; Italian, stercorario maggiore].

1. Description.—The great-skua is easily recognised by its large size, almost uniform umber-brown coloration, the large white patch on the primaries, and the absence of conspicuous "tail streamers." The sexes are alike, and there is no seasonal change of coloration. (Pl. 109.) Length 21 in. [533.40 mm.]. The head and nape are umber-brown, the feathers of the neck rather paler, acuminate, and have pale straw-coloured shafts. The wings are rather darker brown than the rest of the upper parts, and the outer primaries show a large patch of white extending outwards from the tips of the primary major coverts; the shafts of the quills are white. The tail-coverts are brown with dull rufous streaks, and the rectrices are umber-brown; the central feathers not markedly longer than the rest. The under surface is of a pale chestnut-rufous, white shaft-streaks giving the flanks a slightly striated appearance. The cere is of a greyish blue, the beak, legs, and toes black, and the iris is dark brown. The juvenile plumage differs from that of the adult only in that the neck feathers are less pointed and less conspicuously striated. The downy young are of a light bistre-brown inclining to reddish, especially in the back. The only trace of mottling of any kind is to be found on the crown, and here it is barely discernable. Beak dark lead colour. Legs pale lead-blue, with a patch of dark leaden-grey on each side of the base of the toes, which, with the webs, are of a dark leaden-grey. [W. P. P.]

2. Distribution.—In the British Isles this fine species is confined to two
localities in the Shetlands, one on the Sneug, on the island of Foula, and the other on Herma Ness, in the island of Unst, from which at various times attempts have been made to colonise the opposite headland of Saxavord and other localities in the island. Rona's Hill on the mainland was also occupied at one time, and the nest has occasionally been found on Yell and Hascosay. Outside the British Isles it breeds in the Faeroes, and in much larger numbers also in Iceland. The only other locality where they are supposed to breed is Lady Franklin Island, Hudson Strait, where Kumlien reports having seen the birds in September, and adds that they had then young on the rocks. The date, however, is late and the site unlikely, so that probably there is some mistake. In winter it has occurred as a straggler as far south as the Straits of Gibraltar, the Balearic Isles, and occasionally in Italy and the Swiss lakes. On the American side it ranges to New Brunswick, Nova Scotia, Newfoundland, and the New England coast. [P. C. R. J.]

3. Migration.—Resident within our area as a whole: breeding only in the Shetland Isles, it is an uncommon winter visitor to all other parts of our coasts, occurring chiefly on the eastern seaboard of Great Britain. Whether these winter visitors all come from Shetland, or partly from further north, is not known. [A. L. T.]

4. Nest and Eggs.—The great-skua breeds in colonies, but the nests are not placed close together, and in most cases are found at a considerable height above the sea. The nests, according to Oswin Lee, are rather untidy structures. First "a hollow nearly a foot in diameter is trodden in the moss on the slope near the top of some hill; this is lined with bits of moss, a few feathers and a good deal of dead grass." (Pl. xlvii.) According to Naumann, the female makes the nest. Two eggs are deposited. The usual ground-colour varies from light to deep olive-brown, but a less common type is olive-green in colour, sometimes very pale. The markings consist of very dark brown spots and blotches and ashy brown shellmarks, which are rather sparsely distributed, chiefly round the big end, sometimes forming an irregular zone. A blue type without markings has also occurred (Dr. O. Ottosson). (Pl. J.) Average size of 27 eggs, 2.73 × 1.93 in. [69.5 × 49.1 mm.]. Incubation, according to Hantzsch, is carried on by both parents in turn, and the young are hatched after a period of 28-30 days, while Faber estimates the fledging period as about 30 days. The first eggs are laid in the Shetlands from about 12th to 24th May according to the season, and only a single brood is reared annually, though, where much harried, two or three clutches may be laid. [F. C. R. J.]

1 The Duchess of Bedford records forty-two nests at this station in 1907 (Annals Scot. Nat. Hist., 1908, p. 4).
Plate XLVII

Nest of great skua

Nest of Arctic or Richardson's skua
5. **Food.**—Fish robbed from other species, the young and eggs of other species, carrion, crustaceans, and molluscs, occasionally also adult birds, such as kittiwakes (see p. 214). The young are fed, chiefly on fish, by both parents. [F. B. K.]

**POMATORHINE-SKUA** [**Stercorarius pomarinus** (Temminck); **S. pomatorhinus** (Temminck). Black Allan, molberry, Tom Harry. French, *labbe pomarin*; German, *mittlere Raub-Möwe*; Italian, *stercorario mezzano*].

1. **Description.**—The pomatorhine-skua is to be recognised from its congeners by the broad rounded ends of the central tail feathers. These feathers are much longer than the rest and form "streamers," of which the vanes are twisted vertically. The sexes are alike, and there is no seasonal change of coloration. (Pl. 110.) Length (including the "tail streamers") 21 in. [533.40 mm.]. The crown of the head, region of the lores, and fore-part of the cheeks are black. The feathers of the neck—which are acuminate—and throat are white suffused with yellow. The rest of the upper parts are of an umber-brown. The lower neck feathers are barred with black, forming a more or less conspicuous pectoral bar; the breast is dull white, while the uppermost flank feathers and abdomen are umber. The pectoral band becomes less conspicuous with age, and there is a tendency, until full maturity is attained, to develop striations on the flanks and upper and under tail-coverts after the autumn moult. Beak brown, legs and toes reddish black. There is also a dark form of this species. According to Kolthoff's observations in N.W. Greenland, this form may be as dark as the Arctic-skua, and between it and the light form all intermediate variations may be seen (Naumann, *Vögel Mitteleuropas*, xi. 313). In the immature plumage there is less yellow on the neck, and the flanks and under parts are more barred. The juvenile plumage differs from that of later and adult stages in having the feathers of the upper parts sooty brown margined with rufous, the major coverts and secondaries tipped with rufous; the tail-coverts barred with rufous and black; the under parts show some variation in hue, but may be described as of an ashy brown, more or less conspicuously striated with darker brown. Legs and toes often blue or grey in patches, and the bases of the toes yellowish. The young in down is of a sooty brown, with a tinge of rufous in the back. [W. P. P.]

2. **Distribution.**—In the British Isles this species is only known as a fairly
regular autumn and winter migrant to Great Britain, especially on the eastern side, and a scarce visitor to Ireland on autumn passage. It has been observed during the breeding season on the Murman coast, the Kanin Peninsula, Waigatz, Kolguev, Dolgoi, and Novaya Zemlya (where nests were found in 1903), while in Asia it occurs in summer on Yalmal, the Ob north of 67°, the Lower Yenesei (where Popham found nests in 1895), the Taimyr Peninsula north of 74° (Middendorff), and the Liakoff Islands. It has occurred on Jan Mayen, but apparently does not breed in Spitsbergen or Franz-Josef Land, though it has been met with in June north of the Spitsbergen group between 82°53' and 82°57' N. lat. by Sverdrup. On the American side it is found on the west coast of Greenland, and breeds in Wrangel Land, Grinnell Bay, Exeter Sound, Disco Island (?), and Herald Island, while it occurs in summer near Franklin and Liverpool Bays, and McIlhenny took many nests in the Point Barrow district, North Alaska. During the winter months it ranges south to the Mediterranean and Black Sea, and has been recorded from the west coast of Africa as far south as Walvisch Bay, while in the Pacific it visits Japan, Burma, North Australia, Peru, and California. [F. C. R. J.]

3. Migration.—A bird of passage and a winter visitor. The species is most often met with during the autumn: only a small proportion of the birds remain for the winter near our southern coasts, and the spring passage is not very noticeable. The east coast of Great Britain is the one most favoured by this species; on the Irish coasts it is of irregular occurrence. An exceptional invasion took place in the autumn of 1879, and a less noticeable one in October 1880. After gales the species is sometimes met with inland (cf. Saunders, Ill. Man. B. B., 2nd ed., 1899, p. 689; and Nelson, B. of Yorls., 1907, p. 697). [A. L. T.]


5. Food.—To a great extent parasitic on the smaller Gulls and Terns, forcing them to disgorge fish and then devouring it. At times, however, it will capture fish for itself, and will devour all kinds of carrion thrown up by the sea. It has been recorded as feeding on the blubber and offal of whales, seals, walrus, etc., as well as their excreta, also on lemmings captured by itself (Von Heuglin), and a dead rat (Thompson). It has been seen devouring a dead herring-gull (R. Service), and has been killed while clinging to a wounded kitiwake (M. Bailey). One shot by T. H. Nelson disgorged a fresh grey-plover. Kolthoff records having found small Crustacea in the stomach, and Naumann states that the berries of Vaccinium uliginosum and V. oxyccocus are said to be used at times to feed the young. There is little doubt that this species devours the eggs of other birds, and on the breeding-ground in
Alaska it also takes insects (L. M. Turner). Nothing certain appears to have been recorded as to the food of the young. [F. C. R. J.]

**ARCTIC OR RICHARDSON'S SKUA** *Stercorarius parasiticus* (Linnaeus); *Stercorarius crepidatus* (Gmelin). Irish lord, robber bird (Devon); gull Allan (Northumberland); scoutie Allan (Orkneys); shooi, boatswain (Shetlands). French, *labbe parasite*; German, *Schmarotzer Raub-Möwe*; Italian, *labbo*.

1. **Description.**—The Arctic-skua is distinguished by the long-pointed tail feathers and the white shafts to the primaries, the latter being characteristic at all ages. The sexes are alike, and there is no marked seasonal change of coloration. (Pl. 100 in vol. ii.) Length, including the "tail-streamers," 20 in. [508·00 mm.]. This species is very variable in coloration, presenting two more or less distinct phases—a light and a dark phase—but the extremes are linked by gradations due to interbreeding, which make description difficult. In the dark phase, which is most frequently met with in the most northerly latitudes, the crown is dull black, and the rest of the plumage dark sooty brown suffused with slate-grey on the upper parts, and with a conspicuous bronze-yellow tinge on the ear-coverts and sides of the neck. In the light phase the under parts are white or creamy white, this extending to the throat and the sides of the neck, almost to the nape, where it is conspicuously washed with yellow. In some individuals the side of the neck is of a greyish buff, and the yellow is formed by shaft-streaks, giving a striated appearance. Iris hazel. There is considerable individual variation. Legs black. The juvenile plumage is of a uniform sooty brown, rufous margins to the feathers giving a variegated appearance (see p. 205). The adult dress is apparently not completed till after the fifth autumn moult. The young in down are of a uniform sooty brown, slightly paler on the under parts. [W. F. F.]

2. **Distribution.**—In Great Britain this skua is only known to breed on the mainland of Scotland in Caithness, as first recorded by Booth, and in Sutherland, where in 1884 Messrs. Harvie-Brown and Buckley were only aware of the existence of one pair of breeding birds, though Mr. A. H. Evans describes the colony as a fair-sized one of late years. On the islands off the west coast it is, however, more numerous: there are two good-sized colonies in the Inner Hebrides, one of about one hundred pairs, according to Messrs. Harvie-Brown and Buckley. On Islay and Jura it breeds commonly; a single pair nested on Tiree in 1891. In the Outer
Hebrid a few pairs breed on the Lews, while other colonies exist on North and South Uist and on some of the smaller islets. In the Orkneys it is apparently confined to the parish of N. Walls in Hoy, and one pair breeds on Fair Island, but in the Shetlands it is far more generally distributed, the largest colonies being found in Noss, Fetlar, and Herma Ness. Outside the British Isles it breeds in the Faeroes and Iceland, while in Norway it is found along the coast district, but chiefly north of Trondhjem’s Fjord, and in Sweden both on the west and east coasts. There is no recent record of breeding in Denmark, but it nests in Northern Russia on the tundra south to lat. 64½° on the Dwina, and is plentiful in the north-east. It also breeds on Jan Mayen, Franz-Josef Land, Spitsbergen, Novaya Zemlya, and probably also Waigatz and Kolguev. In Asia it is found along the north of Siberia south to about lat. 67°-71°, and also on the Commander Isles. In North America it breeds in Southern Greenland and the shores of Davis Strait and along the northern coasts west to Alaska and the Aleutian Isles. In winter its range includes the Mediterranean and N. Atlantic, while it has been recorded as far south as the Cape of Good Hope in Africa; and it has also occurred in the Persian Gulf, the Indian Ocean, Tasmania, and New Zealand; and on the coasts of America in California and Peru on the west side, and at Rio de Janeiro on the east. [F. C. R. J.]

3. Migration.—Resident within our area as a whole. In winter a regular migration takes place from the northern breeding-haunts down the west coast of Scotland and the east coast of Great Britain. The species’ visits to the south of England are less frequent, and it is of irregular occurrence on the west (cf. Saunders, Ill. Man. B. B., 2nd ed., 1899, p. 691). To the Irish coasts it is a not infrequent winter visitor, but rare in the summer months (cf. Ussher and Warren, B. of Ireland, 1900, p. 351). It is probable that a proportion of these winter birds come from beyond our area. [A. L. T.]

4. Nest and Eggs.—Although this species breeds in colonies the nests are generally some distance apart, and in the British Islands its favourite haunts are wide expanses of hummocky moorland, or in some cases at a considerable height on mountains near the sea. The nest is generally a mere depression in the moss, scantily lined with grasses or bits of heather. (Pl. XLVII.) The eggs are normally two in number, though occasionally three eggs have been found in a nest. They vary in shape even in the same clutch, while the ground-colour ranges from pale olive-green to deep olive-brown, and exceptionally pale blue or pale buff varieties have been met with. The markings consist of spots and blotches of deep umber or blackish and a few ashy brown shellmarks. (Pl. J.) Average size of 31 eggs,
2.18 x 1.61 in. [55.5 x 41.1 mm.]. Hantzsche states that incubation is chiefly performed by the hen, but that she is relieved for some hours by her mate. He quotes Faber as giving the period as 24 days, but says that others estimate it as 28 days. Faber also states that the fledging period of the young is 40 days. The breeding birds arrive at the nesting-grounds about the end of April, and the first eggs are laid at the end of May or early in June in Scotland. Only a single brood is reared in the season. [F. C. R. J.]

5. **Food.**—Fish robbed from other sea-birds, the eggs and young of various species, chiefly Ducks, Waders, Terns, and Gulls, occasionally perhaps adult birds, such as small Waders. To these it adds carrion, crustaceans, molluscs, insects, worms, and small rodents. The young are fed on fish and sometimes insects, also berries, by both parents. [F. B. K.]

**BUFFON'S OR LONGTAILED-SKUA** [Stercorarius longicaudus Vieillot; Stercorarius parasiticus (Linnaeus). French, labbe à longue queue; German, kleine Raub-Möwe; Italian, labbo codalunga].

1. **Description.**—This skua may be distinguished, when adult, by the great length of the central tail feathers or "streamers," and the coloration of the shafts of the primaries, only the two outermost being white. The sexes are alike, and there is no seasonal change of plumage. (Pl. 110.) Length, including the tail "streamers," 23 in. [584.20 mm.]; tail streamers, 8 in. [203.20 mm.]. The top of the head and nape are black, the rest of the upper parts greyish brown, save the lower cheeks and sides of the neck, which are white more or less tinged with buffish yellow, and the tail feathers, which are black, contrasting with the "streamers," which are brown. The throat, neck, and forepart of the breast are white, the rest of the under parts greyish brown, darkest on the flanks and abdomen. Legs olive-grey, toes black. Iris dark brown. The juvenile plumage a sooty brown, the flank feathers and upper tail-coverts having buff margins. The characteristic adult dress is not attained for several years. The young in down are of a sooty brown, slightly paler on the under parts. [W. P. P.]

2. **Distribution.**—To the British Isles this species is chiefly an autumn visitor on migration, although a few have been observed on spring passage, occasionally as late as June. It is most frequent on the east side of Great Britain. Its breeding range probably includes Spitsbergen, where it has frequently been observed in summer in pairs, but no nest has actually been found, and Cape Flora in the Franz-
Josef group. In Scandinavia a few pairs breed on the Dovrefjeld and in Finmark, while on the high fjeld of Jemtland and Swedish Lapland it has been found nesting in considerable numbers, especially in lemming years. In North Russia it breeds on all the tundra as far south as Archangel, and has been proved to nest in Novaya Zemlya; and in Siberia it also inhabits the tundra region east to the Pacific, and is plentiful on the Lower Yenesei. In the New World it breeds in Greenland, and is locally common on the west side, and also nests near Cape Bismarck (Manniche). It has also been recorded during the summer months from Kotzebue Sound and Thank-God Haven (Bessels), while Feilden found nests in Grinnell Land, and Hart recorded it as breeding commonly near Discovery Bay on the Arctic expedition of 1875-76. Its migration range extends south to the Straits of Gibraltar and the Mediterranean, while along the east side of N. America it has occurred as far south as Florida and to lat. 20° on the Pacific side. [F. C. R. J.]

3. Migration.—An irregular cold-weather visitor to the British coasts. The majority of the records are for the east coast of England and for the autumn months. A very exceptional visitation of these birds occurred in the autumn of 1891. [A. L. T.]


5. Food.—Except during the breeding season this skua is no doubt mainly parasitic on the Terns and the kittiwake, devouring the fish which it forces them to disgorge. Breeding inland at some distance from the sea, its diet varies according to locality, but lemmings, *Myodes torquatus* (Pallas), are very largely eaten, and a mouse has been found in the stomach of a breeding bird. Among the insects taken at this time may be mentioned Lepidoptera of various kinds, Coleoptera, especially the larger beetles, Orthoptera (earwigs and grasshoppers), and Diptera (*Tipula*). Crustacea of various kinds are also eaten, and Collett also mentions earthworms and Mollusca (*Litorina littorea*) as forming part of its diet. In some districts the young are fed largely or entirely on the berries of *Empetrum nigrum*, and probably in the earliest stages of life insect food is generally given, but they are soon able to eat lemmings. After the breeding season, besides fish and wounded birds, such as dunlins and stints (Seebohm), it has also been seen feeding on a dead horse (*Zoologist*, 1877, p. 331), and the corpse of an Arctic fox (Von Heuglin). Both parents feed the young, disgorging the food in front of them (Manniche). [F. C. R. J.]
THE GREAT AND ARCTIC-SKUAS

[F. B. KIRKMAN]

The subfamily of the Skuas, the pirates of the bird world, is divided into two genera, *Megalestris* and *Stercorarius*, with, as far as at present known, four species in the first and three in the second.

The only representative of *Megalestris* in the British Isles, and indeed in the whole of the northern hemisphere, is the great-skua or bonxie, a bird of the size of the lesser blackbacked-gull. Its breeding range is exceedingly restricted, being confined to the Shetlands, Færoes, and Iceland. It may be found to breed elsewhere, and there is some evidence, but no certainty, that it does so in Hudson Strait, Canada. The comparative rarity of the species has of course made its eggs and skin all the more desirable to collectors, and it has only escaped being completely exterminated by them in Shetland owing to the efforts of a few individuals, notably the Edmonstons and the Scotts of Melby. The former sought to protect the colony at Unst, with varying success, from as far back as 1831, at which date there were only two or three pairs left. The numbers rose to 50 or 60 pairs, but fell in 1861 to 10 or 12. In 1895 there were only 7, but in 1907 the number rose to 42 pairs. Owing largely to the efforts of the Scotts, the colony at Foula has also made good progress.

The remaining three species of *Megalestris* are found on all the oceans of the southern hemisphere, and include the Port Egmont or sea hen, familiar to readers of Captain Cook's voyages.

The three species of *Stercorarius* breed in the northern parts of the northern hemisphere. Two of them, the Pomatorhine and Buffon's skuas, visit us only outside the breeding season. The third,

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the Arctic or Richardson's skua, is with us the whole year through, like the great-skua, but is commoner. It breeds in the extreme north of the Scottish mainland, in the Hebrides, Orkneys, and Shetlands. As it is frequently compared with the bonxie or great-skua, it is here treated together with it, the Pomatorhine and Buffon's skuas being treated separately.

The accompanying plates will give a good idea of both species, the bonxie being depicted making a savage charge upon a trespasser in its territory, and the Arctic chasing a tern with intent to rob. Famous pirates both, but of the two the smaller species, the Arctic, is the more alert; it is a buccaneer of the rollicking type; it seems to feel a fierce zest in its nefarious business, to love the doing of it as much as the reward. It will even make of it a pastime, swooping down upon one of its own kind in sheer exuberance of spirits, pursuing it with dizzy speed and amazing twists and turns, to be pursued in turn, flinging forth as it goes its wild mewing call to mingle with the other wild harmonies of Nature's vast orchestra. The great-skua is equally bold, and its swiftness is perhaps greater, but its spirit seems as sombre as its hue. It sweeps sorrowfully over the sea, and broods upon the waters as if it were the reincarnated spirit of a shipwrecked Viking. Such at least is the impression given by externals, and coloured by our human apperception. If we could only see with the eyes of these Skuas, and feel with their senses, get inside the creatures, so to speak, we should find no doubt that they differed little in their outlook on life.

The two species would not be unlike in sombreness of plumage were it not for the remarkable lighter variations in the coloration of the Arctic. This species has been termed dimorphic, which is inexact, if by this it is meant that there are two distinct types without existing gradations from one to the other. Between the form which is entirely dusky hued above and below, and that which, while retaining the dusky hue on the upper parts, is whitish or cream coloured on the under parts, it should be possible, judging from the evidence, to
establish a long graded series of intermediate varieties.\(^1\) On the other hand, these varieties can as a rule be classed as light or dark, so that, subject to the reservation here stated, the term dimorphic is not out of place. The various forms interbreed freely. The nestling young, though said to differ slightly in shade, according as they have dark or light coloured parents,\(^2\) are all of a dusky or sooty brown hue, the characteristic colour of the all-dusky adult type. In the fledgling stage the plumage is also of the dusky type, i.e. sooty brown, but Collett made the observation that a marked difference becomes apparent if the feathers are raised and their covered parts exposed, some individuals showing more white, others more brown; but whether there are variations at this stage corresponding to all the variations of the adult stage has yet to be seen. It may be noted that sooty brown is the characteristic hue of the down and first feathering of the two other species of Stercorarius—the Buffon's and Pomatorhine skuas, and that in the Pomatorhine species there are also dark and light adult forms, with all degrees of intermediate variation.\(^3\)

What makes these unusually wide variations of peculiar interest is that they occur within one and the same species, and are of fairly regular though varying occurrence throughout its breeding range.\(^4\) They do not correspond therefore to the exceptional and local hybrid forms occurring between different species, such, for example, as those between the hooded and carrion-crows in localities where the breeding ranges of these overlap. And, further, they do not correspond to the variations within the species that rank as subspecific, for the latter are local in their nature, and by no means so marked. If, indeed, a local race of a given species, e.g. Corvus corax hispanus, Parus ater hibernicus, differed from another local race or from the typical form of the same species, e.g. Corvus corax corax, Parus ater

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\(^1\) Collett quoted in Naumann's Vögeler Mitteleuropas, xi. 319; E. Selous, Bird Watcher in the Shetlands, pp. 15-20.

\(^2\) Collett, loc. cit.

\(^3\) According to Kolthoff's observations in N.-W. Greenland, quoted in Naumann's Vögeler Mitteleuropas, xi. 313.

\(^4\) The light form of the Arctic-skua is much the commoner in northern latitudes.
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*britannicus*, to the extent that the light form of Arctic-skua differs from the dark, they would generally be classed as distinct species. Whether the variation in the Arctic and Pomatorhine-skuas is to be regarded as the result of the interbreeding of two allied forms inhabiting the same geographical area, or whether it results from some other cause, are questions that it would scarcely be profitable to discuss till we are in possession of more detailed information.

The great-skua arrives at its breeding-place about the beginning of April,\(^1\) therefore earlier than the Arctic, which does not appear till towards the end of the same month. The breeding-grounds of the two species may be near together, as on Herma Ness, in the island of Unst (Shetlands). Both like open ground, rough waste, or moorland. The great-skua prefers high ground, and, in the British Isles, the same may be said of the Arctic, which breeds, however, further inland than the larger species, hummock-covered open moorland being its favourite haunt. In Norway, according to Collett, it is found usually on hummocky vegetation-covered flats near water, and only exceptionally far inland.\(^2\)

Little has been recorded of their displays or gestures, and this little we owe to Mr. E. Selous. Of the larger species he writes: "Often when one of the great-skuas is circling round, and the other standing at its post, this one will stretch itself up and raise its wings above the back every time its partner passes. This raising of the wings enters into one of the most salient of the many nuptial antics of this bird, which I will now describe. In its completest form it commences aerially. Two birds have been circle-soaring one above the other, and are now at a considerable height above one of their chosen standing-places, when the lower one floats with the wings extended, but raised very considerably—half way, perhaps, towards meeting over the back—an action which in their flight is uncommon. As it does this it utters a note like *a-er, a-er, a-er* (*a* as in 'as'), upon

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1 Definite dates for its arrival at Foula are March 27 to April 3, 1891; first week April 1893, recorded by Mr. Eagle Clarke in the *Annals of Scottish Natural History*, 1892-4.

2 Naumann, *Vögel Mitteleuropas*, xi. 327.
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which, as at a signal, the other one floats in the same manner, and both now descend thus together to the ground. Standing then, the one behind the other, at about a yard's distance and faced the same way, both of them throw up their heads, raise their wings above their backs, pointing them backwards, and stand thus for some seconds fixed and motionless, looking just like an heraldic device. At the same time they utter a cry which sounds like skirrr or skeerrr. The foremost bird then flies off, and is instantly followed by the other." 

The birds do not necessarily precede this pose with the flight, or follow the flight with the pose. Nor do they always stand in line. 

A common form of greeting between individuals of a pair, when they visit one another after standing a little apart, as they often do, is for one to "bow down towards the ground in a heavy sort of manner, whilst the other stands facing it with the head and beak lifted into the air." After this, one of them turns round, and makes a series of curious ungainly leaps along the ground, raising the wings at each leap. This bird may then return, and the whole performance be repeated. 

One can understand the first scene in this remarkable act, the greeting, but how explain the second scene? What is it that moves one of the parties suddenly to quit the object of its affections with these strange ungainly hops? The movement appears to be quite original, and not a modification of some more familiar act. It seems to be a creation ad hoc. Perhaps the most remarkable thing about it is that it has not often been remarked before. The truth is that until recently facts of this nature have been rarely recorded in the pages of ornithological literature, either because they were not seen, or because their importance for comparative psychology was not appreciated.

The only gesture of the Arctic-skua of which I can find any note is one which accompanies the feeding of the hen bird by the cock.

1 Bird Watching, p. 101. 
2 Ibid., p. 102. 
3 Ibid., p. 99.
The description of it, which, like the preceding descriptions of the conjugal amenities of the great-skua, we owe to Mr. E. Selous, is as follows:—"The one bird stands still and upright, whilst the other, holding the neck constrainedly down, but with the head raised as far as is compatible with this, keeps moving round and round it. After revolving thus several times, keeping always very close to and sometimes actually touching the standing bird, this one also stands still, always in the same attitude, and opens the beak. The other one, standing as before, now raises the head and opens the beak also, upon which the satellite bird, assuming at last his proper height, delivers into it, from his own, something which he appears to bring up, and this, as it seems to me, is swallowed by the bird receiving it. The morsel is small, but the actions of giving and taking, and, afterwards, the movements of the beak and throat of the bird that has parted with it, are unmistakable."  

It is, according to Naumann, the hen of both species that makes the nest, but this requires confirmation. The act of building is simple. The birds press with their feet and breasts into the bare ground, or into the grass, moss, or short heather, and by dint of pushing and turning make saucer-shaped depressions. According to Naumann and Howard Saunders, they do not go beyond this to the stage of collecting and adding a lining. In the British breeding-stations lined nests are, however, commonly found, the material used being ordinarily dry grass, moss, and bits of heather, also feathers (see Pl. xlvii), carelessly put together. Lined nests of the Arctic-skua have also been found in Iceland.

The nests are usually some distance apart, and seldom nearer than a few yards. Each pair resents intrusion into its domain either by individuals of its own or any other species, especially Gulls, Crows, and other predaceous birds. But Arctic-skuas have been seen to attack also such birds as Ducks, whose only offence was that they

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1 Bird Watching, p. 170.
2 See "Classified Notes"; also Evans and Buckley, Fauna of Shetlands, p. 101 (great-skua); Saxby, Birds of Shetland, p. 356 (Arctic-skua).
were nesting in the neighbourhood. A mallard was struck on the back when in flight and forced to alight, and a pintail just escaped an equally violent blow by diving into the loch over which it happened to be peaceably winging its way. Whether the blow given to the mallard, "with a thud distinctly audible," was with the wing, feet, or beak is not stated. Both ducks had no doubt to suffer these assaults frequently during the breeding season.¹

Human beings trespassing on the breeding-grounds of either species are attacked, sometimes with a vigour that makes the experience by no means enjoyable. Indeed, the mere sight of a great-skua charging straight over the heather with evil aspect and fierce speed, as if to hurl itself, beak and claws, upon one's body, is enough to cause a shrinking of the nerves. One's apprehension is not allayed when, at a distance of a few yards, the powerful webbed feet are suddenly let down and spread so that each separate hooked claw stands menacingly out. But the menace is not fulfilled. With a sudden swerve upwards, and a terrific swish of the wings, the bird passes overhead, leaving one no doubt somewhat shaken, and not a little relieved, but also marvelling that so fierce a beginning should have so mild an end. One does not escape always thus easily, for some individuals are bolder than others, and more so at one time than at another, but even then it is not a blow from the wing, or a thrust from the beak, that one receives, but a smart tap from the feet, which the bird lets down for that purpose. These taps, delivered seemingly with the front of the feet,² are, especially when repeated, quite unpleasant enough. Both the male and the female attack, one after the other, sometimes swooping down from a height, at other times charging over the ground. Together they may make, according to Mr. Selous, as many as 136 attacks in little more than a quarter of an hour, or about 8 to the minute. Between 3.13 and 3.30 one afternoon, he was struck 67 and missed 69 times by one and the same pair. He states that some of the hits were so violent that, without the protection of a plaid, they

¹ Ornithologist, 1896-7, 175. ² E. Selous, Bird Watching, p. 123.
would have been unendurable, and, as it was, they made the experiment far from agreeable. The attacks were delivered by birds that had almost fledged young.\(^1\) If the nesting-area is intruded upon after the young have left it, the parents, if there, will still attack, though not so viciously, and probably from force of habit.

The attacks of the Arctic-skua are of the same nature, except that the species prefers to make them from the flank or rear rather than from the front. Not that the great-skua always makes a frontal attack; it appears, however, to do so more frequently than the smaller species, but why is not clear, unless it be that its greater strength makes it feel superior to indirect methods. Both as to this and as to the occasions on which the birds make no attack, it is at present impossible to generalise with any assurance, owing to the varying behaviour of individual birds—a factor not infrequently underestimated.

According to Howard Saunders, Naumann, and others,\(^2\) the Arctic-skua strikes with the wing-tips. If this is correct, it constitutes a noteworthy difference between the two species. It seems, however, hardly credible, and is not supported by detail sufficient to show that the observers saw as well as felt the blow delivered. It is quite possible that a blow with a bird's foot, if not seen, might be mistaken for a blow from the wing-tip.

In making their attacks upon intruders, the great and Arctic-skuas are comparatively silent birds; they do not end their charges with the discordant shrieks indulged in by Gulls and Terns. The final assault, or swish over the head, is indeed usually made without any uttered sound.\(^3\) Before this, or afterwards, the great-skua may be heard uttering its croaking “\textit{ag! ag!}” or “\textit{ak! ak!}” and the Arctic the mewing note already referred to. The latter has also a querulous note syllabled as “\textit{mëë, mëë},” which has been heard from it when its young were being

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\(^1\) \textit{Bird Watching}, p. 123.

\(^2\) \textit{Manual of British Birds}, 2nd ed., p. 692; \textit{Vögel Mitteleuropas}, xi. 327; Evans and Buckley \textit{Fauna of the Shetlands}, p. 196; Naumann even makes the species strike with the beak.

\(^3\) Cf. E. Selous, \textit{Bird Watching}, p. 121.
handled, and it had ceased to attack.\(^1\) What other notes it or the larger species may utter have still to be recorded.

Dogs and other quadrupeds trespassing near the nests are, as might be expected, promptly attacked. According to Saxby, the Arctic-skua will give a dog smart scratches on the back, and so make the creature and its fur fly at the same time. The success of this manoeuvre, however, depends upon the character of the dog. Macgillivray relates that while one of his dogs avoided attack by keeping close to his heels, the other met it by springing into the air and snapping. This is perhaps the method of defence adopted by the Arctic-fox when, as noted by Kolthoff in Spitsbergen, it deliberately enters a skua colony for eggs and young, and it may be the raids of this and other predaceous quadrupeds that have led the Arctic-skua to adopt a means of defence which is common to a large number of weaker species, such as Ducks, game-birds, and Passerine birds. It is that of feigning, or seeming to feign, “broken leg, broken wing, and broken prospects in general,” as Saxby puts it; the scene taking place, each time it is enacted, at a greater distance from the young or eggs.\(^2\) To complete the imposture, the Arctic-skua often adds “a low, piteous moan.”\(^3\) When it considers the ruse has succeeded, it suddenly recovers its health and its spirits and flies away with a taunting cry, or what must sound so to the ears of the deceived. Should there be water near by, one of the pair will sometimes beat along through the shallows, or sit on the surface and strike the water with its wings.\(^4\)

I have not found it recorded that any other species of *Laridae*—Gull, Tern, or Skua—has been seen to adopt the device of feigning disablement, with the exception of Buffon’s skua (p. 228). In the case of Terns this is intelligible, as, owing to their habit of striking with the beak, they must prove more formidable to quadrupeds than Skuas. They have, in addition, acquired the habit of combined

\(^1\) Zoologist, 1880, 92 (H. Saunders).
\(^2\) The species will feign both before and after the eggs are hatched. Cf. Evans and Buckley, *Fauna of the Shetlands*, p. 196.
\(^3\) Ornithologist, 1896-7, p. 173 (R. Godfrey).
\(^4\) Ibid., p. 173.
THE SKUAS

action. Arctic skuas attack in pairs. The common-gull makes combined attacks, but the habit is less confirmed in some of its congeners, and in them we should expect to find a development of the feigning action, as also in other species of Skuas, except perhaps the great-skua, whose larger size and formidable appearance may suffice to inspire respect even in the breast of a fox.

The fact that there are now no foxes in the Shetlands does not affect the probability of the supposition that, in the case of the Arctic-skua, the feigning instinct was developed as a defence against them and similar enemies, provided we assume it to be an instinct, that is, inherited from ancestors that were harried by predaceous mammals either in Shetland or farther north.

The great-skua begins laying usually in the second or third week in May, the Arctic later, towards the end of the month or early in June. Incubation is performed by both sexes, and lasts three to four weeks, longer, of course, in the case of the larger species than the smaller. Not much is known of the behaviour of the young, except that they are prompt to quit the nest when alarmed, and after running a certain distance, remain usually in a crouching position till picked up; they then show fight, using each its claws and beak more or less viciously, according to its disposition. When teased, young Arctic skuas have been seen to “run off unsteadily across the heather, using their wings to aid them.”

The young are fed chiefly on fish, but insects and berries have been found in the stomachs of the young Arctic-skuas. The fish are disgorged by the parent birds, those by the great-skua being often left lying about the nest in a headless condition. In the neighbourhood of one nest Saxby found 39 full-grown herrings, all headless. Near, or not far from, another Mr. E. Selous found 41 herrings or their remains, and of these only 10 retained the head or any part of it. It may be that these headless fish are subjected to a double regurgitation,

2 See the “Classified Notes.”
3 Birds of Shetland, p. 352.
4 Bird Watching, p. 16.
first by the gull that catches and then by the great-skua that robs. If it be granted that they are swallowed head first, it is quite conceivable that the head is sufficiently loosened by the softening process of the crop or of the proventriculus to become detached from the body under the strain of the second regurgitation. What lends support to this view is that, in the case of gannets, I have noted that the fish disgorged by the parents, if these happen to be alarmed before they have had time to feed their young, have the heads partially digested. Had the fish been subjected to a second process of digestion in the stomach of a skua, and to a second wrench upward through the gullet, it seems reasonable to suppose that they would have left their heads behind them. I may add that I have seen a young gannet disgorge a fish head-first, a fact which shows that it took it from the parent's throat tail-first, and that the parent swallowed it head-first.

The fish found lying whole may simply not have been digested long enough to lose their heads, and may have been taken from Terns, which carry their capture in the beak.

This does not, however, explain either why so many fish are found lying about unswallowed, or why the same fact has not been observed in the case of the Arctic-skua. Buffon's skua heaps up dead lemmings beside its nest, seemingly as a store to be drawn upon (p. 227). In circumpolar breeding-grounds, where supplies are less assured than farther south (pp. 225-6), such a provision may be necessary. The same necessity may formerly have operated in the case of the great-skua, its present habit of leaving fish about being of the nature of a survival.

The chief victims of the piratical exploits of the Arctic-skua are the smaller Gulls and the Arctic-tern, especially the latter, no doubt on account of its habit of carrying its catch in the bill, an appetising morsel for all to see. Guillemots, puffins, and the larger Gulls are also pursued. Saxby states that fish are taken even from the great blackbacked-gull, but this must be exceptional. When an Arctic-skua has singled out a victim to be robbed, it chases it with light-
ning speed, follows closely its every movement, its twists, rises, descents, and by mere hustle and dash and noise seeks to gain its object. Both birds fly screaming in a wild erratic course, the skua sometimes breaking away, but only to resume the chase, which goes on till either the pursuer has had enough, or the pursued surrenders the fish. Thereupon the skua drops like an arrow and catches its plunder before it reaches the water—or does not. In the latter case, it rarely makes any attempt to follow it further. One, however, was seen not only to alight on the water, but when the fish sank, to dive right under, remain under for a moment, and reappear, though without the fish.¹

Skuas succeed best when they hunt in pairs, but success depends very much upon the strength and temperament of the pursued. Sometimes Terns, instead of trying to escape by flight, have been seen to drop their fish before the skua was near enough to profit, and then, upon the latter turning to fly off, swoop down and retake possession.² Sometimes the proposed victim escapes by settling on the water and showing fight. It is enough, at times, for it to alight in order to be freed from aggression. This was noted in the case of a lesser blackbacked-gull chased by a great-skua.³ Of the piracies of the latter species there is, comparatively speaking, a lack of recorded detail, but they are of the same general character as those of the Arctic.

There is little evidence that Skuas catch fish for themselves.⁴ They are no doubt quite as capable of doing so as Gulls, but find it easier to exploit weaker birds. Their diet, however, is by no means limited to fish. Like the Gulls, they are omnivorous. The great-skua will not only rob fish from weaker species, but make a meal of the birds themselves. Its castings, like those of the larger Gulls, are

¹ Annals of Scottish Natural History, 1908, 11.
² E. Selous, Bird Watcher in the Shetlands, p. 11.
³ Patten, Aquatic Birds, p. 455.
⁴ Naumann (Vögel Mitteleuropas, xi. 307, 325) states that both the Arctic and great-skua fish for themselves after the manner of Gulls, but it is not clear from the context that he is writing from personal observation.
found to contain bones and feathers, identified in some cases as those of the kittiwake. According to Saxby, the Arctic species will chase and kill the smaller Waders, ringed plovers, and the like when it cannot get fish. It is possible it may sometimes chase land birds, not to kill, but to make them disgorge. Both the great and Arctic skuas devour the eggs and young of other species. In Iceland the latter was seen to rob systematically the nests of Ducks, Waders, and even of Terns. Its castings, found on the hillocks where it reposed to digest, consisted of little but broken egg-shells, bones, and balls of feathers or down.\(^1\) In Spitsbergen the nests of the eider-ducks were despoiled in the same way; their eggs were taken almost as soon as their owners left the nest.\(^2\) Both species again will feed like Gulls on the flats laid bare by the receding tide, eating anything they can find, mollusces, crustaceans, and carrion. The Arctic has been seen inland picking up worms, insects, or mice in the fields. One was shot in Ireland when following the plough.\(^3\)

In winter both species move southward, and are usually to be found out at sea not far from their favourite source of supplies—a flock of sea-birds.

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THE POMATORHINE-SKUA

[F. C. R. Jourdain]

To judge merely from the records of birds actually seen or shot on our coasts, one would imagine that it is only exceptionally that this species visits us in any numbers. It is true that almost every winter a few specimens are obtained in some part or other of the British Isles, but their numbers are few indeed compared with those which were recorded in the autumns of 1879 and 1880. But, as in the case of the little-auk, it seems probable that under normal weather

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\(^2\) *Vögel Mitteleuropas*, loc. cit. (Kolthoff).

\(^3\) Ussher and Warren, *Birds of Ireland*, p. 353.
conditions these birds do not find it necessary to seek the land, and that, as a rule, their migration remains unnoticed except by the crews of the North Sea fishing fleet, while even now the route and time of the return migration in spring is almost unknown.

The first time this southward migration came prominently under the notice of naturalists was during the latter part of October 1834, when enormous numbers of sea-birds, including the present species, were driven into the Channel and on to the coast of Northern France, especially near the mouth of the Somme. In October 1879 a most remarkable influx of this species took place on the east coast of Yorkshire, of which Mr. T. H. Nelson gives a vivid description in the *Birds of Yorkshire*, vol. ii. pp. 697-699. He states that in early October great numbers were noticed in the Tees Bay, and on the 8th he saw about fifty birds in small parties of four or five, all flying to the north-west. Next day about a hundred in small flocks were seen going in the same direction. On October 14 came the memorable “Skua” gale. About 11 A.M. “the wind suddenly flew round to the north, changing to north-east, and blew with great violence, being accompanied by torrents of rain. . . . Soon after noon the first flight of Pomatorhine Skuas appeared, coming from the eastward: more flights followed, their numbers increasing as the day wore on, and scarcely had one party gone by before another hove in sight: they flew in flocks of from seven to ten in number, skirting the shore, and on arriving at the Tees mouth many of them alighted on the sands, apparently exhausted by battling against the storm. They allowed a close approach as they sat on the beach, only taking flight when an intruder came within a few yards’ distance. . . . Thus they continued to pass for several hours, until by dark some thousands must have gone by; then the approach of night prevented further observations.” It was calculated that between five and six thousand birds must have passed Redcar on this occasion. They continued to pass on the morning of the following day, but on the 16th the gale slackened and none appeared, although a renewal of the gale on the 17th brought
some fifty more in view. All down the Yorkshire coast a somewhat similar state of things took place, though perhaps nowhere was it seen to such advantage as near Redcar. On the East Anglian coast the first bird was shot on October 15, at Holkham. Many arrived on the following day on the shores of the Wash, and from that date till the end of the month they were found in parties all round the Norfolk coast, and also in many cases inland.

Next year another great immigration took place in Yorkshire during a terrific storm from the north-east on October 28. "During the height of the storm," says Mr. Nelson, "several hundreds passed Redcar, flying close to the esplanade, and struggling to make headway against the elements; many were obliged to rest on the sands or were driven inland." Owing to the driving sleet, rain, and sand, the gunners were unable to turn out, so on this occasion the birds escaped. There have also been some seven occasions since this date when pomatorhine-skuas have occurred more or less frequently on the Yorkshire coast, but always on the autumn migration. In one case an immense congregation of pomatorhine and Richardson's skuas was noticed some miles off Bridlington. In this case the birds were at first mistaken for ducks resting on the water.

Although not infrequently recorded from our southern coasts, where some appear to winter, and also round the Irish shores, nothing approaching the remarkable irruptions on the Yorkshire coast has been recorded, with the exception of a noticeable passage of pomatorhine and Richardson's skuas which was observed by Mr. R. Warren in North Ireland on October 22 and 23, 1862. Successive flocks of the former birds were seen flying up the Moy Valley from Killala Bay, and evidently making their way to Galway Bay. As skuas were also observed by Mr. Warren in September 1869 and October 1874, it is probable that some regularly migrate along the west coast of Ireland.\(^1\) In 1862, two days after the last skuas left

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Killala Bay, several pomatorhines took shelter in Tralee harbour, and remained there as long as the stormy weather lasted. Evidently they were a part of the same flight already noticed by Mr. Warren.

With regard to the cause of these invasions, the opinion of the late Mr. E. T. Booth has especial weight, as no ornithologist was more familiar with the North Sea than he was. For three or four autumns he made his headquarters at Canty Bay in East Lothian, spending most of his time at sea, and often attaching himself to the North Sea herring fleet. He states that immense numbers of both old and young birds pass over the North Sea every year on their way back to winter quarters from their breeding-grounds, the first arrivals appearing off the south-east coast of Scotland about mid-August. These birds are for the most part not quite mature, and the long tail feathers are usually broken or lost; but a few adult birds accompany them, though they do not form a tenth part of the total number observed. As a rule, they migrate ten, fifteen, or twenty miles from land, but occasionally small parties may be seen moving due east or west at a good height in the Firth of Forth (possibly on their way across Scotland to North Ireland). A few weeks later the full-plumaged adults follow, and they, in turn, are succeeded by the birds of the year. Birds in the second and third years' plumage are very rarely met with. During October and early November the flocks of skuas keep company with the herring-boats as they work up the coast, levying toll on the gulls which congregate round the nets. In fine autumns hardly a bird will approach the land, but continued rough weather will drive hundreds of them in a worn-out and starving condition on to the coast. Sometimes the main body of migrants will keep from forty to sixty miles from our east coast. In some cases the fish captured by the larger vessels are cleaned before stowage, thus providing an abundant supply of food for the thousands of gulls which surround the fleet, while they, in turn, are forced to disgorge to feed

1 E. T. Booth, *Rough Notes on Birds observed in the British Isles*, vol. iii. pp. 1-7 (article on "Pomatorhine Skua").
the ravenous skuas. Possibly, as suggested by Mr. Stevenson, the enormous shoals of herrings and sprats which frequented the North Sea in the autumn of 1879 induced the gulls and skuas to linger on their way south, on account of the abundant supply of food, until the gales of October drove them helplessly on to the coasts of Yorkshire and East Anglia.

To distinguish an adult pomatorhine-skua in perfect plumage on migration is a comparatively simple task. It is a much smaller and lighter-looking bird than the great-skua, and at the same time is larger than either Richardson's or Buffon's skua. Its flight is not so heavy as that of the great-skua, but is somewhat Tern-like and angular, and it is less active than the two smaller species. Of course, the short tail of the great-skua is another useful character in distinguishing it from adult birds of other species. The adult pomatorhine, Buffon's, and Richardson's skuas all have the middle pair of tail feathers elongated, but in the first-named species they have also the extraordinary peculiarity of being twisted into a plane almost at right angles to the shorter tail feathers. They are also bluntly rounded at the ends instead of coming to a point, as in Buffon's skua. This gives a curiously thick and clumsy appearance to the tail of the bird when seen on the wing, and enables one to identify it with certainty in many cases at considerable distances.

But it must not be supposed that all birds have this peculiarity fully developed. E. T. Booth, who kept this species in confinement for some years, and studied its changes of plumage, was of opinion that the perfectly adult plumage was not assumed till the fifth year, and that birds of the second or third year rarely occurred off our coasts. It is not surprising that many of the birds which visit us are birds of the year or immature, and in such cases the middle tail feathers are only slightly elongated. During the invasion of 1879 Alfred Roberts noticed that they chased the smaller Buffon's skuas and snipped off their long tail feathers in the scramble for food,
besides acting in a similar way to members of their own species.\(^1\) Many examples which passed through his hands had these feathers cut off, though in all other respects in perfect adult plumage. To complicate matters still further, a melanic form also exists, but is by no means common. Not only is the plumage of this form a very dark brown (almost black), but the bill and feet are also black. An interesting series of figures of the different stages of plumage and the two forms will be found in Booth's *Rough Notes*, vol. iii.

Like the other skuas, the pomatorhine is a pirate, but mainly confines his attentions to the smaller Gulls, such as the kittiwake, the common-gull, and the Terns. In the North Sea most of the food is procured by the gulls at dawn, when the nets are drawn. After this, both gulls and skuas will remain sitting quietly and contentedly on the water in fine weather, only rising occasionally on the wing when any of the smaller Gulls approach the skuas too closely. On many occasions pomatorhine-skuas have been seen picking up food for themselves. Von Heuglin states that they prey freely on lemmings in Novaya Zemlya, hovering over them in the air, and stooping on them like a hawk, as Buffon's skua also does; while carrion of all kinds is also eagerly devoured, dead mammals, birds, or fish, as well as the excreta and castings of the larger mammals.

Although the range of this species during the breeding season is so extensive, and the bird itself is not rare, records of actual breeding are extraordinarily few. The earliest authentic information on the subject is provided by Von Middendorff, who found it breeding in numbers on the tundra of the Taimyr peninsula. He first observed it on June 19 (N.S.), and on July 20 found the first nest, a mere depression in the moss, containing two eggs. This was in lat. \(74^\circ\) N., and above \(74^\circ\) the species was not met with. Excepting only

\(^1\) Nelson, *Birds of Yorkshire*, ii. p. 701. (It is interesting to compare this with Mr. E. W. Nelson's observations in Alaska, quoted later.)

\(^2\) In Spitsbergen the ivory-gull is treated in the same way. Eaton saw one seized by the tail (*Zoologist*, 1874, 3812).
Markham's statement that it breeds in Novaya Zemlya,¹ and Henke's assertion that it nests in the Kanin peninsula, no other authentic accounts of the nesting of this skua were to be found till Messrs. H. L. Popham and C. Boyce Hill visited the Yenisei valley in 1895. On their way down the river the steamer ran ashore on a sandbank, thus enabling them to explore a group of small islands called the Brekotsky. On one of these, a large flat marsh, Hill observed a skua, which was presently joined by a second. They were not at all demonstrative, and did not resent intrusion like Buffon's skua, but after long searching and watching one bird settled right in the middle of the marsh. Boyce Hill at once proceeded to the spot, though at times up to his knees in swamp, but fortunately a substratum of ice at a depth of from 18 inches to 2 feet below the surface enabled him to reach the nest, from which the bird rose when he was within a few yards. On shooting the sitting bird it proved to be a pomatorhine-skua. In another part of the island a second nest, which, like the first, contained two eggs, was found under similar conditions. The only other birds which were breeding in the neighbourhood were scaups and rednecked-phalaropes. Later on a third nest was found on the mainland in a much drier site, and this also contained two slightly incubated eggs.² There was no real nest, the eggs being laid in a mere depression in the ground, but unfortunately neither writer mentions the date when the eggs were taken. In 1898 Mr. E. A. McIlhenny's expedition to Alaska obtained a considerable number of nests from the Point Barrow district. E. W. Nelson had already recorded it as common about the Yukon mouth and north to Point Barrow, arriving from May 13 onwards, until by the end of the month from twelve to twenty might be seen daily. He found it clumsy and cowardly as compared with Buffon's and Richardson's skuas, and noticed that it was much bullied by them, the smaller birds beating off their clumsy antagonist by darting down repeatedly at him from

² See H. L. Popham, Ibis, 1897, p. 107; C. Boyce Hill, Ibis, 1900, p. 526, pl. xi.
above. The larger bird flinched and dived, often alighting and watching for an opportunity to escape. On the wing an attack from the side was warded off by a half-closed wing, and if from above, both wings were raised above the back. One bird, driven to alight on the river, thrust its head under water at each swoop of its assailant, and exhibited every sign of terror. Many of McIlhenny’s eggs were taken between June 18 and 21, in Alaska, but unfortunately he appears to have published no account of his expedition up to the present time.

The only other information as to the breeding of this species is that given by Herren Koren and Schaanning to Professor Newton. They were quartered at Pomorskaja Bay, Mataschkin-schar, Novaya Zemlya, during the summer of 1903, a great lemming year, and found this skua, as well as the little-stint, breeding in a large grassy marsh, beset with dry bare ridges. The skuas were extraordinarily shy and wary, the female leaving the nest at a distance of 2000 metres when approached. Unlike the other species of this genus, they never attack intruders, sweeping round in great circles and alighting here and there in the marsh. The eggs were thus extraordinarily hard to find, and required very long and patient watching. They were laid without any lining on hillocks, often moist, in the wettest part of the marsh, in some cases so that the hillock was surrounded on all sides by water. The nests were some distance apart, and the eggs appear to have been laid between June 26 and July 2, but two nests found on July 12 and 14 with a single egg in each were probably second layings.

There is little doubt that sooner or later this bird will be found nesting in many localities where at present it is only known to occur in summer, such as the Murman coast and some of the North Russian islands, but its undemonstrative and solitary habits, so opposed to those of the rest of this family, have so far saved its nests

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2 See *Ootheca Wolleyana*, ii. p. 348.
from discovery.\(^1\) All the seventeen authentic eggs which I have examined are large compared with those of Richardson’s and Buffon’s skuas, but the largest eggs of Richardson’s skua just overlap the minimum measurement of the pomatorhine. The ground-colour varies from light olive to deep olive-brown, while the markings of dark sienna, shading to sepia-brown, are rather sparingly distributed, and tend to be thickest at the big end. A few ashy shellmarks are also scattered over the surface. Average size of seventeen eggs, \(2.52 \times 1.77\) in. \([64.13 \times 45\) mm.]. Beyond this we know at present nothing of the breeding habits of this bird. Naumann, it is true, states that both sexes have a brooding spot and incubate in turn for four weeks, while the young only stay a few days in the nest. He proceeds to give an account of the food of the young, but it is difficult to see from whence this information was derived, and of course the Naumanns had no personal acquaintance with this species in its breeding-haunts.

With regard to its notes, E. W. Nelson states that it has a low, harsh, chattering cry when feeding with its companions, and Booth says that the cries and screams uttered by his two immature birds were most amusing. When excited, one or the other would utter a high-pitched call closely resembling the cry of “Toby, Toby, Toby” at a Punch and Judy show, ending with a prolonged scream and whistle. When feeding, if one of these birds happened to get hold of a piece of food too large to be swallowed easily, he would call loudly, when his companion would at once run up to him and clutch hold of the other end of the fish. Each would then tug lustily away till the fish was divided, when they consumed their respective shares in the most friendly way. Sometimes this would happen half a dozen times during one meal.

\(^1\) Nehrkorn (\textit{Katalog Eiersamml.}, p. 225) has obtained eggs from Greenland, which seem small for this species. Several supposed eggs from Greenland which I have examined were undoubtedly those of Richardson’s skua.
BUFFON'S OR LONGTAILED-SKUA.

[F. C. R. JOURDAIN]

This species, the most beautiful and graceful of all the Skuas, although occasionally recorded as occurring in some numbers on the autumn migration, visits us much less frequently than the pomatorhine, although from the fact that its nearest breeding-grounds are on the fells of Norway one would expect to meet with it on our eastern coasts with tolerable frequency. During the great skua irruption of October 1879 (which has already been described in the article on the "Pomatorhine Skua"), no fewer than fifteen adults were captured at Redcar, and others seen on October 14th and 15th, while at least eleven others were taken in other parts of the county. In the autumn of 1891 there was another invasion by this species, and this time specimens were obtained not only on the east coast of Scotland, but also in the Channel. The return migration in spring seems to avoid our islands almost altogether, though there are a few records from Ireland, and belated individuals have been obtained in Cumberland as late as June 3, and in Cornwall on June 4. From the number of specimens brought in by fishermen from the distant banks in the North Sea, Mr. E. T. Booth inferred that the usual autumn migration line of this species lies considerably to the eastward of the British Isles, but Gätke's researches seem to show that it is only a scarce visitor in small numbers to Heligoland.

We are, however, better acquainted with the life-history of this species than with that of the pomatorhine, principally owing to the comparative ease with which the nest can be discovered. It is of course piratic in its habits, though quite capable of finding food for itself at times. During the breeding season there seems little doubt that many individuals whose nesting-grounds lie at some distance from
the sea procure all the food necessary for their own support and that of their young entirely by their own exertions. But at other times, and especially on migration, they seem to subsist almost entirely on food disgorged by the Terns and the smaller Gulls. Gillett noticed that every flock of kitiwakes near Novaya Zemlya was attended by numbers of this species and Richardson's skua, which kept swooping at them like hawks and forcing them to disgorge their prey.1 Booth was once engaged in watching a pair of adult birds amongst large numbers of kitiwakes, which evidently did not appreciate their society, making rapidly off when approached, though no attack was offered. When at last a small flock of terns came flapping quietly down the firth, the skuas were at once off in pursuit, with sharp and piercing cries. These birds were evidently on their way to their breeding-grounds at the beginning of June, and Booth was able to see something of their courting display, and notes that an immense amount of swimming round, bowing, and chattering was indulged in by them in the water.

In North-east Greenland, A. L. V. Manniche records the first pair as arriving on May 28. This is rather before the average date, and most birds reach their breeding-places in this district about the first week in June. In Lapland and Northern Scandinavia they must naturally arrive earlier, as the first eggs may be found at the beginning of June, and Manniche noticed that an interval of about three weeks elapsed between the arrival of the first pair and the discovery of the first egg in Greenland.

As already noted, the skuas arrive in pairs and immediately take possession of their breeding territory. They breed to some extent in colonies, but the nests are never placed close together. Each pair has its own district, and within these bounds the presence of no stranger is tolerated. One bird is always on the watch to drive away intruders. As far back as 1862, Wolley's collectors found that this species bred in extraordinary numbers during lemming years, and in

that season sent nearly two hundred and seventy eggs to England from the fells of Lapland. But Manniche's observations take us a step further. In the summer of 1907 (the year following a lemming year, when the birds had bred in considerable numbers), the skuas arrived at the usual time, each couple taking possession of its district and guarding it in the usual way. For a few days they waited about, perching on boulders and watching the lemming holes as in the previous year. This time, however, the holes were empty and the lemmings were absent, and before long the skuas gave up the useless task of watching the empty holes and took to pursuing Lepidoptera and other insects. By the end of June they had begun to flock together, and a few days later disappeared altogether from the country. The stomachs of the birds shot contained chiefly insects, and occasionally leaves of *Salix arctica* and remains of other plants, but no trace of lemmings. At so late a date it would have been scarcely possible for these birds to have bred in any other locality, so we are forced to the conclusion that in such seasons they do not breed at all in the high north at any rate. Probably this is true also of many other Arctic birds. Another curious fact in connection with the difference in the seasons is that while in the lemming year many small parties of immature birds in the second and third years' plumage were seen hunting lemmings, not a single immature bird was seen during the following season. In more southerly breeding-places, probably some pairs breed every season, principally, no doubt, owing to the fact that there is a sufficiency of food from other sources. In Greenland the young are fed for the first few days principally with insects, but while quite young they are able to eat lemmings, which the parent-birds hunt, eat, and afterwards disgorge before them. But, on the other hand, H. W. Wheelwright only found remains of the lemming on one occasion in the stomachs of birds shot on the Lapland fells, and in one other case found remains of a small mouse. The

1 Ootheca Wolleyana, ii. p. 356.
BUFFON'S OR LONGTAILED-SKUA

principal food in this district was the fruit of the crowberry (Empetrum nigrum), large beetles, and crustacea, and the young birds never contained anything except crowberries.\(^1\) Lieutenant S. A. Davies found that on the moors near the Muonio river, the young were apparently fed on decaying lemmings: quite a store of these mammals was heaped up beside each nest in various stages of decomposition, and the smell of the old birds was very offensive.

The nest is a shallow depression in the ground, sometimes natural and sometimes made by the bird, sparingly lined with a few withered grasses or a leaf or two of Salix. It is placed on the open tundra, but always close to water, though it may be only a tiny pool or an accumulation of melted snow. The eggs are normally two in number, though instances in which only one has been found incubated, or a single young bird only reared, are not uncommon. On one or two occasions three eggs have also been found in one nest. They are on an average more elongated and narrower than those of Richardson's skua, though at times indistinguishable, while some beautiful varieties are occasionally met with, in which the ground-colour is pale blue or greenish blue, and without or almost without markings. Most eggs, however, vary from umber to olive-brown in ground-colour, with rather scanty spots, streaks, and blotches of deep umber-brown, and purplish grey shell-markings. The average size of 56 eggs is 2.21 x 1.52 in. [56.3 x 38.8 mm.]. From 36 to 48 or even 50 hours elapse between the laying of the first and second eggs, and there is a corresponding difference in the period of emergence from the egg, so that it is evident that incubation begins with the laying of the first egg. During the period of incubation, which, according to Manniche, lasts for twenty-three days, both sexes take turns upon the eggs, the non-sitting bird keeping a vigilant watch over its mate. The attitude of the sitting bird is upright, the head being held high as though the bird were on the alert, and the yellowish throat and white breast, contrasting

\(^1\) [H. W. Wheelwright], A Spring and Summer in Lapland, 1st ed., p. 357.

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with the black crown, being very conspicuous. Concealment, however, is the last thing this skua seems to wish for. As described by Wheelwright, directly one approaches the nesting-ground, the skua comes sailing close overhead, performing the most beautiful airy gyrations, the long sharp wings and pointed tail giving him a singularly wild and rakish look. As he hovers for a moment overhead, his tail feathers are widely expanded like a fan. His loud dismal shriek, "I-i-i-ah, je-ah, je-oh, je-oh," rings out as he dashes straight for one's head, swooping upward just as he seems about to touch. Where not much disturbed by men, his boldness is such that he will actually strike an intruder. Thus Feilden only kept these birds off at Smith's Sound by holding his gun-barrels overhead, and Popham and his companion on the Yenesei were actually struck by the wings of stooping birds. Both sexes share in these courageous attacks, and the nearer one approaches to the nest the more vigorous become their onslaughts. Against such enemies as the Arctic-fox or the gyr-falcons these tactics are naturally of great value, but the result with man is that it is easy to discover the position of any nest within reasonable distance, especially as the sitting bird will return to the eggs without hesitation if the intruder only retires fifty yards, or in some cases even less. Manniche observed that after the eggs had been taken the sitting bird (as in the case of many other species) returned and rested on the nest for some minutes. In one case the bird sat for more than half an hour afterwards.

After the young are hatched they do not stay long in the nest, and then the parents show their anxiety in a different way. As long as the young are not actually found they are more wary, but when closely approached they will throw themselves on the ground and even roll about in order to distract attention from the young.

The latter grow very rapidly, and even in the downy stage the birds of the light and dark forms are distinguishable, though both forms may be met with in one pair of birds or in one nest. By mid-
August, in Greenland, the young were sitting about on boulders and clods, still carefully guarded by their parents. But at the end of the month the young were able to take care of themselves, the old birds ceased to feed them, and almost immediately afterwards they left the country, apparently young and old leaving together in small flocks of not more than fifteen or twenty birds.
THE STONE-CURLEW


PRELIMINARY CLASSIFIED NOTES


STONE-CURLEW [Edicnemus oedicnemus (Linnaeus); Edicnemus scolopax (S. G. Gmelin). Thick-knee, Norfolk-plover, nighthawk, night-curlew, great-plover. French, oedicnème criard; German, europäischer Triel; Italian, occhione].

1. Description.—The Norfolk-plover can always be distinguished by the great size of the eye, the long yellow legs, and the absence of a hind-toe. The sexes are alike, and there is no seasonal change of coloration. (Pl. 111.) Length 16 in. [406.4 mm.]. The adult is of a sandy buff colour above, heavily striated with dark brown on the crown, hind-neck, scapulars, wings, and upper tail-coverts, but on the interscapulars the dark central area expands, leaving only a marginal fringe of pale brown, which is finally lost by abrasion. Above the eye is a more or less distinct white band, and there is a white patch below the eye. The minor coverts are crossed by a broad, sharply defined band of white, and patches of white occur on the innermost primaries at the base, and on the outermost near their tips. The central tail-feathers are pale brown, the rest white, tipped black, and with a sub-marginal, irregular, blackish loop in the middle of the feather. The under parts are white, but suffused with pale brown, and striated darker brown in the fore-neck and flanks. Beak greenish at the base, black at the tip; iris pale yellow, legs chrome-yellow. The fledgling is much paler than the adult, and very sparsely and narrowly striated with darker brown. The white bar across the minor coverts is wanting. The young in down is of a pale sandy buff, with a median line of dark brown along the crown, and semicircular loops of dark brown on the forehead. Two narrow lines of dark blackish brown run along the back, one on either side of
the middle line, and are continued forwards along the neck to the head; a short line of the same hue runs along the wing, while a narrow loop of blackish brown encircles the end of the body. [w. r. p.]

2. Distribution.—In the British Isles this species is chiefly a summer resident in Southern and Eastern England, though a few pass the winter in our south-western counties. In Scotland it has only been recorded twice, and about ten times in Ireland. In England it is very local, though not uncommon in some parts of East Anglia, and at the present time breeds sparingly in Dorset, Hants, Wilts, Sussex, Surrey, Kent, and Essex, while inland it is found in small numbers in Berks, Herts, and Cambridge, and formerly also bred in Bucks, Beds, Oxon, Worcester, and perhaps some other midland counties. In Norfolk and Suffolk, though local, it still survives in fair numbers, but it is doubtful whether it now nests in Lincoln, and it has not bred in Notts since 1891, although a pair or two nest in Yorkshire. Outside the British Isles it breeds in suitable localities throughout Central and Southern Europe, but is absent from Denmark, Scandinavia, and North Russia, ranging south to the Mediterranean and its islands, from the Balearic Isles to Cyprus. In Asia it is known to breed in Asia Minor, Palestine, and Transcaspia eastward through Turkestan to Central Asia, but a smaller race is found in Baluchistan, India, and Burma, and the Canaries and North Africa are inhabited by other allied races. It is only partially migratory, but though South European birds are resident, those from farther north winter in the Mediterranean region south to Northern Africa, and it has been recorded from Madeira and the Azores. [F. c. r. J.]

3. Migration.—A summer visitor, arriving in the last week of March or early in April, and leaving in October. A few regularly pass the winter in the south-west of England, and at that season it occurs as a rare casual in other districts, including parts of Ireland, in which country it is unknown in summer. A gregarious migrant: "flocking" takes place in October before the birds leave our shores. [A. L. T.]

4. Nest and Eggs.—There is little or no lining in the nest-hollow in which the eggs are laid as a rule, though occasionally a few bits of bent and very often rabbit droppings may be found. (Pl. XLVIII.) The favourite breeding-grounds are commons, down lands, and waste ground, generally in open country where it cannot well be approached unobserved, though it has been known to return to a nesting-place even when trees had grown up close to it. It will also breed, or attempt to do so, in ploughed fields. The eggs are, as a rule, two in number, though there is no doubt that on rare occasions three are laid, and one of the
African forms has been seen with a family of three young. Four eggs are recorded as having been found on one occasion, probably the produce of two hens. The eggs vary considerably, but the ground-colour is generally buff or stone colour, irregularly blotched, streaked, and spotted with blackish brown and with ashy grey shell-marks. (Pi. K.) Some tend to show a zone of bold markings, others are uniformly covered with fine spots, or are covered with a thick network of vermiculations. Average size of 51 eggs, 2.1 x 1.52 in. [53.3 x 38.6 mm.]. They are carelessly deposited, generally some little distance apart and not touching one another. Both sexes take part in incubation, relieving one another in turn (A. Trevor-Battye). The eggs are not laid on consecutive days, but at intervals of a day, and the incubation period lasts for 26-27 days (E. G. Meade-Waldo and E. W. Wade). The first eggs may be found in the south of England as early as April 18th (quite exceptionally by April 11th), but many birds do not lay till May. If the first clutch is destroyed they will lay again, but only one brood is normally reared in the season. [F. C. R. J.]

5. Food.—Chiefly insects of various kinds—especially beetles and their larvae—slugs, snails, and worms. They also eat small mammals—especially fieldmice (Yarrell, British Birds, iii. p. 228), lizards, and frogs (Stevenson, Birds of Norfolk, ii. p. 63). Professor Patten found in the stomach of a bird from Retford a quantity of earwig forceps and some vegetable matter (Aquatic Birds, p. 204). The young are attended by both parents, and assisted by them in their search for food, which consists chiefly at first of small insects. [W. F.]

The British species of the Family Glareolidae are described in the supplementary chapter on "Rare Birds":

Pratincole, Glareola pratincola (Linnaeus).
Black-winged Pratincole, Glareola nordmanni (Nordmann). [G. melanoptera Nordmann.]
1. Stone-curlew's nest. Typical

Photo by W. Farren

2. Stone-curlew, on day of birth, crouching (p. 244)

Photo by W. Farren

3. Stone-curlew, about ten days old, crouching (p. 244)

Photo by W. Farren
THE STONE-CURLEW

[W. Farren]

The family *Oedicnemidae*, of which the stone-curlew is the sole British representative, the *Glareolidae* (Coursers, Pratincoles) and the *Charadriidae* (Plovers, Snipes, Sandpipers, etc.) constitute, together with three other families\(^1\) not represented on the British List, the suborder *Limicolæ*. This suborder forms part of the order *Charadriiformes*, to which also belong the groups dealt with in the preceding chapters, the Doves, Sandgrouse, the Gulls with their close allies the Terns and Skuas, and the Auks.

Although the familiar term Wader implies a habit—that of wading into shallow water in search of food—which is not shared by all Limicoline birds, yet it is the term in general use for the whole group or suborder, in which sense it is used in this work.

The *Limicolæ* are of world-wide distribution, and contain over 250 species. Of these, only a comparatively small number, at present (1911) 61, are on the British List. Of these 17—including the ruff, which, however, is very rare and irregular as a nesting species—breed with us, and 44 visit us on migration, of which 29 may be classed as rare stragglers. This comparatively large number of stragglers is accounted for by the wandering nature of the group, certain species belonging to both the New and Old Worlds, and travelling farther on migration than almost any other birds. Some species nest beyond the Arctic Circle, and winter in South Africa, South America, and Australia. The majority of the species coming under this category of rare stragglers are natives of North America, and some are Asiatic.

To the summer migrants belongs the subject of this chapter, the stone-curlew, also known as the great-plover, Norfolk-plover, thick-knee. From these names it is not easy to choose one more

\(^1\) *Chionidæ*, *Thinocorythidæ*, *Parridæ*. 
suitable than another, and it is significant that ornithologists have shown no decided partiality in the matter. If the species had any real claim to be considered a Plover, the name great-plover would be appropriate enough, for it is larger than any British plover. The fact that the county of Norfolk, together with the adjoining one of Suffolk, provides nesting-ground for probably more individuals than all the rest of England, might justify the use of the name Norfolk-plover. Its more popular name, stone-curlew, has caused it to be confused with the curlew of the genus Numenius, with which it has as little relationship as with any of the Limicola. The name probably originated from a fancied resemblance of its wild night cries to those of the curlew; and its very decided predilection for sandy stone-covered ground gained the distinguishing prefix "stone." As to the name thick-knee, not only does the oedematous swelling in the leg of the immature bird occur at what is, properly speaking, the ankle, and not the knee-joint, but the character is common to the young of all Waders! It becomes, therefore, a matter for some consideration which name to use in this work, and I choose stone-curlew—with this caution to readers, not to connect it in any way with the curlew of the genus Numenius—as in East Anglia, where the bird flourishes in greatest numbers, and where I know it, it is the name used by the local inhabitants. One seldom, in fact, hears the first part of the name, "curlew," or rather "cullew," being most often used.

The stone-curlew belongs to a well-defined genus comprising less than a dozen species. Three or four of these belong to the African continent, three to tropical America, and one to Australia; while two other species are somewhat unnecessarily separated under the generic name Esacus; these are oriental, one inhabiting the plains of India, Burma, and Ceylon, and the other the islands of the Australasian group.

Although our bird has a wide distribution, it does not travel nearly so far on migration as do many of the Waders. A local race
is resident in North Africa, but the migration limits of our form hardly at any time extend below Upper Egypt and Nubia.

North of the Mediterranean region it is a summer visitor to those parts of temperate Europe where barren wastes, suitable to its special requirements, occur. It does not extend far to the north, breeding sparingly in North Germany, and occasionally straggling to Denmark. In our own country it may be found in the chalk-wolds of the southern counties, and two or three pairs nest as far north as East Yorkshire. A few pairs nest annually on the inland side of the vast pebble-beach at Dungeness,¹ and occasionally an odd pair on the sandhills of East Norfolk; otherwise it is purely an inland species.

In no part of England, however, is it so plentiful as in the sparsely populated region of north-west Suffolk and south-west Norfolk known as the Breck district. The conditions most essential to the special habits of the stone-curlew are wide stretches of open country, sandy soil, with cultivated fields and marsh-land not too far away. Wherever it flourishes in any number, these conditions are almost certain to be found. The Breck district provides these conditions in an ideal manner; almost desolate, undulating plains of flint-flecked sand, utterly devoid in parts of any sort of vegetation, in others, covered with mosses and lichens and scattered tufts of wiry grass. Here and there occur areas where a semi-cultivation—chiefly to provide food and cover for game—has encouraged the growth of flowering plants, viper's-bugloss, poppies, campion, and thistles, which in their season enliven the scene with a blaze of colour. The ubiquitous bracken flourishes in all directions, either scattered thinly over the lichen-covered sand, or growing in dense profusion where it finds suitable soil. The general monotony of

¹ Owing to persecution the numbers breeding at Dungeness have been subject to considerable fluctuation: Dr. N. F. Ticehurst says that throughout the nineties there were probably no more than four or five pairs in the whole area. Owing, however, to the efficient protection now afforded them, the numbers have increased considerably, and there is now a strong colony. Cf. N. F. Ticehurst, Birds of Kent, pp. 407-411.
view is broken by long narrow belts of Scotch fir, and occasional plantations of spruce, larch, and birch. Tall white poplars line the roadsides, which in many parts are devoid of any sort of hedge. Where hedges occur they are generally of Scotch fir—locally "Scotch fences"—and where these have been neglected and allowed to grow at will, they have developed tree-like proportions, with irregular lines of dark twisted stems, forming fantastic framework for glimpses of the open country beyond. Here the stone-curlews gather in the early spring, and their strange gaunt figures and wild cries fit in so well with the nature of the country that there is ever a feeling of incompleteness in winter when they are absent.

In certain years a few stone-curlews may arrive at their nesting-grounds as early as the middle of March, but usually the great immigration takes place at the end of the month and early in April. They probably migrate in large flocks, as in most seasons they appear suddenly and in good numbers. In the first week or so of April they may be seen in groups standing about the fields and fallow land; they are, however, never in such large companies as in the autumn.

At this time they are very partial to the cultivated fields, where they meet with lapwings and ringed-plovers, all attracted from the warrens by the greater promise of food in the tilled soil. Mistle-thrushes, partridges, and pheasants are also there on a similar quest, and all show a far livelier interest than the stone-curlew, who stands for long intervals contemplative and reserved. A mistle-thrush passing too near across his front may cause him to thrust out his head in a menacing manner, or even to make a fierce, silent rush at the disturber of his reverie. Occasionally, as if suddenly awaking to the needs of the "inner bird," or because some crawling insect has caught his eye, he will take two or three quick steps and thrust with his bill at something on the ground, and then, whether successful or not, he will retire slowly into himself again.

As the nesting time approaches the stone-curlews keep more to the sandy heaths and warrens, the groups gradually break up, and in
pairs spread over the favourite nesting-area. It is difficult to say whether they are paired when they arrive, or choose their partners during the week or two that they remain in companies; probably the latter, as careful watching at this time may reveal in a certain degree the actions and attitudes peculiar to pairing, interspersed—so to speak—with those of the social period. I have looked over the ground after watching a group in early spring, and found several depressions or "scrapes" in the sandy soil, similar in size and shape to the one that later serves the stone-curlew as a nest. There is very good reason for assuming that these "scrapes" are formed by the males under sexual excitement, and the habit will be dealt with more fully in a later chapter when describing the lapwing.

The subject of "dummy" or additional nests is wrapped in considerable mystery, and although more labour is entailed in the building of the elaborate nest of the wren, and even the less ambitious efforts of such birds as moorhens and grebes, yet the additional "scrapes" made by ground-nesting birds are, I think, analogous to the extra nests built by these species, and probably due to similar influence.

However this may be, additional "scrapes" similar to those used as nests are made by stone-curlews, although, owing to their irregular form and the sandy nature of the ground, they are not so obvious as those of some other species.

Egg-laying commences about the 20th of April, and nests may occasionally be found near those of ringed-plovers and lapwings, but as a rule stone-curlews prefer to nest quite apart from other birds, especially of their own kind, and after the final dispersal in pairs, it is unusual to see more than two together until the young are grown.

In striking contrast to most species of *Limicola* of whose love-displays we have any knowledge, the courting of the stone-curlew is devoid of special aerial or vocal display. True, their wailing cries may be heard in the spring, but do not differ from the autumn cries.
So far as aerial display is concerned, the stone-curlew is not at any time a bird to take delight in sporting on the wing, especially in the daytime, when it is unusual to see them flying except when disturbed, and then quite low over the ground, rising only to cross a belt of trees and then gliding to earth again, where they quickly disappear from sight owing to the harmony of their plumage with the sandy soil.

The stone-curlew is silent and dignified in his courting, and the female receives his attentions with a dignity and formality equal to his own. In fact, so similarly do both birds behave, that on the few occasions when I have been able to get more than brief glimpses of them at pairing time, it has always been a matter of considerable uncertainty to tell which was the male, no help being afforded by the plumage, which is practically alike in both sexes. No sooner has one bird—by a formal bowing, in which the whole body is tilted forward, the beak touching the ground, and the tail held straight above—been marked as the male, than the action repeated by the other renews the uncertainty.

The display seems to be intended not to charm, but to satisfy a desire to posture. Besides the bowing just mentioned, there is another and perhaps more characteristic attitude, which I have seen assumed by both birds at once, never by one only. Standing very erect, with their legs quite straight and body held vertically, they gradually curve the upper part of the neck—causing the neck feathers to stand out loosely—until the beak is pointing towards the ground. There is nothing suggestive of bowing in this pose, the birds may face in different, in fact quite opposite directions, and they lose very little of their height when the curving of the neck takes place. The posture is assumed very slowly, and when complete is rigidly maintained for a brief spell, and then as slowly relaxed, whereupon the birds may walk away together with stiff propriety, and very conscious of each other's presence.

This posture has been observed and vividly described\(^1\) by Mr.  

\(^1\) *Bird Watching*, p. 19
Edmund Selous, whose impressions of this bird are exceedingly true and lifelike. Mr. Selous describes the stone-curlew as at all times a fighter, although when a male intrudes on a courting couple, and is repelled by the male in possession, the fighting is, like all their actions at this time, beset with much formality, and assumes rather the aspect of a warlike demonstration than an actual battle. In such an incident described by Mr. Selous, the male, after going at a quick pace to the female and making her a formal bow, turned to attack his rival: “He is now drawn up to his full height, with the head thrown a little back, the tail is fanned out into the shape of a scallop-shell, . . . the broad, rounded end of which just touches the ground at the centre, . . . he advances upon the intruding bird with quick little stilty steps, prepared evidently to do battle. The would-be rival, however, retreats before this display, and the accepted suitor, having followed him thus for some little way, . . . turns, and with his former formal pace goes back to his hen.”

But, as Mr. Selous has pointed out, the stone-curlew will often make rushes free from any formality, “with neck outstretched and crouching gait,” especially when the offending bird is of another species. This I can corroborate, but I have not witnessed the formal repulse of a rival at courting time.

If the day is cloudy the birds may occasionally be heard to call to each other, but this in my experience is only at rare intervals, and probably when they have become separated in their wanderings. They soon join company again, not forgetting a formal bow or two as they do so. Not infrequently one will crouch on the ground, and rock from side to side as when covering eggs, and I think it is then that the “scrapes” previously mentioned are formed.

The actual nest is a shallow depression, irregular in shape, and some eight or nine inches across in its widest part. It is lined with stones and rabbit droppings, which are added to during incubation.

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1 *Bird Watching*, p. 17.
2 *Bird-life Glimpses*, p. 122 et seq.
Some nests contain more stones than others, depending possibly on the quantity of stones in the sand when the "scrape" is formed, although there is no doubt that stones are carried to the nest, and this after the eggs are laid. Rabbit droppings are certainly introduced by the birds, and of the many nests I have examined, I have never seen one without this curious lining, sometimes a small quantity only, but generally sufficient to form quite a conspicuous feature in the nest.

The majority of nests are in the open, far from bushes or cover of any kind, but I have seen one among scattered gorse bushes, and one in a new plantation of small mixed trees. These may possibly have been the nests of birds that had nested in the same places in former years before the plantations were formed. An instance of continued adherence to an ancestral nesting-place is given by Stevenson, on the authority of the late Professor Newton; a pair of stone-curlews continued to nest in the newly formed warren-covert at Elveden for several years after the young trees were well established.\(^1\) As a rule, the eggs of ground-nesting birds—especially of those species which do not make a nest—are protectively coloured. They do not necessarily resemble a detail of the surroundings, but the prevailing scheme of pattern—irregular blotches of dark colour mingled with or overlapping similar blotches of lighter colour—tend to break up the formal outline of the egg, and so give a quality of general indistinctness. When danger threatens, the sitting birds of such species slip quietly away and leave the eggs to take care of themselves. The advantage of this is obvious, as the eggs are comparatively safe from discovery, whereas the bird, even if not conspicuous in itself, would run the risk of being frightened into flight, and so reveal the whereabouts of the nest. The stone-curlew’s two eggs are good examples of the protected type—a greyish stone ground, with blotches of dark greys, browns, and black—and although in themselves not particularly like stones, they harmonise so well with the general environment of

THE STONE-CURLEW

stones and sand that they are safer from discovery if left, than if the bird remained to form a possible clue to their whereabouts.

Owing to the open nature of the country, a sitting stone-curlew is able to detect the approach of an intruder at such a distance that it is very unlikely that it will be seen when it leaves the nest. The stealthy retreat, like every habit of this remarkable bird, is most interesting to witness, and it is possible with care to approach sufficiently near to see something of it. But the bird is so readily lost sight of on the sandy soil, that one must be near to get more than an imperfect impression.

I have had very good opportunities for watching their methods at the nest while concealed in a branch-hidden tent, within a few feet, for the purpose of photographing them. There is then no straining of eyes as when at a distance; every detail of plumage is clearly visible as the bird sits contentedly on its eggs. It may, unless disturbed by a movement in the tent, remain motionless for a long time; but however composed it may appear, it is never off its guard, as one can tell by its behaviour directly an intruder comes in sight of the nest. Without warning, a sudden change may be detected in the bird; it becomes very much on the alert—but not excitedly so,—nor does curiosity to inquire into the nature of the disturbing influence cause it to raise its head to look around before leaving. It steps quietly from the nest, with no flurry or excitement in its appearance; the bird is master of the situation, and the business of the moment is, without exposing itself, to get clear away from the neighbourhood of the nest. To say that it runs is to suggest long steps and an excited gait, and this ill describes the method of progression. The head is held low, not by extending the neck, but by drawing it and the head close into the shoulders; and so, holding the body rigid, and with little paddling steps that seem ridiculously short for a bird with such long legs, the stone-curlew passes rapidly over the ground and is soon out of sight. I have noticed that if there is an irregularity in the ground, or a patch of bracken or other vegetation
near the nest, they will take advantage of the cover afforded by it; not by entering it, but by running along its edge.

They are equally cautious when returning to their nests; they always approach on foot, very leisurely, and occasionally stopping to pick up something to eat. When within a few yards of the nest they will stand and gaze around, or preen their feathers for a while, but this hesitation near the nest is generally, I think, due to suspicion of the hiding tent. If there is no disturbing influence they go straight to the nest, with head tucked back into shoulders, and the little paddling steps when travelling quickly; but when quite near the nest there is a change, the head is held lower on slightly extended neck, and the steps are slow and deliberate. A nervous bird will sometimes remain for half an hour or more within a few yards of the nest, afraid to go on to the eggs, and yet not sufficiently alarmed to leave. Not infrequently I have known them to come round to the back of my hiding-place and utter an explosive sort of hissing noise, very difficult to describe, and no doubt expressive of disapproval or anger. This noise resembles in modified form the *whumph, whumph* of the great-bustard. They will also, when kept by fear from the eggs, squat down and practically brood stones on the ground.

Very rarely I have seen one joined by its mate, and the two wander about for a time in the vicinity of the nest; but when ultimately one of them has gone away, and the other has come on to the nest, I have never been able to say for certain whether the latter was the first arrival, nor have I ever seen one take the place of the other on the eggs; but see the "Classified Notes."

I have only once heard a bird call when near the nest; it had been standing about for some time, distrustful of the heap of branches that concealed my camera, when a bird, probably its mate, called from lower down the warren. The bird at the nest became quietly interested, and stretching out its neck called in reply *dhu-le-EEP, dhu-le-EEP*—the first two syllables short and somewhat indistinct, the last long drawn and shrill—but to my ears there were distinctly
three, as indeed there appear to be in the several variants of
the above that go to make up the stone-curlew's repertoire of wild wailing
cries.

When the young are hatched the parents are even more silent
and stealthy in their behaviour. They display none of the fussy
anxiety so characteristic at this time of most Waders, but seem to
trust implicitly to the practical invisibility of their chicks to protect
them; and as for themselves, they can help best when danger
threatens by being out of the way, and they go swiftly, silently, and
without showing themselves. The chicks meanwhile crouch flat on
the ground and remain immovable until the danger passes and their
parents return.

This habit of crouching is common to most Waders and other
ground-nesting birds, but while others use it in conjunction with
devices, such as repeated warning-notes to the skulking chicks, with
endeavours to drive away an intruder, as in the case of the lapwing, or
with the so-called feigning of an injury, the stone-curlew trusts entirely
to the protective coloration. One can hardly imagine this stately bird
doing anything so undignified as shuffling along over the ground
shamming injury, or anything so futile as flying to and fro over the
spot where its young are concealed, with noisy wing-beats and
anxious cries. So far as I have been able to discover, it does not
even give a warning-note to the young, its swift stealthy disappearance
being apparently the signal for the young birds to freeze to the
ground, and they need no warning not to move. Living as a rule on
ground bare of cover, they cannot run into grass and other herbage
to hide as do many Waders, nor need they do so, for the coloration
and texture of their downy covering harmonises so exactly with the
sandy flint-flecked soil, and they prostrate themselves so completely,
that they appear no more than a slight irregularity of the surface.

The extreme phase of the crouching attitude is not developed
until the young birds are about a week old. They crouch almost as
soon as they leave the egg-shell, but the body then is somewhat
humped and the neck contracted, which brings the head close to the shoulders, an attitude very like the ordinary hiding crouch of many ground-nesting birds. (Plate XLVIII., Fig. 2.) But the later phase of the attitude is rapidly developed, the neck is extended, and the little bird, from the tip of its bill to the end of its body, is pressed flat on the ground. (Plate XLVIII., Fig. 3.)

Not only does the stone-curlew eclipse its congeners in its development of this device, but also in its faith therein. The young birds seem to trust implicitly to its value to protect them, and it is no easy matter to prove to them that they are discovered. I have lifted one from the ground and laid it across two outstretched fingers, yet the rigidity of the attitude has not been relaxed nor has the bird shown a sign of life. By dint of much handling the little bird may at last be made to realise that it is discovered, that the deception has failed; then it takes refuge in the most commonplace of expedients—and runs away! The length of leg now revealed is quite surprising, as is also the pace at which this hitherto inert creature can run. It will not as a rule run far, probably twenty to fifty yards, then it drops flat again in the crouching attitude, and with the attitude its faith in its protective value returns, and, providing one is able to find it, there will be the same difficulty as before in convincing it that its natural defence has broken down.

When fully fledged the young show but slightly diminished confidence in the device; and although I have never witnessed it myself, I have been told by gamekeepers that when a man approaches on horseback, the adults are less likely to flee than from one on foot, but will assume the crouching attitude while the horse passes within a few feet. This specialisation of the stone-curlew in the crouching habit has no doubt arisen from long and continued adherence to a special environment. While the species keeps to districts where the favourable conditions prevail, the habit is of undoubted value; but on ground of a different nature, with which the colour of the down would not harmonise so well, one can imagine this extreme dependence on
the habit becoming a serious menace to the existence of the species, as it would under such changed conditions become a conspicuous and easy prey. Dr. Bowdler Sharpe related of two stone-curlews that he kept, and which were allowed to run loose in the garden by day, that they much resented being shut up in an aviary at night, and used every artifice to avoid it; when all other concealment failed, they would prostrate themselves flat on the ground and lie perfectly still, "a manoeuvre which might have been successful on fallow-land, but which signally failed to hide them when executed in the middle of a lawn."  

I once, and once only, saw a family party, two adults and two downy young, all standing up together. It was a strange and most engaging sight, but it did not last long enough for me to watch them to any purpose; the old birds detected me at once and ran off in their quaint style, and the young ones dropped to the ground, and although I was near enough to see them clearly without glasses, it was only after a long search that I was able to find them. This group showed them thoroughly domesticated, both adults in close attendance on the chicks.

If their eggs are destroyed or taken they will lay a second or even a third time, but I do not think a second brood is reared. The incubation period is long—about twenty-eight days—and this twice in the season, allowing some time in between, would carry a second brood very late into the summer.

As the young grow the swelling at the upper part of the tarsus, and the tibio-tarsal joint, becomes very evident. As before stated, this swelling is common to all Waders and also to some other groups, e.g. Herons and Ducks—many Waders having as large a development of it as the stone-curlew—which makes it a matter for some surprise

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1 Wonders of the Bird World, p. 272.
2 Mr. E. G. B. Mead-Waldo ascertained the incubation period to be 26-27 days. In a nest under observation, the first egg was laid early in the day on May 23rd, and the second late in the day on May 25th. Hatching took place on June 20 and 21st.—British Birds (magazine), i. p. 82.
that authors have generally directed attention to it as a characteristic of this species.

Towards the end of summer there is a gradual return to the social life, and in August the great autumn gatherings commence. The bird now appears to become more truly nocturnal in its habits. Little groups of four or five birds may be seen standing or squatting sleepily about the fallows, and now and again one, apparently more awake than the rest, will utter a squeaky *dhu-le-EEP*, several times repeated. Towards the evening the lethargy of the day wears off, the birds seem imbued with new life, and from all parts of the fallows and warrens they gather in to certain favourite assembling places. As they come they raise their voices *cour-li-vee, cour-li-vee*, and the long wailing cries echoing from far and near form a fitting accompaniment to the general desolate wildness of the scene. They have not altogether lost their stately decorous bearing of the spring, but at these autumnal gatherings there is an exciting influence at work that causes them to forget themselves, as it were; they emerge from their cloak of dignified reserve, and do mad things in what seems the joy of each other's company, and—in the opinion of Mr. Selous—in anticipation of the pleasures of the coming night. For detailed accounts of these social antics or dances of the stone-curlew the reader is referred to the works of Mr. Selous, who spent much time in watching them at this season of the year.¹

There is no set dance in which several birds take part, but all seem to act independently and spasmodically. Birds which have been standing still will suddenly commence to run—not with the little paddling steps as in the day when seeking to escape observation, but—with a fine swinging gait, often raising their wings as they do so. Then others in different parts of the plateau will follow suit, and as they raise their wings, revealing the light under-surfaces, they flicker and flash into and out of sight in the gathering dusk. They have a quaint way of throwing themselves forward, and holding their

¹ *Bird Watching*, see Index; *Bird-life Glimpses*, see Index; *Zoologist*, pp. 173, 270, 458 et seq.
heads sideways on the ground for a brief spell, sometimes with a wing raised high in the air; an attitude which has a curious effect, and is frequently indulged in. As the light weakens the pace grows faster, the wing flashes increase, and here and there a bird will rise from the ground, fly for a short distance, and alight again. At last one or two fly up in earnest, quickly followed by others, and these again by more, until all are up and away to their feeding-grounds, wailing as they go. Their cries gain in effect from the fact that they do not all call at once in a grand chorus, but take it up from each other, wail following wail from one part of the flock to the other. At all times they are more active in dull or rainy weather. In spring and summer, on wet days I have heard them calling from all quarters. And Mr. Selous describes their antics on a certain wet evening as being altogether of a more violent kind than usual. The birds pitched about over the ground, waving and tossing their wings, “each violent run or plunge ending with a sudden pitch forward of the body, the wings straggling about in an uncouth dislocated sort of way; the effect was as if the birds were being blown over the ground in a violent wind.” And again, “one of them would often run at or pursue another with these antics. I saw one that was standing quietly caught and, as it were, covered up in a little storm of wings before it could run away and begin waving its own.”

The harmony of these evening gatherings seems seldom disturbed by quarrels; the birds are continually running at each other, but it seems to be in sport, a sort of rough horse-play indicatively of high spirits. There is something exceedingly funny, and in keeping with the general bearing of the species, in the way one will stop suddenly after one of these tumultuous displays and assume a most decorous appearance. It looks almost ashamed of having so far forgotten itself. They fly back to the assembling places in the early morning, generally about daybreak, although on one foggy morning in September I saw a large flock coming in at about ten o’clock. The heavy mist

1 Bird Watching, p. 12.
may have been the cause of this late return to the warrens. These large flights form a most inspiring sight. The flock just mentioned, the largest I have ever seen, must have consisted of two hundred birds; they were flying low down, not more than twenty to thirty feet from the ground, and while the majority of them were a little beyond me, many passed directly over my head. They are always much quieter on their return flight than in the evening, but still not absolutely silent, and it was their voices, a wail here and there, that warned me they were coming, some time before I saw the first birds emerge phantom-like from the fog.

The nightly visits of the stone-curlew to the marshes are, I think, as much for drink as for food. Food to their taste there is in plenty on the warrens and fallows, but no water; for that they must go to the lower land. They eat quantities of grasshoppers, earwigs, beetles, caterpillars, and various other insects. Mr. Selous has seen them in the early evening chasing and catching moths, and probably other insects that fly near the ground.\(^1\) They also eat worms, slugs, and mice, and when caught in traps set for vermin on the fallows they have been known to disgorge frogs.\(^2\) I have been told by an observant gamekeeper, who has lived practically all his life in their haunts, that they eat the larvae of *Euchelid jacobæae*, the cinnabar moth, and he added that he did not think any other bird did so. This caterpillar is generally avoided by birds, and is furnished with what are known as warning colours. It swarms on the ragwort which grows abundantly on many of the fallows. The same keeper told me that he had shot a stone-curlew in the act of killing a young pheasant. Other keepers whom I have interrogated as to this latter statement have corroborated it.\(^3\)

Attempts to syllable the cries and songs of birds are somewhat futile, and convey but a poor impression of the real thing. Various

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\(^1\) *Bird Watching*, p. 6 et seq.


\(^3\) This habit must be taken, however, as very exceptional.
renderings have been given of the cries of the stone-curlew. Mr. Selous uses *dew-leep* for the shrill cry heard so much in the daytime, and which is uttered on the ground.\(^1\) To me it is more like *dhu-le-EEP*, the first syllables very short and the last long drawn out and ending in a squeal. The note I have written *cour-li-vee* Mr. Selous puts *tur-li-vee*;\(^2\) it is very well expressed by a French writer—Valmont Bomare, quoted by Macgillivray—*tarlui* or *courlis*.\(^3\) All these expressions serve equally well to one familiar with the cries. The question is, are such formulæ worth attempting, as likely to give an adequate idea or impression of the notes to one who has never heard them? The full wailing cry, called locally the *clamour*, is not perfect when the birds first arrive in this country, but it gradually gains in strength and clearness, and from May on to the time they leave us in the autumn it may be heard at night ringing across the heaths in its full glory. All these notes are variants of the same, and may be described as wailing cries rather than whistling. There is a cry, however, of remarkable carrying power which may be described as a monotonous whistle on one note, repeated at regular intervals throughout the nesting season; and a whistling note may occasionally be heard, more especially in the autumn, and, according to Mr. Selous, “when the birds are flying in great numbers preparatory to migration.”\(^4\) It is a quavering note suggestive of certain spring notes of some other Waders, e.g. curlew, oystercatcher, or redshank.

The autumn migration commences in October, the majority of the birds apparently leaving together about the middle of the month; others follow gradually until by the end of the month nearly all are gone. Odd birds may occasionally remain throughout the winter, as I have records of their occurrence for the months of December, January, and February, and it is said that in Cornwall and S. Devon a few linger throughout the winter every year.\(^5\)

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\(^1\) *Bird-life Glimpses*, p. 125.  
\(^3\) Macgillivray, *Birds*, p. 81.  
\(^4\) *Bird-life Glimpses*, p. 126.  
\(^5\) Macgillivray, *Birds*, p. 81.
As to how the great exodus, and the preparations leading up to it, takes place I cannot say. One can imagine its following one of the great evening displays, and the dancing and wild rushes of the birds gradually ending in a flight, not to the old feeding-grounds in the cultivated fields and marshes, but to others far south on the way to winter quarters.
THE PHALAROPES


PRELIMINARY CLASSIFIED NOTES


GREY-PHALAROPE [Phalaropus fulicarius (Linnaeus). French, phalarope gris; German, plattschnäblicher Wassertreter; Italian, falaropo rosso].

1. Description.—Of the two species of phalaropes, identified at a glance by their relatively small size and by the coot-like lobes to the toes, the present species is distinguished from its congener in being conspicuously larger and by the shape of the beak, which is slightly flattened and widened at the tip. The female is larger and more brightly coloured than the male, and there is a distinct seasonal change of coloration. (Pl. 112.) Length 8·25 in. [209·55 mm.]. The adult, in summer, has the top of the head and nape and hind-neck black, and the lower back dark slate colour; the interscapulars, scapulars, innermost major-coverts, and long inner secondaries black broadly margined with sandy buff, and the outer major coverts dark grey with a broad terminal bar of white; the remaining wing-coverts slate-blue. The primaries dusky, with more or less white at the base of the outer web; the outer secondaries white shading into blackish towards the outer webs, the innermost secondaries dark slate with sandy buff margins. The centre tail feathers blackish with sandy buff margins, the outer feathers dark grey margined with white, the outermost tinged with chestnut towards the tip; tail-coverts black margined with buff, save the longest, which are chestnut. The forehead, lores, anterior part of the face, chin, and upper throat dark slate colour; the sides of the face, around the eyes and ear-coverts white; the under parts, including the sides of the neck, from the throat backwards, rich reddish chestnut. Beak yellow, black at the tip, legs olive-brown, iris dark brown. The male differs from the female in having the chestnut of the under parts duller, more or less intermixed with...
white, and extending to the chin, while on the flanks they are striated with brown, and the white patch on the side of the head is strongly marked with vinous brown. After the autumn moult the lores, forehead, and crown, and the whole of the under parts are white, a patch of grey partly surrounds the eye, and the upper parts assume a uniform slate-grey colour, the feathers of the mantle having dark shaft-streaks, and those of the scapulars and innermost secondaries white margins. The wing-coverts retain the slate-blue of the summer dress. The juvenile plumage is intermediate in character between the summer and winter dress of the adult, having the feathers of the upper surface margined with buff, and a vinous tinge on the throat and fore-neck. The fore-part of the crown is buffish white, and there is a horse-shoe loop of black on the hinder crown. The young in down have the head of a light rust colour with a black patch on the crown and behind the eye, while the back is of a dark brown relieved by more or less distinct longitudinal stripes of bright reddish brown. The under parts are of a dark brownish grey. [W. P. F.]

2. Distribution.—In the breeding season the grey-phalarope is a circum-polar bird. Its nearest breeding-places to us are Iceland, where a few pairs nest; Spitsbergen, where it breeds in considerable numbers; and Novaya Zemlya, where it has recently been proved to nest (W. S. Bruce). Whether it breeds on Kolguev is not certain, but it is known to nest on the Taimyr Peninsula (Middendorff and Walter), at the mouth of the Yenesei (Popham), on the Great Liakoff Isles (Bunge), the Lower Lena valley (Hall), the Kolyma and Yana deltas (Buturlin). On the American side it is not uncommon in Greenland, breeding not only on the west side but also in the north-east (Manniche), and westward along the Arctic coasts and islands of North America to Alaska, ranging north to 82° 30′ (Feilden), from Davis Strait, Melville Peninsula, and the North Georgian Islands to Point Barrow. Mr. Buturlin also states that isolated pairs have been found far inland in south-west Siberia, in the Uralsk and Turgai governments. During the winter it is found in small numbers as far as the coasts and lakes of the Continent, south to the Mediterranean, and it has occurred in the Azores and in Marocco, while in Asia it ranges to the Pamirs (rare), India (once only), and China (regularly). It has also been recorded from New Zealand, the Falkland Isles, Juan Fernandez, and in South America as far as Chile, but its normal winter range in America extends only to Lower California, and the middle United States on the east side. [F. C. R. J.]

3. Migration.—A bird of passage in small and variable numbers, but seldom recorded on the spring passage. The south-eastern counties of England—


5. Food.—In the nesting season, chiefly aquatic and other insects and their larvae. "Twenty analyses of stomachs proved their chief food to consist of small insects, principally gnats and their larvae. In a few stomachs were fine indeterminable remnants of plants—algæ?" (Manniche, Terrestrial Mammals and Birds of N.E. Greenland, p. 157).—At other times, the smaller thin-skinned crustaceans and other small marine forms; and the flies and their larvae that breed in the seaweed and refuse on the shore. They have been seen picking parasites off the backs of whales and other cetaceans (Howard Saunders, Manual of British Birds, p. 566). In stomachs of birds examined by Professor Patten were small crabs and scraps of seaweed. The stomach of one killed in Ireland contained twelve larvae of a fly (sp. ?) and a quantity of a small gasteropod shell, probably Hydrobia ulva, which is found in brackish water (Aquatic Birds, p. 261). The young are attended by the male only, and assisted by him in their search for food, which consists of small aquatic insects—mosquitoes probably to a large extent—and their larvae. [W. F.]

REDNECKED-PHALAROPE [Phalaropus lobátus (Linnaeus); Phalaropus hyperbóreus (Linnaeus). Half-web (Orkneys). French, phalarope cendré; German, schmalschnäbliger Wassertreter; Italian, falaropo a becco sottile].

1. Description.—As in the grey-phalarope the feet are lobed, and the hinder border of the tarsometatarsus is serrated; but it is to be distinguished from the grey-phalarope by its smaller size and longer and more slender beak. The female is somewhat larger and more brightly coloured than the male, and there is a conspicuous seasonal change of coloration. (Pl. 112.) Length 7.5 in. [179.07 mm.]. In the nuptial, summer dress, the upper part of the head to the level of the lower border of the ear-coverts is of a lead-grey, the rest of the upper parts somewhat darker, enlivened by a line of sandy buff on either side of the interscapulars; wing-coverts
slaty black, with a bar of white along the tips of the major series. Primaries with white shafts, and the secondaries edged with white, the innermost having sandy buff margins. The fore-neck is marked by a broad band of rust-red extending upwards to the nape; below the band is a narrow margin of grey. The flanks are grey, and the rest of the under parts white. Beak, legs, and toes black, iris dark brown. The male is duller in colour, has the rufous band across the throat smaller in area, and a white superciliary stripe. After the autumn moult the chestnut and grey bands on the fore-neck are wanting; the back and scapulars also lose the chestnut margins, the upper parts being slate-grey more or less conspicuously laced with white, the under parts pure white. The juvenile plumage has the feathers of the upper parts dark brown margined with chestnut, and the under parts washed with buffish. The young in down are buffish chestnut above, with a black patch on the crown and behind the ear, a black spot on the elbow, and a longitudinal line of black, and two narrow white lines along the back. The neck is also buffish chestnut, the rest of the under parts white. [w. p. p.]

2. Distribution.—In the British Isles at the present time this species is only known to breed in Scotland in the Outer Hebrides, south of the Sound of Harris, and in the Orkneys and Shetlands. There was formerly a breeding-place in the Tay area (Perthshire), but this had long been deserted. In Ireland there is a single colony in the West, occupied since 1900, though first made known in 1903, which is now protected. Outside the British Isles it breeds in the Færöes, and in great numbers in Iceland, while on the Continent it is found on the high feld of Middle Norway as well as in Northern Scandinavia, locally in North Russia, and on the islands of Waigatz, Dolgoi, and probably Kolguev. Southward it breeds, according to Buturlin, in Moscow, Perm, Orenburg, and Uralisk, and sparingly in the Gulf of Finland and the Russian Baltic Provinces. In Asia its breeding range extends across Siberia to the Sea of Okhotsk and Sakhalin as well as on the Commander Isles, and in North America it breeds from the Aleutian Isles, Alaska, the northern Mackenzie river basin, Central Keewatin, St. James’ Bay, and N. Ungava to South Greenland. It has on the whole a more southerly range than the grey-phalarope. In winter it migrates southward through Europe to the Mediterranean basin, avoiding the western part; and also to Southern Asia (India, China, Japan), Celebes, the Moluccas and Amboina, while in America it reaches the Bermudas, Guatemala, and occasionally Hawaii. [F. C. R. J.]

3. Migration.—A summer visitor to the breeding haunts mentioned above, and otherwise merely a rare bird of passage, chiefly to the east coast of Great
1. Rednecked phalarope's nest

2. Rednecked phalarope (male) seeking to brood chick held in the hand (see p. 285)
PRELIMINARY CLASSIFIED NOTES

Britain. Arrival takes place in the second half of May, and both old and young appear to leave their summer haunts by August. As regards the rest of the country, it has been said that "occurrences in spring are unusual, and altogether the avoidance by this species of the greater part of the British Islands on its passage to and from its summer haunts is somewhat remarkable" (Saunders, Ill. Man. Brit. Birds, 2nd ed., 1899, p. 567). The number of British-breeding individuals is of course too small to make the species anything but the rarest of migrants along our coasts, but a regular passage of birds from countries farther north might well have been expected. [A. L. T.]

4. Nest and Eggs.—The nest is generally neatly concealed in a tussock of grass or water herbage in a marsh, in some cases as much as a foot above the ground. It is chiefly composed of the stalks and roots of water-plants, and is more frequently found near the side of the water than on the tussocks in the middle. (Pl. XLIX.) Both sexes take part in building (B. Hantzsch). The eggs are four in number, and are laid with the points inward. They are very handsome, the ground-colour ranging from pale yellowish buff to brownish, occasionally showing a decided green tinge, and very richly blotched and spotted with blackish or deep chocolate, and occasionally a few shellmarks of greyish. Most of the blotches tend to congregate at the blunt end. (Pl. M.) Average size of 43 eggs, 1.18 × .83 in. [29.9 × 21 mm.]. Most, if not all, of the incubation is performed by the male, but no observations on the length of the period appear to have been made, beyond Hantzsch's statement that it lasts about two weeks. He also notes that the male alone has two brooding spots, but says that the female also takes part. The average date for eggs in Great Britain is about mid-June, but there is considerable variation, even in the same district. In Iceland also the eggs are laid generally in the latter part of June. Probably only a single brood is reared, and late clutches are second or third layings. Krüper found an almost fresh clutch on July 14 in Iceland. [F. C. R. J.]

5. Food.—In nesting season, aquatic and other insects and their larvæ, small worms, and fresh-water crustaceans.—At other times, thin-skinned crustaceans and small forms of marine life generally. The stomach of one bird I examined in October was full of small larvæ of a fly, probably one of the species that breed in decayed seaweed and other refuse at high-water mark. Small crabs (Patten, Aquatic Birds, p. 266). The young are attended and assisted by both parents in their search for food, but chiefly by the male. Their food consists of insects, mostly aquatic, and their larvæ. [W. E.]
THE PHALAROPES

[W. Farren]

These pretty little birds are the most aquatic in habit of all the Waders. Their toes, lobed like those of coots, are admirably adapted for swimming, and their plumage being exceedingly dense like that of gulls and other swimming birds, gives them a buoyancy on the water that adds much to their grace and charm.

Of our two species, the grey-phalarope is but a visitor—and a very irregular one—chiefly on the autumn migration. Many years pass with but few records of its appearance, and then comes a year, as in 1866, when it appears in large numbers, chiefly on the south-east and south coast, when many fall victims to the deplorable habit that human beings have of killing anything that appears strange, more especially if tame and confiding, as phalaropes always are. It was computed that from August to October in 1866 two hundred and fifty were killed in Sussex alone, and some five hundred in all. Other years have seen similar visitations, when the birds were nearly if not quite as numerous. In 1889, or about then, large numbers visited the coast at and near Brighton, upwards of fifty specimens being received at one naturalist's shop, for which the price of 3d. a dozen was paid!

Howard Saunders does not mention an earlier record than 1866 for one of these great autumn visitations of the grey-phalarope. But in the Zoologist for 1859 there is an interesting account of the occurrence of large numbers at Plymouth in the autumn of 1858. The recorder, John Gatcombe, further states: "In 1846 an extraordinary flight visited Plymouth and the neighbouring coasts: they remained about three weeks, and in such numbers were they that

\[1\] Other dates of visitations of the grey-phalarope on its autumn passage are 1869, 1891, and 1896.
I saw a sailor with an old rusty musket literally filling his pockets with them." Gatcombe's notes on their habits are worth quoting in full: "They are generally considered rare, but a few may be seen every autumn in Plymouth Sound during the equinoctial gales: their habits at such times are very elegant; they alight just outside the breakers, where the froth and seaweed have accumulated, swim with extraordinary activity and lightness, constantly whisking their bodies round, and incessantly nodding their heads and dipping their bills in the water in search of food. So tame and fearless are they at these times, that I have actually seen them give a little spring and flutter only, when fired at and missed, and immediately go on feeding as if nothing had happened."  

What the special conditions are that bring about these visitations it is very difficult to say;\(^1\) in fact, the migration of both species is somewhat mysterious. They very rarely touch our shores on the spring journey, and in autumn only in the spasmodic way above narrated, and then their visits are almost confined to the south-east, south, and south-west. True, the rednecked-phalarope has occurred in many counties of England and Scotland, but very irregularly, and always in small numbers. Although this species nests in the British Isles while the grey-phalarope does not, it has always been regarded, so far as actual numbers are concerned, as the rarer of the two species. This is owing to the large number of the grey-phalarope that have been taken during the occasional great autumn invasions. It is quite probable that they are overlooked on migration, for previous to the discovery—about the year 1900—of the existence of a nesting colony of the rednecked-phalarope in Ireland, there had been but a single record of the species for that country. Judging from the number of pairs found nesting there in 1904,\(^3\) the species

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1 Zoologist, 1859, vol. 17, p. 6377.
2 "The combination necessary . . . would seem to be continuous southerly or south-westerly gales blowing at the time the birds are making their southern passage."—Ticehurst, Birds of Kent, p. 442.
3 British Birds (magazine), vol. i. p. 175.
certainly appears to be quite as numerous there as on the Scottish mainland.

Both of our species of phalaropes penetrate far into the Arctic to breed, their nesting range being circumpolar. The grey-phalarope appears to be the more restricted in its range, for while its southern limit is in Iceland, where it occurs in very small numbers, the red-necked-phalarope is abundant there, and the latter also breeds in the Færoes, the Shetlands, the Orkneys, on the Scottish mainland, and in Ireland. These British localities are probably the only places where phalaropes nest south of the Arctic Circle. In winter they penetrate as far south as the Bermudas and Guatemala in the west, and the Indo-Malayan region in the east, but their exact migratory routes, and where the bulk of them pass the winter months, is uncertain. So far as Europe is concerned, they appear to travel by way of Scandinavia and Western Europe. Howard Saunders states that the rednecked-phalarope avails itself of the route by the valley of the Volga while the grey-phalarope does not, and that both species are found on many inland waters and the coasts down to the Mediterranean.

Phalaropes, although fond of visiting inland waters on migration, have also frequently been seen on the open sea many miles from land: Howard Saunders states that the grey-phalarope may be seen “sometimes hundreds of miles from land—and also picking the parasites off the backs of whales and other cetaceans.” Of the same species it is stated that “Sabine shot one out of a flock of four, on the west coast of Greenland, in latitude 68°, while they were swimming in the sea amongst icebergs”; and “Richardson in his Natural History Appendix to Parry’s Second Arctic Voyage, says they were observed upon the sea, out of sight of land, preferring to swim out of danger rather than take wing.” Of the rednecked-phalarope, Audubon quoted by Macgillivray states that they may be seen swimming on

2 Ibid., pp. 566-567.  
3 Ibid., p. 566.  
the open sea far from land, and frequently to alight on floating banks
of seaweed on which they "walk about as unconcernedly as on land."  

Phalaropes nest inland in marshy places, generally where there
are small pools and puddles of water, and in the vicinity of small
lakes. They spend much of their time on the water, sporting
with each other, and hunting for aquatic insects and other small
forms of life which they catch on or near the surface of the water,
and which at this season of the year form almost their sole food-
supply.

Both species undergo a considerable seasonal change of plumage.
This is most marked in the grey-phalarope, which from the delicate
grey of winter changes in spring to a rich admixture of black and
brick-red. The rednecked-phalarope has a darker grey winter
plumage, and in spring less brilliant colouring than the grey-
phalarope, but considerably more colour and contrast than when in
its own winter plumage. There is a very decided sexual difference in
the spring plumage, and, contrary to the general rule, the advantage
in brilliancy is entirely with the female, which is also the larger.
This caused early observers to mistake male for female. Macgillivray
described the females as less pure in colour than the males, although
curiously he gave the relative sizes correctly; and Salmon, who visited
the Orkneys in 1834, described the female rednecked-phalarope as
lacking "that brilliant bay colour upon the sides of the neck and
breast so conspicuous in the male," not knowing that the smaller
duller individuals were the males, and that with this inferiority in
dress, usually—in birds—associated with the gentler sex, the males
also accept the feminine responsibility of hatching the eggs and
rearing the young. This was, I believe, first noticed and recorded

2 Since this was written I find that there is in the Fauna of the Orkneys, p. 297, a quotation
from a paper read before the Linnean Society in June 1804, by T. W. Simmonds, recording for
the first time the breeding of the rednecked-phalarope in Great Britain. He did not actually
find a nest, but he obtained birds of both sexes on Sanday and North Ronaldsay, and from the
condition of the ovaries of the females concluded that egg-laying had recently taken place.
He also pointed out that the female was larger and more beautiful than the male, and also
that only birds of the latter sex had bare breasts, indicating that they alone incubate. The

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by Arctic explorers in America,¹ who discovered also that the females of all the phalaropes still further show their emancipation from the customary restrictions imposed upon their sex by taking the initiative in courting.

There is in this reversal of sexual adornments and functions subject for much theoretical consideration, but there is little to indicate the causes and influencing factors that have contributed to its evolution. Is the duller plumage of the male the result or the cause of his doing the incubating? Is the superior brightness of that of the female the result of sexual selection—the usual order reversed? Or if we do not like the theory of sexual selection as productive of brilliancy in the plumage of the courting sex, and prefer to regard gay colouring as a sort of waste product, the result of otherwise unused physical vitality: then is this leap-year-like behaviour of the female in courting the male simply high spirits, the result of some of this superfluous vitality over and above that which was required in the evolution of her gay colouring? Will natural selection, demanding still soberer colours, cause the incubating male to become in time duller? And will sexual selection by discriminating and aesthetically-minded males produce in time a still greater degree of brilliancy in the plumage of the females, and therefore an increased disparity between the two sexes?

With the exception of the ruff and reeve, the phalaropes show more sexual dimorphism than any of the Limicoline, in fact it is hardly observable in any others. Both sexes in all Waders have a fairly good protective coloration. If, owing to any special conditions of habitat, a duller plumage would be advantageous to the incubating bird, then one can easily imagine that it would be the male whose colouring would be so influenced by natural selection, as it is the rule with many

¹ "Report upon Natural History Collections made in Alaska in the Years 1877-1881," and "Report of the International Polar Expedition to Point Barrow" (Washington, 1885).
species of Waders for the male to sit during the day, the only time when colour is important. This may have been the origin of the duller plumage of the male phalaropes, and following it the singular reversal of sexual habits. Bearing in mind this fact, that male Waders generally do the incubating by day, I do not think sufficient proof has been offered to show that female phalaropes may not take a share by sitting during the night, as is presumably the case with other Waders. True, it has been stated that when the eggs are laid the females of all phalaropes form flocks and lead a club-life, leaving the males to hatch out and bring up the young. The rednecked-phalarope does not at any rate exhibit so complete an emancipation from domestic duties as this would necessitate, nor does the male relegate entirely to the female his rights in courting and even fighting for a mate. Dr. P. H. Bahr, in an interesting account of the spring habits of this species observed by him in Scotland,\(^1\) described how he saw two males continuously circling round the head of a swimming female, and then, on settling on the water, “would face each other with lowered beaks and ruffled plumage, just like two fighting-cocks.” So clearly did this aerial display of the male appear to be a courting action, that Dr. Bahr described it as the marriage flight. “Zig-zagging from side to side with amazing rapidity, he would hover with dangling legs over the head of the female, who, circling placidly in the water, appeared to take no notice of his attentions. Then settling beside her he would peck and chase her as if endeavouring to make her take to flight. Failing in this, he would dash off once more across the marsh, uttering a warbling sort of song much like that of the ringed-plover. Then he would settle in a reedy spot, such as would be chosen for the nesting-site, and would call vigorously, looking always in the direction of the female, as if expecting her to follow.”

Several pairs were seen behaving in this manner, and such was the apparent fervour of the males that they persisted “even in the midst of one of the worst storms we experienced.” Whether it was

\(^1\) *British Birds* (magazine), vol. i. pp. 202-7.
that the females regarded the display as an infringement of their rights, or as unbecoming forwardness on the part of the males, they were often driven to resent "these attentions, and a pitched battle would ensue."

Dr. Bahr concluded that the females arrived first at the nesting quarters; the earliest date on which he saw them was May 28. "On June 2nd one pair had already settled its affairs." On the 3rd, 4th, and 5th four females and one male were seen. "These amazons were fighting continuously amongst themselves, and were causing the solitary male much anxiety." Later on Dr. Bahr describes how "two energetic and quarrelsome females attached themselves to one miserable-looking male, and it was ludicrous to behold the awe in which he held them. Once in particular he nearly swam between my legs in his efforts to avoid their attentions."

With regard to the actual display of the female in courting, she has been described by Mr. H. S. Gladstone as swimming coyly round and round the male, showing off the while her larger stature and more brilliantly coloured plumage. The male may take flight to a neighbouring pool, but "is so assiduously persecuted that he at last falls victim to her wiles." ¹ This description of a circling dance on the water has been confirmed by Mr. O. V. Aplin, who found the rednecked-phalarope breeding in Norway. He says: "This play consisted in the female spinning round rather rapidly on her own axis on the water, the wish to display and show off before her duller mate being very evident." ²

Apart from this display in the water, it has been observed that the female rednecked-phalarope occasionally rises on the wing above the male, "and, poised a foot or two over his back, makes a half-dozen quick, sharp wing strokes, producing a series of sharp whistling noises in rapid succession." ³ Procter, in his observations of the same species in Iceland, stated that the female, when descending from a

great height, produced a peculiar noise with her wings. This, however, was not during a courting action, but while endeavouring to protect her young.

The courtship and nesting habits of the grey-phalarope have been most admirably described by Herr Manniche in his recently published work on *The Terrestrial Mammals and Birds of North-east Greenland*.^1^ His description of the female's courting display coincides with that by Mr. Aplin of the rednecked-phalarope, viz. that it consists of a swimming dance in which she whirls around very rapidly on the surface of the water, "always in the same little circle, the diameter of which was some 10 cm." Herr Manniche's further account of the behaviour of a pair he watched is as follows: "As the male seemed to pay no attention to her alluring movements, she flew rapidly up to him—producing as she left the water a peculiar whirring sound with her wings, and uttering short angry cries—pushed him with her bill, and then she returned to the water and took up her swimming dance. Now the male came out to her and the two birds whirled around for some moments, equally eager and with increasing rapidity. Uttering a short call, the female again flew to a tuft surrounded by water and waited some seconds in vain for the male; again she flew to the water to induce him with eager pushes and thumps to accompany her. They again whirled violently around, whereafter she, uttering a strong alluring sound, flew back to the tuft, this time accompanied by the male—and the pairing immediately took place."

No doubt remains as to the complete subjection of the male of this species. The female, according to Herr Manniche, "has the decisive power in all family affairs. If she wants to shift her place of residence, she flies up swift as an arrow with a commanding cry—which may be expressed as "pitss"—and if the male does not follow

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^1^ A. L. V. Manniche, "The Terrestrial Mammals and Birds of North-east Greenland," forming part of the fifth volume of the scientific results of Mylius-Erichsen's Danish Expedition to North-east Greenland in the Years 1906-1908.
her at once, she will immediately return and give him a severe punishment, which never fails to have the desired effect."

The male prepares the nest by scraping away the grass with his feet, and then revolving his body in the cleared space forms a nest-hollow, and lines it with dead grass stems, which he carefully bends into the hollow.

The eggs of the grey-phalarope resemble closely in appearance those of the rednecked species, and like them are normally four in number, but they are as a rule appreciably larger. The average size of 22 eggs is 1·23 x 83 in. [31·1 x 21·8 mm.], but measurements of the two species overlap, and undoubtedly genuine eggs of the grey-phalarope from Spitsbergen (where the rednecked species does not breed) are smaller than the average of the latter bird. They are pyriform in shape, laid with converging points, and are heavily blotched with chocolate or blackish brown on a greenish grey, olive-grey, or reddish buff ground. They are laid in the latter part of June or early in July.  

The females depart from the nesting grounds directly after the eggs are laid, leaving the males to hatch out and bring up the young. After the young are hatched, they, and the male tending them, would appear to be very retiring, for Herr Manniche never succeeded in meeting with a bird guiding young ones, in spite of a careful search in the spots where the species had nested. He presumed that the males leave the nesting region very early—as soon as the young birds are able to fend for themselves.

When incubating, the male is described as very tame, almost allowing himself to be caught on the nest. One whose nest was on a small islet in shallow water had bent down the long withered grass—with which the nest was surrounded—over himself, and did not leave the nest until the grass had been parted and the bird almost touched. "When frightened up from the nest, the bird for a short while lay screaming and flapping on the water."

1 F. C. R. Jourdain (in litt.).
Herr Manniche records the interesting fact, that while the females on their arrival at the nesting-places are thin, the males are extremely fat, and he believes that the latter make use of this stored up fat to sustain them during incubation, which, owing to the cold climate of their circumpolar breeding-grounds, and the consequent necessity of keeping the eggs warm by continual sitting, they interrupt only for short periods, just enough to enable them to snatch a hasty meal.

The nest of the rednecked-phalarope is moderately deep, and is concealed in a tuft of grass, somewhat after the manner of that of the snipe. It is generally near the water—often on small grassy islands in the lochs—and the male, when he leaves the nest, runs through the herbage and joins his mate on the water. The female at this time shows much anxiety, swimming about in the pools in the vicinity of the nest, and if alarmed rising without a splash, and by an alarm-note—which Mr. H. S. Gladstone in an interesting account of the Irish colony describes as a hoarse "chiss-ick"—gives notice of danger to the male, who creeps through the grass from the nest to the nearest water, where he is joined by the female, and the two swim about together, "trying to hide their anxiety by preening their feathers or pretending to feed." 1

The female appears to be less concerned when the young are hatched. Both Mr. H. S. Gladstone and Dr. Bahr give instances: when newly hatched young birds were handled, the males showed great anxiety, shuffling through the grass with cries of distress, and approaching quite close to the endangered family. Dr. Bahr recounted how a male approached so near, and was so oblivious of danger, that it came and brooded over its chicks, whilst he, quite unconcealed, took several photographs of it, and also how this male "in his fervour nestled a clutch of Tern's eggs close by." 2 How fearless the male can be is shown by Mr. H. S. Gladstone's photograph on Pl. xlilx., Fig. 2, where it is seen vainly trying to incubate a chick

1 British Birds (magazine), i. 176.  
2 Ibid., i. 207.
THE PHALAROPES

held in the hand. The females, according to both the above observers, showed no trace of anxiety, swimming and feeding in the water some distance away. The Rev. H. H. Slater, however, who had considerable experience of the species in Iceland, states that he often saw both parents with the young—especially in the case of isolated nests—showing extreme devotion.\(^1\)

Comparing these various observations, it would appear that, in the case of both species, the greater part of the true courtship is conducted by the female, and this on the water, in the form of a swimming dance; but there is also a distinct courting action, on the wing, by the male of, at any rate, the rednecked-phalarope. The males incubate by day, if not entirely. The female rednecked-phalarope remains in the vicinity of the nest and warns the sitting male of the approach of danger, and, although showing less anxiety than the male when the chicks are hatched, bears some share in looking after them. If the recorded observations on the grey-phalarope may be accepted as reliable and complete, the female of this species takes no further interest after the eggs are laid, leaving all further duties to the male.

The chief point on which further information is wanted is, whether the male of the rednecked-phalarope really does the whole of the incubating unrelieved by the female. There are comparatively few species of birds—especially in the Wader family—in which the whole duties of incubation are borne by one sex. Modern prejudice is against shooting a bird from the nest to ascertain the sex, although it is not long since this was considered commendable and scientific. With species the sexes of which are alike, or even nearly so, we must either content ourselves with observations on such points, based more or less on guess-work, or use the only means to certainty, however unpleasant it may be. This must not be taken as an apology for the killing of birds at any and every season, merely to make up series in private collections. Such collections can be little more than a waste

\(^1\) *British Birds with their Nests and Eggs*, vol. v. pp. 102-3.
of life, more especially as they seldom illustrate any but such points as are already well known.

The notes of the phalaropes have been variously given; the apparent discrepancies are probably due to the difficulty of rendering even the simplest bird-notes in words. Thus, of the rednecked-phalarope Mr. Aplin says the ordinary notes on the water are a short "quut" or "quit," and "chirra-chirra-chirra," and on a pair rising, a rapid "ket-ket-ket-ket," and when they settle again a short "kyow" or two, which last he thought might be the spring pairing note. The note most frequently heard by Mr. H. S. Gladstone was expressed by him as "plip-plip," varied by a coarse "chiss-ick," the latter being the female's warning cry to the male. Howard Saunders gives a low "pleep-pleep" and "wit-wit-wit," while the Rev. H. H. Slater states that the only note he heard them utter was "wit-wit-wit." Audubon, quoted by Macgillivray, describes their notes as resembling the syllables "tweet-tweet-tweet" very sharp and clear.

Of the grey-phalarope it has been stated that "they keep up a continual twittering, as of conversation, among themselves," and are at all times, when in flocks, "a noisy bird." Howard Saunders says their note is a sharp "tweet," and the female sometimes utters a low "clink-clink." The latter is probably the note referred to by Dresser as finch-like.

During the nesting season, when the phalaropes spend much time on inland waters, their food consists largely of aquatic insects and their larvae, which are taken on and near the surface of the water, and from the herbage, as the birds swim about. Herr Manniche observed a male grey-phalarope fishing on the bottom by standing
on his head in the water like a duck. When they resort to the sea they live chiefly on the smaller thin-skinned crustaceans and probably small marine forms generally. Both Howard Saunders and Dresser state that the rednecked-phalarope eats "marine insects," whatever this may mean! One probably copied from the other.
WOODCOCK AND SNIPE


PRELIMINARY CLASSIFIED NOTES


WOODCOCK [Scolopax rusticola Linnaeus. Muffcock; muckle-snippack (Shetlands). French, bécasse; German, Waldschneppfe; Italian, beccaccia].

1. Description.—Apart from its large size, the woodcock may easily be distinguished by the broad transverse black bands which cross the back of the head and nape, and the closely barred under parts. The sexes are alike, and there is no seasonal change of coloration. Length 14·25 in. [361·94 mm.]. (Pl. 113.) The forehead and crown are of a brownish grey, sometimes finely barred with darker grey, and generally marked with an incipient median stripe running backwards from the culmen. The hind crown, occiput, and nape are crossed by four bars of dark chocolate-brown, almost black, divided from one another by narrow bands of buff. The lores are marked by a narrow band of dark chocolate-brown, and there is a similar band below the eye running back to join the lowermost nuchal band. The back of the neck is of a brownish grey blotched with black, while the sides and front of the neck are greyish buff, marked by fine subrescentic dusky bars. The throat is white, bounded below by a more or less distinct subrescentic band of dull black and chestnut. The back and wings are of varying shades of chestnut, barred and blotched with black. The interscapular region is bounded on either side by a more or less conspicuous longitudinal band of silver-grey, while the central area of the region is marked by two broad irregular bands of black, and barred obscurely with dull black. The scapulars are chestnut-red, and marked by narrow bars of black and irregularly disposed blotches of black and silver-grey, forming in some individuals a more or less distinct longitudinal band, in others isolated patches. The marginal wing-coverts are of a chestnut or sometimes brownish red, and marked
by two or more narrow bands of black. The minor coverts chestnut-red, crossed
by narrow double bars of black enclosing a pale central area. The two lowermost
rows of minor coverts, the median and major coverts, are commonly tipped with
buff, forming four more or less distinct transverse bars. The major coverts and
secondaries are crossed by broad bars of black, and in some individuals these
bars are solid and conspicuous, in others the edges of the bars alone are black,
the centres being dark grey. Thus some individuals appear conspicuously barred, others not. The primaries are dark grey, the outer webs notched by
triangular patches of chestnut, while the tips are white, and this pattern is no index
of sex or age. The rump and tail-coverts are chestnut, barred black. The tail
feathers are black, tipped above with silver-grey, below with white, and notched
along the exposed portions of the webs with chestnut. The breast and abdomen
are dull white or pale buff, barred with narrow dusky lines, and the under tail-
coverts are buff with black shaft-streaks and irregular loops of black. In the
males the shaft-streaks are more sharply defined than in the female, and the
feathers are more or less conspicuously tipped with white. The fledgling cannot
be distinguished from the adult when once the remiges have completed their
growth. The young in down are buff coloured, with a reddish chocolate median
band extending along the back to the crown, where it branches to run forwards
over the eye to the lores, enclosing a narrow median stripe. Often there is a buff
spot on the nape, which may enlarge to form a transverse bar cutting through
the median band just described. On either side of the dorsal band is a narrow
lateral stripe. [W. P. P.]

2. Distribution.—In the British Isles this species is widely distributed,
but somewhat local in the breeding season. It is naturally most numerous in well-
wooded districts, but is absent for no apparent reason from some localities which
appear to be well suited to it. In the Lake district it is numerous, and also in some
of the well-wooded parts of middle and north Scotland and in Ireland; but there
are few counties where it has not been occasionally known to breed. Even on the
Orkneys and Shetlands, which can hardly boast of trees at all, it has been known to
nest occasionally, as well as on many of the Inner and Outer Hebrides. Outside the
British Isles it breeds on the Continent up to nearly 70° in Norway, 65° in Finland,
and 60° on the Petchora, and from these limits it is found southward in diminishing
numbers to the Caucasus and Crimea, the Balkans, Tyrol, North Italy and the
southern spurs of the Alps, and Central France. Its main European breeding-
haunts are the forests of Scandinavia and Russia. It breeds on the Atlantic isles
(Azores, Madeira, and the Canaries), and in Asia ranges from about 62° in West and 64° in East Siberia, at least as far as the Lena, while southward it is known to breed in Kashmir and the Himalayas at upwards of ten thousand feet. It also breeds in Japan. In winter its southern range extends to the Mediterranean region and North-west Africa as well as Egypt, and in Asia to S. Persia, India, Ceylon (rare), Burma, and China. As a straggler it has occurred in the Færoes, Spitsbergen, and in eastern North America. [F. C. R. J.]

3. Migration.—A large number of woodcock breed in the British Isles, some of them being resident and others summer visitors: a far greater number visit our area in winter or on passage, breeding in Northern Europe. Taking first the movements of the British-breeding woodcock, we find that a certain amount of definite information exists in the form of records of marked birds recovered. The following is a summary of the records of young woodcock marked on the Duke of Northumberland's estate at Alnwick (Northumberland) between 1891 and 1908 (for the unclassified list from which we have made this summary, cf. Lord William Percy, Country Life, Feb. 27, 1909):

Birds recovered in their first winter:—
- September, Home; and Heriot, Midlothian (Scotland);
- October, Home (2);
- November, Home (10); Forfarshire (Scotland); and Somerset;
- December, Home (5); Co. Wexford (Ireland); and Argyll (Scotland);
- January, Home (7);
- March, Co. Cork (Ireland).

Birds recovered in their second winter:—
- October, Home;
- November, Co. Limerick (Ireland);
- December, Home (4); and Co. Antrim (Ireland);
- January, Home (2).

Birds recovered in their third winter:—
- November, Home (3);
- December, Home; Côtes-du-Nord, Brittany (France); and Galloway (Scotland);
- January, Home (2);
- February, Home.
Birds recovered in their fourth winter:—
November, Home;
December, Home;
January, Home; and Co. Cork (Ireland) (2).

Birds recovered in their fifth winter:—
December, Home.

Birds recovered in their sixth winter:—
December, Home.

To this we may add a summary of a few records of young woodcock marked at Baron’s Court, Co. Tyrone, Ireland (cf. Hamilton, Field, 17th Oct. 1908, p. 717, and 24th Oct. 1908, p. 745):—

Birds recovered in their first winter:—
Home (2); and Inverness (Scotland).

Birds recovered in their second winter:—
Home (6); Harrow, Middlesex; and Cornwall.

And of woodcock marked near Carlisle in May 1911 (cf. British Birds, vol. v. p. 186):—

Birds recovered in their first winter:—
October (31st), Co. Galway (Ireland);
November, Cumberland and Dumfriesshire.

Finally, there are records of (1) a young bird marked on Lord Ardilaun’s estate at Cong, Co. Galway, Ireland, in the spring of 1910: this was recovered about forty miles north of Oporto, Portugal, on December 28, 1910 (cf. British Birds, vol. iv. p. 280); (2) another young bird, marked near Stonehaven, Kincardineshire, Scotland, on 13th June 1911, and reported shot on 4th January 1912 near Gijon, on the north coast of Spain (Aberdeen University Bird-Migration Inquiry).

It is necessary to give the above somewhat full summary of the records, because the interpretation of them is uncertain. But the main points seem to be as follows: a great many of the birds are resident and stationary; others disperse in all directions, including north, during the winter months; and some of the latter which take southerly directions perform journeys of considerable length, which may doubtless be classed as true migratory movements.

The great autumnal immigration sets in in October, and is at its height in that and the succeeding month. It is continued from Great Britain into
Ireland, the birds crossing from Scotland rather than from Wales, and arriving on the coast of Ulster, and later concentrating, in severe winters, on the southern and western seabords (cf. Ussher and Warren, B. of Ireland, 1900, p. 269). Birds which have probably overshot the mark have been observed returning to Cornwall and the south-west of Ireland from a south-westerly direction (cf. Yarrell, British Birds, 4th ed., vol. iii. p. 325). To what extent woodcock pass through to countries farther south is uncertain. The return emigration from the British Isles begins early in March, and it is worthy of note that many of the winter visitors are still in the country after our home-breeding woodcock have started their nesting operations.

The woodcock is, as a rule, a gregarious and a nocturnal traveller, and it is very frequently recorded from the light-stations. [A. L. T.]

4. Nest and Eggs.—The nest is merely a depression in the ground, usually in a wood, though it has been found among heather on a moor. The only lining materials used are dead leaves or a little moss, and Saunders states that the dead leaves are usually added during incubation, presumably by the hen. (Pl. L.) The eggs are normally 4 in number, sometimes only 3, and in a few cases 5 have been found in one nest. They are not nearly so pyriform in shape as most eggs of Limicoline birds, but are frequently a broad oval. The ground-colour is light creamy yellowish, some eggs showing a beautiful warm brown tinge, which usually fades rapidly, while others when first laid are greenish yellow. They are rather sparingly marked, as a rule, with blotches and spots of varying intensity of reddish or yellowish brown, and underlying ashy shellmarks. Clutches of pure white eggs have also been recorded, but are rare (Field, June 1, 1907; British Birds, i. 124). (Pl. K.) Average size of 71 eggs, 1·74×1·33 in. [44·0×33·8 mm.]. Incubation is chiefly performed by the hen, but according to Forester Schupke she is relieved by the cock for an hour or an hour and a half at midday (Naumann, Vögel Mitteleuropas, ix. p. 217). The duration of the period is variously given: Naumann was almost certainly in error in giving it as 17 days; but a nest watched in Norfolk by Dr. Fitch was occupied by a brooding bird for at least 21 days (Birds of Norfolk, ii. p. 289); W. Evans estimates the period as 20 days from the laying of the last egg (Ibis, 1891, p. 80); and H. S. Gladstone at 23 days (Birds of Dumfries, p. 385). In the British Isles it is an early breeder, and the first eggs may be found towards the end of March or early in April. Probably many birds are single-brooded, but as occasionally nests with eggs have been found not only in June, but even late in July, it is evident that a second brood is sometimes reared. In one case (recorded in the Field, May 6, 1899)
a nest with 4 eggs was found in Co. Tipperary on July 21, 1892, which was believed to be the second brood of a bird which had young on April 2. [F. C. R. J.]

5. Food.—Worms, slugs, insects, and small crustaceans and molluscs. Vegetable matter has been found in stomachs of individuals examined, but this is apparently taken either accidentally with other food or when the birds are hard pressed (Naumann, Vögel Mitteleuropas, ix. 214). For the food and feeding of the young, see p. 296. [W. P. F.]

**GREAT-SNipe** [Gallinago media (Latham); Gallinago major (Gmelin).

Double-snipe, solitary-snipe. French, grande bécassine; German, grosse Sumpfschnepfe; Italian, croccolone].

1. Description.—The great-snipe may readily be distinguished from the common-snipe by the white outer tail feathers, which are more or less barred with black. The sexes are alike, and there is no seasonal change of coloration. (No Plate.) Length 10·5 [255·27 mm.]. The general coloration of the great-snipe is like that of the common-snipe, but it differs in that the flanks are more coarsely barred with black, and the wing-coverts are conspicuously tipped with white. The axillaries are heavily barred with black. Finally there are sixteen tail feathers, while in the common-snipe there are but fourteen. Immature birds are somewhat more rufous than the adults, and the longitudinal yellow stripes less distinct. The young in down differ from those of the common-snipe in being somewhat less rufous in colour, especially on the under parts. [W. P. F.]

2. Distribution.—On the Continent this species is found in the breeding season very locally in Jylland, and sporadically in small numbers in N. Germany (E. Prussia and Holstein), while it is said also to have bred occasionally in various parts of Holland. In Scandinavia it nests in Norway, chiefly in the birch region north to Tromsö, and in Sweden from Skåne to Lycksele in Lapland. The main breeding-grounds of this species are, however, in Russia, where it breeds up to 61½° in Finland, and from 65½° on the White Sea to 67¼° on the Petchora. Southward its southern limit is Bessarabia on the south-west, and about 51° on the Volga and in the Urals, but a few are said to nest in the Caucasus. In Siberia it breeds in the Altai, and also east to the Yenesei valley, where Popham met with it up to lat. 71°. On migration it passes through Europe and South-western Asia across the Mediterranean, wintering in Africa, and ranging south to Natal and Cape Colony, but avoiding the western parts of tropical Africa, and apparently
migrating down the east side. It has occurred as a casual wanderer in Hudson’s Bay. [F. C. R. J.]

3. Migration.—A bird of passage in small numbers, chiefly to the south and east coastal districts of England. On the autumn passage the birds, generally young, are usually recorded between the middle of August and the middle of October. On the return journey it is less frequently met with. [A. L. T.]

4. Nest and Eggs.—Does not breed in the British Isles, but see p. 312. [F. C. R. J.]

5. Food.—Chiefly worms, insects, and small snails. [W. P. P.]

COMMON-SNIPE [Gallinago gallinago (Linnaeus); Gallinago coelestis (Frenzel). Full-snipe, single-snipe, heather-bleater, air-goat; snippack, gowk, horsegowk (Shetlands). French, chèvre volante; German, gemeine Sumpfschnepfe; Italian, beccacino reale].

1. Description.—The common-snipe is to be distinguished from the great-snipe by the tawny-rufous colour of the outer tail feathers, which are fourteen in number. The sexes are alike, and there is no seasonal change of coloration. (Pl. 114.) Length 10 in. [254-00 mm.]. The crown is marked by a median and two lateral lines of buff; lores dark brown. The back and sides of the fore-neck are buff, more or less distinctly striated with dark brown, but the striations on the fore-neck are blurred and may be wanting. The interscapulars and scapulars are black, with narrow ochreous free edges forming semicircular lines of yellow. Usually these lines are very imperfect and give rise to small ochreous spots. The feathers along the outer border of the interscapulars have the outer webs of a rich buff, forming a conspicuous longitudinal band: the hindmost feathers have the exposed portions of the web black crossed by two narrow ochreous bars, and tipped buff. Scapulars black, crossed by narrow ochreous bars to form large black blotches. The outermost feathers have the greater part of the outer web rich buff, forming on each side of the body a longitudinal buff stripe running parallel with those of the interscapulars. Wing-coverts dark brownish grey, tipped white and buff. The long inner secondaries have the inner web dark grey, the outer barred alternately with buff and black, and with an indistinct outer edge of white. Major coverts and secondaries dark grey, narrowly tipped white; primaries dark grey. The tail feathers have the basal portion velvet black, succeeded by a band of yellow, of varying width in different individuals. The yellow band is bounded by a subterminal bar of black. 

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and a terminal band of white. The relative widths of the black and yellow bands vary considerably. The breast and abdomen are white; the flanks white or buffish white, and more or less distinctly barred with dark grey. The axillaries are white, barred black. The under tail-coverts are pale brown, more or less distinctly barred with dull black. The iris is brown, the beak brown, darker at the tip, and the legs and toes are greenish olive. The juvenile (fledgling) differs from the adult in lacking the longitudinal stripes along the back, which is black relieved by elliptical lines of dull buffish white and dark chestnut. The long inner secondaries are barred alternately with black and dark chestnut. The forehead is pale brown, obscurely barred with black, and the flanks are similarly coloured. The young in down is of a rich dark chestnut, with two more or less distinct longitudinal stripes in black and silver. Above and below the eye is a line of white and black. The forehead is transversely barred with black as in the adult woodcock, the nape is similarly barred, while the under parts are of a dark chestnut inclining to grey. [w. p. f.]

2. Distribution.—In England and Wales this species is widely distributed, but as its breeding-places are confined to marshes and swampy fields, it is necessarily local. It is, however, more plentiful in Scotland, and breeds in considerable numbers in the Hebrides, Orkneys, and Shetlands. It is also common and generally distributed in Ireland. Outside the British Isles it breeds in the Færoes and Iceland, while on the Continent its range extends from the extreme north of Norway and Russia southward to the Alpine chain and some districts of North Italy, but not to the Iberian Peninsula. Eastward it is recorded as nesting in Montenegro, and sparingly in Austro-Hungary, while in Russia it is said to breed in the Caucasus. In Asia its northern limit is about 66½° in West Siberia and 70° in the eastern side, and its southern range extends to Turkestan and Yarkand. East Siberian birds have been separated by Buturlin, and North America is inhabited by an allied race. The winter range of the common-snipe is extensive: it reaches the Atlantic Isles (Azores, Madeira, and Canaries) and Senegambia on the west coast of Africa. Some winter in the Mediterranean region and the Red Sea district, and from thence through Persia, India, Ceylon, Burma, and the Andamans to China, Formosa, the Philippines, Moluccas, and Japan. It has also occurred casually in Greenland and the Bermudas. [F. C. R. J.]

3. Migration.—A resident and a winter visitor. The immigration takes place chiefly in October and November. During the winter the birds frequently shift ground owing to the weather, but some of them remain in the country till
March. The immigration extends to Ireland, lasting from September till December, although at its height in October: the birds come mainly from the north-east to the coast of Ulster, and in frost they move towards the west side of the island. The return movement takes place chiefly in March, but does not altogether cease till May (cf. Ussher and Warren, B. of Ireland, 1900, p. 278). The snipe is frequently obtained at the light-stations. [A. L. T.]

4. Nest and Eggs.—The nest is a rather neat, cup-shaped hollow in a tussock or clump of rushes, in some marshy place, sometimes among heather or in wet meadows. It is lined with dead grasses alone, and is not easy to find except for the fact that the sitting bird when flushed rises straight from the nest. (Pl. L.) Whether the cock assists the hen in building is not recorded. The eggs are normally 4 in number, large for the size of the bird, and placed with their pointed ends together. Nests have occasionally been met with containing the unusual number of 5 eggs. They are pyriform in shape, and the ground-colour varies, as a rule, from pale greenish yellow to olive-brown, sometimes quite deep in shade, but usually light. Some eggs show a distinct pale greenish ground. The rich markings consist of vandyke-brown or blackish brown spots and blotches, chiefly at the large end, and sometimes tending to a zone, with underlying ashy shellmarks. (Pl. K.) Average size of 100 eggs, 1·56×1·12 in. [39·8×28·7 mm.]. Naumann gives the incubation period as 15 to 17 days, which is probably too low, as W. Evans notes that the eggs hatched on the twentieth day from the laying of the last egg, and Hantzsch gives the period as 18 to 20 days. Most of this duty is certainly performed by the hen, the male sometimes squatting close at hand or "bleating" overhead. Hantzsch states that he occasionally takes her place at rare and irregular intervals. The breeding season usually begins about mid-April, though occasionally eggs may be found in the last ten days of March, and fresh eggs may often be found up to the middle of May. In the Shetlands few eggs are laid before the beginning of May. Although many birds only breed once in the season, there is strong evidence that a second brood is occasionally reared, and there are several instances on record of eggs having been found as late as mid-August. [F. C. R. J.]

5. Food.—Worms, insects and their larvæ, slugs, and molluses. Vegetable matter, chiefly grass, is also found in the stomachs of birds examined (Newstead, Food of some British Birds, p. 81). The young, at least for some days, are said to be fed directly by the parents (British Birds, mag., ii. 250). No definite information as to the nature of their food is available. [W. F. P.]
JACK-SNIPE \([Gallinago gallinula]\) (Linnaeus). Half-snipe. French, \(bécassine sourde\); German, \(kleine Sumpfschneppen\); Italian, \(frullino\).

1. Description.—The jack-snipe may readily be distinguished from the common-snipe, apart from its much smaller size, by the absence of the median line of buff in the crown, the metallic purple of the rump, and the vivid metallic green gloss on the interscapulars. The sexes are alike, and there is no seasonal change of coloration. (Pl. 115.) Length 7·5 in. [179·07 mm.]. The centre of the crown is black, with an irregular, inconspicuous band of dark chestnut down the centre, which is soon lost by abrasion. There is a broad superciliary stripe of dark buff extending forwards to the beak. The lores are black, and there is a dusky malar stripe. The hind-neck is reddish, mottled with black. The back is marked by an inner sub-median stripe of ochreous buff, and an outer, less conspicuous stripe of the same hue, formed by the outermost of the interscapulars and by the outer scapulars. The interscapular stripe is formed by the outer and inner webs respectively of alternate feathers. The dark portions of the interscapulars have an intense metallic green gloss, relieved by one or more elongated spots of dark chestnut. The outer scapulars are of a rich chestnut barred with black, and with the outer webs rich buff, forming the lower end of the outermost longitudinal stripe. The minor coverts are tipped with buff and white. The remiges are dark grey; and the rectrices are dark grey edged with buff, the central feathers long, pointed, and black, broadly margined with ochreous buff: the outermost upper tail-coverts are longitudinally striped with yellow, continuing the line of the submedian dorsal stripes. The fore-neck and fore-breast and flank are dull white, obscurely striated with dark brown, and the under tail-coverts are white. The female is slightly larger and duller than the male. The juvenile plumage differs from the adult in lacking the metallic gloss. The young in down scarcely differ from those of the common-snipe. [W. P. P.]

2. Distribution.—The jack-snipe is only a winter visitor to the British Isles, but on the Continent it breeds on the high fjelds of Scandinavian Lapland, and also in Northern Finland south to lat. 64° according to Buturlin, and on the tundra of North Russia. In Russia it ranges south, according to the same writer, to the governments of Perm, Kazan, Vologda, Jaroslaw, Vladimir, Orel, Tula, Tver, and the Baltic provinces, and has bred in N. Poland. It is also stated to have nested in various localities in N. Germany and in the Alps, but in most cases on very inadequate evidence. In Asiatic Russia it ranges across Siberia to the tundras of
the Boganida and Kolyma, but avoids the extreme north. In winter it passes through Europe to winter in the Mediterranean basin and Northern Africa, while in Asia its winter quarters lie in Palestine, Persia, Afghanistan, India, Ceylon, and it rarely reaches Burma, China, and Japan. [F. C. R. J.]

3. Migration.—A winter visitor. The jack-snipe is rarely reported before September, and the chief influx takes place in October, after which the species is widespread till April. It is said to be less frequently obtained at the light-stations than the common-snipe (cf. Saunders, Ill. Man. Brit. Birds, 2nd ed., 1899, p. 575). [A. L. T.]

4. Nest and Eggs.—Does not breed in the British Isles, though assertions have been made to this effect from time to time; but see p. 312. [F. C. R. J.]

5. Food.—In the stomachs of four individuals examined, Mr. Newstead (Food of some British Birds, p. 82) found fragments of beetles, fragments of shells (Tellina balthica, Helix), vegetable matter, some of which was identified as grass. [W. P. P.]
WOODCOCK AND SNIPE

[W. P. Pycraft]

The very mention of the words "woodcock" and "snipe" is enough to quicken the pulses of sportsmen, for they stand for strenuous days with gun and dog, and "delicatessen" by glowing hearths, when all without is cold and desolate! But there are other points of view from which snipe and woodcock may be regarded, and unfortunately they have been sadly neglected, so that we know far less of these birds, in so far as how they "live and move and have their being" is concerned, than should be the case when we recall the generations of men who, from their love of sport, and wild places, have lived, almost the year round, in the haunts of their eagerly sought quarry.

No one better than the sportsman knows how difficult woodcock and snipe are to find—that is to say, how closely they resemble their surroundings. Yet it never occurred to him to speculate on the possible meaning of this harmony between the bird and the brakes and briars. Others no less keen on wild life, but surveying it with other eyes, have, however, succeeded in no small measure in establishing a relationship between these. During recent years it has been made more and more certain that the coloration of birds and beasts is fraught with a deep meaning; though this meaning has been confused by mistaken attempts to make one interpretation fit all cases. This is folly. What, anyhow, is the significance of the coloration of the birds now under consideration? Be it noted this coloration, as we have just hinted, is of such a character as to render the wearers almost indistinguishable from the soil and vegetation around them. It is a protective garment, conferring invisibility as

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1 Snipe (with a capital) refers to the genus only, i.e. all its species considered collectively.

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WOODCOCK AND SNIPE

complete as that acquired by the possessor of the magic fern seed: it is what Professor Poulton calls an "aphanistic" or "obliterative" coloration evolved, as some would say, for protective purposes. But the use of the word purpose in this connection is misleading. As well might we say that the smooth edges of a rock have been formed for the purpose of enabling the water—rain, or waves as the case may be—to run off easily! The smooth edges are made by the water, not for it. Similarly the russet hues of snipe and woodcock have been determined by the forces of the environment: there has been no goal to be attained: the birds have acquired their peculiar likeness to their surroundings, when at rest, as a result of the action of natural selection, which gave over, for a prey to the hawk, the fox, and the polecat, all which, by reason of their inherent tendencies, developed coloured areas tending to make the wearers conspicuous.

The woodcock and our three species of Snipe afford admirable illustrations of "protective obliterative resemblance,"—that is to say, of a coloration which confers protection on an otherwise defenceless bird. The hue and the pattern of this coloration differs in each as their habitat differs, and more especially as their breeding habitat differs, thus indicating what we may call the "incidence" of selection. The woodcock, as its name suggests, is generally a dweller in the woods, and seems especially partial to such as contain a fair number of oaks; the Snipe, on the contrary, prefers the more open marshland. Hence we may explain the peculiarities of coloration and pattern already referred to. In the woodcock, it will be remembered, the russet ground-colour of the upper parts is variegated with bars and blotches of black and silver—broad transverse bars of black across the crown, blotches of black along the back. But stripes, too, are present, though these are not by any means a striking feature of the plumage, as in the snipe. These markings occur as a broad line of dark brown running from the beak to the eye, and a longitudinal band of lichen-grey, sometimes rather golden grey, on either side of the back. In some birds, too, there are three or four more or less conspicuous
transverse bands of silver-grey or buff and black running across the closed wings, while the primaries and under parts are conspicuously barred. But not the least distinctive feature of the woodcock is the lichen-grey tip to the upper surface of the tail, while the under surface of the same region varies from silver-grey to white. To properly appraise the significance of this coloration, one must see the bird in its natural surroundings, brooding its eggs, or crouching low in dread of discovery by its arch enemy man, or his boon companion the dog. Only by accident, as a rule, and commonly by the glitter of the great anxious eye, can the form of the crouching bird be picked out from among the fallen leaves and bracken stems surrounding it. Individual birds, it would seem, at any rate, to make assurance doubly sure, go so far, when fearful of discovery, as to throw dead leaves over the back. The late Lord Lilford, I believe, once witnessed a frightened bird perform this act. A more certain way of studying this wonderful assimilation is open to those who have the good fortune to discover the nest, for one has then but to wait and watch for the duties of brooding to be resumed. The young in down, it is significant to note, is clad in dull reds and black, but the pattern of the coloration, one is at first surprised to find, is arranged in longitudinal stripes—black stripes on a dull red ground. On reflection, however, one recalls the fact that for some as yet obscure reason, a striped livery is characteristic of young birds, at any rate of those which enter the world in a precocious condition; so that we may regard the general dull red of the ground-colour as a later character, superimposed on an ancestral striped livery. The same factors, indeed, which have determined the general tone of the plumage of the adult have also governed the hue of the nestling.

Turning now to our Snipe, we find the three species all similarly coloured, and, it is needless to remark, they are birds of similar habits, though differing in certain details to be discussed presently. In all three, the most conspicuous feature of the upper surface is the presence of longitudinal yellow stripes, a median stripe down the head,
and four stripes along the back. In the common and great-snipe the back is further variegated with blotches of black, the rump has a marbled tracery of black, and the tail, when closed, commonly bears a more or less extensive patch of black near its tip, while the long inner secondaries are transversely barred with black, but, be it noted, the amount of black on the tail, and the barring of the inner secondaries, varies considerably, as also does the general hue, some being much darker than others. And these differences, at present at any rate, cannot be attributed either to age or sex. The great or, as it is also called, the solitary-snipe, differs in no important points in its coloration from the common-snipe. But it shows a similar tendency to vary, especially in regard to the barring on the flanks and the amount of the white in the tail, though these differences are not apparent till a large series of individuals is compared. The jack-snipe, in its general coloration, bears a striking likeness to its congeners, but on analysis many interesting points of difference become apparent. In the first place, the median yellow stripe along the crown, and the black area on the tail when closed, are wanting. These are markings which have probably been recently lost, but to this point we shall return. More important is the remarkable metallic lustre which the plumage has acquired. And nowhere is this more conspicuous than where we should least expect to find it—on the rump, which glows with a rich purple. The hinder scapulars, which are peculiarly elongated, have a long band of rich metallic green running down the free edge of the inner margin, while the black subterminal bar of the long inner secondaries is similarly ornamented. In like manner a band of purple runs along the outer margin of the submedian yellow stripe which courses down the back. The white under tail-coverts are probably also a later acquisition. In the common and great-snipe it will be remembered they are yellow and black.

This latter point, however, demands closer attention, and this because the common-snipe is said, like the woodcock, when resting, to crouch with its tail, instead of its head, to windward, the tail being
turned up and spread fanwise so as to shield the back and head. This being so, the dark-coloured under tail-coverts would have a decidedly protective value: white feathers, like those of the jack-snipe, would be conspicuous when so exposed. Finally, while the flank feathers in the common and great-snipe, as in the woodcock, are barred, in the jack-snipe they are longitudinally striped. What interpretation is to be placed on these differences? It would seem that the median yellow stripe along the crown is a feature which has been lost but recently, since traces are found to-day in some individuals of the species in an irregular rufous band which is soon lost by abrasion. But what are we to say of those losses and gains? Are they merely the expression points of variation, of no significance one way or another in the struggle for existence, or are they of selection value, and enabling their possessors to fare the more successfully in that struggle? What part do these stripes play in the life-history of the common-snipe? The snipe now under discussion, as we have already remarked, differ conspicuously from the woodcock, and agree among themselves, in the darker coloration of the upper parts, and the conspicuous, long, narrow, yellow stripes along the back; and these differences are almost certainly due to differences of environment. But be this as it may, the behaviour of the woodcock, and of the common-snipe at any rate, when striving to avoid detection is quite different. The woodcock crouches, the snipe depresses the head and tilts the body upwards till the tail is almost vertical, so that the yellow lines along the back simulate dead stems of reed and grass. One cannot, of course, suppose that the snipe is conscious of the pattern on its back and of the advantage gained by assuming this posture in moments of danger, but the correlation of the coloration and the bird's behaviour clearly points to some advantage in this particular pattern of the plumage. Nevertheless, it does not follow that this pattern is attuned so nicely to the environment that a little more, or a little less, of one or other of its components would endanger the bird's well-being. Indeed, a comparison of a large series, either of woodcock or Snipe,
will reveal a considerable range of variation in details of pattern and hue. Thus, then, the lack of absolute likeness between the jack-snipe and the common-snipe may be a matter of no great moment, albeit a further exaggeration of the differences which seem to have begun to make their appearance in the jack-snipe may eventually, sooner or later, throw the bird out of harmony with its environment, and so bring about, either its extermination, or a change of habitat and habit. But there are many details in the life-history of the jack-snipe which remain to be filled in before we can profitably carry speculation further. One point in this connection, which must not be lost sight of, is that in the common-snipe, in its immature dress, the longitudinal stripes are somewhat less perfectly developed; at any rate in so far as the external lateral, as distinct from the internal submedian stripes are concerned.

A comparison of the downy young of the snipe and woodcock is no less instructive, for, curiously enough, it reveals the fact that the young snipe resembles the adult woodcock in having transverse bars across the head, while the young woodcock resembles the adult snipe in having longitudinal stripes! But the stripes in the woodcock are black, and in the snipe are white. The young of all three species of Snipe, it is significant to notice, are practically indistinguishable, but that of the jack-snipe is perhaps the richest red in colour.

That the woodcock and snipe have attained to a high degree of specialisation seems to be shown by the fact that these birds display no seasonal variation of plumage. What answers to the "nuptial" plumage of so many of the *Limicolae* has here become the permanent livery; and this interpretation is strengthened by the fact that not only are the sexes alike, but the young scarcely differ from the adults. Nowhere, perhaps, is the evidence of specialisation more strikingly shown than in the skull, which has undergone profound structural changes, as if in response to the probing movements of the beak. Without entering into minute details, it will suffice to say that the Snipe and woodcock stand alone among birds in respect of the
extreme shortening of the base of the skull, which has tilted the floor upwards, so that the cerebrum, instead of lying in front of the cerebellum, lies above it, or, in other words, the long axis of the brain, instead of running parallel with the long axis of the skull, runs at right angles to it. This bending downwards, and forwards, of the brain cavity has been attended by a shifting forwards of the aperture of the ear. In say a gannet, or a gull, this aperture lies far behind the eye socket. In the snipe and woodcock it lies underneath it! A reference to the diagrams will make this clear at a glance. Thus it comes about that if a freshly killed snipe be examined, the aperture of the ear will be found under the eye, but in the woodcock it has shifted still farther forwards, so that if a line be drawn at right angles to the long axis of the beak, and passing just inside the anterior border of the rim of the eyelid, this line will pass behind the aperture of the ear! (Fig. 1.) In this particular the snipe and woodcock are the most highly specialised of all birds. Finally, in the snipe and woodcock, in common with some other Limicolae, e.g. dunlin, the tip of the upper jaw is strangely mobile, so that it can be raised upwards and brought down again in opposition to the lower jaw, thereby forming a
THE WOODCOCK

grasping organ of great sensibility. (Fig. 3.) But the manner of its use and the nature of the mechanism can best be understood when studied in relation to the bird's feeding habits, and accordingly these points will be referred to again in describing the mode of feeding in the woodcock.

Let us pass now to the consideration of these birds as living organisms, in relation to that environment which we believe has governed both their coloration and their more deep-seated structural peculiarities.

THE WOODCOCK

[W. P. Pycraft]

As we have just remarked, the differences of coloration which obtain between the woodcock and the snipe are correlated with differences of habitat. The woodcock shows a marked preference for woods and coppices. Here, amid an undergrowth of bracken and bramble rising above a carpet of dead leaves, oak, beech and birch, or alder and hazel, or squatting on a bed of pine-needles, it rests by day, and here it broods its eggs. On bright warm days in winter, however, it loves to exchange the shade of the covert for the sunny side of a bank, which forms the boundary of the wood, and especially if this be planted with holly or laurel. Woods and coppice, however, are by no means indispensable to the well-being of this bird, for it will
contrive to find congenial harbourage amid low scrub and tussocks of grass, or heather and bracken on high ground, especially if there be springs in the neighbourhood, for these, so long as they remain open, afford a never-failing food-supply. But wherever it elects to shelter, there it remains during the day, venturing abroad to feed only as the light begins to fail.

That this bird is crepuscular in its habits might be at once inferred from the great size of the eye. Nevertheless feeding during dark nights is difficult. Under such conditions, indeed, a sufficiency of food is never obtained, thus necessitating an attempt to stay the pangs of hunger long before the usual feeding time. Small spiders, and insects found among the dead leaves, or amid short grass and heather stems, doubtless make but a poor substitute for a meal, but they cannot be despised by a hungry bird. On a light night, provided there be no frost, the bird fares sumptuously, for there is then no difficulty in procuring an abundance of worms, which seem to be the favourite and staple element of its diet. One can hardly suppose, by the way, that this fact is realised by those who profess a liking for woodcock cooked with the “trail”: they live apparently in a state of blissful ignorance of the fact that woodcock and snipe do not, as our forefathers fondly believed, live on “suction”! But to return to the diet of worms. To obtain this luscious meat the woodcock occasionally poaches in the preserves of the snipe; but, as a rule, the feeding-grounds do not coincide. The woodcock rather prefers springs, often on high ground, and damp spots in woods, while ditches and hedgerows are also explored. Its method of capturing its prey is exactly the same as that of the snipe, the long, tapering, and highly sensitive beak being thrust into the soft ground like a probe. Often, before the thrust is made, the bird stamps with its feet, and turns the head sideways, after the fashion of a thrush, to catch the low grating sound caused by the movement of the bristles of the worm against the sides of its burrow. Having located its prey, the fateful thrust is made and the victim drawn out. Not always, however, does success
attend the thrust. How thoroughly the ground is searched is attested by the holes which riddle the ground where woodcock and snipe have been feeding. These show that the bird commonly walks a few steps, then thrusts all around him, leaving a semicircle of holes at each stopping-place.

But besides worms, and the insects, Crustacea and small Mollusca picked up among dead leaves, it does not seem to be generally known that woodcock are by no means averse to searching the patches of cow-dung common in their haunts. On this subject Mr. G. Brooksbank, a keen and most observant ornithologist, writes me that the presence of woodcock in the neighbourhood can always be detected by the marks of their peculiar proddings in such patches. These proddings "can always be distinguished from those of the curlew, snipe, rooks, and starlings—or even the little hole made by some tiny bird, I think a wren. This is one of the lessons that a woodcock shooter must learn early, and also to recognise their droppings—and many keepers miss these signs of woodcocks' presence."

But it is not enough to say that the victim is caught by thrusting down the beak into the soil, for in the first place, as we have already remarked, the search for food is accompanied by a stamping of the feet, and this is followed by rapid movements of the beak backwards and forwards, at the end of the thrust, a fact which seems first to have been noticed by Macgillivray.\(^1\) This is a peculiarly interesting observation, for most of us know that worms are strangely disturbed by the rotatory movements of a stick thrust into the ground, which will invariably, sooner or later, bring worms to the surface all round the seat of disturbance. Nor is this all, for the actual capture is dependent in part upon the sensitiveness of the tip of the beak, and in part by a curious mechanism of this tip, which, it may be remarked, is shared also by the snipe and dunlin and other \textit{Limicolæ} which obtain their food by probing. Briefly, when the thrust is made the beak is closed, at the end of the thrust, by the

\(^1\) Macgillivray, \textit{British Birds}, vol. iv. p. 392.
action of small muscles attached to the quadrate bone, the long slender rod which forms the lower border of the bony framework of the upper jaw is driven forward, a movement which has the effect of driving the last inch upwards, so that the worm is caught, as it were, in a cleft stick. As soon as the sense of touch shows that the worm is in position, the raised tip is brought down upon the lower jaw and the prey is held, as by a pair of forceps, and drawn out. The same is true of the snipe and some of the Waders. (Fig. 3.) It is clear that some such mechanism is necessary for this method of feeding, since, if the beak were thrust open into the soil, it would be filled therewith: while if it were thrust in closed and lacked the mechanism just described, the muscles of the jaws would not be strong enough to force away the soil along the whole length of this slender probe. It is certainly strange that these curious movements of the beak should not be more widely known to-day, the more so since they are at any rate briefly referred to in so well known a work as Yarrell's, wherein some remarks on the subject by the late Henry Stevenson are quoted. He remarked that "the flexibility of the upper mandible of the bill is so great that it more resembles the writhings of a worm than a beak, and this voluntary upward movement, added to the exquisite sense of touch possessed by the anterior portion of the beak, assists the bird in obtaining its food."

The gape of the woodcock and snipe, as everybody knows, is very small, so much so that the passage of a large worm completely fills it: thus it happens that soil adhering to the body of the worm is scraped off by the rim of the mouth and there tends to accumulate. To prevent such disagreeable consequences, both woodcock and snipe are said never to feed far from water, in order that they may frequently wash away the offending matter.

In leaving and returning to its feeding-ground, the woodcock displays curiously methodical movements. As the twilight settles down the bird rises silently, as if mindful that most of the dwellers in its wood are asleep, and flits down some glade or ride in
the covert, keeping near to the ground till it reaches the open, when it suddenly rises to a considerable height, and at great speed makes for its favourite marsh or swamp, dropping suddenly like a stone when this is reached. With the coming of dawn a return is made to the favourite wood. But first it wheels about for a short space, often uttering a peculiar cry: and after a few turns it suddenly rises high in the air and makes a bee-line for the covert, descending with a sudden swoop, and darting along the glade by which it left, speedily settles down in its accustomed resting-place.

It is a curious fact, remarks Mr. De Visme Shaw,¹ but "in every wood or covert favoured by woodcock there is always a certain opening, generally the end of a ride, by which the birds leave and re-enter their home. . . . It seems the more curious when we consider that cocks do not leave the covert together, but always singly, one after another. Between the time of the exit of the first bird . . . and that of the last, there is never an interval of more than a quarter of an hour or twenty minutes. As our forefathers set their cockshut nets at these openings, and waited for the flight of the cock, so do certain moderns who shoot for the pot, or the pocket, take up their stand at the same dusky hour. After ascertaining which opening in the wood is used by woodcock, one may, if anything of a flight shot, account for nearly every bird."

The only things that seem to disturb the even tenor of the woodcocks ways are a spell of sharp frost or continued wet. Heavy rain, or even "Scotch mist," sooner or later causes the trees to drip, which apparently occasions the bird great discomfort, for it will promptly shift its quarters to open ground. Frost is still more disconcerting. Bog and water-meadow now cease to yield their supply of worms, and the famishing bird is driven for food to the drains in the deepest hollows of the wood, where diligent search among the dead leaves may provide small snails and insects. Night hunting is now impossible, and the day rarely yields a full meal. Should the frost continue, a general

WOODCOCK AND SNIPE

exodus takes place to the coast, when a sufficiency may haply be found among the seaweed in the shape of small mussels and Crustacea. Even there the icy grip of winter may take hold, when, as a last resource, a general westerly movement to the southern counties of England, and across to the south and west of Ireland, is made. Along the latter, in exceptionally severe winters, woodcock swarm, and even there may perish miserably. During the frost and snow of 1867 hosts of woodcock were to be met with in Killala Bay feeding among the seaweed. The birds lay among the rocks and large stones, and were killed by the country people with sticks. Again in 1881 Sir Ralph Payne Gallwey saw 800 woodcock laid out on benches together at Tralee, where over 2000 woodcocks and 9000 snipe were received by one firm of game-dealers. In that season 560 fell to one gun in Co. Kerry, while in Co. Clare one dealer alone, though he had two rivals in the trade, forwarded to Dublin and London a thousand cock a week for three weeks.

So much for what we may call the daily routine of the woodcock's life, and for the causes which occasionally break the orderly sequence of events. Let us turn now to that period of exaltation and unrest which annually precedes the sterner discipline of parenthood.

While remarkable for its solitary habits during the greater part of the year, the woodcock when under the influence of sexual excitement displays a decided capacity for social intercourse; a common impulse breaking down the usual observances. Some interesting facts concerning woodcock at this period we owe to Mr. Pentland's\(^1\) observations on breeding birds at Glenstal, Co. Limerick. From him we learn that in favoured spots it is no uncommon thing to see from twenty to thirty birds flying about the woods and glades, chasing one another and calling excitedly. The approach of the birds, says Mr. Ussher in that delightful book *The Birds of Ireland*, is usually announced by notes of two sorts, which are uttered on the wing. There is a croak, often repeated thrice, which has aptly been compared to the words “more

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\(^{1}\) Thompson, *Birds of Ireland*, vol. ii. p. 243.
rain to-morrow" uttered in a croaking voice, or by others compared to "croho, croho." "I have seen the bird's body," he remarks, "deflected at the third croak, while outlined against the sky." The other note which often immediately follows the croak is a chirping screech, which has been likened to "chizzie." Mr. Pentland is convinced that both sexes croak and call, since when woodcock are flying about in this way every one is calling, and females as well as males must be on the wing. Mr. Moffat, another well-known Irish ornithologist, furthermore states that when they are thus playing about two may frequently be seen to dart alongside each other for a few hundred yards, chirruping loudly and excitedly as if in defiance. These flights one is not surprised to find take place both at dusk and dawn during the spring and summer. This peculiar aerial performance is known as "roding." The flight at such times is comparatively slow and straight, and is accompanied by a puffing out of the plumage, giving the actors an exaggerated bulk. This "roding," or "roading" as it is sometimes called, is commonly regarded as representing all that takes place during the courtship of the woodcock, and answering to the drumming of the snipe. But those who have read Mr. De Visme Shaw's most entertaining account of this bird will have gathered that this is by no means the case. For he tells us that "During the period of courtship, and while the female is sitting, the male woodcock displays daytime activity which is never evinced at any other period of the year. When courting the lady of his choice, he is fond of strutting about with drooped wings and spread tail, and with the feathers of head and neck puffed out to their uttermost. As soon as his mate begins to sit, he will spend the first hour or so of daylight in flitting up and down the ride or open space near which the nest is situated, uttering meantime a cry which may be likened to 'whe-e-esp,' and at intervals giving voice to a second cry resembling the monosyllable 'lvee, lvee': while this lasts, he looks, with the puffed out feathers of neck and head, for all the world like some strange, long-beaked owl.

1 Snipe and Woodcock, Fur, Feather, and Fin Series, p. 132.
The morning serenade over, he indulges in a lengthy rest, after which, towards the close of the afternoon, he goes through the same performance."

That there is a considerable variation in the notes of the woodcock at this time seems evident on a comparison of Mr. Shaw's notes with those of the observers already quoted. It may be that the sound varies with the environment; that is to say, it may acquire a greater volume under certain atmospheric conditions, or when uttered in an open space, or in the vicinity of hills.

To return for a moment to the "roding," or "roading" as it is sometimes called. Not the least remarkable part of this strange performance is the routine which is observed. At dawn and dusk alike the same ground is traversed, almost, we might say, rhythmically. Commonly the path traversed forms a rough triangle, the sides of which may be a quarter of a mile or more in length. "In England," remarks Professor Newton, "in former times advantage was taken of this habit to catch the simple performer in nets called 'cockshuts,' which were hung between trees, across open glades or rides in a wood." ¹

From the phases of courtship we pass to that which concerns the care of the young. This begins with the preparation of the nest and brooding of the eggs. As to the former, enough has been said already

¹ This practice of netting, however, it must be remarked, was not alone employed for the capture of love-sick birds, but was even more extensively employed during the winter months in taking birds as they left the shelter of the woods for their feeding-grounds; for, as will already have been gathered, these birds are curiously methodical in their habits throughout the year, leaving and entering the woods by regular routes. A little preliminary observation on the part of the snare-setter would soon disclose these routes, and the rest was easy. That this practice is one of hoary antiquity is witnessed by the references thereto in literature. So common was the custom, that the hour of twilight was known as "cockshut time." "The falling of the net," remarks Mr. De Visme Shaw, "shut in the cock; hence the net used for taking the birds became known as a cockshut, and the time of using it as cockshut time." English literature is full of references to this word. Shakespeare, for instance, writes:

"Thomas, Earl of Surrey, and himself
Much about cockshut time went through the army."

And Ben Jonson has:

"Mistress, this is only spite—
For you would not yesternight
Kiss him in the cockshut light."
(p. 273), but special mention may be paid here to the marvellous way in which the coloration of the plumage harmonises with the bird's surroundings. Mr. H. B. Macpherson, in some interesting notes contributed to the pages of Country Life during 1908, makes some valuable observations on the brooding habits of the woodcock. "Its hearing is abnormally acute," he writes, "and the first unusual sound has the effect of keeping the bird in whatever position it may happen to be, a repetition of the noise causing it to lower itself gradually to the ground, the bill pressed into the moss and the body extended flat on the ground, the tail also being lowered." For some hours every day during a whole week this bird was kept under observation. "During the severe frosts towards the close of April she stuck to her post with marvellous fortitude, though other birds were deserting their nests all around. When leaving the nest she made no attempt to conceal the eggs, the dead leaves of the birch and poplar which surrounded them making this precaution quite unnecessary. . . . Her absence from the nest during the day became more prolonged as incubation proceeded. On one occasion she was feeding and preening herself for three hours and a half close to my shelter; but this seeming carelessness had no ill-effect whatever upon the eggs, three out of four being successfully hatched. On one occasion she found a worm and devoured it leisurely, with beak turned skywards, but for the most part her diet consisted of such minute creatures that they were invisible at a distance. Of these she evidently found a plentiful supply among the dead leaves and bracken, although the weather was bitterly cold. At intervals she would come and inspect the eggs to see that all was safe, and, satisfied, would again resume her feast. On occasion she would disappear entirely, no doubt for water, there being little in the vicinity. When coming to the nest the woodcock approaches cautiously, listening for the least sound which may betray the presence of an intruder. If satisfied, she fluffs up her tail feathers over her back, and settles on to the eggs. . . . She then gradually lowers the tail, sinking down contented to the usual position."
We do not remember to have seen any other account of the way in which the woodcock turns its eggs than Mr. Macpherson's. In this operation, he tells us, the beak plays no part, but the egg is invariably grasped and turned with the foot, aided by a shuffling movement of the body.

The whole work of incubation seems to fall entirely on the female. At any rate, during the week's vigil just described, the male was never once seen, though he may have visited his mate during the night. On the other hand, Mr. de Visme Shaw tells us that when resting during the day he selects a position never more than a few feet away from the nest. And this would seem to be further evidence that he takes no active part in the work of incubation. But according to Naumann (see p. 273) he relieves his mate for a short space during midday.

The halcyon days of brooding over, the anxious work of providing food for the young begins. But as to the manner in which this provision is made, the most widely divergent statements have been made. Knowing this, it is somewhat remarkable that no ornithologist has undertaken the task, albeit a hard one, of setting the matter at rest. It is to be remembered that the woodcock commonly nests in areas more or less remote from its feeding-ground; wherein it differs from nearly all other birds whose young enter the world in a precocious condition. According to some, one or both parents bring food—generally worms—to the nest, or at any rate the nesting area; and Sir Ralph Payne Gallwey, according to Yarrell,¹ "has observed that woodcocks have a curious habit of placing near the edge of the nest a little bank of moss, on which they will at times deposit worms as they bring them, that the young may learn to pick them out as they quickly glide from their view." This may be so; and the young may also obtain a portion of their food, at any rate, under the guidance of the parents, from among the dead leaves in the vicinity of the nest, for we know that the adults, when need presses at any rate, contrive to find food after this fashion. On the other hand, a number of

¹ *British Birds*, vol. iii. p. 329.
responsible observers—and they are too numerous to mention individually—affirm that the young are carried by their parents down to the feeding-grounds at night and are brought back again in the morning. Dr. F. D. Godman, an ornithologist of no mean repute, avers that in the Azores this practice is a matter of daily occurrence. There is no need, surely, to-day, to recapitulate the controversy, which has been waged through long years, as to whether woodcock do or do not carry their young. There can be no doubt about the fact. One cannot, however, speak with the same assurance as to how this feat is performed, but it seems certain that the fond parents will perform this office for their young even after they are big enough to bear the burden of their own bodies. Scopoli, so long ago as 1769, says, "pullos rostro portat fugiens ab hoste," whereon Gilbert White remarks that "the long unwieldy bill of the woodcock is perhaps the worst adapted of any among the winged creation for such a feat of natural affection." Nor does the bird bear her living load held between the bill and the breast, nor between the thighs and pressed against the breast by the beak, but suspended by the feet. This at any rate seems to be the correct interpretation of what obtains according to the testimony of Mr. Moffat, an Irish naturalist of considerable experience. On this subject he wrote, in the Irish Naturalist, 1899, "On the morning of April 19, the female, as I approached, sat closer than had been her wont, and on rising I was almost immediately struck with a curious yellowish object that seemed to hang from between her legs. The bird's flight was slower than usual, and her long bill was plainly seen to be directed forwards, in the ordinary attitude, and not in any way used to steady or support the object carried." The late Duke of Beaufort, so long ago as 1850, when in the New Forest, came upon a female woodcock watering her three young ones at a rivulet. She picked up "one in each claw" and flew off with them. "I hid in a high gorse brake close by, and saw her return in four or five minutes and pick up the remaining bird also in her claw." Mr. De Visme

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Shaw, from whose work the above extract is taken, remarks that in his opinion "the way a woodcock starts is . . . to grasp, say, the left wing of the young bird near the body with, say, the left foot and then to spring off the ground on the free foot, afterwards using the free foot to grasp the young bird's other wing."

At times, however, in the face of danger the parents behave quite differently. Instead of bearing their young off to a place of safety, they adopt the more usual method prevailing among birds of feigning injury and so drawing pursuit upon themselves and away from their young. Perhaps the device is adopted when surprised too suddenly to enable them to seize the offspring. There are records innumerable of the behaviour of the woodcock under these circumstances, and as an example thereof we cite the account of Mr. Ussher,¹ who remarks, "If an intruder approach the young the parent bird will fly round instead of away from him; and when its alarm is strongly excited, as by the presence of a dog, a woodcock will utter outcries that have been compared to the screaming of a hawk, and tumble on the ground before the object of its apprehension. I was informed by my late gamekeeper, Richard Wolfe, that when he was walking with beagles through a wood where these birds were breeding, one of them alighted in front of a dog, and running forward, flapped its wing at the animal with loud cries." Similarly, St. John² remarks, "When disturbed from her nest, she flutters away like a partridge, pretending to be lame, in order to take the attention of the intruder away from her young or eggs."

The subject of migration having been dealt with earlier in this section, little need be said on this theme here. But a few points are worthy of comment. In the first place, the immigrant woodcock, which arrive on our shores during October, attract more attention than the emigrants, which seem to steal away unobserved. The arrival of the immigrants excites no wonderment, for vast hosts of birds of all

¹ *Birds of Ireland*, p. 274.
species seek our islands at this time, thereby escaping the terrors of a more northern winter. But why do the emigrants, the birds which have bred with us, leave? If the birds bred farther north can find sustenance here through the winter—though they may be driven farther and farther southwards and westwards during spells of exceptionally hard frost—why cannot our own native birds endure the same climatic conditions? During recent years, it may be remarked, they have considerably increased in numbers, owing in part to the increase in plantations, and in part to the shelter they obtain within the closely guarded coverts which form their favourite resort. The reply which naturally suggests itself is, that the more northern birds are more inured to cold than those bred in our islands, which at the approach of winter leave to seek more southern latitudes. But this is not a quite satisfactory explanation; the answer to the riddle has yet to be found.

Like most migrants travelling by night, these autumn arrivals land on our shores unseen. But there is reason to believe that they observe the usual rule of migrants, of crossing the sea at a great height, and pitching down suddenly as they reach the shore. Unfavourable meteorological conditions, however, in the upper air, often drive the travellers downwards, when many, attracted by the glare of lighthouses, perish miserably. On moonlight nights, however, this danger is largely removed. But that the numbers which annually meet a violent death through this irresistible fascination for light, the reports of the Migration Committees amply testify. Thus Mr. Barrington, to quote but a single instance, tells us that when overhauling the Copeland (New) Island Lighthouse, on May 12, 1891, no less than one hundred and fifty dead woodcock were found in the "eave-gutter" of the dome and cowl of the lantern: these must have been killed by striking the lantern during stormy weather in the spring. During migration, birds have been seen to rest for a while on the sea, and rise again to resume their journey. During adverse weather,

1 Migrations of Birds at Irish Light- Stations, p. 246.
however, they would seem to fall into the sea from sheer exhaustion. Thus Mr. Falconer, of Christchurch, has recorded that "some years ago, a few miles from the Land's End, the sea was strewn with hundreds of dead woodcock."

**SNIPE**

[W. P. Pycraft]

The distinctions and peculiarities of plumage of the three species of Snipe which are to be met with in the British Islands have already been discussed at sufficient length: it now remains to epitomise their life-histories.

Though all, apparently, obtain the bulk of their food by probing, none have undergone such a high degree of specialisation, to facilitate this method of feeding, as is seen in the case of the woodcock. This is a curious and interesting fact, which demands further study. It would seem that we must assume, either that the woodcock probes more, is more dependent upon the capture of food after this fashion than the snipe, or that the peculiar "telescoping" of the long axis of the skull, having proved a useful variation, has, in the woodcock, reached, so to speak, its logical conclusion, while in the snipe it is only on the way towards this consummation. It is significant to remark in this connection, that this shortening of the long axis of the skull is least conspicuous in the jack-snipe, which seems to be less dependent on its probing powers than its congeners, being able to subsist to no small extent on a vegetable diet. It was commonly supposed, indeed, that neither the woodcock nor the common-snipe showed this ability to turn vegetarian at need. This is not so, as Newstead has shown (see pp. 277-279); and I have just dissected a common-snipe whose gizzard contained several seeds of the bog-bean

(Menyanthes trifoliata) as well as a quantity of comminuted vegetable matter, but whether this forms any considerable part of the diet of these birds remains to be seen; so far as the evidence goes, they do not seem to take kindly to a vegetable diet. Finally, the jack-snipe has relatively the shortest beak. Thus, though perhaps the most highly specialised in regard to its coloration, it is apparently the least specialised in regard to its food; and the advantages gained thereby are apparent during hard weather. Then the woodcock, great, and common-snipe fare badly. Not so the jack; when his cousins are reduced to mere skeletons, the jack still remains plump and in good liking, grass, various kinds of seeds, and moss furnishing him full meals while his neighbours starve.

Frost drives the “full” or common-snipe, like the woodcock, to the coast, where it contrives, for a while at any rate, to eke out a living in company with small Waders, but unless a thaw sets in speedily they die in large numbers. The mortality at this time would be far higher but for the fact that the majority of the birds affected seem to make a general rush for the south and west of Ireland, where enormous numbers find food and shelter till the time of stress is past. Ireland, however, at all times, is the most favoured of our islands by snipe, which breed there in large numbers. “The winter visitors,” remarks Mr. Ussher,¹ “are believed to be distinguishable by colour and markings from the birds reared in this country, which are greyer.” This may well be; the point is worth more attention than it has obtained.

But to return to the subject of feeding. Snipe, like woodcock, possess a ravenous appetite, and lose flesh rapidly if the supply of worms, their staple diet, is cut off. With a thaw the worms rapidly make their way to the surface, and the snipe then feast, and gain fat again as rapidly as they lost it. This inability to sustain long fasts, where the diet is largely made up of worms, is exemplified again in the case of the mole, which is unable to fast longer than a few hours. As to the

¹ Birds of Ireland, p. 278.
way in which the common-snipe disposes of a worm, accounts differ. On the one hand, Mr. De Visme Shaw tells us it is seized by the middle and sucked through the "compressed mandibles, the pressure eliminating the slimy earth, which adheres to the bill and hardens rapidly." Continuing, he remarks: "The snipe will spend many minutes cleansing his beak after feeding at a distance from water, and he usually has a thorough wash and brush up before resuming his meal." But Mr. Hugh Wormald,1 who, having succeeded in rearing a tame common-snipe, had exceptional opportunities of observation as to the way in which worms were disposed of, tells us that his bird, having seized a worm, "sucked it down with no apparent exertion." When swallowing, the head was not thrown back, but the neck was stretched out and the beak pointed downwards. If the worm was too large to be swallowed readily, it was hammered and pinched till broken up. The worms known as "brandlings" were always refused, and this because of their offensive smell, or perhaps taste, for it only distinguished between raw liver and worms when they were nipped between the mandibles. Sight seems to play but a secondary part in securing food, for this bird was unable to see a worm "right under him." If two or three were placed before him, he would walk up and feel about for them with his beak. The larvae of daddy-longlegs were also greedily eaten, and so also were maggots. These last wild snipe have been known to obtain by probing in the carcasses of dead animals. While feeding, this bird kept up a continual twitter. Sand and small pebbles were constantly swallowed, and the grinding of this in the gizzard could be heard distinctly at a distance of several feet, especially just after feeding. This action seemed to take place rhythmically, about twelve times per minute. The hearing of this bird was very acute. It was often observed to listen like a thrush, when, after a moment or two, it would suddenly plunge down the beak into the soil and bring up a worm.

In its feeding-habits the great-snipe does not apparently differ

1 British Birds (magazine), ii. 249.
from the common-snipe, and, similarly, its haunts are the same. Having regard to the coloration of the two species, and their similarity in structure, this agreement is what we would expect. On the other hand, when we come to compare the common, great, and jack-snipe in regard to their breeding-habits, we find a striking diversity in place of agreement.

In regard to the courting habits of snipe, we have certainly a great deal to learn. A hint of this fact may be gleaned from Mr. Wormald’s notes on his tame common-snipe, to which reference has already been made. He remarked that in the spring his bird made a kind of “display,” by walking round and round his hand and uttering “the spring note,” meanwhile spreading the tail fanwise, and “gently poking my hand with his beak.” He would also constantly play by himself, standing bolt upright, then squatting down flat with his tail raised and spread fanwise. Then he would suddenly take two or three jumps to either side with closed wings. After going through this performance some half-dozen times on end, he would stop, and stroll leisurely off. The fact, however, that this bird, during these proceedings, would often squat down flat on the ground, with the neck stretched out and tail raised, has led Mr. Wormald to entertain suspicion that his captive may after all be a female. Of this behaviour, however, few have any knowledge, the “courting” of the snipe being associated in the minds of most of us with a very remarkable aerial display, which is always accompanied by very peculiar sounds, known either as “drumming” or as “bleating,” in which, however, it would seem both sexes participate, though the male continues to perform till after the young are hatched. This display may be described as a “musical ride,” wherein the bird ascends to a height of about 300 feet, then describes a series of wide circles, dropping, at intervals, some 50 feet or so, with a steady, tremulous, side-long fall, and at reduced speed. Each descent is accompanied by the strange high-pitched notes, likened by different observers to “drumming,” “bleating,” and “neighing.” That they are diffi-
cult to describe none who have heard them will deny. To me the noise produced would be more correctly described as "humming." If one happens to be near, the sound is in a higher key, and a likeness can certainly be detected to the bleating of a goat. As a rule this music begins soon after daylight, and may be continued for a couple of hours or so. At midday it begins again, and is sustained for a like period. Just before sunset it is once more resumed, and lasts till the twilight has given place to darkness. Often, indeed, when fine, especially on moonlight nights, this concert will be kept up, intermittently, throughout the night, as many as a dozen birds contributing at a time.

As to the means whereby this strange piping music is produced, opinions at one time differed widely. But there is now no need to traverse all the theories which have been advanced since this matter first engaged the serious attention of ornithologists. The solution of the mystery is due, strangely enough, to an accident. The German naturalist Naumann, some years ago, took up this problem, feeling convinced that the sounds were not vocal. He surmised that they might be due to the vibration of the wings, and to test his assumption he fastened some of the primaries of a snipe to a stick and moved them rapidly through the air, expecting to reproduce the sounds. The experiment failed, and there, so far as he was concerned, the matter ended. But in the published account of the experiment, by some fortunate mischance tail feathers were stated to have been used instead of primaries. The Swedish ornithologist Meves, a year or two later, reading this account, tried the experiment himself, using, of course, tail feathers, and at once solved the problem!

Later ornithologists, however, refused to accept this interpretation, and averred that the primary cause of the sounds was the vibration of the wings, aided, perhaps, by the outspread tail. The matter, however, was finally set at rest by some experiments of Dr. Philip Bahr. He pointed out¹ that during the descent to which

reference has just been made, the tail is widely spread, and that the outermost pair stand distinctly apart from their fellows. Further, he showed that this pair of feathers is peculiar in that their shafts are unusually thick, and strangely bowed, while the vanes of the inner web are thicker and more powerfully held together than in the case of those of the other feathers. Mr. Bahr's experiments are carefully described, and at great length, in the essay just referred to, so that space can only be found here for a summary thereof. Briefly, those who will may readily test for themselves the truth of his contention that these tail feathers alone are concerned in the production of the "bleating," and this by inserting the feathers into a cork attached to a stick of some six inches long, to the other end of which is affixed a long string. The apparatus is then whirled round, when, after a few turns, the characteristic sounds are produced. Care should be taken, in reproducing this experiment, to see that the outer web is so placed as to encounter the resistance to the air, and that the feather is affixed to the cork by a pin, so as to prevent any displacement of the requisite angle in regard to the wind. Mr. Bahr satisfied himself that both sexes "drum," when one day he came across a patch of ground tenanted only by a pair of snipe, which had newly hatched young, in hiding. He then observed both parents repeatedly drumming above him.

Having satisfied himself as to the sound-producing apparatus in the common-snipe, Mr. Bahr proceeded to examine and experiment with the tails of a number of other species of Snipe—a dozen species in all,—of which the tails of nine produced bleating sounds, in varying degrees of intensity, when treated after his method. Some of these were known to "bleat" during life, while of other species no observations seem to have been made. But it is a curious thing that in a considerable number of species, more or fewer—from three to nine pairs—of the outer tail feathers are more or less conspicuously attenuated, and this attenuation reaches its maximum in Gallinago stenura, wherein these feathers are little more than "pin-feathers."
This species has from twenty-six to twenty-eight tail feathers! and of these the eight outermost are thus strangely modified.

The duties of incubation seem to be undertaken mainly, if not entirely, by the female common-snipe; but the male bears his share in looking after the young. If suddenly surprised while brooding her young, she will leap up in the air, and descending will lie for a moment with extended wings and tail uttering plaintive whining notes, and then will flutter away, as if feigning injury. Having gone to what seems to her a safe distance, she will take wing and often alight on some post, or low bough of a tree, as affording a better lookout from which to watch the intruder, the while she keeps up an incessant "chack-hach, chack-wach, chack-a-a-a-h chack, a-a-a-h," the beak moving during this time like the blades of a pair of scissors. These notes differ conspicuously from the usual "scape" uttered at the moment of flight, and when surprised at other times of the year. This bird does not, like the woodcock, carry its young, nor, indeed, do any of the snipe appear to adopt this method of conveying their young to safer retreats when danger threatens. Perchance this habit arose among the woodcocks as a result of their custom of carrying their young to and from their feeding-grounds when these are remote from the area of the nest.

And now as to the so-called "solitary" or great-snipe. Unlike its near relative the common-snipe, it does not "drum" in the proper sense of the word. Dresser⁴ tells us that the great-snipe, or "double-snipe," has a "so-called 'ley' or 'spil' like some of the Grouse tribe, a sort of meeting-place, where they collect to 'drum,' and often to engage in combat for the possession of the females . . . It does not indulge in aerial evolutions, but remains on the ground . . . The male bird utters a soft, almost warbling note, which is accompanied by a peculiar snapping sound caused by striking the mandibles together several times in quick succession. If a person approaches one of these drumming-places, he can hear at some distance the low note;

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⁴ *Birds of Europe*, vol. vii. p. 635.
‘bip, bip, bipbip, bipbiperere, biperere,’ and when within one hundred paces, if the night is still, he begins to hear other peculiar sounds. . . . Whilst producing these notes the bird is in ecstasy, and raises and spreads its tail like a fan, the outer tail feathers showing in the half-darkness like two white patches.” Dresser’s remarks seem to have been based on observations of the Norwegian ornithologist Collett, who remarks that in addition to the “bibiperere” notes the bird also makes sounds like the smacking of the tongue, produced by striking the mandibles smartly and rapidly together. He then jumps on to a tussock of grass, puffing out his feathers, spreading his tail, and drooping his wings before the female, the while uttering a tremulous “shirrr.” Seebohm, who studied this bird at first hand in the valley of the Kureika, N.E. Russia, remarked also that these birds are gregarious during the breeding season. “Late one evening,” he tells us, “. . . drifting down the Petchora, we came upon a large party . . . making curious noises with their bills in the long grass on the banks of the river.” Their manner of producing these noises, he discovered later, was accompanied by strange movements of the head and neck, the latter being stretched out, and the head thrown back “almost upside down”—after the fashion of a white stork when “clattering”—the beak being the while rapidly opened and shut, and emitting a sound like that produced by running the finger along the edge of a comb. This outburst was sometimes preceded by a short flight, or by spreading the wings and tail. On the subject of this flight, which seems to be a part of the performance overlooked by Dresser, Seebohm tells us that he came on as many as half a dozen on the wing at once, but their flight was very short. He succeeded in shooting ten of those thus engaged, and all proved to be males.

Had Seebohm been more anxious to observe than to shoot, he might have anticipated the interesting observations of the Russian naturalist Alphéraky, who seems to have collected more evidence as

2 Field, 1906, p. 1075.
3 Birds of Siberia, p. 358.
to the behaviour of the great-snipe at this critical period than any one else.

This bird is, he asserts, polygamous, and assembles at certain favourite spots to execute a performance hardly distinguishable from that of the black-grouse, and known among Russian naturalists as the "Tok" (fight). This begins at sunset and lasts till sunrise, the males only participating. They begin with a series of dances which gradually turn into violent fights, severest, apparently, during the darkest hours of the night, since after such encounters the ground is often found strewn with feathers. There is surely, however, some error of observation here, since "during the darkest hours of the night" severe combats would be hardly possible. But be this at it may, the fighting is preceded by display, when the tail is fanned out and turned over towards the back, while the head is commonly drawn downwards and backwards into the shoulders, and the wings half expanded and drooped. Thus posed the birds prance about, turning half round to right, then to left, slowly at first, then quicker and quicker, till, moved to frenzy, they begin to jump wildly and perform other ridiculous antics. Then comes the fighting. At about midnight the females, who till now have remained screened by the long grass, appear. The males stop fighting and again display, then renew the fighting till dawn, when the females fly off each with a male in attendance. Remaining paired for the day, they assemble again at dusk for a similar performance. At sunset the females set up a croaking noise like frogs round the tourney-ground to attract the males, who then assemble, and assuming the "toking" attitude, produce extraordinary sounds like the noise produced by drawing the nail along the teeth of a comb, which in turn is followed by a hollow sound made by the wings.

There are points in this account which challenge criticism, but it is, nevertheless, the most complete that has yet been given.

The jack-snipe, like the double-snipe, does not "drum" after the fashion of the common-snipe and its congeners, nevertheless it pro-
duces sounds which all observers agree are hard to regard as vocal, though there is no evidence to show that they are otherwise. The first to bring us news of the breeding-grounds of the jack-snipe, and of its behaviour at this time, was that enthusiastic egg-collector Wolley, who had the great good fortune to discover the secret which this bird had so long kept inviolate. The day, June 17, 1853, is a memorable one in the annals of ornithology. He was out on the great marsh at Muoniovara, egg-hunting, when his attention was arrested by a strange and unknown note. His servant suggested it might proceed from a capercaillie in the neighbouring forest, but he soon found it came from a small bird careering at a wild pace high over the marsh. He describes the note as the love-song of the jack-snipe, clear and hollow, a quadruple note, not unlike the distant canter of a horse over a hard hollow road,—a weird note which Naumann likens to the click of a death-clock. Naumann, it is remarked, never saw the bird in its breeding-quarters, whence we may infer that these sounds are not exclusively confined to the breeding season. Of its brooding habits and the care of the young we know nothing.

Of the courting habits of the great-snipe and jack-snipe our knowledge is very scanty; still less of positive knowledge seems to have been recorded of what we may call the everyday life of these birds. Yarrell tells us that the great-snipe “prefers drier ground than its congener, and is found in dry grass fields, heather, potatoes, barley layers, and turnips, and that its flight is steadier and heavier than that of the common-snipe. Harting\(^1\) similarly remarks, “It appears to seek drier situations than does the common-snipe—e.g., one shot by the Earl of Huntingdon in a dry grass field near Mellerstain, Berwickshire, . . . two on high ground, Malham, Yorkshire, Sept. 6, . . . one on a stubble at Stewarton, Ayrshire, Sept. 15, . . . one in a piece of potatoes on dry sand, Wilts, Sept. 23, . . . one on a dry bean stubble at Thorpe, Northants, . . . one in a field of clover, Sept. 3.” All these birds, it will be noted, were killed before hard weather had set

\(^1\) Handbook of British Birds, p. 197.
in—they were not driven there by stress of weather. Yet they may have merely been taking cover, and not feeding there, just as the woodcock rests remote from its food source. Seebohm, who wrote on a first-hand acquaintance with this bird in Siberia, describes it as "a bird of the swamps," and prefers such as have open places of mud or peat, or even sand.

Apart from the noises already described as a part of the courtship performance, he never heard this bird utter any other call or alarm-note. Like the jack-snipe, it sits close when alarmed, allowing itself to be almost trodden upon before taking flight, when it rises with a whir of wings, like that of a grouse, but not so loud. It is a much easier bird to shoot, he tells us, than the common-snipe, flying much slower and straighter; while on the ground "it is a very comical-looking object; plump, short-legged, it shuffles about, half-walking, half-running: its bill always depressed, and, however intent it may be on feeding, it is ever on the watch for danger, and always tries to keep behind a bunch of rushes or a clump of sedge. It hides in the long coarse grass on the banks of rivers and lakes during the day, and comes out on the open in the evening—if there be any evening where it happens to live—to feed on worms and various small insects.

It is possible that this bird is not seldom passed over in mistake for large examples of the common-snipe, but it may always be distinguished therefrom by the white feathers in the tail, the more heavily barred flanks, and the presence of 16 tail feathers in place of 14.

The jack-snipe, which comes to us in October with the woodcock, differs but little in its habits from its larger relative, the "full"-snipe. It is quite as fond of marshes, and is, perhaps, remarks Seebohm, more often seen on the coast. It is at all times solitary, never associating in bands, or "wisps," after the fashion of the full-snipe. It sits quite as close as its larger relative when striving to avoid detection, but when finally flushed it rarely utters a note on rising. On the wing its
flight is slower and more bat-like, but it zig-zags quite as much as the "full"-snipe. Yarrell also comments on the reluctance of the jack-snipe to take wing when in danger. "It has been known," he remarks, "to allow itself to be picked up by hand before the nose of a pointer" rather than attempt to escape by flight. It seems to me that the jack-snipe will pick up a living during hard weather while its larger cousin starves, and this because of its ability to thrive on seeds. Be this as it may, the full-snipe, as we have already shown, does eat seeds, though this may be only a rare occurrence. Observations are needed on the point.

The question has more than once been raised as to whether the jack-snipe is entitled to rank as a genus by itself, on account of the fact that the sternum has two notches, while all the other snipe and woodcock have but one. It yet remains to be seen whether the jack is peculiar in this respect. Of many of the less familiar, more aberrant species, no records are extant as to the condition of the breast-bone. But, in any case, this is not so important a character as some with a limited knowledge of this aspect of ornithology suppose. The syrinx, as I have just ascertained by a series of dissections, differs conspicuously from that of any other snipe with which I am acquainted, or, for the matter of that, from that of any other Limicoline bird, and will possibly prove to be unique. It is formed by a number of fused tracheal rings of gradually increasing circumference, giving this end of the trachea trumpet-shape. Interposed between these fused elements and the first bronchial semi-ring is a free semi-ring, partly cartilaginous. Attached to its ventral end is a lingululate plate of cartilage the free end of which is attached to the ventral end of the first bronchial semi-ring. No other bird, so far as I know, displays such a peculiarity. But more on this head will be said in another place.

A word in conclusion as to the eggs of the jack and great-snipes. They are usually four, sometimes three, in number, pyriform in shape, and laid with converging points. The eggs of the jack-snipe are remarkably large for the size of the bird, and in this respect differ
little from those of the common-snipe. [Average size of 104 eggs, 1.5 x 1.08 in.; 38.2 x 27.4 mm.] On comparing a series of the eggs of the common and jack-snipes, it will be found that the markings on the eggs of the latter are, as a rule, smaller and more generally distributed, while both ground-colour and markings show generally more brown, the ground-colour being yellowish or brownish olive, and the irregular spots and streaks dark brown, with ashy underlying shellmarks. The eggs of the great-snipe vary somewhat in appearance, the ground-colour being generally stone colour or greyish buff, occasionally with a greenish tinge. The markings consist of bold blotches and spots of deep vandyke brown, rather sparsely distributed over the surface as a rule, but occasionally in profusion; the underlying blotches are ashy grey. [Average size of 31 eggs, 1.79 x 1.33 in.; 45.4 x 33.8 mm.].

1 F. C. R. Jourdain, in litt.
THE PLOVERS


PRELIMINARY CLASSIFIED NOTES


DOTTEREL [Eudromias morinellus (Linnaeus). Land-dotterel (Kent); dotterel-plover (S. Scotland). French, pluvier guignard; German, Mornell-Regenpfeifer; Italian, piovire tortolino].

1. Description.—The dotterel, when adult, is easily distinguished by the broad white prepectoral band, and the large patches of chestnut and black on the breast. The sexes are alike, and there is a marked seasonal change of plumage. (Pl. 116.) Length 9 in. [228·60 mm.]. The crown is black indistinctly streaked with brown; above each eye is a broad band of white which extends backwards on to the nape, meeting its fellow of the opposite side; the hind-neck and mantle are of a brownish ash-grey, relieved on the interscapulars by more or less conspicuous marginal loops: the hinder scapulars, wing-coverts, and long inner secondaries have similar rust-coloured margins. The inner primaries are of a light slate-grey, the outer dark slate fading into black towards the tip, and the outermost primary has a conspicuous white shaft. The tail is brownish ash broadly tipped with white, except the central pair, which have pale, narrow, buff margins. The sides of the face and throat are white. On the fore-neck the feathers are greyish ash margined with buff, the prepectoral region is marked by a broad double band of white, bounded in front by a narrow band of black; occasionally there is a black band on either side of the white crescent. The fore-breast and flanks are chestnut; the mid-breast is of a rich brownish black, while the abdomen and under tail-coverts are white. After the autumn moult the black and white crescent, and the black and red patches on the breast, are wanting, the under parts being white. The juvenile plumage
differs from that of the adult in having the eye-stripe buff, the crown more distinctly striated; the interscapulars and scapulars are black with a buff spot on each side of the vane, giving this region the appearance of being coarsely flecked with buff, and thereby differing conspicuously from the delicate scale-like pattern, or absolute uniform coloration of the adult. The long humerals and inner secondaries are coloured as in the adults, but buff replaces white on the tail. The under parts are buff narrowly and sharply striated with dark slate-grey. There is no prepectoral band, and the breast and flanks are of a rich buff, but the abdomen is white. The young in down has the forehead white, with a median and two lateral bands of black, the latter converging to meet in the middle line to form a median band which, on the crown, gives place to a circle of black enclosing an area mottled buff and black, the black ring being itself surrounded by a broad ring of white, cut off from a white collar by a narrow black line. Behind the eye is a patch of buff encircled by black. The rest of the upper parts are mottled black, buff, and white, while the under parts are white. [w. p. p.]

2. Distribution.—In the British Isles, outside Scotland, the dotterel is only a summer resident in very small numbers in the Lake district, though formerly it was much more numerous, breeding on many of the higher summits. In Scotland it is more widely distributed, and has increased its range. A few pairs are stated to have bred in S.W. Scotland, on the hills of Galloway and Dumfries; but the stronghold of this species is the great mountain system which includes the Grampians, the Monadhliath, and the Cairngorm groups, from North Argyll and Perth northward, and probably in smaller numbers west of the Great Glen. Here it breeds locally at a height of about 2500 to 3000 feet. On the Continent it breeds on the Scandinavian high fjeld in both Norway and Sweden, as well as in Finnish Lapland. In Russia it has been found nesting on Waigatz and Novaya Zemlya, and on the tundra of the north, as well as on the island of Kotlin (St. Petersburg), in the Northern Urals, and even in the steppes of the Astrakhan government. Other continental breeding-places are the Riesengebirge in Bohemia, Transylvania, and Styria. In Asia its range extends across the tundra region of Siberia, to the new Siberian Isles, and above the tree limit in the mountain ranges of the Alatau, Tarbagatai, Altai, and Sayans mountains, as well as in the ranges of E. Siberia. Its winter range extends to S. Europe, Northern Africa, Palestine, Persia, and Arabia. [F. C. R. J.]

3. Migration.—A summer visitor and a bird of passage. The birds first arrive late in April or early in May, and for a few weeks they remain comparatively widespread. But only a small number remain for the summer, and they are con-
fined to the regions mentioned in the preceding paragraph. The return migration is over by early September. A gregarious migrant. [A. L. T.]

4. Nest and Eggs.—The nest is little more than a depression in the moss, sometimes lined with the red leaves of the cranberry or a few bents. (Pl. II.) The eggs are typically 3 in number, though occasionally 2 have been found highly incubated, and a nest with 4 eggs has been recorded (Ibis, 1904, p. 229). They bear a decided likeness to some eggs of the Arctic-tern, and are clay-yellow or yellowish olive in ground-colour, boldly spotted and blotched with black markings, and occasionally showing a few ashy grey shellmarks. (Pl. L.) They are more ovoid than pyriform in shape, and the average size of 16 eggs is 1·62×1·14 in. [41·2×28·8 mm.]. Incubation is partially (if not entirely) performed by the male bird, as Pearson, H. H. Slater, and others have shot males from the nest (Ibis, 1896, p. 211; British Birds, their Nests and Eggs, v. p. 6). There is very little direct evidence as to its duration, but Heysham, who had good opportunities of watching it on the hills of Lakeland, says that it rarely lasts much longer than 18 to 20 days. The usual breeding time in the British Isles is from about June 5 to about the end of the third week in the month. Clutches taken in July are probably second layings, but there is no evidence that a second brood is reared in the season. [F. C. R. J.]

5. Food.—Mainly insects of various kinds, especially beetles, and their larvae. Also land-shells and a little vegetable matter. The young feed chiefly on insects and their larvae, and are assisted in their search for food probably by both parents, but there is no direct evidence. [W. F.]

RINGED-POLOVER [Aegialitis hiaticula (Linnaeus).] Sand-lark, stone-hatch, stone-runner, dotterel, oxbird, tullet; catpoll, dunwilly (Devon); sand-tripper, five-toed plover (Dumfries); sandy-loo, sandy-laverock (Shetlands). French, pluvier à collier; German, Sand-Regenpfeifer; Italian, corriere grosso].

1. Description.—The ringed-plover is readily distinguished from its congeners by its yellow legs and toes, and the fact that the middle region of the shafts of the exposed portion of the primaries is white. The sexes are alike, and there is no distinct seasonal change of coloration. (Pl. 117.) Length 7·75 in. [196·85 mm.]. The adult has a broad band of black and white across the forehead; and a black bar, extending from the lores backwards below the eye, while the crown and nape are of a pale grey-brown. Behind the eye is a white patch, and the under surface of

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the head is white, the white area extending upwards and backwards to encircle the neck: below the white throat is a broad band of black, which similarly extends upwards and backwards to encircle the neck behind the white collar just described. The mantle and wing-coverts are, like the crown, of a pale grey-brown, but the major coverts are tipped with white. The lower back and upper tail-coverts are coloured like the mantle; the median tail feathers are of a similar hue at the base, but darken into a deep brownish black towards the tip; the three succeeding feathers are similarly coloured but have white tips, the next pair have the outer web wholly white, while the outermost are entirely white. In addition to the white on the shafts of the primaries already referred to, the innermost primaries have an oblong patch of white along the middle of the outer web, forming a white bar in the extended web. The secondaries have white bases, the white gradually extending downwards from without inwards, so that the innermost feathers are wholly white. The breast, flanks, abdomen, and under tail-coverts are white. The beak is orange-yellow at the base, the rest black, and the legs are orange-yellow. The iris is dark brown. The female has the black collar somewhat smaller. The juvenile plumage differs from that of the adult in lacking the black band across the forehead; while the band below the eye and the collar round the neck are of a dusky brown instead of black. The young in down have the upper parts white relieved by a narrow line of buffish grey on the crown, and a semicircular line running round the occiput; on either side of the median line are fine mottlings of grey. The back is mottled grey, and the under parts are pure white. [W. F. P.]

2. Distribution.—In the British Isles this species is resident, or only subject to local movements, on almost every part of our coasts where there is any sand or shingle. It also breeds at considerable distances inland at a few places: the waste lands near Thetford have long been known to be inhabited by this species, and recently it has been found nesting on a sewage farm near Enfield, Middlesex, by R. B. Lodge, and also in Worcestershire, as well as locally in Scotland. Outside the British Isles it nests in Iceland, the Faeroes, sparingly on Spitsbergen and Bear Island, on Novaya Zemlya, Waigatz, and Kolguev. On the Continent it is found along the coasts of the Atlantic and Arctic Oceans, as well as in the Baltic, and in some localities breeds inland, as in the fells of Lapland, by the great rivers of Russia south to about lat. 48½°-50°, in Hungary, and on the shingle-beds in the Rhone valley. Its southward limits extend to Portugal, occasionally to S. Spain, and a few pairs are said to remain to breed in Italy and Sicily. In Asia it ranges east at least to the Kolyma valley
Dotterel's nest

Ringed-plover's nest on mud flat, composed of dry mud flakes

Ringed-plover's nest with egg and chick, also chick out of nest
and Ussuria, and south to about 60° on the Lena, while, according to Severtzow, it rarely breeds in Turkestan. In the Nearctic region it breeds in Greenland and Davis Strait, but is replaced by an allied race in North America. The winter quarters of this species lie in the Mediterranean region and Africa, where it has been recorded as far south as Cape Colony and Natal, chiefly along the east and west coasts. It also occurs in the Azores, Canaries, Madeira, India, Australia, Chile and Barbados accidentally, while the American race winters in S. America. [F. C. R. J.]

3. Migration.—Found in the British Isles all the year round in varying numbers, and probably resident to a large degree in England and Wales and in Ireland: from Scotland a considerable exodus takes place on the approach of winter. In winter a considerable number of ringed-plovers come to us from Northern Europe, many of the birds passing the winter in Ireland and the south of England: there is also some evidence of an immigration to the south-east of England by an east-to-west route (cf. Clarke, Ibis, 1904, p. 141). A slight southward emigration takes place in autumn, whether of British-breeding or autumn immigrant birds it is difficult to say. Birds of the smaller race visit the south-east of England in spring, and a few may possibly remain to breed (cf. Ticehurst, B. of Kent, 1909, p. 417). A gregarious traveller. [A. L. T.]

4. Nest and Eggs.—There is considerable variation in the nesting-habits of this species. Some nests are mere depressions in the gravel or shingle, others are carefully lined with fragments of water-worn shells and white stones, while some birds built a regular nest, more or less composed of bits of bent, small sticks, bits of stalk, driftwood, sea-wrack, and in one case green leaves and stalks of Atriplex littoralis (H. W. Feilden). The sites also vary considerably from shingle-beds and sand-flats to stony hillsides (Færoes), thick grass (Middlesex) and cornfields (O. Grabham, Field, June 7, 1902). (Pl. li.) The eggs are normally 4 in number, sometimes 3 only may be found incubated, and on rare occasions 5 have been recorded. They are pyriform in shape, the ground-colour being clay-yellow or ochreous, and spotted with brownish black. A rare variety has handsome blackish blotches, while others have been recorded with blue ground and devoid of markings, or white and only faintly marked. Seen from within, the shell is deep blue-green when fresh. (Pl. K.) Average size of 64 eggs, 1·34×0·95 in. [34·2×24·7 mm.]. Both sexes have been seen incubating (W. Farren and F. Heatherley). Faber and Graba (the latter on the evidence of a brooding spot) state that the male takes part in

1 See British Birds, i. p. 373.
incubation. With regard to the period, there is some discrepancy in results. In an incubator one egg hatched on the 22nd, another on the 23rd, while a third lingered till the 25th (W. Evans), while eggs watched were hatching on the 21st day (W. Evans); on the 25th day from the laying of the last egg (R. Clyne), or 28 days from the laying of the first egg (A. H. Patterson). The eggs are laid at intervals of a day. The breeding season in the south of England begins about the beginning of May, but exceptionally eggs have been found by mid-April, or even earlier in the Breck district (W. Farren). As they may be met with through June and even in July, it is probable that two broods are often reared in a season in the British Isles. [F. C. R. J.]

5. Food.—Various small marine animals, such as the smaller thin-skinned crustaceans, small molluscs, and worms. Insects in various stages. Results of stomach analyses are as follows:—Adults and young in down, principally insects, their larvae and pupae. Adults, also remnants of plants (Manniche, N.E. Greenland, p. 126). Vegetable matter has also been found in stomachs examined by Prof. Patten, and "one gizzard was filled with remains of lustrous blue-black beetles" (Aquatic Birds, p. 217). The food of the young consists chiefly of insects and their larvae and pupae, also sandhoppers and small worms. They are assisted in the search for food by both parents. [W. E.]

KENTISH-POVER \[Ægialitis alexandrîna (Linnaeus); Ægialitis cantiâna (Latham). Stone-runner. French, pluvier à collier interrompu; German, See-Regenpfleifer; Italian, fratino].

1. Description.—The Kentish-plover may be distinguished at all ages by the black beak and legs. The female differs slightly from the male, and there is a seasonal change of coloration. (Pl. 117.) Length 6·5 in. [153·67 mm.]. The male has a black and white band across the forehead, the white produced backwards over the eye, the lores are black, and there is a black patch on the hinder ear-coverts; the cheeks are white. The crown and nape are of a rufous red. The hind-neck is marked by a white collar blending in front of the white of the under parts. The mantle and wing-coverts are of a pale brown, the major coverts being tipped with white. The median upper tail-coverts are of a darker brown than the back, while the lateral coverts are white. The four central tail feathers are dark brown, the next smoke-brown with white shafts, while the outermost are white. The exposed portions of the primaries are dark brown, the inner webs paler brown, and the shafts
are white, but the innermost primaries are white towards the base of the outer web; the secondaries are dusky brown with white tips, the innermost being also margined with white. The under parts are white, relieved by a black patch on each side of the fore-breast, answering to the black gorget of the ringed-plover. The beak and legs are black. The iris is dark brown. The female differs from the male in having no black on the forehead, and little or no rufous on the crown, while a patch of black on the fore-breast is replaced by a smaller patch of dark brown. In winter the black and red patches on the head, and the black patches on the fore-breast of the male, are wanting. The juvenile plumage resembles that of the female, but the feathers of the upper surface have pale buff fringes. The young in down differs conspicuously from that of the ringed-plover, having the upper parts densely mottled with grey on a buffish white ground. The forehead is white, and the cincture round the occiput is only imperfectly developed; the median stripe down the crown is conspicuous by its absence. [W. P. P.]

2. Distribution.—As a breeding species the Kentish-plover is practically confined to the two counties of Kent and Sussex in the British Isles, being found there on the great shingle beach of Dungeness, and sparingly westward towards Rye and Winchelsea, while a few pairs breed at one other Kentish locality. Of late there has been a decided increase in their numbers, chiefly owing to the cessation of shooting in the breeding season. Outside the British Isles, where it is only a summer resident, it breeds sparingly in S. Sweden and on the south shore of the Baltic, commonly in Denmark, the Frisian Isles, the Low Countries, France, and the Iberian Peninsula, the Canaries, Madeira, Azores, Cape Verdes, and on the shores and islands of the Mediterranean, as well as in the Black and Caspian Seas. It also breeds in small numbers by the larger rivers of Central Europe, e.g. in Hungary. In Asia its range appears to extend from Turkestan to E. Siberia and Corea, while local races are found in China and S.E. Asia, as well as in America. Its winter quarters extend to the coasts of tropical Africa, and it has once been recorded from Damara Land, as well as Southern Asia. [E. C. R. J.]

3. Migration.—A summer visitor and a bird of passage. It appears on the Kentish coast usually about mid-April, but sometimes even before the end of March. Flocking takes place towards the end of July, and most of the birds have left by the end of September, October 10 being the latest recorded date for the county (cf. Ticehurst, B. of Kent, 1909, p. 425). On the east of England the species occurs in small numbers on migration, chiefly in autumn, presumably on passage to and from Denmark or Sweden (cf. preceding paragraph): Teesmouth is the
northernmost recorded locality (cf. Nelson, *B. of Yorks.*, 1907, p. 576). The Kentish-plover is also an uncommon visitor as far west as Cornwall, and an extremely rare one to the east coast of Ireland. Gregarious: the autumn flocks are composed of both old and young birds, and Waders of other species are frequently consorted with. [A. L. T.]

4. Nest and Eggs.—In Kent the nest is merely a scrape in fairly fine shingle, interspersed with a scanty growth of long, thin grass. On the Continent it is found on shingle-beds, but generally where there are patches of sand, on heaps of sandy mud or seaweed, on depressions in old cattle-droppings, or even on short grass at the edge of mud flats. It is quite common to find the eggs buried point downwards in sand with only the tops showing. There is nearly always a tendency to make use of a slightly elevated site. Sometimes a few bents or broken twigs and stalks serve as apology for a lining. (Pl. LII.) The share of the sexes in nest-making seems not to be recorded. The eggs are typically 3 in number, sometimes only 2, and 4 have been recorded on rare occasions. Dr. Ticehurst (*Birds of Kent*, p. 424) brings forward some evidence that five young have been reared by one pair. In ground-colour the eggs vary from light stone colour to deep brownish ochreous, and are covered with characteristic streaks and scrolls as well as spots. The colour of the shell from within is also a much deeper green than that of the ringed-plover. A rare erythritic variety has occurred in Hungary. (Pl. K.) Average size of 70 eggs, 1.26×.91 in. [32.2×23.5 mm.].

Both male and female share in incubation, but in fine weather the eggs are left for long periods exposed to the sun. The period seems not to have been exactly ascertained, but judging from the analogy of the ringed-plover, Naumann’s statement that the young are hatched in 15-17 days is probably much below the mark, and incubation probably lasts at least three weeks. In the Mediterranean region eggs may be found by mid-April, but in Kent they are very rarely found before May, and often not till the second or third week in the month. Probably only a single brood is reared as a rule, but where much harassed, eggs may be found up to August. [F. C. R. J.]

5. Food.—Various small marine forms, such as the smaller thin-skinned crustaceans, tiny molluscs, and worms. Insects and their larvae and pupae. The young feed chiefly on insects and their larvae, and are assisted in the search for food by both parents. [W. F.]
GOLDEN-PLOVER [Charadrius apricarius Linnaeus; Charadrius pluvialis Linnaeus. Yellow-plover, sheep’s-guide. French, pluvier doré; German, Gold-Regenpfeifer; Italian, piviere dorato].

1. Description.—The golden-plover may be distinguished from its congener the grey-plover by the absence of a hind-toe and the white axillaries. The sexes are alike, and there is a striking seasonal change of coloration. (Pl. 118.) Length 11 in. [279.40 mm.]. The male in nuptial dress has the upper parts black, spangled with gamboge-yellow, the yellow taking the form of spots running round the margin of black feathers; on the hinder scapulars the spots become confluent and form a yellow marginal band. A band of white crosses the forehead, and is continued over the eye, down the side of the neck, and along the upper border of the flanks. The wing-coverts are dark grey tipped with dull yellow, save only the major coverts, which are tipped with white. The tail is dusky, imperfectly barred across the outer web with yellowish white. The sides of the face, and the whole of the under parts below the white line just described, are black, save the under tail-coverts, which are white. The beak and legs are black, the iris hazel-brown. The female differs from the male in having more or fewer white feathers intermixed with the black breast feathers. Towards the end of the summer the yellow coloration of the upper parts is much reduced by abrasion. After the autumn moult the sides of the face and breast are white, and the fore-neck is tinged with yellow and marled by dusky mottlings, while the inner primaries have white, free edges, and the major coverts of the hand are tipped with white. The juvenile plumage resembles that of the adults in winter, but differs in being distinctly more golden above. The fore-neck is mottled with triangular spots of dusky brown, while the flanks are ashy brown with dusky brown bars. The young in down is of a pale golden yellow mottled with black. Two lateral white stripes run over the eye, and similar stripes run down the back. The under parts are white. [W. P. P.]

2. Distribution.—In the British Isles this species breeds sparingly on the moorlands of Devon and Cornwall, and also in small numbers on the Cambrian mountains and the Welsh borders, while it nests locally on the Pennine range and its spurs south to the Peak district in N. Derbyshire. In Scotland it becomes more numerous, and breeds not only on the moorlands of the mainland, but also on the Hebrides, Orkneys, and Shetlands commonly. In Ireland it breeds on the mountains, and in W. Connaught, also in the bogs. Outside the British Isles it nests in the Færoes, Iceland, and possibly Greenland, while it has also been seen in Jan
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Mayen in summer. On the Continent of Europe it is common on the fjeld of Scandinavia, and also breeds on the tundra of N. Russia, south in small numbers to Perm and the Baltic provinces. A few pairs nest on the heaths of N. Germany, Denmark, Holland, Belgium, and Luxembourg, while it is said also to have bred in Switzerland. In Siberia its breeding range extends at least as far east as the valley of the Yenisei. In winter it ranges south over Europe to the Mediterranean region, has occurred as a casual on the Azores, Madeira, and the Canaries, and on the west coast of Africa as far as the Gaboon at any rate. Saunders and Seebohm state that it ranges to Cape Colony, but Sclater does not include it among the birds of S. Africa. In Asia it has been met with in Palestine, and thence to Baluchistan and Sind. [F. C. R. J.]

3. Migration.—Found in the British Isles all the year round. That part at least of our breeding birds are resident within our area seems probable, but some may well be summer visitants.¹ The species is also a winter visitor and a bird of passage from Northern Europe in large numbers. A few unmoulted adults reach our shores early in August, and late in September the young birds arrive in large flocks, followed in October and November by the main body of adults, now moulted. The return movement sets in in March, and continues long after our own birds have begun their nesting duties. The golden-plover is a notably gregarious migrant, the birds sometimes associating with lapwings as well as with members of their own species: migration is at times diurnal, but more often nocturnal. The separate migration of old and young seems to have been well established by Gätte (cf. Vogelwarte Helgoland, Eng. trans., 1895, pp. 106, 465) and others, but is not an altogether undisputed point (cf. Bonhote, Ornis, 1909, p. 168). [A. L. T.]

4. Nest and Eggs.—The nesting-places of this bird are on moors and rough pastures, overgrown with tussocks. Here it breeds sometimes in heather, at other times on the bare ground or in coarse grass, generally slightly elevated, making a depression in the ground, and lining it scantily with bents or bits of heather, or in some cases not at all. (Pl. III.) Naumann states that the hen makes the depression with her feet. The eggs are normally 4 in number, but clutches of 5 eggs have occasionally been found, apparently laid by one hen. They are pyriform in shape, yellowish stone colour in ground, at times with a rich warm tinge, and rarely greenish white, boldly spotted and blotched with brownish black. (Pl. L.) Average size of 43 eggs, 2.02×1.35 in. [51.5×34.3 mm.]. The male bird has been shot from the eggs (Zoologist, 1883, p. 58), but Saxby states that he has never known the male

¹ A golden-plover marked as a nestling at Bunacton, Inverness-shire, 21st May 1911, was shot about 18th Oct. 1911, in Co. Mayo, Ireland (Aberdeen University Bird-Migration Inquiry).
Kentish-plover's nest and chick

Golden-plover's nest and eggs

Lapwing's nest and eggs

Lapwing's scrape (p. 372)
to take part in incubation, though he constantly supplies his mate with food while sitting. The same observer found that a clutch was hatched out in 16 days from when first found warm in the nest, one egg of which appeared to be fresh. Possibly it was really infertile, as W. Evans found that an egg hatched out in an incubator on the 27th day. According to Dr. F. Heatherley’s observations, eggs take at least 24 days to hatch under natural conditions (p. 363). Saxby’s figures and Naumann’s (16-17 days) are no doubt erroneous. The earliest eggs are laid about the second week in April in S. Scotland, and towards the end of the month in the north, and may be found as late as June and early July, but probably only a single brood is normally reared, as in the case of the lapwing, though three to five clutches may be laid by birds whose nests have been taken. [F. C. R. J.]

5. Food.—Inland: worms, slugs, snails, insects—especially beetles—and their larvae. On the shore: various molluscs, crustaceans, and shore worms. Vegetable matter in small quantities. Stomach analyses prove that the seeds of various plants are eaten, such as Polygonum and Scleranthus (Naumann), the seeds of the saline, Claux maritima (Yarrell, iii. p. 274), berries and seeds (Dresser, Birds of Europe, vii. p. 439, quoting von Droste Hüllhoff), old grass seeds (Field, 1891, vol. 77, p. 449). Swallows particles of grit. The chicks feed chiefly on insects and their larvae, and are assisted in the search for food by both parents. [W. F.]

GREY-PLOVER [Squatárola squatárola (Linnaeus); Squatarola helvética (Linnaeus). Silver-plover. French, vanneau-pluvier; German, Kiebitz-Regenpfeifer; Italian, pivieressa].

1. Description.—The grey-plover may at once be distinguished, at all seasons, by the black axillaries and the presence of a hind-toe. The sexes are alike, and there is a striking seasonal change of coloration. (Pl. 119.) Length 11·5 in. [280·67 mm.]. The feathers of the crown and occiput are greyish black, obscured by broad white fringes; the hind-neck is white, flecked with grey. The mantle is black, broad white tips to the feathers giving a dazzling black and white barred effect. The wing-coverts have the margins white, the central area of the feathers black, expanding at intervals to form irregular black transverse bars, but the major coverts are grey, margined with white. The primaries are brownish black with white shafts, the innermost quills having a patch of white on the outer web. The upper tail-coverts are white barred with black; while the tail is white crossed by numerous broad bars of black. A broad white band of white runs across the fore-
head above the eye, and down the sides of the neck, at the base of which it considerably expands. This white longitudinal band stands in strong contrast with the jet-black of the sides of the head, the neck and breast, flanks and upper abdomen. The lower abdomen and under tail-coverts are white. Towards the autumn the sparkling brilliance of the contrasted black and white of the mantle is much reduced by the abrasion of the white. The beak and legs are black, the eye dark hazel. The winter dress lacks the black on the face and breast, while the upper surface is of an almost uniform ashy brown, the feathers having a whitish edging, and a more or less distinct subterminal blackish marginal band. There is an indistinct supra-orbital band of white, while the sides of the face have dusky streaks; the fore-neck is of a pale ashy brown with dusky mottlings, while the throat and breast are white. The juvenile plumage resembles that of the golden-plover at the same period, but the black axillaries, white on the innermost primaries, white upper tail-coverts, and more coarsely barred tail, render the two species easily distinguishable. Moreover, the young grey-plover has a hind-toe. The young in down are of a rich golden yellow above, spotted and blotched with black, and white underneath. [W. P. P.]

2. Distribution.—The grey-plover only visits us during the winter months, and on the European Continent its only breeding-grounds are the tundra of North Russia and the island of Kolguev. On the mainland it is known to nest on the Kanin Peninsula and the Lower Petchora. In Northern Siberia it breeds on the Yalmal Peninsula, the Taimyr, and the valleys of the Lower Yenisei and Kolyma. The first discovery of the breeding haunts of this species was made by von Middendorff in 1843, on the Boganida, and Seebohm and Harvie-Brown were the first to find it nesting in Europe, on the Petchora, in 1875. It also breeds in Arctic North America. During the winter months it migrates southward through Europe and Asia by definite routes to Africa, along both sides of the continent south to Cape Colony and Natal, as well as to the Canaries, Azores, Cape Verdes, and Madagascar. In Asia it ranges to the shores of the Indian Ocean, Borneo, the Philippines, New Guinea, and other islands of the Malayan Archipelago, as well as to the Solomon Isles and Australia; while North American birds winter in the West Indies, Brazil, and Colombia. It will thus be seen that, with the exception of the southern part of the American continent, there is no part of the temperate or tropical world which is not visited by this truly cosmopolitan species. [F. C. R. J.]

3. Migration.—A bird of passage and a winter visitor from Northern Europe. A few unmoulted adults may be recorded at the end of July or the beginning of August. In September the main movement, that of the flocks of young
birds, reaches our shores, followed in October and November by the adults, now moulted, in smaller numbers. Most of the birds pass on, but a few remain with us for the winter. The return passage lasts till late in May, and a few non-breeding birds may remain till July. A gregarious, and, to a great extent at least, a nocturnal traveller. [A. L. T.]


5. Food.—Insects and their larvae; worms, molluscs, and crustaceans, such as small shell-fish, shrimps, and sandhoppers. Also eat a good deal of vegetable matter, such as seaweed. "Small fish" (Patten, *Aquatic Birds*, p. 233), "grasshoppers and other insects, as well as berries of various kinds" (Macgillivray, *British Birds*, iv. p. 92). The food of the young consists chiefly of insects—especially mosquitoes—and their larvae. They are assisted in their search for it by both parents. [W. F.]

**LAPWING** [*Vanellus vanellus* (Linnaeus); *Vanellus vulgarius* Bechstein. Peewit, peeswipe, green-plover; happinch, lappinch (Cheshire); hornpie (Suffolk); horniewink; tieves' nicket (Shetlands). French, *vanneau huppé*, *dix-huit*; German, Kiebitz; Italian, *pavoncella*].

1. Description.—The lapwing may be readily distinguished by its recurved crest of erectile feathers. The sexes are alike, and there is a slight seasonal change of coloration. (Pl. 120.) Length 11 in. [279.40 mm.]. The adult, in nuptial dress, has the top of the head, including the recurved feathers of the crest, the lores, fore-part of the cheeks, a line under the eye, throat, and fore-neck black, glossed with green; while the eyebrow, sides of the face and neck, are dull white. The mantle is of a rich metallic coppery green with purple reflections, while the wing-coverts are of a deep steel blue-black with a metallic sheen. The primaries are black, the three outermost with greyish white tips. The upper tail-coverts are of a reddish chestnut, while the tail has the basal portion white, the rest black, but the black area decreases from the middle feathers outwards, so that the outermost feather is nearly all white. The under surface, from the black gorget backwards, pure white, save the under tail-coverts, which are of a pale cinnamon. The male differs from the female in having a conspicuously longer crest, and in the shape of the wing when expanded, which is thus much broader and more rounded than in the female. After the autumn moult the black on the throat disappears. The fledgling resembles the adult in winter, lacking the black throat; but it may always be distinguished by
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the fulvous margins to the feathers of the upper surface. Young in down are of a pale reddish brown above, spotted and blotched with black; there is a dark band across the breast, and the rest of the under parts are white. [W. P. R.]

2. Distribution.—In the British Isles the lapwing is mainly resident, or only subject to local movements, and is very generally distributed on the whole, except in some districts of the south of England. In the north of England, as well as Scotland, Ireland, and the adjoining islands, it is still very numerous. A few pairs breed on the Færoes, but not on Iceland, and on the Continent it ranges in Norway to about the middle, and in Sweden to Upland, but has bred to beyond lat. 68° on the Muonio river (S. A. Davies); in Finland to over lat. 61°, and in East Russia to 62°. Southward its breeding range extends on the west to Andalucia and Marocco, and in Eastern Europe to Macedonia, but not to Greece, though a few are said to breed in Egypt. In Asia it is found up to 57° on the Ob, and though absent from the Lena valley is common in Dauria and Ussuria (Buturlin); southward it is found on the Tian Shan range to about eleven thousand feet, and in small numbers in Transcaspia. On migration it passes over Europe to the Atlantic isles and the Mediterranean basin, wintering on both sides, and in Asia south to Asia Minor, Persia, N. India, Burma, China, and Japan. It has also occurred casually on Jan Mayen, Greenland, Iceland, Newfoundland, Nova Scotia, the Bahamas, and Barbados, as well as in Alaska. [F. C. R. J.]

3. Migration.—A summer visitor to a great many inland districts, but found all the year round on most parts of the coast. To our area as a whole some individuals are summer visitors, some winter visitors, and some birds of passage; still others are doubtless resident within its limits. The complicated movements have been worked out by Mr. Eagle Clarke, upon whose report (British Association Report, 1902, pp. 277-283) the following summary is based.

(1) British Summer and Autumn Movements.—“Flocking” takes place at the close of the nesting season, and in July or even late June slight movements of a more or less erratic nature may be observed. In August the birds begin to leave the more northerly parts of our islands, and it may be noted that in the northern isles there is an interval between the departure of the last summer visitors and the arrival of the first overseas immigrants. In September the southward movement within the British Isles is in full swing; in October it reaches its height, but it persists till mid-November. By October the higher inland districts are practically deserted for the winter. The movements within our area include an immigration to Ireland from Scotland in October and November: it takes place
mainly from the coast between the Mull of Cantrye and the Solway Firth to that of counties Antrim and Down, and also by way of the Outer Hebrides to the coast of Donegal.

(2) Autumn Immigration from North-Western Europe.—This immigration takes place from early October to mid-November. It affects the east coast of Scotland from Shetland southwards, and the northern section of the east coast of England, but movements affecting a great stretch of coast-line simultaneously do not usually occur. The total number of immigrants is not very great, for the species is by no means abundant in North-Western Europe (see preceding paragraph).

(3) Autumn Immigration from the East.—In October and early November an immigration from the east and south-east takes place on the coast between the Thames and the Wash and the Humber.

(4) (Passage Movements).—There is no evidence of immediate southward emigration of immigrants from either source. The majority certainly remain within our area for some time, although many must eventually cross the Channel.

(5) Autumn Emigration.—There is no evidence of any cross-Channel emigration in September or October, although the existence of slight movements of this nature is not improbable. Considerable emigration takes place in November, the movements being sometimes associated with general movements down the east and west coasts of England.

(6) British Winter Movements and Winter Emigration.—The lapwing affords an exceptionally good example of winter movements subsequent to the ordinary migration season. These movements are indeed of a far more general and striking character than the autumnal migrations, but their extent and the time of their occurrence depend entirely on the severity of the season. In seasons where no very severe weather has occurred till late in the winter, we find cross-Channel emigration taking place in the middle of February, and southward movement within the British Isles as late as mid-March.

(7) Winter Immigration from West-Central Europe.—In severe winters the winter movements in West-Central Europe give rise to an immigration on the southern section of the east coast of England, the birds afterwards spreading westwards across the country.

(8) British Spring Movements.—Some birds return to their inland haunts at the end of January or in February, but very often have to beat a temporary retreat. The normal time for returning to summer quarters is between the end of February and the middle of March, except in very late seasons. These movements include
a return journey from the north-east of Ireland to the west of Scotland. There is also a south-easterly emigration from Wexford at the end of February: the autumn counterpart of this movement has not been recorded, and it is also uncertain whether it is English or Continental birds that participate.

(9) Spring Immigration from Southern Europe.—This movement is the counterpart of the southward movements mentioned under (4), (5), and (6), but it is very inconspicuous. It occurs in the latter half of March.

(9a) Spring Return to Ireland.—From late February to early April lapwings are recorded crossing from the south of England in a north-westerly direction to the south-east of Ireland, although no corresponding south-easterly migrations have been noted in either autumn or spring. It will be remarked that lapwings cross the Irish Channel at the end of February in two opposing directions (cf. (9)).

(10 and 11) Passage and Emigration to North-Western Europe.—This combined movement begins at the end of February or the beginning of March, and lasts till the middle of April, after which only stragglers are noted on migration. The movements affect both coasts of Great Britain and also the Northern Isles; a certain amount of overland crossing also takes place.

(12) (Emigration to the East).—A counterpart of (3) and (7) doubtless exists, but has not yet been recorded.

Little can be added to this statement from other sources of information. A point it leaves unsettled is the extent to which British and Continental-bred birds respectively participate in the southward emigratory movements. Bird-marking may in time provide an answer to the question: a few interesting records are already available, and may be briefly cited. The following are the dates and localities of the subsequent recovery of lapwings marked as young in the north-east of Scotland (Aberdeenshire and Kincardineshire) in the summer of 1910 (cf. Thomson, British Birds, vol. v. p. 99; etc.):—

About 18 Nov. 1910, Thurles, Co. Tipperary, Ireland.
About 22 Nov. 1910, Frenchpark, Co. Roscommon, Ireland.
29 Dec. 1910, Elvas, Alemtejo, Southern Portugal.
About 5 Feb. 1911, Mitchelstown, Co. Cork, Ireland.
13 Feb. 1911, Croagh, Co. Limerick, Ireland.
About 1 Jan. 1912, Grangemore, Co. Roscommon, Ireland.
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We may give two further records of lapwings marked as young in Stirlingshire (cf. Witherby, British Birds, vol. iii. p. 251, and vol. iv. p. 336):—

(Marked 1909) 17 Nov. 1909, Aranjuzon, Basses Pyrénées, France.
(Marked 1910) 28 Feb. 1911, Gouran, Co. Kilkenny, Ireland.

As regards habits: the lapwing is notably gregarious, and the migratory flocks are sometimes of immense size. The majority of the movements are executed at night, although diurnal migration also occurs, but the species is seldom recorded among the victims of the lighthouse lanterns. [A. L. T.]

4. Nest and Eggs.—The nest is placed on open ground, whether pasture, ploughland, moor, or marsh, and is generally on slightly elevated ground rather than in the depressions. As a rule it is a saucer-like hollow in the ground, scantily lined with a few bits of bent, though some nests are much better lined than others. (Pl. LII.) Generally other ‘false nests’ are to be found close at hand, which are apparently the work of the cock bird (see Saunders, Manual, p. 556; S. E. Brock, Zoologist, 1911, p. 296). The eggs are normally 4, but there seems to be no doubt that 5 are occasionally laid by one hen, and they are generally deposited on alternate days. They do not vary much as a rule in appearance, being pyriform in shape, and stone colour to olive brownish in ground-colour, more or less thickly spotted and blotched with black, sometimes showing ashy shellmarks. Occasionally eggs are found with a band of greenish more or less clearly defined, and some eggs are greenish blue, very sparingly marked. A rare and very beautiful variety has brownish red markings on a warm ground. (Pl. L.) Average size of 66 eggs, 1·83×1·31 in. [46·7×33·4 mm.]. Incubation is performed by both sexes (Farren and others), but probably the greater part of the work is undertaken by the hen. J. v. Wangelin (Naumann, Vögel Mitteleuropas) asserts that the male takes no part, but this appears to be incorrect. Naumann gives the period as 16 days, obviously an error, as H. S. Gladstone estimates it at 26 days, and W. Evans found that the young were hatched out on the 25th, 26th, and 27th days (Ibis, 1891, p. 80). The first eggs are laid towards the end of March, but frequently not till the beginning of April, and one hen will lay as many as twenty eggs in a season if persistently robbed, so that under these circumstances fresh eggs may be found in June and even in July, but the lapwing is single-brooded. [F. C. R. J.]

5. Food.—Chiefly worms, slugs, snails, insects of various kinds—especially beetles—and their larvae and pupae. And on the coast various molluscs and crustaceans. Fragments of sea-weed (Patten, Aquatic Birds, p. 238). Mr. J. E.
Harting examined the stomachs of many birds, and found that those from grassland on sandy soil had fed chiefly on beetles; while in the stomachs of those from downland where the soil was chalky, fragments of small snails, *Helix virgata* and *H. caperata*, were found (*Ibid.*, p. 238). Swallows particles of grit. The young are attended by both parents, and assisted by them in their search for food, which consists chiefly of insects and their larvae, small worms, spiders, and tiny molluscs. [w. f.]

The following species and subspecies are described in the supplementary chapter on "Rare Birds":—

Caspian-plover, *Aegialitis asiatica* (Pallas).
Little ringed-plover, *Aegialitis dubia* (Scopoli) [*Aegialitis curonica* (Gmelin)].
Eastern golden-plover, *Charadrius dominicus fulvus* Gmelin; and
American golden-plover, *Charadrius dominicus dominicus* P. S. Müller.
Although never very numerous as a breeding species in this country, the dotterel has decreased in numbers so considerably during the last half-century or so, that it is now one of the very rarest of our nesting Waders. This appears to be due not so much to persecution in its nesting-haunts—although, being a rare bird, its eggs have always been much sought after—as to the fact that great numbers used to be killed on the spring migration. Apparently the British nesting birds do not follow a coast-line on migration, but pass along the eastern and midland counties to their breeding-haunts on the hills of the north of England and Scotland. They have well-known halting-places where they stay for a few days, feeding and resting before continuing their northward journey. These resting-places extend from Sussex and Berkshire to Wiltshire, but not farther west. One of the most famous localities in former years was the line of low chalk hills running from the borders of Hertfordshire and Essex through East Cambridgeshire, bordering the fen district to the brecklands of Suffolk and Norfolk. There are others in Lincolnshire, Yorkshire, Derbyshire, and farther north.

To such localities, regularly in the beginning of May, the dotterel came in "trips," i.e. small parties of from five to twenty or more birds, and although the earliest arrivals passed on after a few days, others took their place, and for about a fortnight they might be found in considerable numbers scattered over the arable land and chalk-downs. Being at this time very tame and fearless, they fell easy victims to the fowlers, who took large numbers in nets, which were spread much after the manner of the nets used by birdcatchers at the present day. Dotterel were greatly esteemed for the table,
selling at as much as six and seven shillings a couple; even a modest proportion of that amount which would fall to the share of the fowlers would have been sufficient inducement for them to kill as many as possible during the short season.

Their feathers were largely in demand for making artificial flies for fishing, and probably as many were killed for this purpose as for the market. They were very regular in their arrival at these resting-places, so much so that in different localities the 9th, 10th, or 12th of May was known as "dotterel day." And on these dates they were eagerly awaited. They were called dotterel, and morinellus, because of their tameness or indifference, which was so marked as to be regarded as foolishness. It was a poor reward for their lack of fear of man, to be christened fools first and then killed. They have either learnt a little wisdom since, and altered their route of migration, or more probably the race that visited this country paid the penalty of foolishness by being all but exterminated, as so few come now to the old localities that they pass almost unnoticed.

Had the "Wild Birds Protection Act" and the "close" season come a little earlier, it might have made all the difference to the dotterel as a nesting species in this country. Previous to the Act there were always dotterel in Cambridge market in May; even in the early years of the close season I have seen them exposed for sale, but as it was gradually made plain to game-dealers that the Act really made it illegal to handle even "ordinary wild birds" during the close season, they were no longer exposed, although they were still occasionally brought to market and sent to certain old-fashioned customers, with whom the fashion of eating dotterel in May died hard, just as the fashion of eating plovers' eggs is dying hard at the present day.

The history of the dotterel in this country goes back to the sixteenth century, and Yarrell quotes some quaint old descriptions of the methods of the fowlers in taking them. There was a curious supposition that the birds imitated the actions of the fowlers, and that this habit assisted in their capture. Dr. Key sent to Gesner a description,
which is cited in his *Historiae Animalium*, lib. iii. p. 615 (1585), and is rendered by Willughby as follows: "It is taken in the night-time by the light of a candle by imitating the gesture of the Fowler: For if he stretches out an Arm, that also stretches out a Wing; if he a Foot, that likewise a Foot: In brief, whatever the Fowler doth, the same doth the Bird; and so being intent upon men's gestures it is deceived, and covered with the Net spread for it." No doubt the dotterel stretch out their wings and legs—not in imitation of the fowlers, but as birds generally do when disturbed from a period of rest, as opined by a gentleman of Norfolk, whose account of dotterel netting given to Willughby's "very good friend Mr. Peter Dent of Cambridge," includes the following: "The Birds being awakened do often stretch themselves, putting out a Wing or a Leg, and in imitation of these, the men that drive them thrust out an Arm or a Leg for fashion sake, to comply with an old custom."  

The history of the dotterel is, however, by no means entirely of the past, and although they come in such small numbers as generally to escape notice, they are occasionally recorded as being seen about the old resting-places in early spring. Dr. Ticehurst considers it doubtful whether the numbers that now use the route through Kent are "more than can be counted on the fingers of two hands." A few, however, are regularly observed, and these, he thinks, are probably part of the actual British breeding stock.  

A trip of eighteen birds was seen by Mr. Aplin in Oxfordshire on April 27, 1892, and he wrote to the *Field* an interesting account of their habits. They never once, while under observation, moved from a fifteen acre field of young barley. They were tame, allowing as near an approach as thirty yards. Nearer than that the birds began to run very fast—Mr. Aplin described them as quicker runners than any plover he knew,—and if pressed they flew up with sharp whistles, circled round, and settled farther off. They fed in "loose order" with the usual plover-like action, running a few steps and then stopping abruptly to pick up something. They stood

1 Willughby, *Ornithology*, p. 309.  
high on the leg, but ran in a crouching attitude. They resembled the golden-plover on the wing in shape and size, flying and wheeling beautifully together. The call-note Mr. Aplin described as a fairly soft rather twittering whistle, "wit-e-wee, wit-e-wee, wit-e-wee," not so mellow as that of the golden-plover, but still very sweet. When tired of being repeatedly put up, they at last rose high in the air and went off in a north-easterly direction, "the usual Wader spring route."  

Writing in 1885 on the migration of the dotterel, Mr. John Watson, of Kendal, states that recently made records add nothing, but confirm what has previously been known, viz. that they arrive in this country towards the end of April and early in May. After recruiting for a time on the east coast marshes, they strike inland for the ranges of hills forming the backbone of the six northern counties, and passing along this chain of hills remain to breed on some of them.  

With regard to the above reference to the dotterel frequenting marshes on the east coast, there was a long controversy in the Field in 1887 as to whether the dotterel was ever found in marshes. It arose out of a letter from Mr. F. Boyes, questioning the correctness of Howard Saunders' statement that on the spring migration, dotterel, after resting a few days on the chalk-wolds, "descend to the marshes on the Lincoln and Yorkshire coasts, and remain there till about the end of the third week in May, when they leave for their breeding-grounds."  

It was chiefly a difference of opinion—one might almost say a quibble—as to what is implied by "marsh." Mr. Boyes took it to mean a wet swamp, which was taking an unnecessarily extreme view, and it was made quite clear by the various correspondents of the Field that dotterel certainly do frequent marshes, such as the drier salt-marshes, Romney marsh in Kent, and the "mosses" in the estuary near the mouth of the Ribble in Lancashire.  

The birds referred to by Howard Saunders as remaining in Lincoln and Yorkshire till the end of the third week in May are

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1 Field, 1892, vol. lxxix. p. 605.
probably on their way to breeding-grounds outside the British Isles, as by that time most of our home birds are settled down; and although egg laying does not become general until June, yet eggs have been found, though exceptionally, from about May 23rd. The number of birds that now nest on the Cumberland hills and other parts of the Lake District is undoubtedly very small, but in Scotland there may be more than is generally supposed. The nesting-places are seldom at a less altitude than a thousand feet, and generally considerably more, varying from 2000 to 4000 feet. Heysham, whose account of their nesting-habits on the Cumberland hills, which first appeared in the *Magazine of Natural History*, ii. p. 295, and has been quoted in most of the histories of British birds published since, stated that "the most favourite breeding-haunts of these birds are always near to or on the summit of the highest mountains, particularly those that are densely covered with the woolly fringe-moss, *Trichostomum lanuginosum*." The Rev. H. A. Macpherson, however, says they do not select the summits of the highest mountains, nor do they lay where the fringe-moss grows, but upon short dense grass a little below the summit. The latter agrees with the observations of others who have visited the nesting-places of the dotterel in Scotland. The majority breed on barren slopes and plateaus just below the summits of the mountains.

Although Heysham's observations were made as long ago as 1833 to 1835, very little in the way of fresh information on the habits of the species has been added since. Observation is naturally attended with considerable difficulty, owing to the remoteness of its nesting-places, and even if these are visited, the scarcity of the species renders it a matter of uncertainty as to whether the birds will be met with.

Nothing appears to have been recorded relating to the period of courtship, or as to whether the birds have paired before their arrival on the nesting-grounds. The nest is a very slight cavity in the ground, and is very scantily lined. It has been stated that the nest contains

1 *Birds of Cumberland*, p. 133.
no lining whatever, and that the hollow is simply pressed down, not scraped out.\(^1\) Nests would appear, however, to vary in this respect, as two found in one day in Scotland were “lined with a plentiful supply of red cranberry leaves,”\(^2\) which must have been brought from some distance. It is not certain whether the dotterel makes additional scrapes or “false nests.” The finding of one has been recorded,\(^3\) which in itself is hardly sufficient on which to make a general statement. Mr. G. G. Blackwood, who has spent much time watching dotterel in the nesting season, informs me (\textit{in litt.}) that he has never found a “false nest,” but he adds “the actual nest is so slight that a false one would be very easily overlooked.”

The dotterel lays three eggs, and, as is usually the case when a species of the Wader group lays less than four, these are less acutely pyriform than the common type of the family. The clutch seldom—probably never—exceeds three in this country, but four eggs were found in a nest by Dr. Walter in the Taimyr Peninsula.\(^4\) According to Heysham, the dotterel is by no means solitary in the nesting season, a few pairs generally associating together, but the Rev. H. H. Slater, who visited their haunts in Northern Europe, states that two nests are rarely within a mile of each other.\(^5\) The latter is almost certainly the case in Great Britain at the present time, whatever it may have been in Heysham’s time. The Rev. H. H. Slater found two males incubating during the day, and thought it probable that they do so almost entirely, the females merely relieving the males when the latter leave to feed.\(^6\) Gloger also found the male incubating,\(^7\) and Mr. Blackwood thinks that the female bears no share in the duty. He adds, however, that it is not at all easy to distinguish one sex from the other, in spite of the assertion that the female is the brighter of the two. There is no doubt a good deal of individual variation, and I do not think that the full breeding plumage is assumed by year-old birds,

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\(^3\) J. A. Harvie-Brown, \textit{op. cit.}  
\(^4\) \textit{Ibis}, 1904, p. 229.  
\(^5\) Ibid.  
\(^6\) \textit{British Birds, their Nests and Eggs}, v. p. 60.  
\(^7\) Naumann, \textit{Vögel Mitteleuropas}, viii. p. 50.
therefore an old male mated with a young female might look much alike. It is also doubtful whether the full breeding plumage is assumed by all the British-breeding birds. The few birds I have dissected showed a very decided advantage both in size and colour in favour of the female. With regard to the incubation period, Heysham gave it as 18 to 20 days, and a similar time—probably copied from Heysham—is given by Naumann. Judging by the average time taken by other species of Waders, it is probably longer than twenty days. Until the young are hatched, the old birds are shy and retiring, leaving the nest, as a rule, while an intruder is still a long way off; but some individuals sit fairly close, and sometimes a bird shows unconcern for its own safety when its nest is discovered. Heysham stated that they are very silent during incubation, although when the young are hatched they fly to and fro over the head of an intruder, uttering an alarm-note. He related of three or four pairs observed on Robinson on the 3rd of July that they were very tame, allowing a near approach without showing any symptoms of alarm. "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." One bird, put off its eggs, "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."¹ This habit would appear to be quite usual, and has been several times recorded by more recent observers. Mr. A. Buxton, who found dotterel nesting on a moss-covered plateau on a hill in Scotland in 1906, thus describes the action of a bird when put off the nest: "She put her bill on the moss, spread and stiffened her wing and tail feathers so that their tips touched the ground, and then proceeded to balance herself on her throat, squeaking all the time and kicking out her legs in the air behind her." This took place while Mr. Buxton

¹ Magazine of Natural History, ii. p. 295.
was quite near. She then stood up, and on his walking up to her, "she fluttered away with wings and tail spread, just out of reach, for 30 yards, and then shut herself up like an umbrella, and walked to the top of a mound and stood quietly watching." Mr. Buxton and his companion then lay down quite near, and watched her, as she, after a few sidelong glances, ran back to the eggs and settled on them immediately. When on the nest the bird was heard to utter a low note "like a meadow-pipit squeaking very softly." It allowed itself to be almost touched before moving from the nest, and then went through the same performance as before. It was apparently taken for granted that this bird was a female. Before the nest was discovered, its mate was seen flying in a large circle, uttering a monotonous metallic whistle, "peek-peek-peek," which was believed to be its love-song.\footnote{Field, 1906, vol. cviii. p. 2.}

Another observer described a dotterel as approaching its nest very circuitously, cowering and doubling in and out among stones and mounds of moss. When put from the nest it ran straight away. The same observer wrote: "I know of no bird that seems to lose itself in its environment more completely than the dotterel, unless it is the Kentish-plover, on the flint and shingle of the beach." He also noticed that the bird was more indistinct when running away, showing a back view, than when head on.\footnote{Ibid., 1902, vol. xcix. p. 942.}

With regard to the notes of the dotterel, it is difficult to reconcile the various renderings. The above "peek-peek-peek," and Mr. Aplin's "wit-e-nee, wit-e-nee, wit-e-nee" (ante, p. 334), may be the same note. Mr. Blackwood (\textit{in litt.}) describes the commonest call by breeding birds, and also by birds on passage, as resembling the regular creak of an unoiled wheel-barrow. This would agree with the "peek-peek." Turning to Naumann, we get an entirely different impression. He describes it as somewhat softer than that of the golden-plover, a pleasant "drrrr," in which can be heard the $\ddot{u}$, so that it becomes "drrii" or "dïrr." And he states that the birds can be attracted by this note made with
a whistle. Another note he renders "düt, düt, düt, düt," from which note the bird is known as düitchen. A dotterel that was put off its nest by Gloger uttered a soft pleasant sounding trill, "sisihiriri."  

Gloger found the dotterel nesting on barren mountain-tops 4000 feet high, on the borders of South Germany between Bohemia and Silesia, but there it has now become very rare. Its nesting range extends from North Britain across Northern Europe and Asia to the Pacific. It has been found as far north as Novaya Zemlya, and at 74° N. lat. in the Taimyr Peninsula. It winters in large numbers in Palestine and North Africa, but apparently not much farther south. (For details see "Classified Notes.")  

The autumn migration of old and young birds generally takes place in September, but they have not been so regularly observed at this time on the chalk-wolds as in the spring. They probably keep more to the coast-line. The autumn passage is generally well over by the end of October, but there is a record of one bird shot out of a flock of one hundred or more on November 29, 1905, on a tidal estuary in Donegal. The birds were at first mistaken for golden-plover. The fact of one being shot should leave no doubt as to their identity, otherwise the lateness of the date, and the fact that the species has seldom been observed in Ireland, might have allowed a reasonable doubt as to the correctness of the identification. Large numbers have been recorded as passing over Heligoland in the end of August and early in September.  

1 Naumann, Vögel Mitteleuropas, viii. p. 50.  
2 Ibid.  
THE RINGED-PLOVERS

[W. Farren]

Of the two species of this group of plovers which nest in the British Isles, one, the common ringed-plover, is resident on our coasts during the whole year, and is one of the commonest and prettiest of our shore birds; while the other, the Kentish-plover, is a summer migrant, rare and extremely local, nesting chiefly on the pebble beach at Dungeness in Kent, and more rarely in one or two other localities in Kent and Sussex.

The ringed-plover is common throughout the year on the coasts all round the British Isles, diminishing in number somewhat in winter in the most northern parts. It is resident on suitable coasts in most parts of the Continent, and is a summer visitor to Greenland and other Arctic localities. On the other hand, the range of the Kentish-plover is considerably more southern. The British localities mentioned above are, however, not its most northern limit, as it breeds in South Sweden and Denmark. It is, however, more numerous farther south, and is resident on the shores of the Mediterranean, in South-western Europe, North Africa, and the adjacent groups of islands. It is more partial to the shores of inland lakes and rivers than is the ringed-plover. In winter both species have been found as far south as Damara Land in Cape Colony. The Kentish-plover also frequents many parts of Asia down to India and the Malay Peninsula. A small race of the ringed-plover occurs in Central Asia and also Northern Africa, moving down to the Cape in winter. This small race visits the Norfolk and Kent coasts on the spring migration, but although it was thought by Howard Saunders to breed occasionally in the latter county, Dr. Ticehurst has never been able to identify it as doing so.

1 Howard Saunders, Manual of British Birds, p. 539.
Partial as is the ringed-plover to the seashore, in the breeding season it resorts in small numbers to certain inland localities, such as the shores of lakes and the shingle islands in rivers. It also breeds in fair numbers in the Breck district of Suffolk and Norfolk. Here it nests on the more flint-covered parts of the warrens, and also on the sandy fields. It arrives in the Breck district in March, and commences to nest almost at once, eggs being frequently found in the first week in April, and I have seen the young hatched out on the 23rd of that month. The date of the commencement of egg-laying may vary in different localities. Probably the inland-breeding birds start earlier than those on the shore. According to the observations of Mr. J. Hepburn, egg-laying commences on the North Kent coast in the first week of May.¹ But the same observer found nestlings on the beach at Dungeness on May 10. The eggs from which these were hatched must have been laid about the middle of April. I do not think that it is by any means the rule that more than one brood is reared in a season. I have found young ringed-plovers hardly able to fly, and with the down still on their heads and backs, on the Norfolk coast in August and September, but such late broods are probably due to the first nests having been destroyed. Stevenson thought that some of the ringed-plovers which arrive from the south with knots and other Waders at Breydon in mid-May, stay and breed with us, and account for the late broods.²

The Kentish-plover generally arrives on the Kent coast about the middle of April, although in mild seasons it occasionally appears at the end of March. The few weeks prior to the nesting season are spent in flocks on the sandy shore, with occasional visits to the marshes.³ In May they resort to the shingle beach for nesting purposes, laying their eggs in a slight depression, either natural or formed by themselves. Like all Waders, both species seldom depart from their normal number of eggs in a clutch. I have found five eggs

in a nest of the ringed-plover, and in May 1911 I saw a clutch of four Kentish-plover's eggs in the marismas of Southern Spain. The last-named species normally lays three eggs, and—following a general rule when any of the Limicolae depart from the traditional number of four eggs—these are less pyriform than the usual type of the family, seldom showing a sign of constriction towards the small end. They differ also from those of the ringed-plover in having markings of a peculiar scrawly type. In this country laying usually commences after the first week in May, but it may be earlier in favourable seasons. A nest of eggs was found on April 25, 1902, and another on May 5.  

Both species have been described as occasionally arranging the eggs with the small end down, embedded in the sand. Mr. Jourdain stated that eggs of the Kentish-plover found abroad, and laid on sand, were thus placed.  

The nests of both species vary according to the nature of the ground. I have seen the eggs of the Kentish-plover on Dungeness beach among pebbles as big or bigger than the eggs, and here the hollow in which they were laid may have been a natural one, or some of the stones may have been displaced by the bird. Other nests, among smaller shingle where much fine wiry grass was growing, were undoubtedly hollows formed by the bird. Some contained a few pieces of dead grass by way of lining. The latter, according to Mr. Dombrain, is the most usual situation. He states also that the first egg is laid on the shingle, and the nest is formed as the clutch is completed, and when incubation is in progress. He also found eggs laid on a heap of seaweed. Mr. Hepburn found a nest "thickly lined with short, broken pieces of rotten twigs and sticks." Baron von Droste Hülshoff found the Kentish-plover common in the Island of Borkum. The nests were on thickly overgrown dunes, as well as on bare ground. They were often placed in the middle of a bunch of

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3 Ibid., p. 405.  
4 Ibid., 1880, pp. 138, 139.  
5 Ibid., 1903, p. 217.
wild oats or amidst willow shoots, and lined with a few bents or fine roots. Some of the nests were not more than ten paces apart. The pairs live in amity, and join in crying when disturbed.¹ In the marismas of Southern Spain, where the Kentish-plover is common, the eggs are laid in a very slight hollow on the mud, which may be soft on the edge of the flooded parts, or hard and sunbaked.

The nest of the ringed-plover is a better defined hollow, and varies considerably in the nature and quantity of the lining. Most frequently this consists of small stones and broken shells. But almost any convenient material may be utilised, pieces of driftwood, a little dry grass or other vegetable matter, and occasionally rabbit droppings.² Colonel H. W. Feilden found four nests at Wells in Norfolk, each substantially made of the green leaves and stems of Atriplex littoralis. These nests were on mud in the salt-marsh; others, not a quarter of a mile away, on the sand and shingle, were lined with stones and shells in the more usual way.³ A very interesting nest was described by Dr. Kelso in the Zoologist. It was found on May 26, 1900, in a field, and was like a miniature lapwing's nest, very substantially built with dry bents. It contained three eggs, which were taken, as the field was about to be harrowed. On June 14th an exactly similar nest was found a short distance from the site of the first, on a piece of rough grass, evidently the work of the same pair of birds. A reproduction of a photograph of this nest accompanied the description, and shows the nest to have been a remarkable structure for the species.⁴ Out of nineteen nests found by Mr. J. Hepburn in Kent, one was at the base of a river wall “separated by about one hundred yards of salt-marsh from the beach, the nest-hollow being quite thickly lined with the leaves of the sea-heath growing on the saltings.” Another was “by the side of a road made up of cinders and household refuse, running across one of the saltings.” This nest “was paved entirely with small pieces of earthenware, evidently picked off the track.”

² Zoologist, 1891, p. 44.
³ Ibid., 1889, p. 263.
⁴ Ibid., 1902, p. 28.
remaining nests were normal beach nests, except that five of them were "under the shelter of little bushes of sea-heath—which grows on the beach in small clumps to the height of about twelve inches—the nest-hollow being so much under the edge of the bush as to be partially concealed by its stems." ¹

A photograph by Dr. Heatherley of a nest similarly placed on the beach at Wells was reproduced in the Zoologist, 1904, p. 365. Dr. Kelso has found nests hidden among coarse shore grass, and also in fields of sprouting wheat, peas, etc. Before the eggs in these nests have hatched, they have become hidden by the growth of the crops. ²

The nest cavity is frequently formed so that a large stone or shell comes on the edge. By far the commonest form of nest has a lining or paving of small stones of uniform size. In the Breck district of Norfolk and Suffolk I have never seen a nest without this form of lining. Here the cavity must always be made in sandy soil, for although in most parts there are many flints both on the surface and mixed with the soil, there is nothing like the shingle of the seashore. These nests on the warrens of the Breck are far easier to see if without eggs. The formal saucer-shaped depression, with its neat paving of small stones, is quite conspicuous, even at a distance; but the four eggs, arranged with their small ends towards the centre, just fit the hollow, and their irregular dark markings on light stone ground-colour, break up the formality of outline, and cause them to assimilate in a remarkable degree with their surroundings. The ringed-plover forms several "false nests" or additional scrapes, and these, although unlined, are also more conspicuous than nests with eggs. I have found this habit common in the Breck district, and other observers have recorded it for the shore. ³

It has been suggested by Dr. Kelso ⁴ that the ringed-plover is in a transitional stage with regard to nest-building. The transition is

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¹ Zoologist, 1904, pp. 172-3. ² Ibid., 1904, p. 265. ³ Ibid., 1889, p. 263, etc. ⁴ Ibid., 1903, p. 193.
presumably indicated by the fact that a certain proportion of the birds line their nests with vegetable material. But this habit of using material other than the small stones and shells usually found in shore nests is almost entirely dependent on the nature of the ground and surroundings. It would probably be more correct to say that the variation indicates the lines along which the evolution of nest-building has taken place, and also some of the conditions governing the development. The normal shore nest of the ringed-plover, and other shore-nesting birds such as Terns, may be presumed to approach most nearly to the primitive type. In such birds, abandonment of sand or shingle for ground more liable to dampness and cold, is generally accompanied by a marked tendency to more elaborate and substantial nest-building. There is no real evidence to indicate that the ringed-plover is more prone nowadays than formerly to nesting away from the shore, and unless such evidence can be produced, or that a change is taking place in nest-building, irrespective of habitat, it is premature to speak of the ringed-plover in this respect as in a transitional state.

These small plovers have at all times a very graceful flight. In the spring at pairing time it is particularly so. Ringed-plovers may be seen in pairs skimming low over the ground, circling to a fair height, and descending again like a flash, almost touching the ground as they do so. They do not follow each other, but each describes similar evolutions, overlapping and crossing the others line of flight. Their long, pointed wings, showing much white, give a fictitious impression of size; and as they alight on the ground after skimming a short distance with curved drooping wings, they seem suddenly to vanish from sight as they touch ground, for the white in the plumage is hidden by the closed wings; in place of the long-winged graceful flyer, is a little plump-shaped grey bird, very difficult to see as it runs with short quick steps over the sand.

The ringed-plover\(^1\) has a very pretty way of raising its wings

\(^1\) This action is, however, not peculiar to the one species.
straight up, and holding them so for a second or two; an action that may take place while it stands or just as it alights. Each pair of birds is nearly sure to make its nest on the ground beneath where it is seen taking the circling flights; in fact, the birds would appear to choose the spot first, and then spend the time prior to egg-laying in their aerial play.

Mr. Selous describes a formal courting action on the ground, in which the male approached the female with head and neck drawn up above the usual height. He advanced a few steps at a time, and in the pauses he moved his legs in a rapid vibratory manner, quivering with excitement as he did so.\(^1\) This movement of the legs—a sort of rapid "marking time"—characterises the courting actions of other Waders; for instance, the redshank.

According to Naumann, where several pairs of ringed-plovers nest together the males fight "like common fowls."\(^2\) This statement is supported by notes sent to Dr. Heatherley by Cringle, the bird-watcher at Wells in Norfolk, who says: "Pairing begins early in April, when the males can be seen fighting for the possession of the females. They fight very fiercely, rushing at each other with their beaks down and feathers bristling up. Sometimes four or five birds will be mixed up in one fight."\(^3\) The fighting is not limited to the pairing time, for Dr. Heatherley observed that where the nests were fairly thick on the beach at Wells, and the simultaneous hatching out of a number of clutches produced a sudden increase in the number of chicks on the sand, there was constant fighting on the part of the adults to maintain "spheres of influence." "In fighting, the old birds lowered their heads and raised the feathers of their backs." There were occasional mêlées in which four birds took part. Two birds had their beaks interlocked, "and one was banging the other down on the sand."\(^4\)

The Kentish-plover, in the nesting season, is described by the Rev. H. H. Slater as performing aerial evolutions similar to those of

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\(^1\) Bird Watching, p. 22.
\(^2\) Vogel Mitteleurope, viii. p. 64.
\(^3\) Ibid., 1908, p. 366.
\(^4\) Ibid., 1908, p. 366.
a drumming snipe, accompanied by a sound which is undoubtedly vocal.\(^1\) A similar description is given by Baron von Droste Hülshoff, who says: “It flies in a peculiar bat-like wavering manner, the wings fully extended, the body thrown now on the one and now on the other side, and it almost describes a circle in its flight, uttering as it flies a peculiar note, which resembles the syllables ‘trit, tritritritirirr.’”\(^2\)

Both sexes share in the incubation of the eggs, although it has been stated that the male alone of the Kentish-plover undertakes the task of incubation.\(^3\) The statement, however, is refuted by pictorial evidence as well as by observation. I have photographed a female standing on the edge of her nest, and in Dr. Ticehurst’s *Birds of Kent* the frontispiece is a very pretty photograph, showing a female on the nest and a male sitting by her side. Moreover, it is stated by Baron von Droste Hülshoff that the male utters an alarm-note—“flüit”—at which the female creeps from the nest, runs for some distance, and then flies circling round, calling “pit-pit.”

Of the ringed-plover Dr. Heatherley states that “they seem to relieve one another at sitting every half-hour.”\(^4\) I have obtained photographs of male and female sitting. On one occasion the male was photographed, and left the nest when the exposure was made; within a quarter of an hour the female came on to the nest, and I secured a photograph of her. The difference in plumage, especially the extent of black on the head and neck, was very pronounced in these two birds, and shows very clearly in the photographs.

When a ringed-plover is put off its eggs, it runs for some distance before taking flight. If the nest is on the seashore it is generally on a ridge a little above high-water mark, and the bird runs from the nest, with lowered head, down to the edge of the water, where it is joined by its mate, and the two run to and fro, frequently giving utterance to a low plaintive whistle. Mr. Boraston says that when an

\(^1\) *British Birds, their Nests and Eggs*, v. p. 74.  
\(^3\) *Zoologist*, 1896, p. 412.  
\(^4\) *Zoologist*, 1908, p. 335.
intruder approaches the nest, the female is warned by the double-noted alarm-call of the male—"tuli-tuli."\(^1\) The mate of a sitting-bird is generally near at hand, but I do not think a warning-note is really necessary, at any rate one is not always given.

From my own observations, I think that it very probably depends upon which bird is sitting. If the female is sitting, the male gives an alarm, but if the male is sitting, the female is less likely to stand on guard and sound a warning cry. It has been stated of the Kentish-plover that it "seldom makes any demonstration in the way of a call-note; it creeps away through the dry beach grass, which it resembles so closely in colour."\(^2\) The species may certainly be described as quieter than the ringed-plover, but I have heard them uttering their alarm-notes very soon after leaving the nest; and Mr. Dombrain states that "if put off eggs, the bird retires a short distance, utters a plaintive whistle, runs a few yards, then rises on wing for a very short spell, and drops and runs again."\(^3\)

Both species are very cautious when returning to the nest. They approach in a series of short runs and halts, and at each halt give a quaint little bob of the head. Often when one appears to be about to go on to the nest it will run straight past it, and then work back again. The ringed-plover, if there is any cause for alarm—such as a hidden camera near the nest—frequently gives sharp utterance to the alarm-note "tuli," or, as better expressed by Naumann, "tül" or "trül." A ringed-plover when put off its nest will often, after running a short distance, give a sharp call, fly up and circle around its disturber, and then alight on the ground again. It will now be joined by its mate, and the two birds, always keeping a direction away from the nest, will run to and fro, sometimes venturing quite close to the intruder, and then running off very quickly in an opposite direction—frequently uttering their short sweet call—apparently endeavouring to deceive as to the locality of the nest.

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\(^1\) *Birds by Land and Sea,* p. 184.
\(^2\) *Zoologist,* 1896, p. 412.
\(^3\) *Ibid.,* 1880, p. 138.
When the young are hatched there is no question about the attempts of both species to lure away an intruder. Their method of procedure is similar. The adult gives a warning-note, and the young birds crouch close on the ground. The behaviour of the old birds depends now on how near the enemy approaches their crouching chicks. If not too near they content themselves by running swiftly about, often uttering a shrill whistle. Occasionally one will fly up and around, and then alighting a few yards from one's feet, run off in a direction opposite to where the chicks are crouching. If, however, one goes near the nest or handles the young birds, the anxiety of the parents becomes frantic. Flying close up, they will throw themselves breast forwards on to the ground, and with spread tail, and wings turned so as to show a great deal of white, they will shuffle along, uttering the while a pitiful squeaking cry. The female is, as a rule, more demonstrative than the male. The zeal with which the ruse is performed varies with the individual and the circumstances. I have seen a female ringed-plover shuffle along the ground—a confused bundle of white feathers—in a straight line for about fifty yards. If one remains with the chicks, the bird may stop and flutter about on the ground. If one follows her, she is more likely to fly up whistling, circle round, and alight a little distance away.

Whilst occupied in photographing some ringed-plovers, I once witnessed a very pretty episode which had the impress of concerted action. The nest contained one egg and one chick just out of the shell; another chick that had been hatched two or three hours was crouching on the ground about a foot from the nest. (Pl. li., Fig. 3.) The old birds showed much concern while I was making my arrangements, running about, with much whistling, shuffling along the ground, and evidently doing all they could to lure me away. Directly I was out of sight in my hiding-tent, they flew up and settled a few yards from the nest. One gave a call, and immediately the chick that was out of the nest got up and ran towards them. They led it away rapidly, and after waiting some time expecting—in vain—that one of
them would return to the nest, I crept out to fetch back the truant. When I showed myself, the old birds flew off with a warning cry, and search as I would I could not find the chick.

I hid myself again, arranging the tent so that I could see farther afield. The ringed-plovers soon returned to the spot where their chick was hiding, and I saw it run towards its parents, who proceeded to conduct it farther away. Keeping a close eye on it, I suddenly showed myself, saw the chick drop flat, and having marked the spot, easily found it. It had moved more than a hundred yards from the nest. I took it with me into the tent and put it into a safe place. As the remaining youngster was apparently too weak to leave the nest, the old birds now approached readily enough. And now occurred what looked like concerted action, for, while the male ran to the nest and brooded the egg and chick, the female came behind the tent, and shuffled about on the ground, squeaking and flapping a wing, as though intent on attracting attention to herself, while by arrangement her mate attended to the family.

I had a similar experience with a pair of Kentish-plovers, only in this case I was fifty feet away, buried in the shingle. The camera was placed some eight feet from the nest, and I operated the shutter by means of a long pneumatic release. The nest contained two eggs and a recently hatched chick. (Pl. lii., Fig. 1.) The two little plovers commenced by running round the nest in large circles, passing me at first within a few feet, then gradually closing in until but a few yards from the nest. At last the male ran on to the nest and commenced to brood, while the female behind the camera shuffled about on the shingle in an apparently helpless condition.

The Kentish-plover has also been described as flying close around the head of an intruder, giving at each stroke of the wings a sharp whistle, and then dropping as if shot, following this with the injury-feigning demonstration.¹

It would be rash to describe the ringed-plover as more given to

¹ Zoologist, 1908, p. 300.
feigning injury than any other Wader. The frequency with which its performances have been observed and recorded is doubtless due to the fact that it is a common and well-known species. Its demonstrations are plainly for the purpose of diverting attention from the eggs or young, and have, at least, the appearance of being the result of thought and reason. Mr. O. V. Aplin, after describing in vivid terms such a demonstration by some ringed-plovers, says: "Surely there is reasoning power and thinking intelligence here." If the birds are really feigning a broken wing, then I see no other explanation but to attribute to them reasoning power of a high order. But this would necessitate experience of broken wings and a histrionic ability on the part of the birds that it would be nothing short of absurd to attribute to them. I do not deny a consciousness of the efficacy of the act, but the "broken wing" exists only in the imagination—quite excusably—of those who have described it as such. I have witnessed various forms of the habit displayed by different species of ground-nesting birds, and a critical examination has always failed to detect anything that could really be regarded as an actual simulation of a broken wing. The birds appear very helpless, tails are spread, and wings trailed along and flapped, but not as when broken. I can admit a consciousness of deceiving, a pretence of helplessness, but not a knowledge of the movements of a broken wing and the art of imitating it.

I prefer to regard all demonstrations of this kind as instinctive, and as with such instincts there generally exist some imperfect cases, provided by certain species, in which the instinct is in process of development—it is to such species we should turn to learn something of its origin. What I believe to be the true explanation was first made by Mr. Edmund Selous, and was suggested to him by the behaviour of a snipe—a species in which the habit is but very slightly developed, and therefore a suitable one for investigation. Mr. Selous put a snipe off its nest suddenly; it flew up, and then dropped into the grass near the nest, "spun round over it, now here, now there, its

1 Zoologist, 1908, p. 360; Patten, Aquatic Birds, p. 217; Zoologist, 1910, p. 100, etc.
long bill lying along the ground, as though it were the pivot on which it turned, and uttering loud cries all the while. Having done this for a minute or so, it lay, or rather crouched, quite still on the ground, its head and beak lying along it, its neck outstretched, its legs bent under it, with the body rising gradually, till the posterior part, with the tail, which it kept fanned out, was right in the air.”

The bird remained thus for some minutes, and then collected itself and flew off. Mr. Selous saw in the nervous inability of this snipe to take instant flight—and, I think correctly—the origin of the habit under consideration. On two occasions I have had the opportunity of observing similar behaviour by snipe, and under conditions providing evidence—as I hope to prove presently—that in the case of a species in which the instinct may be said to be in an incipient stage, those individuals which act in the way described by Mr. Selous are of an unusually nervous temperament. I may say that I have very often seen snipe leave their nests, and that the two occasions referred to did not represent more than one per cent. I have also watched and photographed several different snipe on their nests, and have always, with the exception of the two birds mentioned above, found them come readily to the nest, and easy to photograph. But these two were so nervous that they ventured to return to their nests only at very long intervals, and then they jumped so suddenly at the sound of the shutter, that except when a very short exposure was given, the photographs were spoiled. I mention this to show that in these birds an unusually nervous disposition accompanied a tendency to display when put off their nests. If further observation could be made on other species which have not developed this habit, it seems very probable that the evidence would provide grounds for regarding the device as an evolutionary outcome of physical disability, arising from protracted periods of incubating. A bird at such a time, suddenly frightened from the nest, and for a brief period incapable of ordinary flight, might by a frenzied fluttering through the

1 Bird Watching, p. 60.
herbage or over the ground save its eggs by diverting attention to itself.

The inability of the individual to take instant flight, and its efforts to overcome the same, have, by diverting the attention of the enemy from the nest, proved a benefit to the species, and become, by natural selection, an instinctive act having various forms. When a pratincole observes an intruder on its nesting-ground, it will prostrate itself on the ground with both wings extended and its head thrown back in a supplicating manner—even when not very near its nest. If we ascribe conscious feigning of a broken wing to the ringed-plover, we might equally well describe the pratincole as entreating the intruder to come no further. It is injudicious to judge the actions of birds by human standards, but, as Mr. Selous argues, "May we not think that an act which in its origin has been of a nervous and, as it were, pathological character, has become, in time, blended with intelligence, and that natural selection has not only picked out those birds who best performed a mechanical action—which, though it sprang merely from mental disturbance, was yet of a beneficial nature—but also those whose intelligence began, after a time, to enable them to see whereto such action tended, and thus consciously to guide and improve it?"  

The young are protected not only by the ruses of their parents, but by their own protective coloration. The young in down of both species are most difficult to see, whether on sand or shingle. They crouch almost as flat on the ground as does the stone-curlew, but show less dependence on the instinct than that species. They do not persist in crouching when handled, but will run off, the brood scattering in different directions. They run very quickly, holding out their little wings to help to balance themselves, but they often fall over stones or depressions in the ground, pick themselves up, and struggle on again in a very comical manner.

Flocking commences directly the young can fly. The inland-

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1 Bird Watching, p. 63.
breeding ringed-plovers then betake themselves to the coast, seldom being seen in their nesting-quarters after mid-August. At first they may be seen in small parties, but as the autumn advances the more northern breeding birds appear, and they gather together into much larger flocks. They mingle freely with flocks of other Waders, such as dunlin, sanderling, and turnstone, more especially when feeding; when in flight they usually keep to themselves. The Kentish-plover is said never to mix with the dunlin flocks except when numbers of ringed-plovers are also amongst them, and to exhibit none of the restlessness and timidity so marked in these other two species. "It will sit dozingly for a long period on a spot where the beach has silted up, and there wait for the tide to reveal new-born things."¹ Both ringed and Kentish-plovers are less active in the middle of the day, especially when the weather is warm. They become very active in the evening, and often at night, unless very dark, when they are seldom heard. The Kentish-plover is exceedingly rapid in its movements. Naumann describes it as the quickest runner and flier of its congener.²

It departs in September, by the end of which month, Dr. Ticehurst states, most have left; and he adds, "The latest observation that I have is of three birds seen on the sands at Littlestone on October 10th, 1907."³

Throughout the winter the ringed-plover may be seen on the shore feeding with other small Waders at low water. They are very partial to the mud-banks at the mouths of large rivers, and also find much food in the form of sand-hoppers and larvae of flies among seaweed and other refuse at high-tide mark. They are exceedingly active and noisy when feeding, running very rapidly, and stopping abruptly to pick up some small object, repeating these little runs and halts something after the manner of a thrush.

In flight the flocks are very beautiful to watch, performing evolutions in which all move together in wonderful unity, the alternate

¹ Zoologist, 1896, p. 412. ² Vogel Mitteleuropas, viii. p. 64. ³ Birds of Kent, p. 423.
flashes of white and grey, as they present first their upper then their under surfaces to view, being most effective. When a flock is scared from its feeding-ground at the edge of the tide, the birds generally fly out to sea in a body, for a short distance, and return often close to the spot where disturbed. In alighting they often swing round in part of a circle, skim lightly over the sand with outstretched wings, and the next instant are running rapidly about in search of food. The flocks are said to frequent one place all the winter if not shot at.

The notes of these plovers may be described as for the most part short, melodious, flute-like, whistling cries. They have been variously expressed by different authors, but the German of Naumann conveys the best idea of the sound. The English “u” in “tuli”—the usual rendering of the alarm-note of the ringed-plover, is misleading; “tooli” expresses it more nearly, but Naumann’s “tül” or “trüll” is far better. The same author gives us other variants of the whistle at ordinary times—“trüi” or “trü.” The pairing note of the male he describes as this note repeated quickly, with an “l” occurring occasionally; “trüi-trüi, trüil-trüil,” the time long at first, and then gradually quickening: he likens it, aptly enough, to the “jodel.” Naumann believes that the female utters this note as well as the male. It is heard most in morning and evening. Besides “tuli,” other English renderings are “chü-e-chü-e,” and “pen-y-et” as the alarm-note when the birds have young.

The notes of the Kentish-plover are less shrill than those of the ringed-plover, and generally consist of one syllable, a flute-like “piu” or “püi,” which, as Naumann states, is not repeated quickly, but at fairly long intervals. It also adds a soft “pit-pit.” The alarm-note is “tior-tior.” The pairing-song is expressed by Naumann as “pütt-pütt pit-pit-pit,” followed by a quick trill. This is quite distinct from any note of the ringed-plover. Baron von Droste Hülshoff expresses the
pairing-song "trit tritritritrirrr." The beauty of the system of expressing bird-notes in words is that, if you are familiar with the note, almost any formula will serve to recall it. If you are not familiar with the note, no formula will convey an idea of the real thing.

The Kentish-plover has been described—by one who knew it well—as a noisy little bird. "They course over the beach all day long uttering their whistling cries. Even the skylarks have caught their plaintive notes, and they produce them amongst their own with startling exactitude." 2

GOLDEN AND GREY-PLOVERS

[W. Farren]

These two handsome plovers have much in common. Their plumage is similarly ornamented with dark mottlings—one on a gold, the other on a silver ground. In the breeding season both don a deep black throat and breast; in general habit they are very similar, but the apparently insignificant difference of a diminutive hind-toe which is present in the grey, but not in the golden-plover, is considered sufficient reason for placing the two in different genera.

In spite of the superior size and the bolder barrings on the back of the grey-plover, and the silvery whiteness of the lighter parts of its upper surface, compared with the yellow of the golden-plover, there is a time when some difficulty may be experienced in distinguishing between them in the field. This is in the autumn, when the young birds of the two species have not acquired that amount of colour contrast that distinguishes them in after life. The yellow on the back of the golden-plover at this stage is less clear, and the white of the grey-plover is tinged with yellow. A small hind-toe, sufficient to form

a generic character, is no help in identification in the field, but the
difference in colour of the axillary plumes, which are black in the
grey and white in the golden-plover, forms a useful guide as to their
identity when flying.

The golden is the more familiar bird. It breeds on many wild
moorlands in the western half and in the north of England, also in
Wales and Ireland, and throughout Scotland and its islands. In
winter it may be seen in large flocks on the seashore, the marshes,
moorlands, and cultivated fields. The grey-plover is but a bird of
passage in spring and autumn, and a fairly numerous winter visitor,
frequenting the sea-coast and adjoining marshes. Its nesting-
quarters lie in the far north. So far as is known, it does not breed
west of the island of Kolguev and the Petchora river. Here it nests
in fair numbers, and also by the Yenisei and on the tundras of
arctic Asia, especially on the Taimyr Peninsula. Its range is
continued across the barren lands north of the Arctic Circle, in
America, to Greenland, where, however, it appears to be rare. In
winter it does not wander so far south in the New World as in the Old;
it has hardly been recorded below Brazil. In the Old World it ranges
from Africa to Australia. On migration it passes down Scandinavia
and Great Britain, and along various routes in the large river valleys
of Central Europe and Asia.

Like all birds that nest in the far north, it is in no hurry to make
the spring passage, timing itself to arrive at its nesting grounds with
the breaking up of the long Arctic winter. The birds which have
passed the winter with us begin to work north towards the end of
April, but it is doubtful if any leave the country until the great north-
ward-bound flocks from southern wintering-places pass along our
coasts late in May, when the birds have already acquired their black
breasts, and their golden cousins have already hatched out many a
brood of downy chicks. I have seen immense flocks of grey-plover
resting and feeding on the steaming marismas of Southern Spain in
the third week of May. A few days before they were, may be, south
of the equator on the African coasts, and a few hence and they will be north of the Arctic Circle. There the nesting season is short and sharp, and before August is far advanced their young families will be taking that first journey southwards, unguided—if the migration investigations have fully penetrated their mysteries—by any birds that have made the journey before.

The golden-plover breeds commonly in the Færøes and also in Iceland, throughout Scandinavia, North Russia, and North Germany. It may breed in East Greenland, as a bird in breeding plumage was shot there in 1871. In the Arctic, its breeding range appears to lie to the west of that of the grey-plover. The two species overlap a little, as Harvie-Brown and Seebohm found the golden-plover nesting on the tundras by the Petchora, and Seebohm found it near the mouth of the Yenisei, but here the eastern golden-plover (Charadrius dominicus fulvus) is far more numerous, and takes the place of our bird in Asia and Alaska. In its turn this is replaced in America by a closely allied race (C. dominicus dominicus). Odd specimens of these two races of the smaller species have found their way to Great Britain. In winter the golden-plover visits Central and Southern Europe and France, and also the northern part of Africa.

As early as February golden-plovers begin to take to the moors, going direct to their old nesting-places—which may be on heather-covered moorlands, grassy hillsides, or in marshy places but little above sea-level—and early in March most of our resident birds have settled down in pairs. As there is a general southward movement in winter, it follows that the breeding birds almost invariably approach their nesting-places from the south, some from overseas, but many from our own southern counties. As late as May there are still flocks of golden-plovers, especially in the northern half of our islands. These are birds that nest in the far north, and whose nesting season is therefore much later. Many a pair of British birds have eggs, and even

1 Yarrell, British Birds, iii. 270.
2 Ibis, 1876, p. 222.
young, before the last of these lingering flocks are away to their northern nesting-quarters.

Of the courting habits of these species but little has been recorded. As with many other shy birds which nest far from the haunts of man, such habits are difficult of observation, and, as a rule, visits to their nesting-places are not made until the season is too far advanced to learn much of their ways during the interesting period preceding egg-laying. The males of both species indulge in what appears to be a nuptial flight and love-song. The golden-plover floats around in circles high up above the nesting-place, occasionally describing a graceful vol-plane to the ground, frequently uttering a warbling song. This song has been described by Mr. Abel Chapman as "a peculiar rippling song or warble, a joyous note of courtship." Naumann renders it "taludl-taludl-taludl-taludl," and states that it is sometimes uttered on the ground, but not often. The song of the grey-plover is less ambitious, and it may be wrong to call it a nuptial song at all. It is certainly associated with the nesting time, and is peculiar to the male. It is described by Harvie-Brown and Seebohm as a treble whistle. The males associate in small parties of three or four whilst the females are sitting; they rise to a great height and dash about in erratic curves, or dive down impetuously, and rapidly rise again; "they then remain almost stationary like a Temminck's stint, raising their wings over the back until they nearly meet, and finally flying with long tern-like sweeps of their wings, utter their musical treble note." The whole proceeding is probably analogous to the piping parties of the oystercatcher—to be described in a later chapter—and somewhat similar displays in other species, in which several birds associate together, and perform actions similar to those peculiar to courtship, at a time when courtship should be a thing of the past.

The golden-plover is shy of its own kind, the nests generally being

1 *Bird-life of the Borders*, p. 28.
3 *Ibis*, 1876, p. 222.
a good distance apart, although often not far from those of the curlew or lapwing. The nest is a scraped hollow, either in a tussock of grass, among heather, or on a bare place. It is lined with a few pieces of dead grass, moss, or any convenient material. The amount of lining depends on the situation; in some nests there is so much as to constitute a well-constructed nest. Like other Waders that breed also on the fells and tundras of the north, it makes use in those localities of the reindeer-lichen.

The nest of the grey-plover is described as a deeper cup than that of the golden; the lining sometimes consists of a few broken twigs and leaves from the surrounding plants, or more usually broken grass and reindeer-lichen, but in such small quantities that it can hardly be regarded as extraneous lining, but simply that which was on the spot when the hollow was formed. Harvie-Brown and Seebohm found the grey-plover nesting on the higher and drier ridges in very boggy ground, while the golden-plover preferred the higher tundras. In general nesting-habits the two species are very similar, the golden being, as a rule, shyer at the nest, but even this depends on circumstances.

On the average the eggs of the grey-plover are decidedly larger than those of the lapwing and slightly bigger than those of the golden-plover, but in shape and character they resemble them, though as a rule the ground-colour tends to rather a colder shade than is usual with the golden-plover, the rather small spots and blotches of deep black being placed upon a stone-coloured or olivaceous buff ground. Average size of 12 eggs, 2.04 x 1.45 in. [52 x 37 mm.].

While it is quite certain that the male assists in incubation, it is not by any means easy to say to what extent. Dr. Heatherley, who watched at a golden-plover's nest in Wales, on and off for several hours a day, from May 12th to June 3rd, never once saw the male; he presumed that the bird he did see was the female. She came readily to the nest whilst he was concealed in a hiding-tent a few

1 Ibis, 1876, p. 222.  2 F. C. R. Jourdain (in litt.).
yards distant, uttering occasionally the single note "tu" or "tui," both on her way to the nest and whilst sitting. He heard afterwards from a keeper that when the young were hatched out, on June 4th, the male appeared, and assisted the female in looking after the brood. The male was easy to distinguish, having much more black on the breast and throat.

On the other hand, four birds shot from the nest by the Rev. H. H. Slater all proved on dissection to be males. Seebohm also records shooting a male from eggs, and in the fourth edition of Yarrell it is stated that "Mr. R. Collett shot one—a male—from four eggs on 14th June 1872 in the valley of the Maalselv, in Norway, the female not being observed." Of the grey-plover one bird shot from the nest in Kolguev was a male, but Mr. Trevor-Battye never found the male brooding. Harvie-Brown and Seebohm shot several females from the nest, but at the first nest they found the bird—shot as it was apparently coming to the nest—was a male.

The relative behaviour of males and females of both species alter as the season advances. When the eggs are first laid, the male stands, silent for the most part—on an eminence at some distance from the nest, while the female is anxious and restless, running backwards and forwards near the nest uttering an alarm-note. As incubation progresses the anxiety of the male increases. He warns his sitting mate of the slightest danger, and flies up noisily calling, whilst the female profits by the diversion thus caused to slip from the nest and run stealthily away. She then flies up and joins the male, and the two fly round the head of the intruder, with constant repetition of their plaintive notes. Occasionally they will alight on the ground, run rapidly to and fro, stopping at intervals and standing very upright, and gaze anxiously at the disturber of their peace. They have a funny way of running sideways, even backwards, in order to keep an

4 Slater, *op. cit.*, v. p. 82.
5 *Ibis*, 1876, p. 222.
6 Icebound on Kolguev, p. 432.
eye on the source of danger. Like lapwings, they will follow an
intruder a long way from the nest—seeing him safely off the ground,
as it were—and then wheeling round fly back to their home.

When the young are hatched the parents are even more solicitous
and noisy, occasionally, when pressed, resorting to the so-called injury-
feigning device.

When disturbed whilst sitting, the golden-plover generally runs
from the nest, warned—as just stated—by an alarm-note from
its mate, who stands on guard on a slight eminence some distance
off. But they do not always behave in the same way. One
may rise straight from the eggs while the intruder is two hundred
yards away, another creeps off and runs stealthily through the
heather, while—but more rarely—a bird may remain on the nest,
and allow itself to be all but trodden on before it goes.\(^1\)
It very likely depends on the sex of the sitting bird. If it is the
female, the male is pretty sure to be on guard and give an alarm, so
that the female has time to leave the nest stealthily. When the male
is sitting the female is less likely to play sentry, and it is fairly well
proved that the sitting males of other species—for instance, the lap-
wing—nearly always fly straight from the nest. It is a point that
would repay careful observation, but it is fraught with much difficulty,
as there is very little sexual difference in plumage throughout the
group.

Mr. Trevor-Battye states of the grey-plover that the male is
exceedingly wild and wary. He sits on a raised point a little distance
from the nest, and warns the female of danger by an alarm-note,
when she runs from the nest and joins him. Mr. Trevor-Battye saw
females "feign lameness," but not males.\(^2\) He does not mention
the curious flight of the males—recorded on page 359—as observed by
Harvie-Brown and Seebohm, who also stated that males as well as
females display in the "injury feigning" habit. In one instance a

\(^1\) Seton-Gordon, *Birds of Loch and Mountain*, p. 68; and Chapman, *Bird-life of the
Borders*, p. 30.

\(^2\) Icebound on Kolguev, p. 432.
male near a nest suddenly ran across a flat grass-covered bog with head down and bill open; he then lay down on his breast and stretched out his wings to their full extent along the ground, remaining so for about half a minute.\(^1\)

Seebohm describes a curious flight of the grey-plover; when it leaves the nest it tosses its wings in the air with an action like that of a tumbler-pigeon.\(^2\) A similar action was observed by Lord Lilford, who further stated that they actually throw somersaults. This was noticed particularly in March 1857 in the Gulf of Arta. It is therefore not confined to the nesting season.\(^3\)

Mr. Trevor-Battye says that the grey-plovers attack the Arctic skuas with much boldness; they “actually seem to hit the skuas, wheeling round them, and then making a point high above, they would drop down like a stone, literally knocking the skuas out of time.”\(^4\)

The incubation period of the golden-plover, ascertained by W. Evans, by eggs hatched in an incubator, as 27 days,\(^5\) would no doubt apply also to naturally hatched eggs. The nest watched by Dr. Heatherley (ante, p. 360) was found on May 10th with four eggs. These hatched out on June 4th, 24 days after discovery, at which time it was thought that the bird had been sitting several days.

The young birds are said to leave the nest as soon as they are hatched, but this statement—made so generally with regard to all Waders—needs modification. The young of some species—e.g. ringed-plovers—certainly seem to leave the nest directly their down is dry, but many species remain in the nest, unless disturbed, for periods varying from three or four hours to two or three days. Dr. Heatherley has known golden-plovers to remain as long as sixty hours.\(^6\) During this time they require no food, as when hatched a considerable quantity of the yolk-sac is unabsorbed. This refers to all Waders according to my observation.

The young birds grow quickly, and can fly in four or five weeks

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1. *Ibis*, 1876, p. 222.
3. *Ibis*, 1891, p. 52-03.
4. *Ibis*, 1891, p. 52-03.
6. *Icebound on Kolguev*, p. 432.
after they are born. By the end of July the golden-plovers commence to flock and move southwards from the moors, resorting to the mud-flats, salt-marshes, and seashores. Their ranks are added to continuously as the birds come down from the Highland moors. In September the great flights from abroad take place.

The order of the autumn migration is the same in both species. The first to arrive are a few old birds still in breeding plumage; these may appear in August, or as early as the end of July. The young birds follow in the end of August and September, and in October the rest of the adults, clean-moulted and in full winter plumage, appear. Mr. Abel Chapman states of the grey-plover that in Northumberland the main immigration occurs in mid-September, and consists entirely of young birds. He thinks the adults must take a different route, as "the few which are obtained come in August, a month before the young." The bulk of the grey-plovers which migrate by way of our Islands appear to continue their southward passage without a very prolonged stay. There is considerable fluctuation while migration lasts, but by November their numbers are reduced to the regular winter population. They are more numerous on the east than the west, and are rarer in Ireland than in England. In Ireland the grey-plover is seen more often in the north and north-west. It keeps more to the coasts than the golden, and is never seen in large flocks. "Stands" of thirty or forty birds may occasionally be seen, but more often of eight to twelve. Mr. Abel Chapman describes them as sociable rather than gregarious. They associate with the flocks of other Waders—two or three may often be seen with the large flocks of dunlins, and Professor Patten has seen small parties with turnstones, looking for food, after dusk, on the sand.

The autumn migration of the golden-plover is rather erratic: vast flocks were seen in August 1880 and September 1881 passing over Spurn in a northerly direction. Later in the year, flocks move

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north or south according to weather conditions, but the above men-
tioned movements had every indication of being migratory, and unless
the birds had for some reason altered their course, their northward
direction is difficult to explain. In the autumn and early winter large
flocks are occasionally heard at night passing over towns. Stevenson
gives the dates of noticeable flights over Norwich as August 14th and
20th, October 13th and 21st, and November 29th.\(^1\) I have heard
them, but not so frequently as other Waders, passing over Cambridge,
generally in August, the cries lasting from one to three or four hours.
This however cannot, I think, be regarded as indicative of the size
of the flocks, as the birds no doubt circle about for some time over
the lights. For the same reason it is difficult to discover the direction
of flight. As a rule they appear to be travelling south-west.

They migrate by day as well as by night; a flock, described as
consisting of thousands, was seen in the evening of September 18th,
1901, at a great height over Dublin Bay; they circled many times,
and then flew vertically down to the slob-lands, where they all imme-
diately huddled together, sunk their heads on their shoulders, and
assumed a tired attitude. They were watched for an hour, during
which time they did not move or feed. The next day all were
gone.\(^2\)

In Ireland the golden-plover is most numerous in the first half of
the winter; it is then far more abundant there than in England or
Scotland. Immense flocks arrive in October, and for a week or two
remain on the coast. They then disperse inland, and are especially
numerous on the boggy land and pastures bordering fresh-water lakes,
and only return to the shore in frosty weather. If severe frost sets
in they vanish southwards, but in open weather they remain until
the middle of December, after which time only small scattered flocks
are seen.\(^3\)

During the winter, if the weather is mild and open, the golden-

\(^1\) *Birds of Norfolk*, ii. p. 75.  \(^2\) Patten, *Aquatic Birds*, p. 226.
\(^3\) *Aquatic Birds*, p. 226; and also Payne-Gallwey, *The Fowler in Ireland*, p. 182.
plover is more often found inland than on the coast, but the flocks are ever ready to shift on the approach of stormy weather, and a frost —sufficient to bind the ground—will drive them to the shore, where they feed at low water on the sands. Professor Patten has repeatedly seen flocks detach themselves into small parties as the tide rises and covers their feeding-grounds, and again congregate as the sands are laid bare.¹

Inland they frequent cultivated land and pastures, and are often especially numerous on the rich grass-lands in the “washes” of the fens. They may be seen feeding in company with lapwings, and, like this species—take a siesta in the middle of the day. If approached when feeding or resting in a field, they at once exhibit a wary restlessness, stretching their wings above their backs, running towards each other, stopping to look anxiously around, running again, until all are gathered into one fairly dense pack. Whether they rise simultaneously, or, as is more often the case, in straggling sections, they soon mass and wheel off with military precision. Their wings seem almost to touch, but they move with such uniformity that, however abruptly the direction of flight may be changed in the amazing evolutions they perform, there is not the slightest break or sign of disorder. Rising to a great height, the ranks spread out, forming a large oval cloud of birds, close in again to a dense dark mass, or stream out into undulating or V-shaped line, but all in most perfect order. When about to alight they sweep to and fro in rhythmical curves, gradually nearing the ground, and often, as if half changing their minds as to where they wish to alight, swing round the field, and then come to ground with almost surprising suddenness. If intent on feeding, they commence running at once, spreading over the ground in open order, busily working along with alternating runs and halts, in true plover fashion. But even plovers cannot always be feeding, and sometimes they may be seen to remain standing where they pitch, all looking in one direction for such time as to weary the patience of a watcher, who sees

¹ Aquatic Birds, p. 220.
nothing more exciting than a bird here and there lower its head and slowly lift its wings over its back in a luxurious stretch.

Mr. Chapman says that the golden-plover occasionally utters its spring love-song in autumn. And in describing the remarkable evolutions of a flock of some two hundred birds which were seen on October 31, 1882, chasing each other and repeatedly uttering their spring notes, says: "Now high up in the clouds, then suddenly darting down in a hundred curving lines, like falling stars, right to the very heather, whence they rise again, reuniting into close order in the sky, when the pack would again shiver into atoms, dashing headlong downwards in every direction."  

Both species pick the bulk of their food from the surface of the ground, insects in various stages, small land-shells, worms, and slugs—nothing in the invertebrate line comes amiss. The golden-plover likes to vary its diet with occasional berries and the seeds of field-plants, and no doubt the grey does likewise. Both, when in Arctic breeding-places, probably find a rich food-supply in the vast hordes of mosquitoes and their aquatic larvae. In winter both species turn their attention to the various denizens of the seashore—molluscs, crustaceans, and sand-worms; while the grey has been seen seeking food in the foam on the edge of the water; and, wading in, swim after small fish and shrimps. The grey-plover, if all else failed, would hardly wax fat on the "marine insects" that several authors of note—Audubon, Dresser, Howard Saunders, and Patten—credit it with eating. Not this species only, but many Waders, are said—in the standard works—to subsist partly on "marine insects," although entomologists so far have failed to discover them. It is difficult to guess what is intended, probably some small indeterminable forms of marine life found in the birds' stomachs. If so, it is unscientific and misleading to ascribe them to something definite, especially something that does not exist. If the insects that breed in decayed seaweed and

1 Bird-life of the Borders, p. 103.
3 Patten, Aquatic Birds, p. 233.
other refuse accumulated at high-water mark are intended, then it is wrong to call them marine,—as much so as to call a sparrow marine that has built its nest on a pier-roof.

The usual call-note of the golden-plover is a musical double whistle. It is suitably rendered by Naumann "tlūi," or sometimes trisyllabic "tlūei." Other renderings are "clēi-wēē, clēi-wēē" and kl-ēē. The alarm-note is shorter; Dr. Heatherley renders it "tu" (as in French), also "tiu" and "tui." Naumann gives "tlī" and Seebohm a plaintive "kö." The same author describes the spring song of the male as the call-note uttered so quickly as to become a trill. It is syllabled by Naumann as "taludl-taludl-taludl-taludl." Mr. Abel Chapman describes another note uttered in early spring as "tirr-pēē-yōu," and states that it almost ceases when the eggs are laid.

Messrs. Harvie-Brown and Seebohm, in their original account of the nesting habits of the grey-plover, could not agree as to how to render the various notes, and so wisely limited themselves to a description. The notes were described as three in number. The call-note a double whistle, the first part short and the second drawn out; the alarm-note a single plaintive whistle, about half a note higher than that of the golden-plover; and the breeding-note of the male a treble whistle—a combination of the call and alarm-notes—the second syllable having a lower intonation than the first and third. This last is not so commonly used, and appears to be the call-note of the males to one another when flying apart from the females, and generally when flying high. Free from the restraining influence of Harvie-Brown, Seebohm afterwards put these notes into words in his History of British Birds, as follows: "Kl-ee" or "kleep," "köp" (the "ö" in German), and "kl-ee-köp," respectively. The call-note has also been rendered "tlēē-īh" or "chēē-ēē," and by Baron Droste Hülshoff as "tlj-e-īh," which he says cannot be mistaken for the "tlūi" of the golden-plover.

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1 Patten, Aquatic Birds, p. 227.
2 Country Life, August 26, 1905, p. 284.
3 Bird-life of the Borders, p. 28.
4 Seebohm, British Birds, iii. p. 52.
5 Ibis, 1876, p. 222.
6 Patten, Aquatic Birds, p. 233.
They repeat this with long pauses, especially at sunset, when they are very uneasy, and fly about calling continually late into the night. Occasionally they repeat the call so quickly that it becomes a "Jodel" call. When a couple quarrelled they called loudly "tlju, tlju." ¹

In both of these plovers there is a good deal of individual variation in the intensity and distribution of the black acquired on the throat and breast in the breeding season. In two birds of equal age and vigour the males would probably show the richer development of black, but it cannot be taken as a guide as to sex in all pairs. The golden-plovers that nest in the British Isles do not assume so perfect a spring dress as those that nest in more northern climes. In all of the photographs taken by Dr. Heatherley (ante, p. 360) the bird appears to be the same individual. The black area is broken and mottled with light feathers, and is limited to the throat and breast; there is none on the sides of the head, and very little on the lower part of the neck. The mate of this bird, which appeared after the young were hatched, was said to be richer in black. ² Mr. Abel Chapman says the Northumbrian birds always have more or less white mixed in with the black, giving them a marbled appearance. ³ There is also often a distinct break between the black of the throat and breast. The rule seems to be, the farther north the richer the development of black. Even in the Shetlands and in Norway there is a decided difference. Of the grey-plover Harvie-Brown and Seebohm state that the males appear to have richer contrast—darker breasts and cleaner white over the eye—than the females; but some females are much darker than others, nearly as dark as some males. They also thought that males retained the black longer than the females. ⁴ Mr. Trevor-Battye described the breasts of all males as being equally dark, whilst the females varied. ⁵

THE LAPWING

[W. FARREN]

The lapwing is the most familiar of all the Waders. It loves desolate places far from human habitation, but meadows just beyond the house-line of a large town suit it equally well. It nests on highland moors and lowland fields, boggy marshland, and dry sandy fallows, plough fields, meadows, and commons. The only invariable condition is that the situation must be perfectly open, for the lapwing at all times is a wary bird, and avoids localities whence it cannot sight danger from afar.

The species is found from February to June in favoured localities from one end of the British Isles to the other, and, outside our boundaries, from the Arctic Circle to the south of Spain and Northern Africa, and eastward to Japan. It is resident throughout temperate Europe, moving southwards in winter from the more northern nesting-grounds.

Of late years its numbers in the nesting season have somewhat increased in the north of Scotland, but fewer breed than formerly in many southern localities. This is especially true of East Anglia, where the draining of the fens so altered the character of the country as to lose entirely for us, as nesting species, many interesting marsh-birds. But the lapwing, less specialised in habitat, may still be seen, although in diminished numbers, sporting over the black land of the rich cultivated fields that were once a dreary waste of marshland.

Large numbers of the birds are shot or netted for the market in winter, which, however, has but little effect on the vast flocks that visit us at this time. A far more serious levy on the resident breeding stock is the indiscriminate taking of their eggs, which still goes on unrestricted in most districts. Large numbers of the "plovers' eggs"
sold in London are imported from the Continent, but the high prices obtainable, especially in the early part of the season, makes "egging" too profitable for the entertainment of any hope that it may be entirely abandoned for some time to come in this country. In some counties the bye-law prohibiting the taking of birds' eggs is extended to the lapwing, but although well intentioned, this bye-law is but a dead letter in the absence of special and rigorous steps for carrying it out.

It is in every way deplorable that the lapwing should so suffer persecution, for, apart from other considerations, it is one of the most valuable of birds to the agriculturist. Its food consists almost entirely of insects, slugs, and other creatures injurious to crops, and, as is certainly not the case with all birds which do good in this way, there is no debit side to the account.

The plumage of the lapwing does not undergo a great seasonal change. In February black feathers begin to appear in the white of chin and throat, and in March those parts become entirely black in the majority of individuals. A good many however—even of breeding birds—show a varying amount of white feathers among the black, and some show but a slight speckling of black. While in some pairs of birds I have watched there has been a more perfect development of the black throat in the male than in the female, yet I do not think it depends so much on sex as on age. Young lapwings do not attain the full beauty of the adult plumage until their third year, and I think if birds with imperfect black throats in the breeding season could be closely examined they would be found to be young birds. These can be distinguished from fully adult birds by the narrow buff edges to the feathers of the back, which are not lost until after the second winter, and also by the shorter crest. The fully adult lapwing is an exceedingly handsome bird. The solid bronzy green of its back, which is iridescent, shows blue and purple in certain lights. The intense black of the broad band on its breast, contrasted with the pure white coming next to it below, makes the slight embellishment
in the spring of a continuance of the black from the breast band up to the chin seem trivial and somewhat meaningless. From an aesthetic point of view it is a distinct enough gain, as it effects a massing of the lights and darks of the plumage. There is, in addition, an apparently added brilliancy to the whole plumage, especially of the back; and the long curved crest attains its full development at this time.

Lapwings return to their breeding-grounds in February or March, the date being more or less dependent on locality and weather conditions. The social state is abandoned very gradually at first; half-hearted quarrels between individuals which may be, probably are, males occur, but these are neither severe nor lasting enough to disturb seriously the harmony that generally prevails. In the opinion of Mr. S. E. Brock, who contributed an interesting and valuable article to the Zoologist (1911, p. 296) on "Lapwings in the Pairing Season," there is naturally a preponderance of males, which is especially noticeable in the early days of their reaching the nesting-grounds. The difference between the sexes is so slight, that, in the field, it is easier to distinguish them by actions that one is able with fair certainty to ascribe to one or the other sex. Even so I have found it a difficult matter to decide in certain cases. Mr. Brock appears to have completely overcome this difficulty, as he never once expresses a doubt in attributing certain actions to male or female. The males are said to spread over the nesting area, each taking up its position on, and jealously maintaining against trespassers, a more or less well-defined territory. Mr. Brock says, "Here they spend a large part of the day, occupying themselves in the formation of scrapes, in aerial combats with other males, or in courting any female bird which may happen to settle not too far off, while at intervals they indulge in prolonged song-flights, ranging over a wider area."¹

The habit of forming additional nests or scrapes, common among ground-nesting birds, especially Waders, is more prevalent with the lapwing than any other, or perhaps it would be more correct to say

¹ Zoologist, 1911, p. 297.
it is better known. For a long time it has been known or suspected that these scrapes are formed by the males—they are commonly alluded to by gamekeepers and egg-gatherers as "cocks'-nests." The investigations of Mr. Edmund Selous went far towards confirming this, and explaining the origin and significance of the habit, but it has remained for Mr. Brock to discover more definitely the part the scrapes play during the early spring activities. Extra nests constructed by some species, such as the wren and moorhen, have received a certain amount of attention, and these also have been called "cocks'-nests," but little is definitely known about them. The extra scrapes formed by tree-pipits and wood-larks have been passed aside as dust-baths, but they are as distinct from such, and as obviously "scrapes," i.e. places prepared for nests, as are the false nests of the lapwing. In all probability there is some analogy between all, or at any rate all owe their origin to the same cause, which I would suggest is excessive reproductive energy on the part of the males. It has been stated that the scrapes of the lapwing are formed while the male is showing off to the female.1 This is true so far as it goes, as the male certainly displays in a scrape when a female is near, and when he is therefore under the influence of extreme sexual excitement. But it entirely disregards the very important fact that the male may be seen scraping—and considerably more often—when there is no female present.2

During the days that elapse between the return to the nesting-grounds and mating, each male will form a number of scrapes, spread over his particular territory, and generally in groups of two or three. In these scrapes he frequently works. Sometimes he abandons a group formed in the early days, and forms another set at some distance off, thus effecting a modification in the limits of his territory, which, as Mr. Brock observes, are always vaguely defined. Although later, when mated, the female works in some of the scrapes formed

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2 See also Zoologist, 1911, p. 300; and Bird-life Glimpses, p. 164.
by the male, and goes so far as to add a little lining to one or two, yet she does not appear to start fresh ones. Thus, as Mr. Brock says, "The exact situation of the nest is primarily dependent on the choice of the male bird—a condition of affairs somewhat unexpected." 1

The action of scraping varies but little except in the energy displayed. This is of a more vigorous nature when the bird is excited by the proximity of a female, and more especially so when he has secured one for a mate. But a male may continue working energetically for some days before there is any sign that his domain is visited by a particular female. He may be seen standing alone, raising and lowering his wings and tail, and occasionally uttering a long rasping note. This is usually the prelude to scraping, but either action may take place independent of the other. 2 The swaying of wings and tail may continue, but as a rule it soon ends by the bird pitching suddenly forward on his breast, with the posterior part of the body elevated at such an angle that the tail and the tips of the wings point almost straight upwards. In this attitude he rotates on his own axis and maintains a rolling or shuffling motion with his breast, and scrapes energetically with his feet. At intervals the wings are lowered, and the tail bent down spasmodically until the ends of the feathers are pressed close on to the ground. He may continue working in this way for some time, the raising and lowering of the wings and tail occurring at more or less frequent intervals. All periods of rolling or scraping are accompanied by an apparently aimless pecking at the surrounding herbage; tufts of grass are plucked up and shaken from side to side, and even tossed by the bird over its back. This will continue after the bird has risen from the scrape, and now, as he has probably advanced a step or two, some of the grass tufts which he throws over his back may fall into the scrape, but this appears to be the result of accident rather than design. 3

1 Zoologist, 1911, p. 300.  
2 See also Zoologist, 1911, p. 299.  
3 See also Bird-life Glimpse, p. 163; and Zoologist, 1911, p. 290.
The number of scrapes to be found in the vicinity of each nest varies considerably. Sometimes it is difficult to find more than three or four spread over a fairly large area, and I have counted as many as thirty, arranged in groups of four or five. These were on a long narrow ridge of peaty soil, with deep bog on either side, and appeared to be the work of one bird, as although two or three of the scrapes were slightly lined, one only contained a single egg. The number of partly lined scrapes does not, as a rule, exceed two or three in number; in these the lining shows sign of having been worked into place, as distinct from those containing odd tufts of grass which may have fallen in during the haphazard tossing about of material by the male. If the ground about a group of scrapes is examined, it may often be found strewn with tufts of dead grass pulled up as described. With the exception of the more elaborate lining, the real nest does not differ from the scrapes near it, nor does it appear to be in a more eligible site. In form the scrapes do not vary to any great extent, although they differ somewhat in appearance according to the nature of the ground. In cultivated fields, where the soil is loose, the interior of the scrape shows sign of much pressing and patting down, and on grass-land the growing grass is scratched away leaving the bare earth. The only locality where I have seen a decided departure from the clean saucer-shaped hollow is in the Suffolk Brecklands. Here, in parts where rabbits abound, the ground is covered with close-cropped grass and lichen, which forms a tough crust on the sandy soil. This crust often breaks away in lumps under the working of the lapwing, giving an irregular shape to the scrapes. Such irregular scrapes are not uncommon, including that in which the eggs are laid. (Pl. I. I., Figs. 3 and 4.)

The progress of courtship is marked by two distinct actions on the part of the male. The first of these is adopted whenever a female comes within reach of an impressionable male. With lowered head and neck stretched out and held rigidly in a straight line with the body, and the crest carried flat along the neck, he advances towards
the female with formal steps. He may circle partly round her and then commence working in one of his scrapes, or he may walk straight past her direct to the nearest scrape. Mr. Brock states that the females show no response to the advances of the males for about a fortnight after courtship commences, and at times indicate "annoyance and distaste by a rapid retreat, even passing to a distant part of the field." The first sign that the female gives of acceptance of the attentions of a male is by approaching him "by short and indirect stages" while he is scraping, as though interested in the proceeding. The male rises from the scrape and adopts a pose which savours more of display than the set run with extended neck, which is rather a prelude to scraping. In this pose, as described by Mr. Brock, the male, "keeping his back turned towards the hen, now very close beside him, slowly lowers his bill to the ground and raises his tail almost perpendicularly in the air, his richly coloured under tail-coverts are thus prominently displayed." The female meantime settles down—and according to Mr. Brock—in the scrape the male has just left. Her action when scraping is similar to that of the male, but less energetic, and she is more prone to settle quietly as though brooding. The male meanwhile maintains the displaying pose, occasionally plucking up herbage and tossing it over his shoulder. Frequently while in this position he rocks his tail up and down and lifts the points of his wings, as he does when scraping, and also utters a low creaking note. Mr. Brock describes another pose adopted by a male should he approach a female on the wing: "In such a case, on settling close beside her, she momentarily takes up a very erect attitude, towering over the other bird, his breast feathers puffed out to their fullest extent, and the long crest inclined forward." This is followed by periods of scraping and displaying in the more usual pose.

At first the female is apt to lose interest in the proceedings, although for a while she may take turns with the male at working in a
scrape. Mr. Brock states that "On the lapse of a day or two thus spent the scraping antics become less frequent, and the birds are content to remain quietly in each other's company, usually at no great distance from the scrapes. . . . On the occurrence of coition, however, which first takes place a few days before egg-laying, a renewed activity is shown. Immediately following this rite the female proceeds straight to the scrape, and works in it with energy and thoroughness hitherto unequalled, the male frequently taking his place in a neighbouring scrape. Between her bouts of energetic foot-work the female plays with stubbles, jerking them over her shoulder." Mr. Brock thinks that the scrape in which the female works immediately after coition is the one eventually adopted as a nest, in which the eggs are laid; I understand him to say that he has known this to be so in some cases.1

Mr. Selous describes their actions at this period in similar terms, but on two occasions after pairing took place—on one of which the male flew down and paired with the female without previously alighting, the male ran for a short distance in the attitude in which the head and neck are held in a line with the body and then pitched forward and commenced to roll. The female followed, and on the male moving forward and sinking down again apparently in another scrape, she took his place in the first one, pecking at the ground in front of her as she worked.2

In the displaying pose, and when scraping near his mate, the male generally contrives to present his back view to her, so displaying the brightly coloured under tail-coverts.3 From my observations I should pronounce this to be almost invariably the case. But whether the object is to display this part of the plumage it is difficult to say. The female is equally well endowed, so far as the colour of the under tail-coverts is concerned. As a rule, when male birds deliberately exhibit some part of their plumage in courtship, it is a part that conspicuously distinguishes them from the female. In fact, if sexual selection goes

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1 Zoologist, 1911, pp. 302-3.  
3 See also Zoologist, 1911, p. 302; and Bird-life Glimpses, p. 107.
for anything, the particular plumes owe their beauty or distinctive appearance to having been so displayed. The courting actions of birds often appears like a desire to display some particular part of their plumage, when no such object may exist.

The scraping and displaying actions of the lapwing certainly appear to be involuntary, and, as argued by Mr. Selous—the direct result of sexual activity or excitement, and his expressed belief, that out of such frenzied impulsive actions the more elaborate cases of sexual display have arisen, appears reasonable.¹ The uptilted attitude of the male lapwing may be a more elaborate phase of his frenzied working in the scrapes, during which the tail is often held straight up. Another apparently involuntary or purposeless action is the plucking of nest material and throwing it about, often over the shoulder.

Although a lapwing’s nest is often but a scantily lined hollow, good substantial nests may frequently be found. In such nests the lining is carefully worked in, and may be as much as an inch in thickness. Usually the greater part of the lining is added after the first eggs are laid, as in the case of other species. I once found two or three nests in the fens, built on long grass and rushes of the previous year’s growth, and which was matted together and beaten down by the winter weather, forming a platform over boggy ground; in one case there were six or more inches of water underneath. The nests were large and built of grass straw, with finer bents by way of lining. They were quite conspicuous even at a distance. As the situation did not lend itself to scraping, it is unlikely that these nests can have originated in the usual way.

I have perhaps devoted an undue proportion of this chapter to the habit of forming additional nest scrapes. But the habit is more pronounced in the lapwing than in other Waders, and, moreover, the species is comparatively easier of observation; the ground actions of less conspicuous species are considerably more difficult to witness, and one can only surmise by analogy—not always a safe guide—that the

¹ Bird-life Glimpses, p. 108.
extra scrapes of other species play a similar part in their spring activities as do those of the lapwing. It is to careful observation of such habits that we must look for a better understanding of the origin of nest construction and sexual display.

However important the scrape forming and courting actions which take place on the ground may be, from a spectacular point of view they pale before the more obvious and beautiful aerial evolutions which are so charming a feature of the lapwing's spring activities. These evolutions may take the form of a spring or nuptial flight of fairly well defined character, aerial contests between rival males, and also a flight which may be a phase of the latter, but the behaviour of the birds gives no indication of rivalry, rather of play and the joy of flying together. Were it not that it may be witnessed long before pairing is accomplished, I should be tempted to regard the last-mentioned flight as a marriage flight, in which male and female take part. Very frequently these flights are participated in by three, sometimes more, birds, but three are commonly seen.¹ Skimming over the ground, the birds rise and fall, tilt from side to side in a manner somewhat similar to, but not so elaborate as, the wonderful evolutions performed by the male in its spring flight. But there appears to be no rivalry or jealousy, for although two may be flying side by side with a third a little behind, they may close up and change places quite indiscriminately and without discord. They follow and repeat each other's actions as in the winter flights, so that the true solution doubtlessly is that it marks a transitional stage from the social condition of winter, in which the spring fashion of flight is asserting itself. Very similar conditions mark the early spring habits of other species, which partly abandon the gregarious state at pairing time. The redshank, snipe, and ringed-plover provide examples.

The spring-flight proper runs a more regular course, especially when the performer is uninterrupted by other birds. He rises from the ground with slow heavy flaps of his broad wings, as though he has

¹ See also Bird Watching, p. 82.
difficulty in getting under way; this is belied by a sudden upward rush or sweep, an effortless turn in which the wings hardly take part, and then a downward sweep or fall, with half-closed wings, at the end of which the bird seems suddenly to awake to the necessity of wing action, flings his wings round in a wild whirl—in which he sometimes appears to throw a partial somersault—and the next instant is away over the ground with musical wing-beats, tilting and swaying first to one side, then to the other, with marvellous buoyancy. It is during this flight that the breeding song may be heard. It has been well rendered by Mr. Brock as "wheyl-willulchooee-willuch-willuch-cooee." It has also been rendered "coo-oo-oo, hook-a-coo-ee, coo-ee" and "coo-whee-whee-whee, coo-whee," The "willuch-willuch" is very characteristic, and makes Mr. Brock's rendering the most faithful, but the "coo-ee"—in my opinion—requires a w, "coo-whee." The song accompanies the upward sweep and fall through the air. It suffers a break during the flutter of wings at the end of the fall, but is picked up at once with a triumphant "coo-whee coo-ee," as the bird dashes off in the wing-humming part of its flight.

The aerial combats or games, constantly taking place in a field inhabited by several pairs of lapwings, are characterised by similar evolutions in modified form. Two birds so occupied will sometimes rise to a great height in their efforts to get above each other, and one succeeding in this may "stoop," when, unless the lower bird dodges, there may be a wing-clap or two. Except for this they appear to be sporting with each other, and for the most part only at a moderate height from the ground. They tilt and twist, first one leading, then the other; they mount up together and towards each other with flurrying wing action, and then sweep downwards and away in opposite directions. The spring notes are constantly uttered "willuch-oowhee,

1 Mr. Brock describes this manœuvre thus: "the performer throws himself sideways almost on his back, instantly recovering himself with a flurry of wings" (Zoologist, 1911, p. 208); and Mr. Selous states that the bird "turns right head over heels" (Bird Watching, p. 20).
2 Zoologist, 1911, p. 208.
3 Selous, Bird Watching, p. 25.
willuch-willuch,” with occasional periods of wing-humming. The whole performance suggests exuberance of spirits rather than real rivalry. It is continued even after the eggs are laid.

Real hostility is displayed if a male encroaches on the domain of another. The fighting, as a rule, is one-sided, the bird that is encroached upon attacking the trespasser with great persistency, swooping from all directions at him as he stands on the ground. The bird so attacked avoids the rushes aimed at it by well timed upward springs, allowing the other to pass beneath it, or by swerving to one side, always endeavouring—or appearing to do so—to keep to the ground. The attacker does not desist until he has forced the other into flight. The latter seems to act almost entirely on the defensive, but often with such obstinacy that the struggle may last—according to Mr. Brock—as long as an hour or an hour and a half on end. The amount of territory each bird reserves to itself varies considerably; two nests are found occasionally very near to each other, but as a rule they are a good distance apart. Encroachment is the chief cause of squabbles. Mr. Brock has noticed that the males are very jealous of each other when scraping, and for one to scrape when another is near is sure to result in hostilities. The same cause will produce a fracas between two females, and Mr. Brock states that he has several times observed “encounters between two females ended by a male bird rushing up and separating the combatants, and, not content with terminating the strife, he attacks one of the females, driving it to some distance,” and “on one occasion a male, which was courting a female bird, suddenly desisted to attack and pursue a second female at a little distance.”

The male has been seen to approach the nest, after an egg had been laid, “as though with the intention of scraping, but on reaching it he contented himself with standing erect over it, moving his tail gently up and down and plucking at straws.” He does not apparently work

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1 See also Zoologist, 1911, p. 298.
2 See also Selous, Bird Watching, p. 39; and Zoologist, 1911, p. 299.
3 Zoologist, 1911, p. 299.
4 Ibid., 1911, p. 301.
5 Ibid., 1911, p. 304.
in the nest again, or sit on the eggs until all are laid, but afterwards he bears his full share in the duties of incubation, and also keeps watch, and warns the sitting female of danger.

When a breeding-ground is invaded, the males fly off somewhat ostentatiously, while the hens, after leaving their nests, run for some distance, and then flap quietly away, but a few feet above the ground. It is not, however, by any means a hard and fast rule that sitting lapwings always run before taking flight. It depends to a certain extent on how near one approaches without being discovered. Their watchfulness, and the open nature of the places where they generally nest, guards, as a rule, against a near approach, but the conditions may sometimes assist to a sudden surprise, and then the birds may be seen to fly straight from the nests. But it depends more, I think, on which bird is sitting. The female is more secretive in her habits, and is nearly sure to run, unless suddenly put off, but the male almost invariably flies straight from the nest. The same distinction between the methods of male and female obtains with other species of Waders. If the eggs are fresh the breeding-ground will be quite deserted by the birds until the intruder leaves, but if incubation is far advanced the birds will circle around, or fly to and fro with querulous cries. They follow the intruder until he is clear of the breeding-ground, then ceasing their cries they sweep round and fly rapidly back. When the young are hatched the old birds become very bold and noisy in their distress. They circle round an intruder and occasionally swoop as if they are going to strike; but their usual method is to fly to and fro, quickening their pace when near, making music with their wings, and repeating at monotonous intervals their rasping alarm-note “pee-ee-yit.”

The young birds meanwhile crouch low, and being endowed with highly protective pattern and colour are comparatively safe. They remain quite still unless handled, or the herbage close to them is disturbed, when they run off generally in different directions. Once they have been disturbed it is very difficult to make them settle down.

1 See also Field, 1892, vol. lxix. pp. 79, 545, 585, 625, 606.
quietly again. I have seen one that was partly feathered crouch, but at this age they have generally outgrown the habit.

It has often been said of the lapwing that it resorts to the "injury feigning" display to save its eggs or young. Personally I have never yet seen the slightest display of this kind. I would not, however, on that account describe the belief as a "popular fallacy," as was done in the Zoologist for 1897, p. 473. The habit occurs no doubt, but rarely, and in a later number of the same magazine Mr. Bernard B. Riviere records seeing two lapwings "feigning injury," running with drooping wings, and occasionally toppling over on to one shoulder, with wings flapping feebly. When approached they flew up.¹ In this case the birds had young. A lapwing flushed from the nest has been observed to display.²

Lapwings are exceedingly bold in attacking and mobbing hawks, crows, or rooks venturing near their nesting-grounds. One may often see a solitary crow, apparently doing nothing more offensive than taking a short cut home across a piece of fen country where lapwings are nesting. Until clear of the breeding-grounds, his course is marked by sorties against him by angry lapwings. Flying suddenly up from the ground, a lapwing chases and buffs at him, the crow dodging to avoid the blows and endeavouring to maintain his course. No sooner has one lapwing turned back, than up flies another, and so on, each one—as it were—conducting the crow to the frontier of its own domain, and handing him over to its nearest neighbour. But their resentment is not only against species which may with reason be suspected of predaceous intent. They appear to have quite an unreasonable objection to partridges. Several instances have been recorded in which lapwings have attacked and driven partridges from their nesting-grounds.³ A contributor to the Field related how a blackheaded-gull was mobbed almost to death by lapwings.⁴ They will also attack cattle; in an encounter with a cow, one is said to have

¹ Zoologist, 1902, p. 29.
² Ibid., 1897, p. 515.
alighted on the ground "and flapped its wings over its back close in front of the cow's nose." The cow, either annoyed or interested, followed the bird, and so was lured to a safe distance from the nest. Another was seen to attack and drive away a flock of geese.¹

The Rev. F. C. R. Jourdain states that he has often found remains of dead lapwings on the breeding-grounds, and as he once found a sternum of one on an old nest—used as a "dining-table"—of a sparrow-hawk, and has witnessed at nesting time an unsuccessful attempt by a sparrow-hawk to kill a lapwing, he believes this hawk to be responsible for the death of the lapwings whose remains he has found.²

Although I have never tested it myself, I have been told by farmers that lapwings will continue to sit if their eggs are moved a yard or so from where they were laid, and placed in a hand-made depression. This is occasionally done to save them when a field is being harrowed in the spring. One bird continued to sit although her eggs were moved more than once. This bird was exceptionally devoted, for a heavy snow-storm covered the eggs, and she was found sitting, although there was but a small hole in the snow through which the eggs could be seen. The bird's wing feathers were bound with frozen snow so that she could not fly, but when she was released and the snow cleared from the eggs, she returned to them and continued to sit.³

Incubation takes about twenty-six days. Eggs hatched in an incubator on the 25th, 26th, and 27th days, while a clutch hatched naturally in the nest on the 26th day from the time when the last egg was laid. The eggs are not always laid on consecutive days, but incubation does not commence until the clutch is completed. In one instance three days elapsed between the laying of the third and fourth eggs.⁴ Although the clutch normally consists of four eggs, five are occasionally found. I have seen three nests, each containing five

² Zoologist, 1904, p. 104.  
eggs. The young do not leave the nest for twenty-four to forty-eight hours after they are born, unless disturbed.

Especially when wounded, lapwings will take to water, and swim well. A large number were observed in December 1894 resting on the water in Lough Derg, Co. Limerick.\textsuperscript{1} Young birds in down have also been seen swimming;\textsuperscript{2} on one occasion a brood was seen crossing a river while the parents circled above.\textsuperscript{3}

Mr Robert Warren states that he has often seen lapwings take to water when hard pressed by peregrines, and in one instance one was taken from the water by the hawk, a most unusual proceeding. He once watched a splendid flight of a peregrine at a lapwing. The latter was so exhausted by its efforts in eluding the hawk, that when it at last dropped into the water and swam ashore it allowed itself to be caught by the observer. The peregrine “waited on” and swooped when the lapwing was held up. It followed close until the lapwing was liberated in some cover, when the hawk went off.\textsuperscript{4}

Young lapwings—and also other Wader species—sometimes come to grief by sheep’s wool becoming entwined round their toes, on which the damp earth accumulates until a ball is formed that incapacitates them from walking.\textsuperscript{5} By no means infrequently, the wool, closely entwined, causes amputation of the toes.\textsuperscript{6}

Flocking commences as soon as the young can fly,—in fact, it may be said, in some cases, to commence before. I once saw many broods of young lapwings of all ages running about on some fallow-land in Suffolk, while the parents, some on the ground, some flying, were in such numbers as to constitute a flock. Some of these broods must have been hatched a good distance away, and were conducted to this part probably because suitable food was plentiful. The flocks of old and young birds combined leave the nesting-grounds in July, and in autumn are joined by the large flocks from Northern Europe. Their

\textsuperscript{1} \textit{Field}, Dec. 29, 1894. \hfill \textsuperscript{2} \textit{Ibid.}, 1906, vol. cvii. pp. 595, 643.
\textsuperscript{3} \textit{Ibid.}, 1902, vol. xcix. p. 393. \hfill \textsuperscript{4} \textit{Zoologist}, 1904, p. 389.
\textsuperscript{5} \textit{Field}, 1884, vol. lxiii. p. 302; and \textit{Ibid.}, 1899, vol. xciii. p. 907. \hfill \textsuperscript{5} \textit{British Birds} (magazine), ii. p. 302.
migratory movements are fully described in the "Classified Notes" at the head of this chapter. Like the golden-plover, lapwings are largely influenced in their winter movements by the weather. During severe frost they resort to the sea-coast, and feed at low water on the sands and mud-flats, but while the weather is open they prefer the marshes and cultivated fields. The large flocks are very difficult of approach, being, if anything, more shy than the golden-plover. The lapwing is easy to distinguish on the wing; it can travel at a great pace, but with regular beats of its broad ample wings, very different to the rapidly driven pointed pinions of its congeners. When lapwings and golden-plovers fly together, the two species keep in separate groups. Flocks formed of groups of these two species may often be seen, and their mingled cries may be heard at night, both being regular night feeders.

It has been stated that the lapwing stamps on the ground beside a worm-cast, in order to make the worm come up to the surface; also that it frequents the haunts of moles for the worms driven to the surface by the burrowing of the moles. Latham—quoted by Yarrell—says, "I have seen this bird approach a worm-cast, turn it aside, and after walking two or three times about it, by way of giving motion to the ground, the worm come out, and the watchful bird, seizing hold of it, draw it forth." It requires but little experiment to show how slight a disturbance of the ground will suffice to bring worms to the surface, and it is not surprising that lapwings should learn to take advantage of it. It is quite probable that probing birds gain much of their food by reason of this fact—not by "stamping," but by driving their bills into the soft earth.

1 Romanes, Animal Intelligence, pp. 285-6.  
OYSTERCATCHER AND TURNSTONE


PRELIMINARY CLASSIFIED NOTES


OYSTERCATCHER [Hæmatopus ostralegus Linnaeus. Sea-pie, olive, mussel-picker; shelder (Shetlands). French, huitrier pie; German, Austernfischer; Italian, beccaccia di mare].

1. Description.—The oystercatcher may at once be distinguished by the long, blunt-pointed, orange-vermilion beak, and the strongly contrasted black and white plumage. The sexes are alike, and there is a slight seasonal change of coloration. (Pl. 121.) Length 16·5 in. [419·1 mm.]. The head, neck, mantle, and wings are black, contrasting strongly with the lower back, rump, and the basal half of the tail which are white, like the breast and abdomen. The median and major wing-coverts are white, and the innermost primaries have a patch of white along the middle region of the outer web. The beak and the rim of the orbits are orange-vermilion, the iris carmine, the legs and feet flesh-coloured. After the autumn moult the white spot under the eye becomes larger, and a band of white extends backwards from the chin to join a broad white band extending from the ear-coverts across the throat. In the juvenile plumage the greater wing-coverts, innermost secondaries, and scapulars have pale buff margins, while the longest upper tail-coverts are barred across the tips with black and buff. After the autumn moult the black is suffused with brown, and the white bar appears on the throat. The young in down are of a pale buff above, mottled with grey, relieved by a more or less distinct black patch on the crown, two longitudinal stripes along the back, and...
a semicircular loop of black encircling the hinder end of the body. The under parts are white. [W. F. P.]

2. Distribution.—In the British Isles this species is resident, though subject to local movements, working northward in spring and southward in autumn. Its distribution in the breeding season is somewhat irregular. It is scarce and local on the south and east coasts of England up to Northumberland, being entirely absent from some counties and only represented by a few pairs in the rest. In Scotland it becomes numerous, breeding not only on the coast and islands, but by the rivers and lochs, and is also common in Ireland, especially on the islands, and along the Welsh coast and the Cumbrian shore-line, while it is plentiful in the Isle of Man. Outside the British Isles it nests in the Færoes and Iceland, and along the whole of the European coast-line from Archangel to W. France, including the Baltic and many of the main river valleys; also in the basins of the Black and Caspian Seas, and on the coasts of Macedonia and Asia Minor. Eastward it is found in the Ob and Irtysh valleys as well as Turkestan, and Popham records a pair on the Yenisei. It is replaced by other races in N.E. Siberia, China, and Japan, and also in Australia and America. Its winter range extends south to North-west Africa, the Red Sea, Somaliland, India, and Burma, and it has been recorded from Senegambia. [F. C. R. J.]

3. Migration.—A resident and a winter visitor. Our own birds appear to be resident within the area, but many of those in the more northerly districts move southwards in winter. At that season there is large influx from the Continent of birds that pass the winter on the shores of Great Britain. There is probably a slight autumn immigration to Ireland from the west of Scotland, either of Scottish-bred or autumn immigrant oystercatchers (cf. Ussher and Warren, B. of Ireland, 1900, p. 262). A very gregarious bird at migration as at other times. [A. L. T.]

4. Nest and Eggs.—The nesting-sites of this species vary according to the locality. On rocky islets the eggs may be found in some cranny or nook among the rocks, with practically no lining except the pebbles, bits of shells, or clump of thrift, which form the bottom of the nest-hollow. (Pl. liii.) The crest of a sand-dune where the eggs lie half-buried in sand is a favourite site where the wind has built up a barrier of dunes. On the polders of Holland the nest-site is marked by an untidy gathering of drift of various kinds and droppings to line a hollow in the short grass, while shingle-beds and sandbanks may also be tenanted at times, as well as the tops of lofty stacks (Zoologist, 1891, p. 34, etc.). The share of the parents in providing nest materials (where they are to be found) appears not to be recorded. The eggs
Oyster-catcher's nest and eggs

Photo by F. H. Kirkman

Oyster-catcher's nest and eggs

Photo by E. A. Walls

Oyster-catcher's nest and eggs

Photo by W. Farren
are normally three in number, sometimes only two, and occasionally four, and are placed irregularly in the nest, often not touching one another, and not neatly arranged like the eggs of the plovers. In colour they are yellowish stone or ochreous, boldly marked with blackish brown spots, streaks and scrawls, which at times form a zone, and underlying ashy shellmarks. Some eggs have a warm rufous tinge, and a rare type has a greenish blue ground. (Pl. K.) Average size of 65 eggs, 2.22 × 1.54 in. [56.2 × 39.9 mm.]. The duties of incubation are shared by both parents, though the hen is more frequently to be found sitting, with the male keeping watch not far away. Messrs. Meade-Waldo and E. W. Wade estimate the period at 26-27 days, which is probably correct, although Colonel Duthie places it rather lower (23-24 days). Naumann’s estimate (up to three weeks) is, as with the other Waders, too low. In southern localities eggs may be found towards the end of April, but the more usual time is in the first half of May in the British Isles, though in the north of Europe not till June. Only one brood is normally reared in the season, but a second or third clutch of eggs is laid if the first is destroyed, so that fresh eggs may be found up to the end of June or even in early July. [F. C. R. J.]

5. Food.—Mussels, limpets, and many other molluscs, both bivalves and univalves; shore-worms of various kinds, and earth-worms. Crustaceans such as crabs, etc., and small fish and seaweed. Dresser, quoting Thompson, describes the contents of eight stomachs as consisting chiefly of the opercula of whelks and other univalves. One stomach contained 50 opercula of whelks, about 25 good-sized limpets—without shells—and a Holothuria. In another was found a quantity of vegetable matter, tender roots and green leaves, also “small white worm-like larvae” (Birds of Europe, vii. p. 572). The stomachs of first-year birds containing mussels without the shells, prove that oystercatchers can open the shells before their bills have attained their full development (Patten, Aquatic Birds, p. 249). The young feed chiefly on insects and their larvæ, and probably small soft-skinned shore and marine creatures. They are attended by both parents, and assisted by them in their search for food. [W. F.]

TURNSTONE [Arenaria interpres (Linnaeus); Strépsila interpres (Linnaeus). Little-pyot; tangle-picker (Norfolk); brackett (Northumberland); stanepecker (Shetlands). French, tourne-pierre; German, Halsband-Steinwälzer; Italian, voltapietre].

1. Description.—The turnstone may readily be distinguished by the pointed,
conical beak, relatively short yellow legs, and the alternate bands of black and white on the lower back and rump. The sexes are alike, and there is a marked seasonal change of coloration. (Pl. 122.) Length 8 in. [203-20 mm.]. The adult, in nuptial dress, has the top and sides of the head white, relieved by a narrow line of black running forward from the eye to the beak, and black striations on the crown. Below the eye is a V-shaped band of black, the ends of the loop turned forwards to enclose a white loral patch, while the white of the top of the head is continued backwards to form a half-collar across the hind-neck. The centre of the interscapular area is chestnut-red, bounded on either side by a V-shaped band of black; this band is succeeded by a wide semicircular loop of chestnut-red formed by the anterior scapular feathers, the hinder scapulars being black and forming a crescentic band of black behind the red band just referred to. The lower back is white, the rump black, the upper tail-coverts white, and the middle tail feathers black. The rest of the tail feathers are dark grey, with white bases and white tips: the white of the base of the feathers increase in area from within outwards, the outermost being almost wholly white. The outer marginal wing-coverts are dark brown, the innermost white. The minor coverts are chestnut, the lowermost row variegated by patches of black. The median coverts are chestnut, blotched with black, while the major series are black, tipped white. The remiges are dark ash-grey, the primaries have white shafts, and the innermost a patch of white at the base, forming, with the tips of the major coverts of the secondaries, a white bar across the wing. The throat is white; below this is a broad black gorget extending to the fore-breast, and sending a band upwards on to the side of the neck in front of the white half-collar. The rest of the under parts are white. The beak is black, the iris dark brown, the legs and toes orange-red. The female is somewhat duller than the male. After the autumn moult the head and upper parts are dark brown, striated on the crown with slate-black. The sides of the face are ash-brown, with an indistinct patch of white below the eye. The mantle is dark blackish brown, the feathers thereof having narrow whitish brown margins. The wing-coverts are dark brown with paler margins, while the gorget on the throat is dark blackish brown. The juvenile plumage has the crown and mantle pale brown, the crown heavily striated with dark brown, while the feathers of the mantle and wing-coverts have ochreous margins. The inner primaries are white-tipped. The lower back is alternately banded black and white, as is the adult, and the tail is buff-tipped, while the gorget is of a dull brownish black. The first autumn dress differs from the juvenile plumage in being somewhat darker, and having rufous margins to the minor coverts. The
young in down has the upper parts pale grey, mottled with darker grey, the under parts white. [w. p. p.]

2. Distribution.—Although the turnstone has not been definitely proved to breed in the British Isles, there is good reason to believe that it has nested in the Shetlands on at least one occasion (see Saxby, Birds of Shetland, p. 171). It has also been seen in pairs during the summer on various parts of the west coast of Great Britain, but is chiefly known as a passage migrant. Outside the British Isles it breeds in Iceland, and probably on the Faeroes; on Læsö in the Cattegat and Saltholm; while it also nests in small numbers off the coast of Schleswig, Pomerania, and on Rügen; in the gulfs of Riga, Finland, and Bothnia, and both coasts of Scandinavia, along the coast of North Russia, on Kolguev and Novaya Zemlya. Buturlin also states that it breeds in the Crimea and on the Kirghiz Steppes. In Asia it ranges along the Siberian coast and to the New Siberian Isles, and in the New World is found in Greenland, but is replaced by a rather dubious allied form in Arctic North America. On migration its range is practically cosmopolitan, and it occurs in winter not only in the Mediterranean region and the Atlantic Isles, but south to Cape Colony in Africa; in Asia it is recorded from the shores of the Indian Ocean east to the Malay Peninsula, China, and Japan; it is also found in most islands of the Malay Archipelago, and has wandered to Australia and New Zealand, the Fiji and Sandwich Isles, New Hebrides, etc., while American birds range south to Patagonia. [F. C. R. J.]

3. Migration.—A bird of passage and a winter visitor, presumably from Northern Europe. It is chiefly at the migration seasons that the turnstone is found on the British coasts, but a small number remain during the winter months. Occasional individuals or pairs are met with in summer, but the species has never been proved to breed within our area. A gregarious migrant. [A. L. T.]

4. Nest and Eggs.—The nesting-sites used by this species are very variable. The Godmans found that they were cunningly hidden, but that the birds showed no preference for any particular locality. One nest was on a ledge of rock, another in open sand, two were among grass, and a fifth well concealed by weeds and grass under a ledge of rock. Pearson found several nests a few paces from high-water mark, and in nearly all cases within 50 yards of it, on islets, under flat stones, in patches of dwarf sallow, in grass tussocks, on shelves of peat, and in one case 18 inches down a puffin-burrow. In Greenland, Kolguev, and Iceland, however, it has been found breeding far inland. The only materials used are a few bents or sorrel stalks, but the share of the parents in building has apparently
not been recorded. The eggs are normally four in number, sometimes only three. They are fairly characteristic, the ground-colour ranging from greenish to brownish or olivaceous, but usually with a tinge of greenish, and rather pointed in shape, freely spotted and blotched with dark brown and underlying shellmarks of ashy grey. Average size of 75 eggs, 1·58 x 1·15 in. [40·3 x 29·1 mm.]. No reliable observations seem to have been made on the length of the incubation period, but Manniche asserts that both sexes take part in the work and show brooding spots. Pearson states that it is always the male bird which takes the leading part in protecting both eggs and young, while the female keeps carefully out of danger; but this is not the view of Manniche, who states that the cock assists in guarding the chicks only when they are very young (see p. 408). In the S. Baltic eggs may be found in the first half of June, but on the shores of the Arctic Ocean not as a rule before the middle of that month, and occasionally as late as the first week in July. In Grinnell Land Hart obtained eggs on July 30. One brood is reared in the season.

[F. C. R. J.]

5. Food.—Small crustaceans, such as tiny crabs, shrimps, and sand-hoppers, molluscs, insects—such as the flies that breed in decaying seaweed—and their larvae. Also fragments of plants (Manniche, N.E. Greenland, p. 129). The results of various stomach analyses are as follows: mussels swallowed entire 5 x 3 mm., crabs 5 x 5 mm., also other bivalves, univalves, and shrimps (Patten, Aquatic Birds, p. 245). Small beetles, the young of Littorina, small crustaceans (R. Collett, quoted by Dresser, Birds of Europe, vii. p. 564). Full-grown young feed chiefly on sandhoppers, the downy chicks on larvae of Chironomidae and other indeterminable larvae of insects (Manniche, Terrestrial Mammals and Birds of N.E. Greenland, p. 129). They are attended and assisted by both parents in their search for food. Although apparently one parent bears the greater share of this duty, it is not clear which, as authorities differ. [W. F.]
This handsome shore-bird is hardly so epicurean in its tastes as its popular name implies. No doubt it would not refuse oysters when procurable, but it is well content with the more plebeian mussel, which, with other molluscs such as limpets and various univalves, form its chief food. Another name, not so widely used, but perhaps more appropriate, is seapie; the beautifully clean black and white of the bird's plumage gives it, especially when on the wing, a conspicuous pied appearance.

The oystercatcher occurs either in the nesting season, on migration, or in winter throughout Europe and the greater part of Asia. It is seen on our coasts throughout the year, although during the nesting season parts in the south and east are almost deserted, save for a few non-breeding birds. It is, in fact, far more in evidence as a shore-bird during the autumn and winter, for although many pairs nest on sand and shingle shores, and rocks near the sea, large numbers resort to inland localities for the breeding season. The resident flocks are considerably augmented in autumn and winter by the southward movement of large numbers of birds from more northern nesting-places.

The stretches of shingle beach by Highland rivers, more especially when in the form of islands, are favourite nesting-sites of the oystercatcher. In Scotland, where such river beaches are very common, many pairs of oystercatchers may be found far inland, each pair in possession of an island or strip of beach. On the larger islands several pairs may find accommodation, for although territorial rights are jealously guarded, there is no very definite rule as to the extent of the domain reserved by each pair of birds, some nests being very little distance apart. So many pairs may be found
nesting together on certain very extensive sea-beaches, that the species may almost be said to be gregarious. They are said to be especially numerous on some of the Shetland Islands, and "when the young are just hatched the chatter of the thirty or forty pairs of birds forming a colony" is described "as perfectly deafening."¹

When the eggs are laid on sand or shingle a slight depression is made, and sometimes a little coarse grass is introduced by way of lining, but as a rule the oystercatcher likes best to pave its nest with shells and stones. On the Farne Islands I have seen nests on sand containing quite a collection of broken shells, and there were also shell nests on masses of seaweed among large water-worn boulders of rock.

In the case of those I saw on rocky islands in the west of Scotland, the eggs were often on shelves of rock, and also in hollows scraped in fine turf. Both forms contained shells and stones, those on the rocks just a few pieces of shell and a stone or two, but those in turf were quite substantially paved. In some cases nests—especially if among broken rocks and stones—are neatly paved with a large quantity of small stones, about the size of peas. There is on the whole less variation in nest material than in actual habitat. Although on river beaches the nest is sometimes on bare sand or gravel, those parts are more often chosen where a scanty vegetation of short grass and stunted heather is scattered among large stones and rock boulders. Often a promising-looking shingle-bed is neglected in favour of short grass turf, ornamented with patches of the bright-coloured flowers of the sea-pink. Less often nests may be found on bare mud. Quite unexpected sites are frequently chosen. One nest was found on top of a ploughed hill,² another loosely made of heather twigs was found in a tussock of grass in a field.³ A cavity on the top of a felled pine tree, and even a previously robbed nest of a herring-gull, have been used.⁴

A decided preference is shown for an open situation, but occasional departures have been recorded. A correspondent of the *Field* stated that in the west of England he often found them nesting among bracken, while one nest was concealed in a thicket of grass and brambles.\(^1\) Mr. Seton P. Gordon found a nest “in the middle of a larch wood on a river island, and the oystercatcher looked strangely out of place as she got off her eggs and ran rapidly through the wood.”\(^2\) As a rule the nesting-grounds are quite near water, salt or fresh, but occasionally at a considerable distance from it.

The birds repair to the breeding-grounds from March to April, according to the locality. Mr. Gordon has seen them migrating in pairs up the rivers in Scotland as early as March 4th, and he states that however bad the weather may be they do not return to the coast, but remain on through severe frost and snow, when many of them may be found dead on the river banks.\(^3\) A pair, however, which each nesting season visited a gravel island in a river in Perthshire, which was watched for several years, generally arrived about April 8th, the male preceding the female by a few days. There was of course no certainty that they were the same individuals year after year; possibly not, as the observations extended over many years. The island was always inhabited by one pair but no more. Other birds came to the island at uncertain times during the nesting season, but their visits seldom lasted more than ten to fifteen minutes, during which time the birds kept up a strange wild musical noise as they chased each other about. The strangers would then depart, and no more would be seen for weeks.\(^4\)

The usual call-note of the oystercatcher is loud and shrill, monosyllabic, and often repeated. A dozen or so birds in a small flock, flying with rapid wing-beats low down along the edge of the surf, maintain a continuous utterance of this note, which heralds the approach of the birds, swells in volume as they draw near, and then

\(^{1}\) *Field*, 1901, vol. xcvii. p. 797.  
\(^{2}\) *Birds of Loch and Mountain*, p. 102.  
\(^{3}\) Ibid., p. 97.  
OYSTERCATCHER AND TURNSTONE

rapidly dies away as they pass out of sight and hearing. The note has been rendered by Professor Patten, "quick-quick-quick,"¹ and "hic-hic" by Saxby, who also likened the call-note to the words "my feet."² Of the various renderings given, none, in my opinion, is so suggestive of the cry as Naumann's "hüihp" or "kuihp." When several fly together near the nesting-places it is "kwic, kwic" (short and sharp); or one may begin "kewic, kewic, kwic, kwic, kwic, kwic, kwic, kwirrrr."³ The latter, which is stated to be heard only in spring near the nesting-places, is no doubt the pairing-song, which is a clamorous piping, full and shrill. Like the pairing-songs of many birds, it continues more or less throughout the nesting season; it is sometimes uttered on the wing, but more often in actual courtship on the ground. A courting male approaches the female, and bowing his head until the tip of the long red bill nearly touches the ground, he utters his long quavering trill or piping song, swaying his head from side to side in rhythm with the music. Mr. Selous observed oystercatchers so engaged as late as July, when, as he says, the true courting season should have been over. He noticed at this time that more often than not two males would pipe to one female, and although the pipers showed signs of rivalry, and on rare occasions active hostility, they seemed to be more engrossed with their musical display than with sexual matters. The show of rivalry seemed to be due rather to professional than sexual jealousy.⁴ Certainly in the beginning of July, when young oystercatchers can fly and are thinking of flocking, such antics of adults, even if identical in appearance, cannot have the same sexual significance as in the spring during the period of real courtship. It is suggested that this belated musical display marks the progress of development from a purely sexual habit to one of a friendly social character analogous to the ceremonial displays—in which three birds take part—of the spur-winged lapwing of South America. One point in his arguments upon which Mr. Selous lays great stress is the frequency with which one

¹ Aquatic Birds, p. 249.
² Birds of Shetland, p. 172.
³ Naumann, Vögel Mitteleuropas, viii. p. 96.
⁴ Bird Watching, pp. 90-93.
may, in the pairing season, see three birds of a species flying together in apparent friendliness.¹ This, too, at a time when sexual feelings should run so high as to make impossible any but furiously hostile relations between males when a female is present, and the sporting trios generally appear to be made up of two males and a female. I have frequently noticed these friendly flights of trios in several species of Waders, the lapwing, most commonly (see ante, page 379), but also snipe, redshank, ringed-plover, and curlew. All these species live more or less gregariously immediately prior to the pairing season, and as the amicable association of three birds is most noticeable in the beginning of the pairing season, an obvious inference is that sexual feelings are hardly yet dominant over those that rule during the sociable period. In the instance of the oystercatcher, the “association of three” was observed at the end of the nesting season, the lack of male combativeness during the performance of a sexual display presumably indicating the waning of sexual activity. The probability is that the display outlives the feelings that give rise to it. It is not by any means rare to see birds performing their courting antics at times when these can no longer be influenced by the same feelings, or have the same significance, as in the spring. All of which is strongly in favour of Mr. Selous’ theory that social ceremonial displays have been evolved from sexual ones.

To return to the oystercatchers and their July piping parties. The piping of the males depends on the presence of the female. It begins by a male piping before a female. Another male in the neighbourhood hears the note, becomes interested, pipes a little, and then flies direct to where the performance is taking place. He places himself by the side of the other male, and the two pipe together to the female. Generally unresponsive, the female may walk away, when she is followed by the two males, who continue their serenade. In one instance observed by Mr. Selous, the female flew down to a lower shelf of rock, and the two males piped down to her from above, and

¹ Bird Watching, p. 85.
when at last she flew away they, with a few single querulous notes, assumed their ordinary attitude and walked disconsolately about. The flight of the female always ended the performance. Although the male faces the female when he begins, “having once begun, he seems more enthralled by his own music than by her, and will turn from side to side, or even right round and away from her, as though in the rhythmical sway of his piping.”\textsuperscript{1} The piping song is syllabled by Mr. Selous as “\textit{kee kee kee kervee kervee kervee kervee kervee},” a loud and ear-piercing clamour. Gradually, however, it sinks, becoming in its later stages quite faint, and ending commonly in a sort of long drawn out quavering trill.”\textsuperscript{2}

These piping parties have also been observed by Mr. Seton Gordon. His description differs somewhat, but not very essentially, from that of Mr. Selous. He describes it as a “kind of follow-my-leader game indulged in by three or four birds, and very often in the calm of a summer evening. The birds run backwards and forwards with their heads down and bills almost touching the ground.” The piping notes are “uttered slowly at first, but soon follow each other in rapid succession.” A somewhat similar action was observed during an attempted eviction of a pair of oystercatchers from their home on a river island by another pair of the same species. First one bird appeared on the scene, and with repeated swoops drove the sitting female from the eggs. “Then he (\textit{i.e.} the intruding male) and the pair in possession rushed backwards and forwards across the islet, whistling loudly, and looking very comical with their heads almost touching the ground.” Whenever the female attempted to go back to her nest, “the intruder went for her immediately and swooped repeatedly at her, she receiving the onslaught with tail in air, which seems the recognised mode of defence among ground-nesting birds.”\textsuperscript{3}

The oystercatcher makes several additional nest scrapes close to the one destined to receive the eggs.\textsuperscript{4} I can find no recorded observa-

\textsuperscript{1} Bird Watching, p. 93.
\textsuperscript{2} Ibid., p. 92.
\textsuperscript{3} Birds of Loch and Mountain, p. 105.
ations as to the conditions governing the formation of these scrapes. Probably, as in the case of the lapwing, they are made by the males, but in the absence of direct evidence it is not safe to assume too much. Saxby says, "The male has a fancy for constructing numerous others (i.e. scrapes) while his mate is sitting."¹ The nest scrape—like that of the stone-curlew—is irregular in form, and measures about six or eight inches across. The greater part of the lining is added after incubation commences. This applies also to many other Waders, especially those that nest on sand and shingle, and ornament their nests with shells and stones. The normal number of eggs in a clutch is three, and, following the constant rule in this family, they are not pyriform as are the eggs of those species which lay four. The eggs of the oystercatcher tend to an oval shape similar to those of the stone-curlew and the Terns. Nests with four eggs are occasionally found, somewhat more frequently in fact than are clutches of five in a nest of any Wader species that normally lays four. One was found at Blakeney in 1907 containing four eggs. This nest was within 40 yards of the site occupied by a similar one in the previous year, and was—very fairly—presumed to belong to the same pair of birds.² Both sexes incubate, but the female is said to bear the greater share of the task,³ although Naumann states that she sits only at night or very seldom during the day.⁴

The oystercatcher is a very light sitter, especially when the nest is in a flat open situation. The male stands on guard on a rock or other slight eminence, whence he can sight danger afar off. At his warning pipe the female, with lowered head, runs rapidly away from the nest. During the early days of incubation both birds are very quiet and loth to take wing. When examining a nest, I have noticed the birds running to and fro, a good distance away, and occasionally standing still and peering anxiously in the direction of their home. Later, and more especially when the young are hatched,

¹ *Birds of Shetland*, p. 175.  
² *Zoologist*, 1908, p. 126.  
⁴ *Vögel Mitteleuropas*, viii. p. 90.
the old birds fly close around, piping and mobbing frantically. Other birds nesting near join in, when the clamour assumes most bewildering proportions. It has been stated that the birds remove the empty egg-shells from the vicinity of the nest.¹

The downy covering of the chicks is protective in colour and texture, and differs considerably from that of the generality of Waders. It is a “tabby” like mixture of black and grey, short and close, and in texture not unlike the down of the young stone-curlew. They crouch low in response to the warning cries of their parents, but lack sufficient patience to profit fully from their protective coloration, often struggling up on to their thick legs and running—piping thinly as they go—when they would be safer from detection crouched on the ground. Mr. Kirkman tells me that he once found a fully fledged young bird crouching, as if lifeless, in seaweed drift. It permitted him to pick it up and drop it four or five times, before it chose to come to life and run away. The young grow very fast, and it is said that they can fly in about three weeks.²

Flocking commences in July, when the inland nesting birds make their way to the coasts. Mr. Seton Gordon states that many birds remain inland throughout August and even during part of September.³

The same observer has noticed that when uttering the double alarm-note—that syllabled “*keep-a keep-a*” or “*my-feet*”—the oystercatcher modifies its wing-beats to the time of the note, which is “uttered half during the upward stroke and half during the downward.” This necessitates a slower action of the wings than usual.⁴ This habit of flying in time with a note, especially when the young are in danger, may be observed in other species.

Early in August flocks of oystercatchers, chiefly birds of the year, appear on the east coast; these are probably home-bred birds taking part in the general southward movement. About the same time, or a little later, there is an influx from the Continent, and from

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¹ *Birds of Loch and Mountain*, p. 100.  
³ *Birds of Loch and Mountain*, p. 102.  
⁴ Ibid., p. 101.
now throughout the autumn and winter large flocks may be seen on the coasts, especially where there are large mussel-beds. In the west of Scotland the flocks often number one hundred or more birds. When disturbed whilst resting, these generally break up into two or three smaller companies, each apparently with a leader who acts as guide.¹

Although, as before stated, the oystercatcher’s diet is a varied one, yet it feeds very largely on shellfish, more especially mussels, as the fact that its bill is specially modified for opening the shells would indicate. Moreover, it has been shown by careful observation, as set forth in a most exhaustive treatise by Mr. J. M. Dewar,² that, apart from the specialised form of its bill for gaining entrance through the shell, the oystercatcher employs deliberate method, varying with the position of the mussel, to secure the contents, skilfully removing “certain structures which hinder the achievement of its desires.” The oystercatcher being a most wary bird, and its feeding-grounds, as a rule, very exposed and open, close observation of its habits while feeding is attended with unusual difficulties, and requires considerable patience. By supplementing his observations of the birds whilst engaged on the scalps with an examination of the empty shells, Mr. Dewar was able to give some interesting statistics. Of the shells opened by the oystercatchers, it was found that approximately 78 per cent. were opened through the dorsal border, 9 per cent. through the ventral border, and about 13 per cent. through the posterior end. The preponderance of the first form is due to the fact that in their normal position on the banks the mussels present their dorsal borders. These are practically invulnerable, except when the valves are slightly separated, and this—the mussel’s attitude of rest—is “possible only when the shells are under water, or in moist situations.” If dry the mussels must close their valves, or the delicate internal structures would shrivel. Fresh water has the same effect as dryness; heavy

¹ Gray, *Birds of the West of Scotland*, p. 270.
² *Zoologist*, 1908, pp. 201-212, from which all the details relating to the feeding habits of the oystercatcher are culled.
rain, by flooding the scalps with fresh water, and causing the mussels to close their valves, militates against the success of the oystercatcher.

Although so small a proportion of shells is found to have been opened through the ventral borders, owing to the fact that mussels are normally attached to the beds by the byssus protruding from this border, yet in a tightly closed shell the narrow round-edged fissure in the middle of the ventral border is the weak point in the mussel's armour. Therefore, when this surface is exposed, even if the mussel is dry, it is always vulnerable to the attack of the oystercatcher. Mr. Dewar says, "When oystercatchers are seen at work on dry mussel-scalps, it may be taken for granted that they are searching for these mussels (i.e. with the ventral surface exposed), and I have found repeatedly in these cases that only those mussels were opened of which the ventral borders were uppermost."

Mussels larger than one inch and five-eighths by seven-eighths of an inch are apparently not attacked. Those most frequently taken vary between this and one and a quarter inch by half an inch. Smaller mussels than this are taken only "when larger sizes are not available." This refers to shells that are opened. Those of smaller size, up to half an inch long, are swallowed entire.

From the above it will be seen that the oystercatchers' richest harvest is directly the ebb leaves the scalps exposed, and again when the rising tide flows over them. At the latter time the birds continue their search until they are flooded off their feet by the rising tide, when they betake themselves to favourite resting-places above high-water mark. They spend the time until the next ebb in resting from their labours during the process of digestion of their well-earned meal. They rest head to the wind, and dispose themselves in long straight lines. They often stand on one leg whilst at rest, as do all Waders, and Macgillivray states that he has seen them crouched on the ground.¹

When the ebb leaves the scalps dry and the majority of the mussels are invulnerable owing to the closing of the shells, there are still available those few whose ventral surfaces are exposed. The oystercatchers appear then to divide the time until the tide turns between searching for these latter, hunting for suitably placed mussels under the wet edges of the bank, in pools, and also for those covered with sand or mud. The oystercatcher finds buried mussels by a process of tapping the surface of the ground with the tip of its bill. "At first the ground is tapped here and there in tentative fashion. Sometimes a single tap leads directly to the mussel; more often numerous taps are made in a small area until one is made in the right place." The oystercatcher then sinks its bill quickly into the sand, and deals with the mussel in much the same way as when they are exposed on the banks. Mr. Dewar states that more mussels are opened by way of the ventral borders when buried than when exposed. It is difficult to see why this should be, unless it is that the mussels, when buried, are less likely to occupy their normal position.

When the tide has receded far enough to enable the oystercatchers to work on the banks, they may be seen walking sedately about searching for slightly gaping shells. They carry their heads well forward and their bills in a position ready to strike.

Each mussel is approached in the line of its major axis, and is submitted to a careful inspection, usually from the front. If the mussel meet with approval, the oystercatcher strikes a sharp blow with the point of its bill on the summit of the dorsal border, apparently to find out whether or not the bill will pass between the edges of the valves. When the result of the tap is favourable, the bill is pushed down into the mussel before the valves have time to close, by a number of jerks with great rapidity and force, and the shells are finally separated by various levering methods described in detail by Mr. Dewar.

Similar methods obtain in opening mussels through the ventral
borders; these, unlike those opened from the dorsal side, seldom or never exhibit damage to the margins, and many are opened without fracture of the valves. Mussels opened through the posterior ends are never fractured, although there may be slight comminution of the thin edges of the valve where the bill enters. The process of opening is comparatively simple: after the bill has been inserted and pushed home, vigorous shaking sideways effects an opening.

As a rule mussels are detached from their anchorage before extraction of the contents takes place. If the ventral border is exposed, opening takes place before detachment, but when entrance is gained through the dorsal borders, the valves are first separated slightly, and opened up after the shell is detached. There is good reason for this distinction, as the mussel rests more securely on the ground on its rounded ventral surface than on the thin dorsal edge. The oystercatcher effects detachment of the mussel by gripping one valve between its mandibles—the upper one inside the shell—and by giving a few vigorous shakes and an upward pull.

Throughout the entire process of opening the shells and clearing out the contents, the oystercatcher shows considerable celerity and skill. The knife of an expert oyster-opener is not used with more certainty and familiarity with the anatomy of the mollusc operated on than is the bill of the oystercatcher in dealing with a mussel. The posterior and anterior adductor muscles are cut through as the bill is thrust vertically down between the borders of the valves, and in a way that, as Mr. Dewar says, "goes far to prove that the oystercatchers are acquainted with the position and relative importance of the two muscles, and fully realise the necessity for their early destruction." After the bulk of the mollusc has been removed and swallowed, the bill, used like a pair of scissors, starts at one end of a valve and snips away the portions of the mantle still adhering to the shell. "After reaching the opposite end of the shell, the bill is returned to one side of its starting-point, and snips its way along
a line adjacent and parallel to the preceding, and so on until the adherent flesh has been removed from both valves."

In searching for limpets, an oystercatcher has been observed to examine shell after shell, presumably looking for one slightly raised from the rock; when it found one suitable for its purpose, it thrust the end of its bill between the limpet and the rock and neatly turned it over. Saxby states that, after being detached, the limpets are carried to a convenient place to be emptied and eaten, and that vast accumulations of empty shells may be found on favourite spots.

Oystercatchers frequently resort to fields to feed, and have been seen following the plough—as do rooks and gulls—and profiting by the animal food disturbed. Gray relates seeing two or three pairs near a farmstead, feeding within twenty yards of pigeons and poultry.

The oystercatcher is an expert swimmer. Wounded birds take readily to the water in their endeavour to escape, but unhurt birds have been observed on many occasions to enter the water voluntarily. A flock was seen to alight on the sea a long way from land. The sea was calm, and it was supposed that the birds were attracted by shoals of herring-fry. Saxby relates having seen one of a small party on a rock jump into the water, and swim about looking for food in parts of the rocks only to be reached from the water. Young in down have been seen paddling themselves across a river, while their parents hovered overhead calling piteously.

1 Gray, *Birds of the West of Scotland*, p. 270.
3 *British Birds* (magazine), iv. p. 317.
5 Ibid., p. 209.
虽然在夏季几个月中在英国各岛的各个地方频繁遇到，但有强烈证据表明它可能在繁殖，没有令人满意的经过证实的繁殖实例。Saxby认为该物种在设得兰群岛筑巢，并且在6月中旬他发现了一对，雌鸟的行为使他相信她筑巢了。经过长时间的寻找，他发现了一个巢穴，里面有三个蛋，他认为属于这对鸟。但他没有看到它们中的任何一个去鸟巢。Saxby对蛋的描述几乎没有疑问它们确实是转石的，这几乎不可能与任何其他英国涉禽混淆。遗憾的是没有交上给某个公认的权威鉴定。这种物种也被认为在亚速尔群岛和加那利群岛筑巢。繁殖季节在其他地方出现的鸟的可能解释是每年都有一定数量的鸟不繁殖，因此不向北迁徙。同时，也有理由假设转石有时与我们筑巢，很可能在爱尔兰，或在苏格兰的西部或北部的岛屿。在分布上，转石是最具世界性的鸟类，出现在地球几乎每部分的海岸。对我们来说，它主要是春季和秋季迁徙的鸟，向其北部繁殖地迁徙和返回（参见"分类注释"）。春季迁徙时，转石在繁殖羽毛中。1 Birds of Shetland, p. 171.
pass along our coasts, sometimes in very large numbers, from the end of April to the first week in June. These dates are given by Dr. N. F. Ticehurst for Kent, and I think may be taken as the limits of the overseas migration. The few birds that pass the winter with us probably move north earlier than those that winter farther south, as migratory movements have been observed in the Isle of Man as early as March 21st and in Cheshire on April 10th.

Of the habits of the turnstone in the pairing season but little appears to have been recorded. Expeditions to their nesting-localities have generally had as a main object the collecting of eggs; and the published accounts have generally been limited to exhaustive descriptions of how the nests were found. Mr. Trevor-Battye, during his enforced sojourn on the Island of Kolguev, ascertained that the turnstone makes several false nests, or scrapes, as does the lapwing (see p. 372 et seq.), and that—like many other species of Waders—the male has a note or song peculiar to the nesting season, which he describes as pretty, and renders as “chíwáh-chíwáh-chíwéekí kí kí kí kí kí.” The ordinary note uttered on the wing is a long chuckling twitter, very difficult to describe in words. Professor Patten renders it “chic-a, chic-a chic-a chée.”

In some localities the turnstone nests near the sea, but it more often frequents moors and barren fells several miles inland, and at a fair altitude. Hewitson, who appears to have been the first English naturalist to describe the nesting-habits of this species, found the birds nesting on small rocky islands off the coast of Norway. The first nest found was placed against a ledge of rock, and under a creeping branch of a juniper bush, a few leaves of which served as lining. The Rev. H. H. Slater found them breeding in Iceland on a lichen-covered moor seven miles from the sea, and at an altitude of

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1 A History of the Birds of Kent, p. 434.
4 Icebound on Kolguev, p. 432.
5 Aquatic Birds, p. 245.
6 Yarrell, British Birds, iii. p. 292.
five hundred feet. He found them also in Kolguev and Novaya Zemlya some distance inland and on high ground.¹ In North-east Greenland, Herr Manniche found this species “nesting very commonly almost everywhere,” generally on dry, stony, sparsely covered table-lands and moors, both far inland and also near the sea, but never on the smaller islands, although these were visited occasionally by the birds. A decided preference was shown for localities “near an inundated tract, a bog, or fresh-water pond,” to which the birds often led their young ones.²

An interesting observation by Herr Manniche is to the effect that in N.E. Greenland all the Waders were very regular in their arrival. The turnstones all arrived on the “same day and hour”; on May 28th and June 2nd respectively of the two summers he was there. He states that for a short time after their arrival they feed chiefly on vegetable food, but he saw them also turning over stones and searching for larvae and pupae of insects. Incubation is shared fairly by male and female, the brooding spot being equally developed in both sexes.³ Buffon’s skua, which is very numerous in Greenland, is, according to Manniche, “a detested enemy of the turnstone.” Other Waders share the turnstone’s dislike for this handsome skua, but none show such pertinacity in attacking and mobbing it. Whenever a skua appeared near the nesting-grounds it was immediately pursued by first one and then another of the enraged little birds. Whilst one of a pair brooded the eggs or tended the chicks, the other stood on guard on the summit of a large rock, and as soon as it recognised the skua from afar, rushed “towards him uttering furious cries.” The polar-fox was received in the same way. Although the male turnstone takes his share in hatching the eggs, and assists in guarding and tending the chicks while very young, he leaves them to the female long before they can fly, and joins the flocks of male sanderlings and knots,

¹ British Birds, their Nests and Eggs, v. p. 89.
³ See also British Birds, their Nests and Eggs, v. p. 88.
and together with them leaves the country about the middle of July.¹

The female adopts to a certain extent the "injury feigning" device for the protection of her young. Herr Manniche says, "The young ones would often resort to the upper part of rather high rocks, while the old female, incessantly crying, and anxiously flapping, tried to divert my attention from them." Until the young birds can fly, the females remain with them, but in the beginning of August the young ones flock and go to the coast and the mouths of rivers, where they mix with the flocks of other young Waders. The old females now leave the country, and are followed at the end of August by the young birds.²

If this order of migration from Greenland recorded by Herr Manniche is correct—and so good an observer would be pretty sure of his facts—it should help us to understand the order of the arrival on our shores in late summer and autumn of this, and possibly other species of Waders. The date on which the young are independent of the care of their parents would not vary much in the different localities in which they breed. The middle of June would—in most Arctic localities—be the most favourable time for the commencement of egg-laying. Even in their most southern nesting-places they would not start much earlier. The eggs found by Herr Manniche during the last days of June were much incubated. The habits of the birds would no doubt be the same in all breeding-stations. It may therefore be presumed that it is the rule for the males to leave the breeding-grounds about the middle of July. This may well account for the fact that a few old birds in breeding plumage generally precede the autumn arrival of young birds. Some of the birds that migrate by way of our coasts must come from localities where emigration takes place earlier than in Greenland, for it is not by any means unusual to meet with small parties of immature turnstones in the first week of August. In 1910 they were observed

on the Hampshire coast, arriving in numbers as early as August 1st; there was a daily increase up to the 11th, when the maximum was reached. From this date there was a steady decrease, and the last birds were seen on the 28th, on which date large numbers arrived in Devonshire. I have seen them on the Norfolk coast in the first week of August, generally in small parties of five or six, and always immature birds. Like the immature birds of other species of Waders that come to us direct from remote northern localities, these young turnstones are tame and confiding, giving excellent opportunities for watching them as they run busily about in search of food.

The turnstone, unlike most of its congeners, is seldom seen standing in contemplative mood, waiting for the ebb, for its food lurks under the dried seaweed and various rubbish thrown up by the tide, as well as under stones, large and small, which are quite as productive above as below high-tide mark. Its habit of turning over stones for whatever living creatures are concealed beneath explains its familiar name. The birds generally work in small parties, each runs busily from stone to stone, puts its bill under the edge, and deftly turns it over or aside. Bits of drift-wood, oyster-shells, and clods of mud are served in the same way; seaweed it tosses from side to side, while it examines with quaint sideways glances every crack and cranny in the rocks and larger stones. It lifts small and moderate-sized stones and other objects with a quick upward motion of its bill. The larger, heavier ones it raises a little with its bill, then crouching low down, applies its breast to the raised edge and pushes until the stone rolls over. Various instances have been recorded of several turnstones uniting their efforts to dislodge an object too large for one to manage. Edward, the Scottish naturalist, saw two turnstones trying to turn over a codfish, three feet long, partly buried in the sand. They tried hard with their bills, then with their breasts. Failing to move the fish, both went to the other side and began to scrape away the

sand and so undermine it. For a long time they were observed to work unsuccessfully. After nearly half an hour they were joined by another turnstone, which they hailed with evident signs of joy. This, the newcomer seemed to understand and appreciate, and, mutual congratulations over, all three fell to work. After vigorously removing sand for a few minutes, they tried to shift the fish by putting their breasts simultaneously against it. This they tried several times, the fish falling back again into place. At last, having lifted it with their bills until they could get their breasts under, their united efforts prevailed and the fish went over, rolling several yards down a slight declivity. The birds, unable to recover their balance, followed it for some distance.¹ A similar observation was recorded by Mr. Angus, who in 1890, in company with a friend—Mr. Mitchell—was watching for birds opposite “Black Dog” on the north side of Don-mouth. As they lay concealed, they saw a flock of turnstones alight quite near, and set to work on a salmon partly embedded in the sand. Some dug the sand away, whilst others pushed, until after working some time they turned it over. It fell on some of the birds that were digging; two managed to get free, but one—before it could extricate itself—was caught by a dog belonging to the watchers.²

These two records are corroborative in interesting particulars, and indicate a special procedure when the turning over of an object too large for the efforts of a single bird promises an adequate reward to as many as can work together. In both cases the special procedure was similar, viz. digging the sand away from one side of the fish and pushing at the other side. Mr. A. H. Patterson notes that the co-operating turnstones are not always left to the exclusive enjoyment of their labour, for hungry dunlins and other small Waders may seize the occasion to run up and join in the meal.³

The turnstone is a very conspicuous bird when flying, owing to

¹ Romanes, Animal Intelligence, p. 322 (quoted from Smiles’ Life of Thomas Edward, pp. 244-6).
the large patches of pure white on its wings and body, which give it a markedly pied appearance. It is not unlike a miniature oystercatcher, although the two species differ in their method of flight. The wings of the turnstone generally appear to be arched, owing probably to their not being fully extended. It is rather wavering, and frequently describes part of a circle in its flight. The oystercatcher, on the other hand, flies very straight, with strong regular beats of its fully extended wings.

The turnstone, like most Waders, can swim well on occasion. Some were observed by Mr. Hume to swim with ease, sitting gracefully on the water outside the foaming breakers, ever and anon rising and flying a little way, then again settling on the waves.¹

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