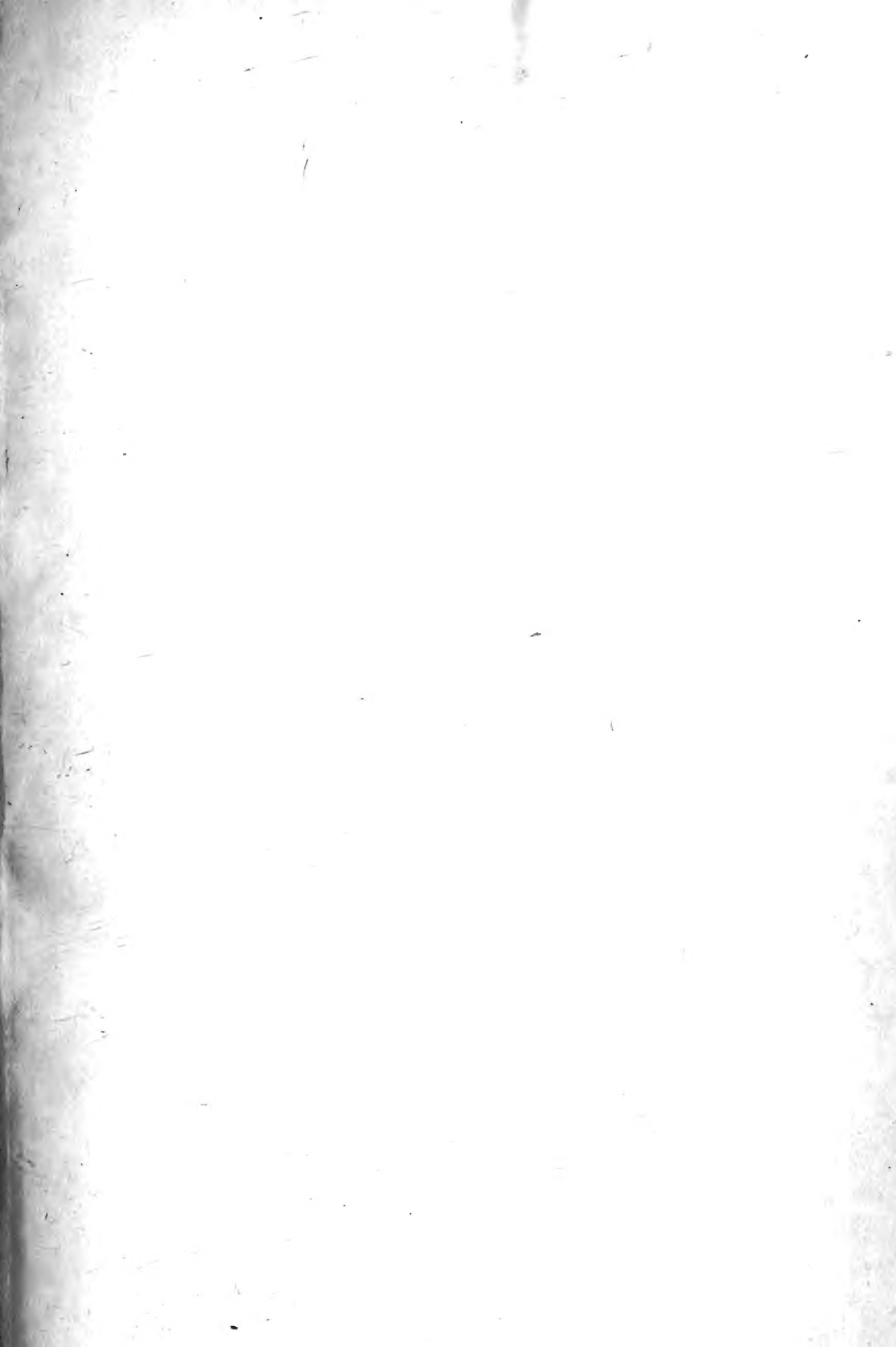




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EDITED BY

J. E. HARTING, F.L.S., F.Z.S.,

MEMBER OF THE BRITISH ORNITHOLOGISTS' UNION.



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## P R E F A C E .

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ONCE more it becomes the pleasing duty of the Editor to congratulate the readers of this Journal upon the completion of another volume, forming the eighth of the Third Series, and the forty-second since the commencement of its existence in 1843.

These congratulations are due to them rather than to himself, for it has been mainly through their labours and co-operation that the volume has been filled, and another sheaf thus stored in the granary of Zoology. Of the quality of the grain in this sheaf it might seem ungrateful to speak in any but terms of praise, yet, like the farmer who is proverbially "never satisfied," the Editor is always "hoping for better times." The fact is, that with a little more labour on the part of the reapers the value of the harvest might be materially improved.

If the Editor could persuade some of his younger contributors to read more of the literature of the subjects on which they write, and extend their observations some way beyond the mere identification of a species, he is satisfied that their communications to this Journal would not only bring infinitely more credit to themselves, but would be of greater utility to others.

The literature of Zoology is now so extensive that one can scarcely be expected to do much more than keep oneself

generally *au courant* with the teachings of leaders in the science. Every real worker now-a-days is a specialist, and a man has enough to do (particularly if with other occupations) to study the literature of his own subject.

For specialists no more useful annual has ever been designed and published than 'The Zoological Record,' by reference to which the reader may discover what books and papers have been printed during the previous year in any department of Zoology at which he may happen to be working. This renders it no longer possible to plead the excuse of want of time to look up references to one's subject. The recorders do it for us, and thus the materials are all at hand, ready to be utilised.

'The Zoological Record' has a further use. An attentive consideration of its contents shows us not only what has been done, but what remains to be done; what doubtful points require elucidation; what discoveries have yet to be made. There is no need to travel over well-worn roads or dig in exhausted soil.

A glance at 'The Record' will suggest new fields for labour in all directions, and the Editor would fain hope that, during the forthcoming year, the suggestion which he now makes in the interest of his readers and of science may find favour with many contributors to this Journal, both old and new.

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ORNITHOLOGICAL NOTES FROM NORFOLK AND SUFFOLK.

BY T. E. GUNN, F.L.S.

SINCE the publication of my former notes in 'The Zoologist' for 1880 (pp. 49-54) so many demands have been made upon the spare time at my disposal that I regret I have been unable until now to prepare any further notes for publication. The following remarks on specimens which have since then passed through my hands may, I hope, prove of interest to your readers.

OSPREY.—A fine male Osprey was killed at Westleton, near Saxmundham, in Suffolk, on September 26th, 1881. Its last meal I found had consisted of a small roach, the teeth and other hard bony parts of which I found in its stomach. It measured 5 ft. 4 in. across its fully-extended wings, 2 ft. in length from beak to tail, and weighed 2 lb. 10 oz. An adult female, killed at Lowestoft on October 7th, 1882, and sent me the following day, weighed 3 lb. 9 oz., and measured over six feet across its extended wings; the feathers on the breast of this bird were very ragged, being cut and broken.

KITE.—An adult female bird of this species was picked up dead on the sea-beach at Aldborough, in Suffolk, on Sept. 23rd, 1881; evidently exhausted in its migration to this coast, it had dropped into the sea and was drowned. It was washed ashore in a particularly fresh condition, and I found no marks on its body to indicate its having received any injury to account for death. The plumage was in perfect condition, and the body rather fat. Its weight I found to be 2 lb. 8½ oz.; total length from tip of beak to end of tail, 26½ in.; in the extreme measurement of its fully-

extended wings, across the back to tip of each, 1 in. over 5 ft. ; in the tail  $14\frac{1}{2}$  in., from tip of centre feathers to root, the outer feathers of each side of tail being the longest ; the others graduating in length to the centre, which are the shortest in the tail. The stomach contained a mass of dried grass and two yellow berries about the size of peas ; this matter had evidently been swallowed with its natural food, and was in process of being formed into a ball or pellet for the purpose of being ejected. A few days afterwards—namely, on the 7th October—a second specimen, likewise an adult female, was obtained at Winterton, on the Norfolk coast, and also forwarded to me. On looking over my notes for some years back I find an account of an adult male shot at Martham (near Winterton) on December 30th, 1865, and it will not perhaps be amiss to quote a portion of my remarks with reference to its measurements for comparison with those of the specimen last obtained :—In total length it measured 27 in., which is but half an inch longer than the female ; and precisely the same in width across the extended wings and in the length of the centre tail-feathers, the outer feathers projecting  $3\frac{1}{2}$  in. beyond those of the centre. The principal difference, however, appeared in the weight, which was 1 lb. 14 oz., or  $10\frac{1}{2}$  oz. less than the female, although in plump condition. The stomach contained only a few bits of weed and the winglet of a Scoter.

PEREGRINE FALCON.—A Falcon in adult plumage was killed on March 7th, 1882, at Bixley, near Norwich, and brought to me by a friend. Although the plumage was perfect, the bird was in poor plight, which suggested that it might be infested with parasitical worms. On skinning and dissecting it, this surmise proved correct, as I found between the intestines and back a small colony of these parasites, consisting of seven or eight individuals, two of the longest measuring as much as 12 in. each in length. On December 29th, 1881, another adult Falcon was sent to me, which had been killed at Pulham St. Mary, near Harleston, and possessed a rufous-tinted breast that reminded me very much of the nearly-allied *Falco atriceps* found in India, as figured in the 'Ibis' for 1882 (p. 293), but it wanted the closer barring upon the thighs and under parts of the plumage. It had not quite finished moulting. It weighed 2 lb.  $5\frac{1}{2}$  oz. ; total length, 19 in. ; extended wings to tips, 43 in., and 14 in. in the wing from the carpal joint to tip of longest primary.

SPARROWHAWK.—On August 17th last a live female Sparrowhawk was brought me by a groom. It had been attracted by the light from a stable window, and, dashing against the glass, stunned itself, and became an easy capture. After a short time it regained consciousness, apparently none the worse for its mishap, except the loss of its liberty. I forwarded it to the Zoological Gardens, Regent's Park, where I hope it is doing well.

BUZZARDS.—The autumn of 1881, in the Eastern Counties, especially with regard to Norfolk and Suffolk, may be said to have been a remarkable season for raptorial migrants, principally of the larger species. Representatives of no less than seven distinct species passed through my hands during the course of a few weeks. Three of these I have already mentioned. Examples of all three species of Buzzards came to hand, the Common and Honey Buzzards most numerous, at least so far as my experience goes. The first Common Buzzard was sent me on September 27th. On unpacking the bird I found its plumage saturated with water, it having been shot whilst flying over Oulton Broad, and fell with a broken wing. It was quite fat and plump, and, on dissecting it, I was surprised at the extraordinary variety of its food, it having apparently stumbled across quite a larder of good things, which it seemed to have devoured indiscriminately; the crop contained, first, a female dung-beetle, quite entire, the remains of another, the full-grown larva of a privet hawk-moth (*Sphinx ligustri*) swallowed in three pieces; a small toad in an entire state, a larger toad, and a frog in parts; besides a putrid mass of frog and toad bones, beetles, and a small larva, apparently not at all affected by the gastric juice, and showing, I presume, that it had been the last thing swallowed. The gullet also was filled with frog and toad remains; in fact, the bird seemed completely gorged with food. During over twenty years experience I have never before met with an instance of such variation in the food of this species. I have skinned and dissected a large number of Common Buzzards, and have found that their prey almost invariably consisted of the brown rat and common rabbit. The bird in question was a female in immature plumage. On the following day (the 28th) another immature bird, also a female, was killed at Mautby, the stomach of which contained the remains of a common brown rat and a large earthworm.

**ROUGH-LEGGED BUZZARD.**—In the Eastern Counties this bird, during autumn, is usually more common than *Buteo vulgaris*—at least it has proved to be so during the last eight or nine years. The majority of Rough-legged Buzzards that occur in Norfolk and Suffolk are immature birds in the first year's plumage. The only example seen in 1881 (and I heard of but one other) proved to be a female in the second year's plumage. It was killed on November 11th on the coast at Sherringham, and was sent me the following day. The broad band crossing its abdomen was of a very dark umber, several shades darker than in a bird of the first year's plumage; the bars crossing the thigh-feathers also were more numerous and of the same shade of colour. Although this bird was in good plight, it had no food in the stomach. The usual prey of this species consists of rabbits and rats, and occasionally the Water Vole. The average weight is about  $2\frac{1}{2}$  lb.

**HONEY BUZZARD.**—Several specimens were obtained along the eastern coast during September and October, 1881, the majority of examples, so far as I observed, being in the immature plumage of the first year. The first individual in this dress, a male, came to me on September 26th from Burgh, near Yarmouth; and several other young birds were also obtained in the same district, two being caught alive in traps placed for the purpose in the vicinity of wasps' nests, the birds having been previously observed scratching up the earth there. Wasps' and bees' nests are seemingly a great attraction to this species, whose food consists not only of the honey, but the comb-grubs, and the bees and wasps themselves, the grubs being most numerous in the stomachs examined. On dissecting the first-named example I noticed the stomach was small and apparently contracted: it contained only some thick sticky greenish matter. The weight of this bird was 1 lb.  $12\frac{1}{2}$  oz.; the measurements were, total length,  $22\frac{1}{2}$  in.; extended wings, to tip of each,  $48\frac{1}{2}$  in.; wing from carpus,  $15\frac{1}{2}$  in. A specimen in the second year's plumage was sent me a few days later, namely, on October 3rd, from Yarmouth. This was a fine female bird; the feathers of the head and nape were brown and white intermixed, giving those parts a mottled appearance: the broad transverse bars of its breast and flank feathers also showed very conspicuously, being of a deep brown, which contrasted well with the remaining portion of the plumage, which was white; bill and claws black;



eyes, legs, and toes, deep yellow; the back, shoulders, and upper wing-coverts were of a dark umber; the colour of the plumage of the first year is of a paler chocolate-brown.

**MARSH HARRIER.**—On October 15th, 1881, a fine male of this species was shot on the marshes near Hickling Broad. It was just assuming its slate-coloured tail, indicating an approach to maturity. Like the other raptorial migrants obtained that season, it proved in good plight. Just previous to capture it had dined on a Water Vole.

**TENGMALM'S OWL.**—Perhaps a few additional particulars relating to the specimen of this bird in the collection of Mr. J. H. Gurney, jun. (Zool. 1882, p. 115) may be acceptable, Mr. Gurney having placed it in my hands for preservation. The measurements were as follow:—Wing, from carpal joint,  $6\frac{1}{4}$  in.; along the ridge of upper mandible of beak,  $\frac{5}{8}$  in.; tail, 4 in.; tibia, 2 in.; tarsus, 1 in.; middle toe and claw,  $1\frac{1}{4}$  in.; inner toe and claw,  $1\frac{3}{8}$  in.; outer toe and claw,  $\frac{7}{8}$  in.; hinder toe and claw,  $\frac{7}{8}$  in. The first primary short, the second longer by  $1\frac{1}{8}$  in., the third  $\frac{3}{8}$  in. longer than second, and the longest in the wing. The bill of a pale horn-colour, darker on the cutting edges of both mandibles; claws black; the eyes large and of a pale chrome-yellow; pupil black.

**MISSIL THRUSH.**—Whilst driving through Wroxham (seven miles from Norwich), on September 20th last, my attention was attracted by a bird that flew out of the hedge by the roadside. I recognised it as a Missil Thrush, but was struck by its peculiar pied appearance. As it passed me within a few yards I noticed a broad patch of white feathers extending across the back and wings. This species is not, I believe, much given to variation of plumage. I have noticed but three previous instances.

**RING OUZEL.**—Several occurred in the neighbourhood of Norwich early in October, 1882. A male was picked up under the telegraph wires in Heigham on the 7th; another was shot at Earlham on the 9th; and others seen. A male was sent me from Cromer in April, 1883, with patches of white feathers about the head.

**KINGFISHER.**—This bird was unusually abundant in the neighbourhood of Norwich during August, September, and October. Those obtained were mostly birds of the year.

**HOUSE MARTIN.**—A curious variety of this bird was shot on

July 29th last at Kirby Cane, near Bungay. The whole of the upper parts of its plumage were of a pale ash-grey, instead of the ordinary hue, the feathers of the wings and tail edged with white, the usual white upper tail-coverts, and the under parts of the plumage as in ordinary specimens; eyes pale pink. It was in immature plumage, and a female by dissection.

GREEN WOODPECKER.—On February 3rd, 1881, an adult male *Picus viridis* was killed at Cossey, near Norwich. That this bird had exceeded the ordinary limit of Woodpecker life is, I think, clearly shown by the extraordinary length and form of growth its bill had attained. This measured as much as  $2\frac{1}{8}$  in. along the ridge of upper mandible, and also presented a curved form (with the ridge somewhat more raised in the centre) as much as the bill of *Certhia familiaris*. The yellow rump was very brilliant in this specimen, and assumed a rich and deep orange tint in the centre. The posterior red feathers of the crown, extending down the nape, were of a peculiar fiery red. In measuring the bills of several ordinary examples of the Green Woodpecker, I find the average length to be  $1\frac{5}{8}$  in. The specimen in question had been resident in the neighbourhood for some years, visiting almost daily an old tree, from the branches of which it met with its untimely end at the hands of a stranger on a visit to the neighbourhood. I herewith enclose rough outlines of this peculiar growth of bill with that of an ordinary example for comparison.

GREAT SPOTTED WOODPECKER.—An adult male of this species was shot on January 19th, 1881, at Hickling, within two or three miles of the sea, rather an unusual occurrence in that locality. I have known but one other instance of its appearance there during a number of years. In the stomach I found the empty skins of three full-grown larvæ of the wood leopard moth (*Zeuzera æsculi*), the skins uninjured externally, but their contents squeezed out.

LESSER SPOTTED WOODPECKER.—During the past three seasons the occurrence in some numbers of this species in Norfolk and Suffolk shows that it is now not an uncommon bird in the Eastern Counties, although formerly considered so. On February 25th, 1881, an adult female was shot in Ketteringham Park; a pair were seen, but the male escaped. The feathers of the crown of the head in this specimen were white, being intermixed with a

few patches of red; and, as the crown in the adult male is entirely red, this forming the principal outward distinction in the sexes, I am of opinion that the presence of these red feathers in this female, assimilating to the plumage of the opposite sex, is an indication of age; but I am not aware of any instance of its completely assuming the entire red crown of the male. In dissecting the stomach I found it to contain the remains of the larvæ of the wood leopard moth (*Zeuzera æsculi*); I counted the skins of as many as ten small ones. These were mixed with the remains of some minute Coleoptera. On December 28th another, also a female, was shot in Witton Park, North Walsham. This also had been feeding on the same kind of larvæ, which, with the remains of other insects, filled its stomach. The crown of the head in this specimen was entirely white. On February 27th, 1882, an adult male was killed near Wangford, and in February and March, 1883, three males were obtained near Norwich; the contents of the stomach in each instance proved of the same nature as already described.

LITTLE GULL. — A specimen of the Little Gull, in immature plumage, was killed by a gunner named Bensley, whilst flying over Hickling Broad during the second week in October last.

BITTERN.—On December 9th, 1882, a male Bittern was sent me from North Walsham, having just been killed in that neighbourhood. On opening the stomach I found a small pike of  $3\frac{1}{2}$  in. in length, and quite entire.

NIGHTJAR.—In 'The Zoologist' for September and October last (pp. 380 and 429) are recorded several instances of the late nesting of the Nightjar; and Mr. J. H. Gurney, jun., in mentioning some interesting facts relating thereto, seems to be of opinion that this species is generally double-brooded. I cannot say that I quite agree with him on this point, and instances of a second brood I think must be rare. When young birds or eggs have been found late in the autumn they probably indicate that the first eggs had been taken or destroyed, as must sometimes happen from the fact of this bird selecting such exposed situations for the deposition of its eggs. I have received no late nestlings this season, although I did so in one instance last year, when some young birds not able to fly, but with the feathers nearly all in stumps, were brought to me in the middle of August. I have referred to my notes for the dates of finding

other nestling Nightjars, and it appears that they were all met with in the preceding month, July, the dates being the 12th, 15th, 17th, 18th, and 23rd. The Nightjar, as a summer migrant, arrives here rather late, some time in May, and leaves again in September, and there is scarcely a possibility of the young of a second brood, if hatched so late as the middle of August, being sufficiently strong to leave at the period of migration. The occurrence of this species after that month is very unusual; four instances only are mentioned in the new edition of Yarrell's 'British Birds' (vol. ii. p. 378), and I know of but one other such instance myself. There is every probability that the majority of these late-hatched birds must perish of cold or starvation.

WADERS IN BREYDON HARBOUR.—I was shooting on Breydon Water on September 12th, and the first bird that I secured was a fine young male Turnstone, the only one I saw during the day. I also killed some young Knots and Curlew Sandpipers. The sexes of the latter are easily distinguished in this stage, the male being much smaller than the female, and having the breast, neck, and cheeks suffused with a buffy tinge, the same parts in the female being white; both have the ashy grey streaks down the feathers of those parts, but they are more distinct in the female. I noticed several Curlew Sandpipers mingling with the larger flocks of Dunlin and Ringed Plover, but occasionally during the day small parties of seven or eight individuals passed by themselves. I saw a few Greenshanks and Redlegs; amongst the former was a solitary Ruff, which was afterwards shot by Mr. Harmer. The Curlews were, as usual, very shy, and kept well out of gunshot. A Black Tern ("Blue Daw," as it is locally called), in immature plumage, passed our boat, though out of distance, but soon afterwards I shot an adult and immature Lesser Tern. I also recognised Shoveller, Teal, and Mallard. An immature Spotted Redshank (*Totanus fuscus*) and a beautiful specimen of the Manx Shearwater were killed a few days before the date of my visit.

CURIOUS VARIETY OF WATERHEN.—A curious variety of the Common Waterhen was shot near Norwich on April 4th, 1883, and brought to me the following day for preservation. The crown of the head and cheeks circling the eyes are of the usual colour; the anterior portion of the feathers of back of head of a

reddish orange hue ; those of the back and sides of neck dark grey, faintly suffused with a yellowish tinge on the latter parts, the throat-feathers faintly tipped with grey ; the feathers of the back, wing, and upper tail-coverts deep reddish orange colour ; all the under parts greyish white, tinged with pale orange on the flanks, assuming a reddish orange along each side of the vent. The beak and legs, tail-feathers and primaries, of the normal colour. The eyes of a reddish brown, as observed in immature birds of the ordinary type. The bird in question proved a male by dissection, and was apparently fully adult. The thin and hairy nature of these abnormally-coloured feathers impressed me with the idea that from some cause or other the bird had been unable to moult during the preceding season. Mr. Bulwer, who shot this specimen, informed me that another bird, evidently its mate, was flushed by the dog at the same time from the side of the ditch, and, although repeatedly seen afterwards in the same locality, had not, so far as he was aware, been captured ; this bird also presented the same abnormal appearance. Two previous instances of this peculiar variety are recorded in the 'Birds of Norfolk' (vol. ii., p. 422).

LITTLE BITTERN.—An immature female specimen of this rare species was shot on the marshes at Lower Abbey, Leiston, in Suffolk, on August 25th, 1882, and was sent to me the following day for preservation. I noted the measurements as follows :—Total length, from tip of beak to end of tail,  $15\frac{1}{2}$  in. ; fully-extended wings to extreme tips,  $21\frac{1}{2}$  in. ; wing, from carpus to tip of longest primary,  $5\frac{3}{4}$  in. ; tibiæ,  $2\frac{7}{8}$  in. ; tarsus,  $1\frac{7}{8}$  in. : weight, 5 oz. The eye was of a straw-yellow, with a fine circle of a paler tint around the black pupil. The upper mandible on its upper surface was dark horn, the sides paler, merging into a greenish yellow from the nostril to the gape ; the under mandible of a pale horn, with a greenish yellow tinge at gape, the circle around the eye yellowish green ; a stripe of pale brown in front of the eye divides the circle from the gape ; tongue and mouth flesh-colour. On skinning this bird I found the body exceedingly fat, and the stomach distended with the remains of several specimens of the water-boatman (*Notonecta*), including three in so perfect a state as to admit of their being pinned out ; also two small pike, each measuring  $3\frac{3}{4}$  in. in length. The heads of these were decomposed ; their bodies still, however, exhibited

a certain degree of freshness, proving the rapid action of the gastric juice. Each fish was nipped across the middle, and the sharp points of the bird's mandibles had penetrated the softer part (abdomen) of the fish.

CORMORANT AND SHAG.—As several instances of the perching of water-birds have recently been placed on record, it may perhaps be of interest to add that an immature specimen of the Shag, sent me on February 22nd last, was shot whilst perched on the spire of the parish church of Attleborough, as I was informed by Sir Thomas Beever, Bart., to whose collection the specimen has been added. Four or five young Cormorants were observed in Yarmouth Roads early in September last, and I saw one on the 11th of that month about a hundred yards from the beach.

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## UNCOMMON VARIETIES OF BRITISH BIRDS.

BY OLIVER V APLIN.

DURING a visit to Mr. J. Whitaker, at Rainworth Lodge, near Mansfield, I had an opportunity of inspecting his very unique collection of birds, amongst which are the following singular varieties, a list of which I think will be of interest to your readers:—

*Lanius collurio*.—1, pure white.

*Muscicapa grisola*.—1, pure white.

*Turdus viscivorus*.—1, very pale coloured.

*T. musicus*.—1, white variety; 2, very pale coloured; 3, ditto.

*T. pilaris*.—1, pied about the head and neck.

*T. iliacus*.—1, curious variety (described Zool. 1882, p. 151), chestnut-coloured, but showing all the markings.

*T. merula*.—1 and 2, white varieties; 3, roan-coloured; 5, cream-coloured; 6, hair-brown; 7, 8, 9 and 10, more or less pied with white.

*T. torquatus*.—1, pied about the head and back.

*Accentor modularis*.—1 and 2, cream-coloured; 3, sandy; 4, white, with brown wings.

*Erithacus rubecula*.—1, white variety; 2, ash-coloured.

*Pratincola rubicola*.—1, pied on the head, back, and wings.

*P. rubetra*.—1, pale yellow-coloured variety.

*Saxicola œnanthe*.—1, the upper plumage snow-white.

*Dauilias luscinia*.—1, pure white variety.

*Phylloscopus sibilatrix*.—1, white, with a slight tinge of yellow on the wings.

*P. trochilus*.—1, white variety.

*Troglodytes parvulus*.—1, white wings and white markings on the head.

*Motacilla lugubris*.—1, adult ; 2 and 3, nestlings ; all white.

*M. Raii*.—1, cream-coloured.

*Alauda arvensis*.—1, white variety ; 2, very dark melanism ; 3—10, pied and sandy-coloured varieties.

*A. arborea*.—1, pied on the back and head.

*Otocorys alpestris*.—1, sandy-coloured variety.

*Emberiza miliaria*.—1, cream-coloured ; 2—4, more or less pied.

*E. schænicclus*.—1 and 2, cream, with sandy markings.

*E. citrinella*.—1 and 2, cinnamon-colour ; 3, cream-coloured ; 4, white bars on the wings.

*Fringilla cœlebs*.—1, cream-coloured, showing the markings in pale drab ; 2, smoke-coloured ; 3, pied ; 4, a very pale variety ; 5, 6 and 7, light-coloured varieties.

*Chrysomitris spinus*.—1, grey variety.

*Linota cannabina*.—1 and 2, pure white ; 3, pied ; 4, nearly white, with brown feathers in the wings ; 5, a melanism with white feathers on the back.

*L. rufescens*.—Two pure white.

*Passer montanus*.—1, light variety, with a few white feathers on the back, head, and wings.

*P. domesticus*.—1—5, white varieties ; 6—20, pied, cream-coloured, and chestnut varieties.

*Ligurinus chloris*.—1 and 2, yellow-green ; 3, yellow, with green wings ; 4, wings and head yellow.

*Pyrrhula europæa*.—1, melanism ; 2, a nestling of a cinnamon-colour having very pink eyes ; 3, black, with white flight-feathers ; 4, French-grey wings and back, rose breast normal ; a semidiaphanous-feathered bird.

*Sturnus vulgaris*.—1—3, white varieties ; 4—11, sandy and pied varieties.

*Corvus corone*.—1, brown, with blotches of liver-colour.

*C. cornix*.—1, grey markings on the back, wings, and tail.

*C. frugilegus*.—1, grey ; 2, pied.

*C. monedula*.—1, white breast and marks on the wings; 2, the grey of the head is continued all over the body.

*Pica rustica*.—1, the black replaced by cinnamon-colour.

*Garrulus glandarius*.—1 and 2, pure white adult birds; 3, pure white nestling; 4, white on the head and white wings, except the blue feathers, which are normal.

*Gecinus viridis*.—1, yellow blotch on the wing, and flight-feathers showing sandy markings.

*Picus major*.—1, back and wings strongly marked with chestnut (*vide* J. H. Gurney, 'Rambles of a Naturalist,' p. 77).

*Cuculus canorus*.—1, white, with markings in sandy bars, breast almost white.

*Hirundo rustica*.—1, pearl-grey; 2, adult pied bird (rare); 3, cream-coloured.

*Chelidon urbica*.—1, a dirty-white variety.

*Cotile riparia*.—1, white; 2, slate-blue.

*Cypselus apus*.—1, with white breast and white on the head and back; 2, slightly pied.

*Columba palumbus*.—1, pearl-grey on the back.

*Phasianus colchicus*.—1 and 2 (male and female), pure white; 3, pied.

*Lagopus scoticus*.—1, a pale slaty grey variety.

*Perdix cinerea*.—1, very pale variety with a dark horse-shoe, and with flight-feathers white; 2, sandy, with brown markings.

*Vanellus cristatus*.—1, a considerable amount of white on the wings; head, back, and wing-coverts marked with cream-colour.

*Ægialitis hiaticula*.—1, having a pale yellow back and white wing-coverts.

*Scolopax rusticula*.—1, pale yellow, with the markings of a grey-brown; 2, biscuit-brown, black markings on the back; head black and buff; flight-feathers ash-grey; breast pale cream.

*Gallinago cælestis*.—A pale rufous example of the variety known as "Sabine's Snipe."

*Rallus aquaticus*.—1, ash-grey, yellow markings on the back.

*Crex pratensis*.—1, very pale-coloured variety, the markings on the back nearly white.

*Gallinula chloropus*.—1, grey, with a sandy tint on the back (query: is this the "sandy variety" mentioned in the new edition of Yarrell as killed in Notts?).

*Anas boschas*.—1, white, with brown marks.



*Spatula clypeata*.—Very pale buff, with some liver-coloured marks on the shoulders, and mottled with white.

*Lomvia troile*.—1, with white on neck and head.

*Uria grylle*.—1, sandy flight-feathers.

*Larus canus*.—1, wanting the black on flight-feathers, the grey on the back paler than usual, tail band ash-colour.

*Stercorarius pomatorhinus*.—1, nearly black.

The varieties might be roughly classified thus :—

1.—Melanisms, *e. g.*, Redwing, Bullfinch, &c.

2.—Birds in typical plumage, except that they lack intensity of colour, *e. g.*, Song Thrush, Landrail, &c.

3. Albinisms : i., the feathers being white, *e. g.*, Shrike and Redpole ; ii., the feathers being tinged with colour, *e. g.*, nestling Bullfinch and Missel Thrush.

4.—White varieties, *e. g.*, Nightingale, Sparrow, Willow Wren.

5.—Birds abnormally coloured, *e. g.*, Magpie and Yellow Bunting.

6.—Pied varieties, *e. g.*, Blackbird, Wren, &c.

## AN AUTUMN VISIT TO SPITZBERGEN.

### SUPPLEMENTARY REMARKS.

BY ALFRED HENEAGE COCKS, M.A., F.Z.S.

THE notes on the above subject in 'The Zoologist' for 1883 concluded with the list of the species of birds actually obtained during this voyage. In addition to these the following species were noted (and among these latter Brünnich's Guillemot should have been included, instead of in the preceding list, as we did not actually handle a specimen).

Falcon, *Falco* sp ? ; Norwegian, "Falk."—A Falcon was seen by Arnesen and some of the men when we were at the Swedish Meteorological Station at Cape Thordsen, on Sept. 12th, stooping at one of the tame pigeons brought out by the Expedition. They succeeded in saving the pigeon by shouting and waving their arms. As one of the pigeons had been missing for a few days previously, it is possible this was not the Falcon's first visit to that spot. At Recherche Bay, on Sept. 22nd, we had a good view of a Gyrfalcon, which species I cannot say positively, but it

looked white enough for *F. candicans*. Probably the few Falcons that have been seen in Spitzbergen belonged to the same species. One of our men told me he had previously seen a Falcon in Spitzbergen which, though he (very vaguely) described it as "the common brown falcon," is much more likely to have been one of the grey Gyrfalcons, very possibly an immature bird. Although it is not impossible that the bird seen by us on these two occasions was one and the same, and that the bird the seaman told me of was not a Falcon at all, yet it seems likely that a species of *Falco* is not so rare in Spitzbergen as was previously supposed (*vide* Zool. 1882, p. 416; and Newton, 'Ibis,' April, 1865).

Snow Bunting, *Plectrophanes nivalis*, L.; Norwegian, "Sne-Spurv," "Sne-titing."—Very numerous at Cape Thordsen on Sept. 12th between the coast and the house occupied by the Swedish Meteorological Expedition; and a large flock, which were extraordinarily shy, at Sassen Bay on the 15th. A single bird flew in a southerly direction past the smack, in about lat. 75° 7', on Sept. 28th.

Buffon's Skua, *Stercorarius longicaudus*, Vieillot.—The Norwegian ice-seamen do not, I think, recognise the existence of any other species of Skua than *S. crepidatus*, and therefore have, so far as I know, no name besides "Tyvjo." A pair of Skuas, which may have been this species, at sea in about lat. 75° 34' on Sept. 3rd; and a single bird in Green Harbour on the morning of Sept. 9th may perhaps also have been this species.

Brent Goose, *Bernicla brenta*, Steph.; Norwegian, "Trap Gaas."—A large number, adults and young, seen by Arnesen close to the smack early on the morning of Sept. 7th, a little N.W. of South Cape.

Pink-footed Goose, *Anser brachyrhynchus*, Baillon; Norwegian, "Graa Gaas" (no special name for this species is in ordinary use).—About eight geese, which appeared to be this species, seen a little to the north of Horn Sound on the evening of Sept. 7th, flying S. Several seen during a walk Lieutenant Stjernspetz and I took westwards from the Swedish Meteorological Station at Cape Thordsen on Sept. 12th; and, as the Lieutenant succeeded at that time in bagging an immature example, I might have included this species among those obtained during our voyage. In Sassen Bay, on Sept. 14th, I saw about fourteen geese flying,

which were without much doubt this species. About 150, which were extremely shy, in Recherche Bay on Sept. 22nd, and about a dozen seen flying the next day, were most likely the same species. A "skjøite," which followed us into Recherche Bay for shelter, had a live gosling of each of these two species on board.

Long-tailed Duck, *Harelda glacialis*, L.; Norwegian, "Havel."—Three ducks flying in Recherche Bay on Sept. 22nd were without much doubt this species, but they did not come close enough to identify with certainty.

King Eider, *Somateria spectabilis*, L.; Norwegian, "Pragt Eder," "Grönland's Eder."—A single bird, doubtfully identified as this species by one of M. Rabot's boat's-crew, in Green Harbour on Sept. 9th. On Aug. 6th, 1882, Herr Dreyer found many Eider's nests on a small island off the S.W. coast of Prince Carl's Foreland, and among them one containing four eggs rather smaller than the normal size of *S. mollissima*; two of these, which he kindly gave me, measure 64 and 63 mm. in length respectively. Though it is perhaps impossible to speak positively, it seems likely that these may be eggs of *S. spectabilis*.

Three ducks seen by me and my boat's crew in Sassen Bay on Sept. 14th were neither species of Eider, nor, I feel quite certain, Long-tailed Ducks, which is the only other species of duck hitherto recorded from Spitzbergen. My reasons for very doubtfully supposing them to have been *Oidemia fusca* (Linn.) have been recorded at length (Zool. 1883, p. 407).

Black-throated Diver, *Colymbus arcticus*, Pennant; Norwegian, "Stor Lom."—I have no doubt that a pair of Divers met with near the entrance to Green Harbour on Sept. 9th were of this species, and out of several *Colymbi* seen flying later in the day believe that at least one pair were Black-throated. Three Divers, were seen flying in Sassen Bay on Sept. 15th, whose species could not be determined, and, though the Red-throated is the more probable species, they may possibly have been Black-throated. This species has not been previously recorded from Spitzbergen, but Lensmand Klerk, of Elvenæs, Syd Varanger, told me this autumn (1883) that he had shot this species in Spitzbergen when up there some years since.

Great Northern Diver, *Colymbus glacialis*, L.; Norwegian, "Imber."—A bird was seen by our harpooner on Sept. 8th a few miles off the coast, between Bell Sound and Is Fjord, which he

was quite confident was an "Imber," and not a "Lom" (*i. e.*, either of the other two species of *Colymbus*). This species has not been previously recorded (even doubtfully as now) from Spitzbergen.

The following species complete the Spitzbergen list, as far as known at present:—

Snowy Owl, *Nyctea nivea*, Daud.; Norwegian, "Sne Ugle," "Is Örn" (lit. Ice-Eagle, but applied to this species).—Has been met with rarely.

Ringed Plover, *Ægialitis hiaticula*, L.; Norwegian, "Ringel" (*vide* Malmgren, quoted by Prof. Newton, 'Ibis,' 1865).—Has been met with in a few instances.

Whimbrel, *Numenius phaeopus*, L.; Norwegian, "Smaa-Spove."

Turnstone, *Streptilas interpres*, L.—A single example of each of these obtained by me in 1881 (Zool. 1882, p. 408).

Red-necked Phalarope, *Phalaropus fulicarius*, L.—Uncommon, and not met with on either of my visits; but Herr Johan Dreyer, of Tromsö, who visited Spitzbergen again this year (1883), met with several birds, which, from his description, were, I have little doubt, this species.

Ivory Gull, *Pagophila eburnea*, Phipps; Norwegian, "Is Maake" (pronounced in the north "Maase.")—Not a single example seen during our voyage of 1882, but Herr Dreyer this year found them breeding as far south as Bell Sound, which is in keeping with the opinion expressed by Professor Newton in the 'Ibis' for 1865, that he was "inclined to think that the Ivory Gull breeds sporadically on many other parts of Spitzbergen proper."\*

Pomatorhine Skua, *Stercorarius pomatorhinus*, Temm.—Not recorded as actually obtained in Spitzbergen, where it appears to be of rare, if not doubtful, occurrence.

Bernicle Goose, *Anser leucopsis*, Bechst.—Lieut. Stjernspetz informed me that the members of the Swedish Geological Expedition (of 1882) had shot two adult birds of this species in Bell Sound, and taken three young ones alive. The only previous mention of the Bernicle Goose in Spitzbergen is a single example

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\* The summer of 1883 seems to have been an exceptionally open season in Spitzbergen.

recorded by Baron Nordenskiöld as shot by him in Bell Sound in 1858. No other observer having met with this species in Spitzbergen, and the fact of the confusion in the scientific names, led Prof. Newton to suppose that the bird in question was simply a Brent Goose.

Swan, *Cygnus* sp.?—One recorded as shot, and on another occasion one seen (Newton, 'Ibis,' quoting Malmgren).

Common Guillemot, *Alca troile*, L.—This species has not been recorded from Spitzbergen since Parry's fourth voyage, but Herr J. Dreyer is convinced that he shot, in 1881, "a Common Alke," similar to the birds he is familiar with round Tromsö, and which he is sure was not a "Spitzberg's Alke" (Brünnich's Guillemot).

This brings up the total number of species of birds which have occurred in Spitzbergen, if the present doubtful identifications are all correct, to thirty-two, or five more than Dr. Malmgren's total in 1864, or Prof. Newton's in 1865.

While in the north of Norway this autumn (1883) I saw a pair of young Polar Bears alive on board a Norwegian "jagt" from Spitzbergen, and one on a Russian from Novaya Zemlya; and heard of others. There were two Bears seen this summer at Bell Sound, neither of which was killed.

The Bear on the Russian vessel was within an ace of escaping from its box when I went to see it, one of the crew having incautiously opened the trap-door. It received a fearful blow on the head from the back of an axe, and was only reduced to order by a man charging it with a pole, which he rammed down its throat, and forced it backwards into its box. The uncouth crew were so wildly excited that I began to think I might be the next to receive a blow from the axe on my head, and was not sorry when I was once more over the schooner's side and in my boat.

Richardson's Skua, *Stercorarius crepidatus* (Gmel).—Herr J. Dreyer gave me two eggs which he took this season (1883) from the same nest in Middle Hook, Bell Sound; one is of the normal colour of eggs of Richardson's Skua, olive-brown, spotted with dark brown; while the other more resembles a Pomatorhine Skua's egg (with which, however, I have not compared it), being a pale greenish blue, with a few small brown spots distributed over the whole surface. Both eggs are unfortunately broken, but

the blue one, which is in the best condition, measures about 57 mm. in length.

Eider Duck, *Somateria mollissima*, L.—Herr Dreyer, who was in Spitzbergen these last two seasons early enough to get eggs, found a very great difference in the size of those of Eider Ducks. Small ones (the smallest he gave me only measures 40 mm. in length) are perhaps the result of the birds becoming exhausted by the nests being repeatedly robbed; but, on the other hand, one he gave me measures as much as 89 mm.!

Red-throated Diver, *Colymbus septentrionalis*, L.—Herr Dreyer found the Red-throated Diver breeding plentifully on a small island off the S.W. side of Prins Carl's Foreland in 1882 and 1883. He kindly gave me a series of their eggs. On Aug. 6th, 1882, he found on this island several newly-hatched young, while most of the eggs were highly incubated.

Little Auk, *Mergulus alle*, L.—Another name commonly used in Norway for this species is "Rotjems."

Purple Sandpiper, *Tringa maritima*, L.; Norwegian name, "Fjærplyt."—This name is common to all the small waders found in Norway, and does not exclusively mean *T. maritima*.

Herr Dreyer also gave me the following additional eggs, which he had taken this season (1883) in Spitzbergen:—Brent Goose and Glaucous Gull, from Prins Carl's Foreland; Pink-footed Goose and Brünnich's Guillemot, from Middle Hook, Bell Sound; and a series of Arctic Terns' eggs.

Very few species of fish were met with again this voyage. The following list includes all the species that I know of in Spitzbergen waters:—

Salmon, *Salmo salar*, L.; Norwegian, "Lax."—Well known to occur in Spitzbergen, but not met with by us.

*Salmo*, sp. ?—Some small fresh-water fish at Green Harbour, as recorded (Zool. 1883, p. 401), I assumed to be some species of *Salmo*, as this is, I believe, the only genus of fresh-water fish recorded from the Arctic.

Cod, *Gadus morrhua*, L.; Norwegian, "Torsk."—Very abundant, as a rule, off the west coast; but this season (1883) they were extraordinarily scarce, some fishing vessels catching only two or three during the whole voyage.

Haddock, *Gadus æglifinus*, L.; Norwegian, "Huse" (this

name is, I believe, restricted to the north of Norway; the Dictionary name is "Kuller").—Rare, but growing very large (Capt. Steenersen, of the 'Isbjörn'). I saw some Haddock on the East Finmarken coast this autumn larger than any I had previously seen in England, or elsewhere, but I took no measurements.

Holibut, *Hippoglossus vulgaris*, Flem. ; Norwegian, "Kvete," "Helleflynder."—Up to three "vog" weight (Steenersen). This is about equal, I believe, to one stone.

Red-fish or Bergylt, *Sebastes norvegicus* ? ; Norwegian, "Uer," "Röd-fisk."—Very small, not exceeding seven or eight inches in length (Steenersen). The Report of the Norwegian North Atlantic Expedition mentions a Red-fish only found in Spitzbergen in very deep water. I am not able to refer to the Report as I write, but it may perhaps be that the fish known to Captain Steenersen are the young of this species.

Lump-sucker, *Cyclopterus* sp. ? ; Norwegian, "Marrolk" (unknown to the Dictionary).—I think the species I obtained with the dredge this voyage in Green Harbour differs from the Lump-suckers I found in Cods' stomachs in 1881, but, as my specimens are still at Oxford, I have not had an opportunity of comparing them.

Coal-fish, *Merlangus carbonarius*, Cuv. ; Norwegian, "Sej."—Found by Bear Island, but not further north (Steenersen).

Greenland Shark, *Scymnus borealis*, Flem. ; Norwegian, "Haa-Kjærring."—One harpooned and captured by us in Sassen Bay on Sept. 18th (*vide* Zool. 1883, p. 436). While in Vardö this autumn I saw many "jagts" returning from the Shark-fishery, which, as remarked by Prof. Newton (Proc. Zool. Soc., 1864), is chiefly prosecuted about midway between that coast and Bear Island, not many vessels going further north than that island. Many of the men engaged in that fishery, with whom I spoke, said that they caught two kinds of Shark ; if so, I do not know which species this second kind would be.

Skate, *Raia*.—Two species are described in the Report of the Norwegian North Atlantic Expedition. A single specimen (? sp.) recorded by me in 'The Zoologist,' 1881.

The few Invertebrates I collected (and the fossils) are in the hands of the same two friends who have my small collections of 1881.

The following are the more important misprints which have crept into this paper:—

Page 400, line 12, for *hverdajs* read *hverdags*; p. 402, l. 12, for *Konang* read *Konung*; p. 403, l. 2, for 2 p.m. read 2 a.m.; p. 405, l. 2, between *her* and *Foraaret* insert *i*; p. 408, l. 6, for *Novara Z.* read *Novaya Z.*; p. 408, nine lines from bottom, for *seamen* read *seaman*; p. 437, l. 5, for *Rypa* read *Ryper*; p. 438, nine lines from bottom, for *and found* read *as we found*; p. 440, seven lines from bottom, for *Kåunedom* read *Kännedom*; p. 441, last line, for *Novaija Z.* read *Novaya Z.*; p. 447, l. 24, for *large one* read *rather large lot*; p. 480, l. 20, for *Lofotus* read *Lofotens*; p. 482, three lines from bottom, for *five* read *six*; p. 486, l. 6, for *those* read *three*; p. 486, l. 8, for *Vaudvaag* read *Vandvaag*; p. 486, l. 23, for *Cephus* read *Cepphus*.

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## ORNITHOLOGICAL NOTES FROM THE FRENCH PYRENEES.

BY JAMES BACKHOUSE, JUN.

THE following notes were collected during May and the early part of June last year, and are composed chiefly from observations made by myself at Argèles and St. Sauveur, in the Hautes Pyrénées.

I was also fortunate in gaining access to two local collections, one near Argèles, and the other at Luz, a mile or so from St. Sauveur. The birds contained in the former were collected and preserved by a peasant farmer, most of them being admirably stuffed and wonderfully life-like; whilst those in the latter collection were just the reverse, and comparatively few in number. I was able, however, to gain from both of them some useful notes respecting birds taken in the district.

Though perfectly well aware of the incompleteness and imperfection of these notes, yet, knowing well the comparatively small amount of ornithological information which is extant from the French Pyrenees, I hope that my writing thus may not be altogether in vain.

*Turdus viscivorus*, Linn. — Fairly abundant. Breeding. I have eggs from Argèles (1530 ft.)

*T. iliacus*, Linn. — One or two in the collection at Luz.



*T. merula*, Linn.—I have no recollection of seeing this bird at all in the Pyrenees, nor have I any note of it from either of the local collections.

*T. torquatus*, Linn.—In the Argèles collection there was a lovely specimen with a cream-coloured head. Fairly abundant in winter. I may here mention that in the Nice market during January this year I saw some magnificent specimens of the above. There were hundreds of them towards the latter part of the month, many being very fine varieties.

*Monticola saxatilis*, Linn.—In both the local museums; and I bought one, an adult male, from that at Luz.

*Monticola cyanus*, Linn.—Upon making inquiries I found that this bird, though scarce, is known in the “Hautes Pyrénées,” and I afterwards saw one in the Argèles collection. According to M. Adrien Lacroix it breeds annually.

*Cinclus albicollis*, Vieill.—All the Dippers I observed at St. Sauveur were referable, I believe, to this species. Those at Argèles I failed to identify. I remember seeing a pair of undoubted *C. aquaticus* in the Luz collection, and these were the only ones I satisfactorily identified as of the British species. On June 4th I shot a young Dipper at St. Sauveur, which is undoubtedly *C. albicollis*, and that same evening a “chasseur” brought in an adult male, also *C. albicollis*. Neither Lacroix nor Deglaud and Gerbe include *Cinclus albicollis* in their works as a distinct species. I found a nest, which I imagine belonged to *Cinclus albicollis*, some miles above St. Sauveur at an elevation of about 3000 feet. It was empty, the young having taken their departure.

*Saxicola œnanthe*, Linn.—I shot two magnificent old male birds of this species high up upon Pic Bergons (about 5000 ft.) From their small size and light plumage I almost thought at first that they were some different species. I am now satisfied, however, that in reality they are genuine Wheatears. This small size and unusually light colouring I have since met with in other continental birds as well.

*Ruticilla titys*, Scop.—Many of these in the high valleys, but they were exceedingly wild, and consequently I failed to bring home any specimens. A pair evidently had a nest close at hand in a secluded valley at an elevation of about 4000 feet. I found a nest with young by the river side some distance above

St. Sauveur, at an elevation of about 2800 feet above the sea-level.

*Cyanecula Wolfs*, C. L. Brehm.—A pair of the above, very nicely stuffed, were shown to me by the Argèles collector. They both appeared to be immature birds, and were shot in the neighbourhood of Argèles.

*Daulias lusciniæ*, Linn. — These charming little songsters swarmed at Argèles, but I heard none higher up the valley. They were chiefly heard in the daytime.

*Sylvia rufa*, Bodd.—My brother shot a specimen at Gèdre (2600 ft.). Several at Argèles also.

*S. atricapilla*, Linn.—Common everywhere.

*S. salicaria*, Linn.—I shot one, a female, on May 17th, at Argèles.

*Regulus cristatus*, Koch. — Exceedingly abundant in the pine forests,—in fact, in that above St. Sauveur I may say it is the commonest bird. Evidently breeding. Up to about 6000 feet.

*R. ignicapillus*, Brehm.—To be found here and there among the Goldcrests, but decidedly the rarer of the two species. I shot one, a male, in the pine forest above St. Sauveur.

*Phylloscopus collybita*, Vieill.—I thought once that I caught the sound of its little voice in an obscure valley near Argèles, but could not be at all certain. M. Lacroix says that it is noticed in the Hautes Pyrénées during the migrations in spring and autumn.

*Acridula Irbyi*, Sharpe and Dresser.—On May 17th I shot a female of this species at Argèles, and another on May 28th at St. Sauveur. The latter was quite a young bird. The flock it was with must have numbered some dozens, of which most, I believe, were immature birds. The Argèles specimen has the light wing-coverts very distinct.

*Parus major*, Linn.—Plentiful everywhere.

*P. ater*, Linn.—In the St. Sauveur forests this bird ranks next to the Goldcrest as regards commonness. I brought home four or five nice specimens.

*P. cæruleus*, Linn.—I shot one at St. Sauveur (2525 ft.), and that is the only one I recollect seeing in the Pyrenees.

*Lophophanes cristatus*, Linn. — I met with it twice in the St. Sauveur district. Once I saw three or four together from the

hotel balcony, but by the time I had reached the place all had disappeared.

*Sitta cæsia*, Wolf.—Exceedingly common in the deciduous woods round Argèles. I noticed great numbers of their holes (about 1600 ft.)

*Certhia familiaris*, Linn.—Very abundant at Argèles; breeding.

*Tichodroma muraria*, Linn.—I bought a young male from the collector at Argèles, and saw it in the Luz collection also. Last year I had the pleasure of seeing it wild upon Pic Buderaus.

*Troglodytes parvulus*, Koch.—I found its nest fully 4500 feet above the sea-level, at above Argèles, and also once or twice near St. Sauveur.

*Motacilla alba*, Linn.—Day after day I went down to the river-bed at Argèles in the hope of shooting a pair of these continental Wagtails, but each time I came away again without them. They would never come within range of my walking-stick gun. I saw great numbers of them at Argèles, but none at St. Sauveur; in fact only once above Pierrefitte (the railway terminus), so far as I can remember. Breeding.

*M. melanope*, Pall.—Very common both at Argèles and St. Sauveur. A pair were breeding close to our hotel at the latter place.

*Anthus spipoletta*, Linn.—This bird I found very abundant upon the high peaks. The greatest elevation at which I saw it would be about 6500 feet, and in a wild valley under Pic Long I discovered a nest which I feel satisfied belonged to this species, as they were the only birds about; and it was evidently referable to an *Anthus*. The elevation would be 4600 feet. I brought home good skins.

*Oriolus galbula*, Linn.—This bird is, I suppose, fairly common in the Pyrenees, but I only identified it on the wing once, at St. Sauveur. I made its acquaintance in both the Argèles and Luz collections, and bought a fine male out of the latter.

*Lanius collurio*, Linn.—One specimen (male) in the Argèles collection.

*S. auriculatus*, Müll.—I bought a magnificent old male of this species of the Argèles collector. I saw one specimen also at Luz, but it was such a miserable specimen that I felt most easy to let it alone.

*Hirundo rustica*, Linn.—Common everywhere.

*Chelidon urbica*, Linn.—Very abundant indeed. Breeding at St. Sauveur.

*Cotile rupestris*, Scop.—I remember seeing several of what I took to be this bird last year upon the mountain range between St. Sauveur and Cauterets.

*Chrysomitris citrinella*, Linn.—On June 7th, in the celebrated Cirque de Gavarnie, I shot three males of this species, and saw many more, but at St. Sauveur and Argèles I never saw it.

*Serinus hortulanus*, Koch.—I have eggs from Argèles, and shot a male on May 4th near St. Sauveur. In the neighbourhood of houses it is very common.

*Coccothraustes vulgaris*, Pall.—One in the Luz collection.

*Montifringilla nivalis*, Linn.—Near the summit of one of the peaks immediately above Argèles I saw three or four of these birds, both males and females, but I failed to procure any specimens (5500 ft.?). I also met with a solitary bird on the summit of the wild Col de Saucède (5000 ft.), on the Route Thermale between Argèles and Eaux Bonnes.

*Fringilla cœlebs*, Linn.—Common everywhere. I have eggs from Argèles. Above St. Sauveur I shot a pair, being anxious to know whether any difference existed between the English and continental forms. I found them smaller and much lighter in plumage, but nothing different beyond that.

*F. montifringilla*, Linn.—One solitary specimen in the Argèles collection.

*Pyrrhula europæa*, Vieill.—Fairly common both at Argèles and St. Sauveur. In this bird I also noticed the same difference as with the Chaffinch. A female from St. Sauveur, in my collection, is wonderfully light in general colour.

*Emberiza citrinella*, Linn.—Not so common in the Pyrenees as I should have expected. I have the skin of a female from near Gèdre, and saw one or two at Argèles.

*E. cirrus*, Linn.—I saw it once at Argèles.

*E. cia*, Linn.—Certainly the commonest Bunting in the St. Sauveur valley. I have a specimen also from Argèles.

*Alauda arborea*, Linn.—I remember seeing one of these birds last summer on an eminence above Bagnères de Bigorre.

*Pyrrhocorax graculus*, Linn.—Curiously enough there is a large colony of these birds at St. Sauveur in the sides of the gorge close to the Pont Napoleon. There must be some hundreds in this

colony, and my brother managed to secure two splendid specimens after daily lying in wait for them for some considerable time. One I believe to be an old bird, and the other one probably a year old. I do not remember ever having seen these birds elsewhere in the Pyrenees, except, of course, stragglers at a short distance away from the colony. They are exceedingly wild birds, and consequently it is no easy matter to watch their habits at all closely. They generally prefer some rather isolated piece of rock to sit upon, from which they can survey the surrounding country without fear of a surprise. On referring to my diary, I find that the gizzards of my two specimens contained fragments of Coleoptera, worms, and some vegetable material.

*P. alpinus*, Koch.—Abundant, excepting in the particular region where their larger cousins have their colony, and there, I imagine, they would not dare to put in an appearance. I saw numbers of them in the valley leading up towards Lac Bugeret.

*Garrulus glandarius*, Linn.—Common, and breeding at Argèles; also breeds at St. Sauveur.

*Pica rustica*, Scop.—Common. I have its eggs from Argèles.

*Corvus corax*, Linn.—Abundant in the higher regions.

*Gecinus viridis*, Linn.—One of the most common birds in the Argèles woods. Breeds there.

*Jynx torquilla*, Linn.—One in the Luz collection.

*Upupa epops*, Linn.—In both the local collections.

*Strix flammea*, Linn.—Argèles collection.

*Asio otus*, Linn.—One or two in the Argèles collection.

*A. accipitrinus*, Pall.—In the Argèles collection.

*Scops giu*, Scop.—I saw specimens of this "Petit Duc" in both the Argèles and Luz collections.

*Bubo ignavus*, Forst.—This was in the Luz collection. It had been shot in the great cliffs by the Pont Napoleon. It was simply a skin, and one which I should like well to have purchased, but unfortunately some mischievous individual had deprived it of its head, added to which the moths had been making rather free with the remains.

*Athene noctua*, Retz.—I had one of these presented to me by M. Bordère, of Gèdre. It was shot there some eight or ten years ago.

*Gyps fulvus*, Gmel.—I saw what I took to be this noble

Vulture on two or three occasions in ascending some of the high peaks.

*Gypætus barbatus*, Linn.—I met with it in both the local collections.

*Buteo vulgaris*, Leach.—One or two were shown to me at Argèles.

*Aquila chrysaetus*, Linn.—On May 16th we encountered four Eagles, which I have reason to believe were of the present species, on one of the high peaks between Argèles and Lourdes. In my diary I have the following note:—"Birds seemed absolutely wanting for a long time, until we ascended on to the ridge again, and were busily engaged in botanising, &c., when no less than four magnificent Eagles quietly sailed over our heads some forty yards away. After a while they passed us again, and we had another good look at their gigantic forms. Every now and then they were followed by a party of small assailants in the shape of Alpine Choughs." I repeatedly saw these birds higher up the valley.

*Circæetus gallicus*, Gmel.—I noticed a specimen in the Luz collection, and once thought I saw one flying at Argèles, but I cannot be at all certain.

*Accipiter nisus*, Linn.—I watched one female in "The Park," below St. Sauveur, and noticed one or two more in the Luz collection.

*Falco tinnunculus*, Linn.—Several about St. Sauveur. One pair evidently had a nest in the cliffs, where the Choughs reside, and last year I noticed a nest of young ones on the Chateau de St. Marie at Luz. Of course I looked out most carefully for *F. cenchris*, but could not gain any information from either of the two collectors.

*Querquedula crecca*, Linn.—In the collection at Argèles.

*Mareca penelope*, Linn.—One, at any rate, in the Argèles collection. I believe this and the other ducks were taken in the low marshy land by the river between Argèles and Lourdes.

*Fuligula ferina*, Linn.—In the Argèles collection.

*Turtur communis*, Selby.—I only saw this in one of the collections.

*Perdix cinerea*, Lath.—One in the Luz collection, but not a single specimen of *P. rufa*, I think.

*Coturnix communis*, Bonnat.—I did not see a specimen of this

bird at all, though the Luz ornithologist showed me some eggs he had taken there.

*Tetrao urogallus*, Linn.—I understand that they are fairly numerous in some of the pine forests above St. Sauveur, though I never had the good fortune to meet with them. In the Argèles collection.

*Porzana maruetta*, Leach.—There is one at Argèles. I imagine this bird came from the river side between there and Lourdes.

*Ædicnemus scolopax*, Gmel.—In the Argèles collection.

*Grus communis*, Bechst.—I noticed a very fine specimen “wrapped” in the Argèles collection.

*Totanus hypoleucus*, Linn.—I saw it in the river-bed near Argèles.

*T. ochropus*, Linn.—I watched one of these birds for some time through my telescope from the old bridge at Argèles. I have no doubt a pair had a nest somewhere near, as we saw them about there once or twice afterwards.

*Numenius arquata*, Linn.—In the collection at Argèles there are two or three specimens.

*Sterna anglica*, Linn.—A bird of this species has found its way into the collection at Luz.

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## NOTES AND QUERIES.

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### MAMMALIA.

**Rudolphi's Rorqual on the Coast of Essex.**—At a meeting of the Zoological Society, held on the 20th November last, the President (Prof. Flower) gave an account of a specimen of Rudolphi's Rorqual, *Balænoptera borealis*, Lesson (*Sibbaldius laticeps*, Gray), lately captured at the mouth of the river Crouch, Essex. The animal had been stranded, and a dispute arose with regard to ownership, which ended in litigation between the captor and Sir Henry Mildmay, who claimed it as lord of the manor within which it was captured. The judge's decision was in favour of the lord of the manor, but we have not heard what has become of the specimen or whether the skeleton has been preserved. Only one other instance of the occurrence of this whale in British waters has been satisfactorily established. This was a specimen taken near Bo'ness, in the Firth of Forth, in September, 1872, and described by Professor Turner in the 'Journal of

Anatomy and Physiology' for April, 1882 (pp. 471—484). The skeleton of this specimen is preserved in the Anatomical Museum of the University of Edinburgh.—J. E. HARTING.

#### BIRDS.

**Records of the Hoopoe in Hampshire.**—In most works on British Birds mention is made of *two* instances of the Hoopoe attempting to breed in Hampshire. One of these rests upon the well-known statement of Gilbert White in his eleventh letter to Pennant, dated 9th September, 1767, that a pair came, "several years ago in the summer," and frequented an ornamental piece of ground joining his garden (Selborne, Hampshire), "and seemed disposed to breed" in his outlet, "but were frightened by idle boys." The second is from Dr. Latham, who states, in his 'Supplement to the General Synopsis of Birds,' 1787 (or in the second Supplement, 1801), that a pair began a nest in Hampshire, but being disturbed forsook it, and went elsewhere. Latham's authority seems to have been Marmaduke Tunstall. Fox states (*vide* 'Synopsis of the Newcastle Museum,' 1827, Preface, p. ix.) that "an original MS. of Mr. Tunstall's, consisting of remarks on Dr. Latham's 'Synopsis of Birds,' apparently addressed to him soon after the publication of his earlier volume, about the year 1783, with additional remarks and corrections in 1784," had come into his hands, and that "Dr. Latham made use of part of his remarks in the first Supplement to his work." Many extracts from this MS. are inserted in the 'Catalogue of the Allan Museum,' and in one of these (p. 61) occurs the note to the entry "The Hoopoe":—"Was informed a pair once began a nest in Hampshire, in the hedge of a garden, but being disturbed they forsook it. Tunst. MS." It does not appear that Tunstall was in communication with White, but he was a friend of his correspondent Daines Barrington, to whom White wrote first in 1796, and through whom the fact of the Hoopoes attempting to nest in White's outlet may have been communicated to Tunstall. The slight discrepancy in the two instances may be readily accounted for by the loose statement of Tunstall, as evinced by his mentioning the birds as having begun their nest "in a hedge." White does not mention their beginning a nest at all, and probably Tunstall did not either, by his speaking of them as attempting to nest in this unlikely situation. May not these two Hampshire records be referable to one and the same case?—OLIVER V. APLIN (Great Bourton, Oxon).

**Snipe perching.**—Whilst at Easterside, Ryerdale, North Yorkshire, last June, I took a walk one evening with the keeper, through some "sievey" fields, where a number of Snipe were breeding, several of which we flushed. One rose in the air, over our heads, emitting the peculiar bleating sound so often noticed, and flew off to a dead ash tree close by,



where it perched on the topmost twig for at least a minute. The keeper remarked that he had never seen a Snipe perch before; I have read of such things, but never till then witnessed the fact. Is it a usual habit with the Snipe? I may as well add my mite of information on the subject of Snipe "drumming," which some people say is caused by the motion of the wings. I particularly noticed, and also called the keeper's attention to the circumstance, that when we heard the humming noise, the birds were coming in a slanting direction towards the earth, and that, invariably, the wings were kept stretched out at full extent, and not moved in the slightest degree. I cannot say positively that the sound was caused by the vibration of the tail-feathers; but I am quite certain that the wings were motionless, for one bird came down within two or three yards of where we were standing.—T. H. NELSON (Bishop Auckland).

**Surf Scoter on the Coast of Lancashire.**—When sailing in the estuary of the river Ribble, about 2 p.m. on the 9th December, 1882, I shot a fine female Surf Scoter, *Ædemia perspicillata*. It was swimming about 500 yards from the shore opposite Lytham. The bird was quite alone, and allowed my boat to approach within about fifty yards, when I fired and killed it. I find only twelve instances of its occurrence in British waters mentioned in Harting's 'Handbook of British Birds' (p. 162). I may add that the bird has been seen and identified by my friend Mr. A. G. More, of the Science and Art Museum, Dublin, so that no doubt remains as to the correctness of the name.—RICHARD H. THOMPSON (Lytham, Lancashire).

**Ornithological Notes from the Isle of Wight.**—I am informed by Mr. Rogers, of Freshwater, that the under-mentioned birds—some of them of rare occurrence—have been seen or procured in that neighbourhood during the past year. Last February a Glaucous Gull appeared off Freshwater during a severe gale, soaring at a great height, but occasionally alighting on the broken water or skimming the waves with light and buoyant flight; it was eventually shot by Mr. Rogers's son, and proved to be a male in perfect plumage. A pair of Bohemian Waxwings were procured in April, in perfect summer plumage, having the wax-like appendages on the tail as well as on the wings. Several others were met with, but not molested, Mr. Rogers thinking they might possibly remain to breed, but all had disappeared by the end of May. The Waxwing is generally supposed to be a winter visitant only. A pair of Peregrines having been shot at Freshwater during the summer, a second pair appeared and nested in the cliff, eggs were laid, but no young reared. Mr. Rogers tells me that some years since, a male Peregrine having been killed, in the course of ten days another male appeared; but the female was then shot, and the male had to seek another partner, which was also shot, and falling

into the sea was picked up in Freshwater Bay. Astonishing as it may appear, a third female was found—paired, nested and reared young. Two Hoopoes and a Golden Oriole were procured in May. Several Dotterels were met with on the Downs (date not given). Tengmalm's Owl was procured during the year. A pair of Bar-tailed Godwits were obtained in September, and several Black Redstarts in October and November. Several pairs of Shags bred in the cliffs, and Cormorants, as usual, in great numbers; also a pair of the Lesser Black-backed Gull, and Black-headed, Gulls, Kittiwakes, &c., and numerous Divers, Puffins, Guillemots, and Razorbills. Though the Chough has not been met with this year, there is reason to believe it may again breed in the Freshwater cliffs—the only suitable spot left. With regard to the Peregrine, considering how it is persecuted, it is surprising to find it still frequenting the cliff. It is to be regretted that a watch is not kept to protect it during the breeding season. It would appear that Freshwater is in the direct line of flight of many migratory species, more rare birds being met with there than in any other part of the island.—HENRY HADFIELD (High Cliff, Ventnor).

**Temerity in Birds.**—The following instances of unwonted temerity, or perhaps curiosity, in birds, which came under my own personal observation, seem to me sufficiently curious to deserve mention. On one occasion, when out flight-shooting in Dorsetshire, I was sitting motionless, in ambush, with gun aslant, when to my astonishment a Barn Owl noiselessly approached and perched for a moment on my gun. Feeling the oscillation, I looked up suddenly, only in time to see the bird spread its wings, and, with a weird shriek, leave its unaccustomed perch. On another occasion—namely, in September last—I was sketching by the sea near Wells, in Norfolk, at a spot where Wheatears were tolerably common, when one of these birds, gradually approaching me, at length hopped boldly on to my palette. I remained perfectly still, and after a few seconds of investigation, the little visitor took its departure.—G. BOUVERIE GODDARD.

[We have heard of two or three instances of Kingfishers perching on the rods of fishermen.—ED.]

**Black Redstart in Co. Waterford.**—An immature female Black Redstart, shot in the churchyard at Dungarvan on the 5th November last, was forwarded to me, and identified by Messrs. Williams & Son, of Dublin, to whom I sent it for preservation. This bird was in company with another when shot, and on the following day three were stated to have been seen at the same place, which they had frequented for several days. I have never before seen this species in the flesh, though there are several instances recorded by Thompson, and Harvey, of its having occurred in the neighbouring county of Cork. In Dr. Burkitt's collection in Waterford is the mature specimen, mentioned by Thompson, obtained in Co. Wexford on

January 30th, 1837, and also an immature bird of this, or the common species, obtained near Waterford, March 28th, 1880. Harrison, one of the lighthouse-keepers at Mine Head, in this county, told me that in December last, during the severe frost, two birds frequented the rocks there. He shot one, which he described as being of the size and shape of a Wagtail, and said that it was slate-blue all over, except the central tail-feathers, which were ruddy. Unfortunately before he carried out his intention of sending it to Mr. More for the Museum it became unfit for preservation.—R. J. USSHER (Cappagh, Co. Waterford).

**Black Redstart in Northamptonshire.**—A bird of this species, apparently an adult female, was haunting the steeple of this parish church on Sunday, December 2nd, and feeding busily.—H. H. SLATER (Irchester, Wellingborough).

**Grey Phalarope in Yorkshire.**—Allow me to record the occurrence of a Grey Phalarope, which I shot on the 6th December last, in Cayton Bay, three miles south of Scarborough. It is a mature bird, in full plumage.—E. V. THOMPSON (68, Eastborough, Scarborough).

**Greenland Falcon in Donegal.**—I am indebted to my friend Mr. H. Becher for the information that a Falcon was killed, on the 29th November last, by the gamekeeper of Mr. Charles Stewart, on Horn Head, north coast of Donegal. This locality is not far from the island of Innistrathull, where a Snow Owl was obtained about the same time last year. The bird has been mounted by Mr. Williams, of Dame Street, and passes into the collection of Mr. Becher. It is a Greenland Falcon, *Falco candicans* (J. F. Gmel.).—A. G. MORE (Curator of Natural History Museum, Leinster House, Dublin).

**The Bittern in Suffolk.**—Mr. Asten, the birdstuffer in this town (Woodbridge), has received for preservation a fine male Bittern, in full plumage. It was shot towards the end of November, at Sudbourne, near Orford, by the head gamekeeper of Sir Richard Wallace, of Sudbourne Hall.—GRAHAM SANDBERG (Woodbridge).

#### FISHES.

**Bonito on the Coast of Galway.**—From Mr. Glennon I have lately obtained, for this Museum, a fine specimen of the Bonito, *Thynnus pelamys*, Cuv. et Val., measuring two feet four inches in length, and which I understand was captured near Clifden, Connemara, in August last.—A. G. MORE (Museum of Science and Art, Dublin),

#### ARCHÆOLOGY.

**The "Attagen" of the Ancients.**—The name *attagen*, *ατταγην*, is to be found in all the lexicons, but great diversity of opinion prevails as to the

species of bird intended. It has been variously identified with a Grouse (the Hazel Grouse, *Tetrao bonasia*), Francolin (*F. vulgaris*), and Little Bustard (*Otis tetrax*). Liddell and Scott describe it as a "long-billed bird," and suggest a Woodcock or Snipe, referring to Aristotle's description. But Aristotle's words do not seem to justify this view. He says (Hist. An. ix. 26):—"The Woodcock is taken in the orchards with nets; it is of the size of a fowl; its bill is long, its colour *similar to that of the Attagen*." Not a word about *Attagen* having a long bill. I have little doubt that the *Attagen* of the ancients was a Sand Grouse (*Pterocles*) of some kind, and Cuvier was probably right in identifying it with the Pintailed Sand Grouse (*Pterocles alchata*), a bird which is not uncommon in the countries bordering the Mediterranean.—J. E. HARTING.

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## SCIENTIFIC SOCIETIES.

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### LINNEAN SOCIETY OF LONDON.

November 15, 1881.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Messrs. P. Crowley and J. Murray were elected Fellows of the Society.

Prof. P. Martin Duncan showed a specimen of coral (*Desmophyllum cristagalli*) which had grown upon an electric-telegraph cable off the shores of Spain; it possessed radicles, apparently due to the presence of a worm close beneath the base of the coral.

Mr. E. P. Ramsay exhibited a series of rare birds from New Guinea and the Solomon Islands, prominent among which were *Charmosyna margaretha*, *Geffroyius heteroclitus*, *Cinnyris melanocephalus*, *Myiagra ferrocyanea*, *Ptilopus Richardsii*, *P. Lewisii*, &c.

Dr. J. Murie showed and made remarks on specimens of *Ascaris bicolor*, Baird, from the living Walrus at the Westminster Aquarium.

A paper was read by Mr. T. J. Briant, "Notes on the Antennæ of the Honey Bee," in which he describes the minute structure of the segments, the joints and certain rod and cone-like organs, of highly sensitive function, previously referred to by Dr. Braxton Hicks.

The next communication was "On the Japanese *Languriidæ*, their habits and external sexual characteristics," by Mr. George Lewis. He remarks that one representative of the family (*L. menetriesi*) has been found in Siberia, lat. 46°; there are none in Europe, and one is known from Egypt; others inhabit the Malay Archipelago, Ceylon, and the American Continent. The author infers, from the geographical distribution of these beetles, that they have emanated from a tropical area. Some in the imago

state cling to the stems of brushwood, others sit on the leaves of moist shade-loving plants in the forests, while others, again, frequent *débris* on hill-sides. Their colours are all dull, their bodies elongate, but not structurally adapted for boring. The sexes show peculiar differences in size, monstrous enlargement, and obliquity of the head, volume of tibiæ, &c. In the Munich Catalogue, 1876, there are only 114 species of *Languriidæ* given, and Harold, in the paper cited, describes in 1879 about 40 more, yet the total—say 160—can be but a small portion of those existing in nature, or even acually now extant in our collections. It cannot be said that the fashioning of the *Languriidæ* is the result of influences affecting the insect in some early stage (as larva or pupa) before the imago appears, because we see throughout the whole of the insect world that in each stage of an insect forms are assumed which are adapted solely to such stage, and are entirely free and uncontrolled by any internal structure of the individual during any antecedent stage of its existence. Each, as a larva or imago, is formed for its environment to crawl or fly, and a process which is not immediately obvious checks in all its stages variation or an abrupt departure from the type of its predecessor. The following new species are described by the author:—*Doubledaya succulenta*, *Languria nigens*, *L. nara*, *L. columella*, and *L. fuscosa*.

Prof. P. Martin Duncan read a paper "On the replacement of a true wall or theca by epitheca in some serial *Corallæ*, and on the importance of the structure in the growth of incrusting Corals." After alluding to the discussions which have taken place regarding the value of epitheca in classification, the author states that one form of this structure is simply protective, and that another form is of high physiological value, for it replaces entirely the usual theca or wall. The anatomy of the hard structures of a *Cæloria* illustrates the second proposition, for the broad base is covered by an epitheca within which is no wall or "plateau commun"; the septa, remarkable nodular walls (described in detail), and the columellæ arise from the epitheca directly, and it limits the interseptal loculi inferiorly. In a *Leptoria* the same replacement of a wall by epitheca is seen. In incrusting *Porites* and such *Astræidæ* as *Leptastræa*, the majority of the corallites of the colony arise from this basal epithecate structure, and grow upwards, budding subsequently from their sides.

December 6, 1883.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

His Highness the Maharajah of Travancore, and Messrs. C. A. Barber, E. Bostock, H. Friend, J. Hannington, J. S. Hicks, J. Richardson, R. Tate, and H. Tisdall, were elected Fellows of the Society.

A large number of Lepidoptera from the district of Georgetown, Colorado, and a few from Missouri, were exhibited by Mr. Ernest Jacob,

who had collected them while engaged in the U.S.A. Geological Survey in the above-mentioned districts, 1880-81.

An essay "On Instinct," by the late Mr. Charles Darwin, was then read by the Zoological Secretary.

After detailing sundry facts with reference to the migratory instincts of different animals, the author of the essay suggests a theory to account for them. This theory is precisely the same as that which was subsequently and independently enunciated by Mr. Wallace in 'Nature,' vol. x. p. 459 (1874). Thus, to quote from the essay:—"During the long course of ages, let valleys become converted into estuaries and then into wider arms of the sea; and still I can well believe that the impulse (originally due to seeking food) which leads the pinioned goose to scramble northwards, would lead our bird over the trackless waters; and that, by the aid of the unknown power by which many animals (and savage men) can retain a true course, it would safely cross the sea now covering the submerged path of its ancient journey." The next topic considered is that of instinctive fear. Many facts are given, showing the gradual acquisition of such instinctive fear, or hereditary dread of man, during the period of human observation. These facts led Mr. Darwin to consider the instinct of feigning death, as shown by sundry species of animals when in the presence of danger. Seeing that "death is an unknown state to each living creature," this seemed to him "a remarkable instinct," and accordingly he tried a number of experiments upon the subject with insects, which proved that in no one case did the attitude in which the animal "feigned death" resemble that in which the animal really died; so that the instinct really amounts to nothing else, in the case of insects at all events, than an instinct to remain motionless, and therefore inconspicuous, in the presence of danger. From the facts given with regard to certain vertebrated animals, however, it is doubtful how far this explanation can be applied to them. A large part of the essay is devoted to "Nidification and Habitation," with the object of showing, by an accumulation of facts, that the complex instincts of nest building in birds, and of constructing various kinds of habitations by mammals, all probably arose by gradual stages under the directing influence of natural selection. Among other "miscellaneous remarks" on instincts in general he notes, first, the variability of instinct is proved by sundry examples; next, the fact of double instincts occurring in the same species; after which, "as there is often much difficulty in imagining how an instinct could first have arisen," it is thought "worth while to give a few, out of many cases, of occasional and curious habits, which cannot be considered as regular instincts, but which might, according to our views, give rise to such." Finally, cases of special difficulty are dealt with; these may be classified under the following heads:—(1) similar instincts in unallied animals; dissimilar instincts in allied animals; (3) instincts apparently detrimental to the species which

exhibit them; (4) instincts performed only once during the lifetime of an animal; (5) instincts of a trifling or useless character; (6) special difficulties connected with the instinct of migration; (7) sundry other instincts presenting more or less difficulty to the theory of natural selection. Mr. Darwin concludes:—"We have in this chapter chiefly considered the instincts of animals under the point of view whether it is possible that they could have been acquired through the means indicated on our theory, or whether, even if the simpler ones could have been thus acquired, others are so complex and wonderful that they must have been specially endowed, and thus overthrow the theory. Bearing in mind the facts given on the acquirement, through the selection of self-originating tricks or modification of instinct, or through training and habit, aided in some slight degree by imitation, of hereditary actions and dispositions in our domesticated animals; and their parallelism (subject to having less time) to the instincts of animals in a state of nature; bearing in mind that in a state of nature instincts do certainly vary in some slight degree; bearing in mind how very generally we find in allied but distinct animals a gradation in the more complex instincts which show that it is at least possible that a complex instinct might have been acquired by successive steps; and which moreover generally indicate, according to our theory, the actual steps by which the instinct has been acquired, inasmuch as we suppose allied instincts to have branched off at different stages of descent from a common ancestor, and therefore to have retained, more or less unaltered, the instincts of the several lineal ancestral forms of any one species; bearing all this in mind, together with the certainty that instincts are as important to an animal as their generally correlated structures, and that in the struggle for life under changing conditions, slight modifications of instinct could hardly fail occasionally to be profitable to individuals, I can see no overwhelming difficulty on our theory. Even in the most marvellous instinct known, that of the cells of the hive-bee, we have seen how a simple instinctive action may lead to results which fill the mind with astonishment. Moreover it seems to me that the very general fact of the gradation of complexity of instincts within the limits of the same group of animals; and likewise the fact of two allied species, placed in two distant parts of the world and surrounded by wholly different conditions of life, still having very much in common in their instincts, supports our theory of descent, for they are explained by it; whereas if we look at each instinct as specially endowed, we can only say that it is so. The imperfections and mistakes of instinct on our theory cease to be surprising; indeed it would be wonderful that far more numerous and flagrant cases could not be detected, if it were not that a species which has failed to become modified and so far perfected in its instincts that it could continue struggling with the co-inhabitants of the same region, would simply add one more to the myriads which have become

extinct. It may not be logical, but to my imagination it is far more satisfactory to look at the young cuckoo ejecting its foster-brothers, ants making slaves, the larvæ of the *Ichneumonidæ* feeding within the live bodies of their prey, cats playing with mice, otters and cormorants with living fish, not as instincts specially given by the Creator, but as very small parts of one general law leading to the advancement of all organic bodies—Multiply, Vary, let the strongest Live and the weakest Die.”\*

An interesting discussion followed, in which Professors Huxley, Allman, Mivart, Foster and Lankester, Messrs. Wallace and Seebohm, and others took part.

December 20, 1883.—ALFRED W. BENNETT, F.L.S., in the chair.

Messrs. N. Cantley, W. Dobson, F. G. Smart, and Rev. R. Thom were elected Fellows of the Society.

Mr. S. O. Ridley exhibited and made remarks on a series of 177 vertical sections of Sponges collected in the neighbourhood of Point de Galle, Ceylon, by Dr. W. C. Ondaatje, and transmitted to England by him in letters. They are in most instances sufficient for the identification of the genera and some species.

Mr. F. Maule Campbell showed the web of a spider (*Tegenaria Guyonii*) which had been spun in the centre of a paste-board cylinder, the peculiarity being the manner in which the solid part of the web was medially swung; for in this species of spider it is more usually on the sides of objects.

A communication was read “On the Auditory Ossicles of *Rhytina Stelleri*,” by Mr. Alban Doran. This was based on skeletons obtained by the ‘Vega’ Expedition, and shown at the late International Fisheries Exhibition by the Swedish Government. The author found that the malleus in *Rhytina* is larger than in *Manatus*, and is therefore the largest and bulkiest malleus to be found in any animal where such a bone exists, that in the characters of its body it resembles *Manatus* rather than *Halicore*, and that in the manubrium it differs from the other *Sirenia*, and is far more generalised. The incus is of the *Manatus* type, and so is the stapes, which is also larger and bulkier than that of any other animal—J. MURIE.

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#### ZOOLOGICAL SOCIETY OF LONDON.

December 4, 1883.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

Mr. Philip Crowley exhibited and made remarks on an egg of a Bower-

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\* The full text of this essay will appear shortly in the ‘Journal of the Linnean Society.’



bird from Southern New Guinea, supposed to be that of *Chlamydodera cerviniventris*.

Sir Joseph Fayer exhibited a shed deer-horn, apparently gnawed by other deer, and made remarks on this subject.

Mr. Sclater exhibited, on the part of Dr. George Bennett, four skins of a species of Paradise-bird of the genus *Drepanornis*, obtained in the vicinity of Port Moresby, in Southern New Guinea. Mr. Sclater considered this form to be only subspecifically different from *D. Albertisi* of North-eastern New Guinea.

Mr. W. Burton exhibited a supposed hybrid between a male Blackcock and a hen Pheasant.

Mr. R. Bowdler Sharpe gave descriptions of some new species of Flowerpeckers, viz., *Dicaeum sulaense*, from the Sula Islands; *D. pulchrius*, from S.E. New Guinea; and *D. Tristrami*, from the Solomon Islands. The author added some critical notes on other species of *Dicaeum* and *Prionochilus*.

Mr. J. B. Sutton read a paper on the diseases of Monkeys dying in the Society's Gardens, on which he gave many interesting details. Mr. Sutton called special attention to the prevalence of the belief that Monkeys in confinement generally die of tuberculosis, and showed that such is not really the case.

Mr. H. O. Forbes read a paper describing the peculiar habits of a spider, *Thomisus decipiens*, as observed by him in Sumatra.

A second paper by Mr. Forbes gave an account of some rare birds from the Moluccas and from Timor Laut. To this the author added the description of a new species of Ground-Thrush from Timor Laut, which he proposed to call *Geocichla Machiki*, in acknowledgment of services rendered to him by Dr. Julius Machik in Sumatra.

A communication was read from Prof. J. von Haast, containing notes on *Ziphius (Epiodon) novæ-zealandiæ*, in continuation of a former paper read before the Society on the same subject. A second communication from Prof. Haast gave a description of a large Southern Rorqual, *Physalus (Balænoptera) australis*, which had been washed ashore dead on the New Brighton beach, about five miles from Christchurch, New Zealand. Prof. Haast was doubtful as to the distinctness of this animal from *Balænoptera musculus* of the Northern Atlantic.

Mr. G. French Angas read some notes on the terrestrial Mollusca of Dominica collected during a recent visit to that island.—P. L. SCLATER, Secretary.

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## NOTICES OF NEW BOOKS.

*Evolution and Natural Theology.* By W. F. KIRBY, of the British Museum. 8vo. London: Sonnenschein & Co. 1883.

SOME ten years ago the subject for the "Actonian Prize Essay" was the relation of the doctrine of Evolution to Natural Theology; if we were, at the time, correctly informed, two essays were submitted to the adjudicators; at any rate, Mr. Lowne, the well-known student of the histology of insects gained the Prize, and published an essay on the 'Philosophy of Evolution,' which we must confess we have never read. We do not know whether Mr. Kirby's was the unsuccessful essay, but he tells us that "a great part" of the present work was written some time ago, and we do see in it the very notes,—we cannot say of an unsuccessful prize essay, for we do not remember ever to have had the misfortune to read one,—but of the ordinary "prize essay." We see, that is, the hasty appropriation of work done by others, undigested, crude, and careless statements of facts, and an uncritical use of general works and more or less trustworthy compilations. For example, the Mollusca and the Vertebrata are supposed to have a common origin in the "Molluscoida"—as though the very facts of Tunicate development had not, once for all, separated them from the Mollusca. We hear of Monera as having no "outer epidermis," and we have the works of Darwin, Spencer, and Carpenter quoted side by side with those of Murphy and Ponton.

Sometimes the point insisted on by the authority quoted is completely misunderstood. Writing of the origin of life, Mr. Kirby tells us that "the semi-organised mud at the bottom of the deep sea may be the transitional stage between inorganic and organic matter." There is no "may be" at all about it—if by this curious mud he means the "ooze"; this is, in a sense, an intermediate stage, but in the very opposite direction to which Mr. Kirby points, for it is being converted into red clay and greensand.

In other cases,—*e.g.* in his chapter on Evolution in Astronomy and Philology,—there is no reference at all to the more suggestive writers, such as Schleicher, whose famous essay, translated into

English under the title of 'Darwinism tested by the Science of Language,' is one of the most remarkable supports to the Darwinian doctrine that has ever appeared from the philological side.

The present essay deals with so many subjects,—inclusive of witches and intermediate intelligences,—that it is difficult to give any idea of its scope, and the "philosophical" portion is altogether beyond us. Our opinion as to its value has been based chiefly on the chapters which deal with subjects to which our own studies and those of our readers have been more particularly devoted, and we are compelled to say that on the subjects of Homology and Embryology Mr. Kirby has been writing about what he clearly does not understand. He writes (on p. 79) of the "skin" and the "lining of the stomach" in Hydra, and declares that "the functions of life" "devolve almost entirely" upon the former; this is followed by a statement which, if it has any meaning at all, is absolutely ridiculous—"Even in the highest animals, the functions of different organs are interchangeable to a limited extent"; but not even an acrobat can walk on his hands and feed himself with his feet. "The Amphibia, Vertebrata, and (with some fossil exceptions) also the Reptilia, have four limbs, normally possessing five digits." Again, on p. 81, we learn that "in nearly all Vertebrata," the neck is composed of seven vertebræ. The old story of the sacral vertebræ varying in number is repeated without any reference to the views of Gegenbaur, who speaks of sacral and pseudo-sacral vertebræ, or to the teaching of A. Milne-Edwards, who tells us that "the posterior limit of the sacral region is characterised, not by the union of the different osseous pieces, *which varies with age,*" &c. Then we have the old objections to the vermiform appendix in the human cœcum, and the idea is derided that this exists for the purpose of rendering his internal anatomy more like that of a Kangaroo. Mr. Kirby says, "Can anything be more preposterous than such a suggestion?" Truly there cannot; the apex of the Kangaroo's cœcum, as is well known, is "rounded"; it is the Wombat that has a vermiform appendix. The eyes of Cephalopods are said to be perfectly homologous with those of the Vertebrata; but there is no notice of their different developmental history. Our author seems to think that the epipubes or so-called marsupial bones of certain mammals have a relation to the secondary sexual characters, for he says that the development of mammæ

in the male is "perfectly analogous to that of the presence of marsupial bones" in male marsupials!

This will be enough of Mr. Kirby's anatomy.

His "embryology" is of much the same character; we are told (p. 97) that the "ovum of a mammal presents at one period an extremely close resemblance to *Volvox globator*"! That the larvæ of all Crustacea resemble each other very closely on emerging from the egg!, whereas, as a matter of fact, the Cirriped is at first a *Nauplius*, the Crab a *Zoëa*, and the Crayfish is born in the form of the adult.

This will do, we think, for Mr. Kirby's embryology, which, by the way, seems in Man to be a useless rudiment: no other meaning can we give to the sentence, "For, apart from embryology, which we will consider in the next chapter, there are in man more than one of the useless and even dangerous structures to which we have just alluded." Of course this is only bad grammar, but the many instances which we have noted of bad science, bad grammar, and worse taste, have unfortunately precluded the expression of anything like a favourable opinion of the work. In regard to the last-named failing, Mr. Kirby must of course be his own *arbiter morum*, but it seems hardly in good taste to observe (p. 22), that "on the whole, the divines to whose lot it fell to fix the canon of the New Testament appear to have made a very judicious election"; or (p. 193), "I follow the usual story of Herodotus here merely in illustration of the argument, without in any way pledging myself to the historical accuracy of the tradition which he records"; or again (p. 170, "It was in this sense that Christ himself observed that although not a sparrow was forgotten before God, yet men are of more value than many sparrows,—a very suggestive remark of this profound observer of man and Nature."

Should the reader consider our criticism too severe, let him look at the fifteen conclusions which Mr. Kirby has set down in his last chapter, and say whether he can find in them aught else save truisms, scarcely worth printing, dogmatic assertions such as "Evolution reveals to us the true system of Nature;" or nonsense such as "Man is immortal by virtue of the inherent indestructibility of Life itself"!

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## WAYSIDE NOTES IN SWITZERLAND.

BY EDWARD HAMILTON, M.D., F.Z.S.

ONE sees more birds, particularly of the smaller kinds, in Switzerland than in the neighbouring countries of *la belle* France or of sunny Italy. They are not so much sought after by the *chasseur*. No strings of Robins, Tits, Redstarts, Chaffinches, Blackbirds, and other songsters of the grove, are to be found hanging up on the stalls on market days, as is invariably the case in the cities and towns of Northern Italy. The Switzers appear not to care for such trifles, but they dearly love a good Squirrel; and it is amusing to see how the connoisseurs handle and pinch the loins of the defunct beauties to test their fatness. On one stall at Lucerne I counted eighteen of both species (*S. vulgaris* and *alpinus*), and they were all sold within a quarter of an hour. The smaller birds, for the most part, are left to themselves to perform their duties, unmolested by nets or guns, and the consequence is that many pleasant voices enliven the woods and gardens of this happy land.

The few remarks I have noted down were made at a time when many birds are silent, and many about to depart or have departed south; but I am told by competent authorities that there is no lack of birds of all kinds singing and breeding in the spring months, which a glance at some of the museums where special rooms are devoted to the fauna of the country fully verifies. At the Grand National Exhibition, held at Zurich last

year, the Swiss Alpine Club built a chalet in the gardens, in which was exhibited a fine collection of the fauna of the country; most of the specimens were well set up, but some of the birds not quite in accordance with their natural instincts.

LAMMERGEIER, *Gypaëtus barbatus*.—Had a fox in his talons, as if alive. According to most authorities, this bird, like other Vultures, depends mainly on dead animals or carrion, for its food. Its claws are not formed, as those of the Eagles or other Raptores, for grasping or carrying off live animals of any size. There were specimens of the bird in three different states of plumage. In the second figure in Dresser's 'Birds of Europe' the head appears to be too black. The *Gypaëtus* is almost extinct in Switzerland; in fact, the curator of the Natural History Museum at Zurich informed me that it could not now be found in any part of that country. I was told, however, by Herr Stauffer, at Lucerne, that he still knew of two pairs of these birds, but he would not say where. I suspect, from hints he dropped as to his own sporting localities, that the most unfrequented crags of the Grisons still hold them.

GOLDEN EAGLE, *Aquila chrysaëtus*.—Also well represented at this exhibition in various states of plumage. Here, again, the bird, in its early immature state, that is, with the white on the basal part of the tail very distinct,—in fact, the plumage which in former days caused this bird to be classed under the specific name of *Aquila fulva*,—is set up, with wings outspread, feeding its young. Query, does the bird breed in this state of plumage? The Golden Eagle is a long time getting to its perfect plumage, and some white feathers remain on the tail, probably for two or three years, and it may breed then, but hardly in the first year's plumage. On one occasion, when ascending the Schelthorn, a splendid Eagle, which my guide declared to be a Golden Eagle, soared over my head; but this bird is becoming very rare in the inhabited or frequented districts.

In the Berne Museum of Natural History, *Aquila imperialis* and *A. clanga* are placed in the department appropriated for the fauna of Switzerland, where the whole of the European *Falconidæ* are well represented.

OSPREY, *Pandion haliaëtus*.—Still to be found in many localities. I noticed one sailing above Schaffhausen, on the Rhine, and another—or, may be, the same or its mate—on the

lower part of the Lake of Constance. Twenty-five years ago a pair were daily to be seen on the Lake of Lucerne, just below Brunnen, and I recollect disturbing one off the great mass of rock, the Mythenstein, which is now devoted to a monument to Schiller, at the entrance of the Bay of Uri. The specimens in the exhibition of the Swiss Alpine Club were particularly good ones, and well set up.

I noticed what I believe to have been a female Hen Harrier, *Circus cyaneus*, hunting in the meadows between Baden and Zurich, although not near enough to distinctly state it was that bird, yet from its mode of quartering its ground, &c., like what I have seen many times in this country, when I have been able to get much nearer the bird, I am pretty certain it was the female of this species.

FORK-TAILED KITE, *Milvus iclinus*.—Not uncommon. When I was at Schaffhausen one of these birds would come every evening between four and five o'clock sailing and soaring over the river, and remain hovering over one place, always the same, for a minute or two—a kind of farmyard, where, no doubt, he had often picked up his supper. He looked a noble fellow, and as he wheeled round and round, the evening sun would light up his plumage, making him look quite golden. I rather selfishly wished to possess him, knowing, as a salmon-fisher, what power a “glead tail” fly exerts over the migratory monsters of the Lochy and other well-known salmon rivers. I also saw a pair of these birds on the Lake of Zug.

THE KESTREL, *Falco tinnunculus*, is everywhere, and the SPARROWHAWK, *Accipiter nisus*, also. One of the last-named birds, a male, used to frequent the banks of the Limmat, close to the Hotel at Baden; under the terrace which was built on the banks, the Wagtails and Redstarts collected in considerable numbers to prey upon a species of *Ephemera*, very like a small mayfly, only grey, filling the air in vast swarms, and I have seen him whisk round the corner of the terrace and carry off a Wagtail with a rapidity quite astonishing. At another time I saw him take away a young Redstart from the balcony at the corner of the hotel: he appeared to rise up from the river, swoop and carry off his prey before one could wink. On this particular occasion he was balked of his dinner: as he flew across the river to his dining-place,—a large flat stone, where I have often

seen him, he was suddenly surprised by two fishermen, and he dropped the poor bird, which fell among the vines, and "Mr. Accipiter" took refuge in some high trees close by. Twice I saw him attempt to recover his dinner, but both times being frustrated by the fishermen, he at last very reluctantly gave it up.

**BUZZARD, *Buteo vulgaris*.**—Very common. I have watched a pair of these birds soaring to a great height over the vines and pastures, and then suddenly descending. I only once saw this bird seize its prey, which he did much like an Owl, suddenly dropping on the grass, and after a time rising and flying off with a rat, or something about that size, in its claws. At Felsinegg, on the Zuger Berg, 3250 feet above sea-level, there were four pairs within a comparatively small radius. They were very fond of sitting on the poles placed for stacking the fern and bracken in the open uncultivated places, and were very tame, often allowing me to come within fifty yards of them, and then only slowly flying to the next pole or neighbouring pine tree. It appeared to me that there were two species, one rather larger and lighter in colour than the other—perhaps *Buteo lagopus*.

**STORK, *Ciconia alba*.**—Generally takes its departure from Switzerland before the arrival of the autumn tourists, but up to the 12th or 15th of August a pair or two, with their young, may be found, if looked after; most of them, however, have gone to warmer climes. They are very tame, as, being unmolested, they fear not man. About three or four miles out of Basle, on the road to Zurich, there is a Stork's nest on a high chimney at a farmhouse, and I noticed the *père* and *mère* Stork with their family, walking stately about the marshy fields by the Rhine, in close proximity to the men mowing the grass, apparently quite accustomed to their presence. There used to be a nest in one of the towers or pinnacles of Basle Cathedral, but the necessary repairs, which continued for some time, have driven them away. Whilst sitting on the terrace of the cathedral, I saw a Stork fly across the river, and then begin gyrating upwards and upwards in ever-increasing circles till it became but a speck and almost invisible. I noticed two of these birds near Regensberg as late as the 12th August; they settled down quite close to some men in the fields, and appeared to be quite familiar with them. The Swiss, I suppose, believe in the old



saying, "If a Stork builds in the housetop conjugal affection is never disturbed within." Montgomery says:—

Stork, why were human virtues given thee?  
 "That human beings might resemble me,  
 Kind to my offspring, to my partner true,  
 And duteous to my parents. What are you?"

HERON, *Ardea cinerea*.—With its lazy, flapping flight, is found amongst the marshy fields by the Limmat. I only saw two, and I think they are not very common.

RAVEN, *Corvus corax*.—Two or three times I heard the unmistakable bark of the Raven,—a sound distinctly audible even when the bird is so high as to be almost out of sight,—but it is not very common in the lower valleys.

CROW, *Corvus corone*, and ROOK, *Corvus frugilegus*.—Common enough. The latter abounds in all the lower plains, but I never could detect any with the bare warty base of the beak. Is it that all the birds we see in August are young ones? or is it that the food of this bird is chiefly derived from moister ground, and therefore this condition is not attained? How fond these birds are of young walnuts! Along the shores of the Lake of Constance, where walnut trees abound, the Rooks commit great depredations.

MAGPIE, *Picus caudata*.—Common as this bird is in France and Italy, I only saw it twice in Switzerland, near Basle.

JAY, *Garrulus glandarius*.—Plentiful, but very shy. In the woods near Baden (Aargau) I have occasionally come upon a flock, but on the first note of warning they all disappeared into the depth of the pine forest, without the screaming clamour Jays usually make when disturbed. At Felsinegg, where the pine woods extend to a great distance, I have found their feathers on the ground, but only once or twice got a glimpse of the bird.

NUTCRACKER, *Nucifraga caryocatactes*.—It was in the locality last named, however, that I had the great pleasure of being able for two or three days to watch the habits and mode of feeding of the Nutcracker. I have seen this bird, while walking over the Pass of St. Gothard, come down to the hazel trees, which are found on the lower part of the Pass about Amsteg, pick off a nut, and then fly to a stone and commence breaking it by repeated blows with his beak; but here at Felsinegg a party of six, two

old and four young ones, came every morning to a group of fir trees, *Pinus abies*, covered with cones, and remained for some time feeding on these. Occasionally I could see one fly off with a cone, and some descended to the ground. They do not appear to feed on the cones as the Crossbills do, but to snap them off first before getting the seeds out; and having had their breakfast they flew across, passing within twenty yards of where I was sitting to another and larger pine forest. I could easily distinguish the young birds, being of a kind of sooty brown, with only indications, as it were, of the white spots. The old birds were in full plumage, and one of them always came first, then the four children, and then the old mother or father bringing up the rear. They fly with a slow Jay-like flight, and without any noise. I came upon another, or perhaps the same, lot in an afternoon walk, some three or four miles away, in the middle of a large pine wood. It is quite surprising to see the great number of fir cones which lie on the ground under the trees, broken up by Squirrels, Nutcrackers, and Crossbills, particularly the two former. When sitting and sketching, I have watched the Black Squirrel come down from the trees and turn over cone after cone, occasionally finding one untouched, and I have no doubt the Nutcrackers do the same. Although I kept a sharp look out, and once or twice thought I heard their peculiar note, I never came upon any of the Crossbills.

GREEN WOODPECKER, *Geococcyx viridis*.—Plentiful about the orchards round Zug and Lucerne. I was much disappointed at not seeing more of the *Picidae* in these forests, this species being the only one of this family observed.

TREE CREEPER, *Certhia familiaris*.—Also pretty plentiful in the same localities.

COAL TIT, *Parus ater*.—Seen about Felsinegg: there was always a colony together, which appeared to take a regular round daily, as always at the same place, at the same hour, I found them fitting from tree to tree searching for their food.

BLUE TIT, *Parus caeruleus*.—Very common about Baden and the orchards round Zug.

BLACKBIRD AND THRUSH.—In every thicket and garden, and very tame, particularly the former.

MISSAL THRUSH, *Turdus viscivorus*.—Collects in flocks early in September. I found a number of them in my walks around

Felsinegg, but (as is always the case with this bird) could never get very near. When they congregated together I counted over twenty in one flock.

WATER OUZEL, *Cinclus aquaticus*.—To be found on almost every river and stream. At Baden, near Brunnen, &c., I found a nest of this bird placed just at the entrance of a small tunnel which conveyed the water of the Seyon from Vallengin to Neufchâtel. I am afraid, after what has been seen of this bird when kept in confinement, he cannot plead guiltless of fishy proclivities. The young birds in the Zoological Gardens were extremely partial to minnows.

HEDGESPARROW, *Accentor modularis*.—Common at Baden, and I came upon it also at Felsinegg.

REDBREAST, *Erithacus rubecula*.—Always to be seen, with the last-mentioned bird, about the cultivated and frequented gardens and walks.

COMMON AND BLACK REDSTART, *Ruticilla phoenicurus* and *R. tithys*.—At Baden (Aargau) both were very plentiful; at Felsinegg the black species was most abundant. They are very tame, and allow you to come quite close to them. They are late roosters; I have often seen them hawking *Phrygania*, which are found in vast quantities on the Limmat till quite dark, and long after the Flycatchers and Wagtails have gone to bed. Why is Switzerland so very seldom mentioned in Dresser's 'Birds of Europe'? This country is quite passed over as the breeding-place of the Black Redstart. The figure of the female bird in Mr. Dresser's plate is not at all correct as to colour.

WHEATEAR, *Saxicola œnanthe*.—Pretty common at Felsinegg in September. I found a good number of them on the upper waste lands; but I do not recollect seeing one old male there; they appeared to be all females or birds of the year, and were evidently migrating southwards.

BLACKCAP, *Sylvia atricapilla*.—The only Warbler I saw near enough to identify.

WREN, *Troglodytes parrulus*.—Observed to be very common.

SPOTTED FLYCATCHER, *Muscicapa grisola*.—Very common everywhere. Up at Felsinegg I noticed it as late as the 10th September. At Baden in 1882 this bird was extremely plentiful; a pair had a nest under the verandah, which in the afternoon

was crowded with ladies and children, and close to the electric lamp, of which the birds took no notice at night. Every garden, almost every house, had its pair of Flycatchers. In 1883, from some cause or other, there were comparatively very few, but many more Redstarts.

WHITE AND PIED WAGTAIL, *Motacilla alba* and *M. lugubris*.—Frequented the banks of the Limmat at Baden. My attention was particularly attracted to the difference in plumage of the two species, more particularly in the colour of the back. I have counted as many as twenty of these birds on the wing at once, hunting after the *Phryganicæ* which hover over the Limmat. They would sit in rows under the terrace of the hotel,—and now and then one was snapped up by the Sparrowhawk,—and I could distinctly see that some of them were much blacker than others. *M. alba* was most numerous.

GREY WAGTAIL, *Motacilla sulphurea*.—Appeared also amongst the others.

YELLOW WAGTAIL, *Motacilla flava*.—On the 15th August we had a flight of these birds, which only remained three days, hawking flies in company with the other species; on the 18th they were all gone. A few days after the grey species disappeared, but the pied and white birds remained, and I left them still pursuing their prey.

YELLOWHAMMER, *Emberiza citrinella*.—Rather plentiful.

CIRL BUNTING, *Emberiza cirlus*.—On the 12th September, at Schaffhausen, I noticed a pair of these birds, very restless, and both having food in their beaks, in a secluded part of the grounds of the hotel. I could not discover the nest, but they evidently had young close by. Surely this was very late. The nest appeared to be among some low bushes and fir trees.

CHAFFINCH, *Fringilla cœlebs*.—Extremely common.

GOLDFINCH, *Carduelis elegans*.—A little colony along the banks of the Limmat, on the old railroad near Wettingen.

HOUSE SPARROW, *Passer domesticus*.—Everywhere on the lower grounds; none at Felsinegg.

TREE SPARROW, *Passer montanus*.—At Baden.

KINGFISHER, *Alcedo ispida*.—Not common. I only saw this bird twice on the Limmat.

SWALLOW, *Hirundo rustica*.—Remains very late; plenty were seen up to the end of September.

MARTIN, *Chelidon urbica*.—Began to congregate about the 25th August, and I did not see any after the middle of September.

SAND MARTIN, *Cotyle riparia*.—About the 15th August a large number of these birds arrived at Baden, and remained hawking up and down the river for three or four days and then disappeared.

SWIFT, *Cypselus apus*.—All left about the middle of August; there were plenty of them about the old tower and the church-steeple, but I could not detect *alpinus* amongst them. At Berne this latter species predominates, and it is a pretty sight to watch them gyrating and screaming round the tower of the Cathedral. I noticed one as late as September 22nd.

COOT, *Fulica atra*.—Amongst the many interesting sights at Lucerne are the Coots on the lake. When I first visited Lucerne this bird chiefly frequented the neighbourhood of the old covered bridge, and, above and below it, I one day counted fifty. Last year I could only find thirty. They had changed their locality, and were to be found chiefly near the new bridge and by the landing-places of the steamers, always on the look out, and sharing with the half-tamed wild ducks, the bread, &c., thrown to them by the passers by. They feed much on a water-plant which grows plentifully at the bottom of the lake, particularly where the rapid stream commences; it looks very like the American weed which has so encumbered our canals and rivers. It is amusing to watch them when thus feeding. Some of the old male birds, too lazy to dive for their own dinner, watch the younger ones busy at the bottom, and the moment they rise to the surface, with a beak full of the weed, give chase, and, like the Skua amongst the Gulls, seize the coveted morsel, which the fugitive is obliged to relinquish. Whilst watching them I saw one of these birds seize a Bleak and eat it. It happened thus: there was a great scamper amongst a large shoal of Bleak, arising from the dash of a Pike or Trout, and one appeared to be injured, and kept jumping out of the water. A Coot immediately rushed at it, seized and in a few moments swallowed it. In the fourth edition of Yarrell, we read, "if deprived of water, it (the Coot) will roost, as other land birds, upon any elevated situation." My hotel being close to the bridge at Lucerne, I went out every night between 10 and 11 p.m. to see the Coots. I found them all arranged along the beams which

separate that portion enclosed for the Swans, &c. They stood all of a row, some on one leg, some on both, but evidently in that position were prepared to pass the night. They are very late feeders, and the whole of them were not collected together till near 10.30; some stragglers were even later, but it appeared as if a place was assigned to each. Whilst watching them the "quack, quack" of the Wild Duck would be heard all around, numbers coming in from other parts of the lake. The Coot is a most interesting bird, and notice him diving! the pearly hue he has when under water leaving him as he comes to the surface. Then, half paddling, half flying—

"The wanton Coot the water skims,  
Rocked on the bosom of the sleepless wave."

No one should leave Lucerne without visiting the Coots.

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#### NOTE OF SOME RARE BRITISH BIRDS IN THE COLLECTION OF MR. J. WHITAKER.

As it is always interesting to know where rare and historical specimens are preserved, I have compiled the following list of uncommon birds in the collection of Mr. J. Whitaker, of Rainworth Lodge, Notts, hoping that it may be of service to other ornithologists.—OLIVER V. APLIN.

*Falco islandus*, Gmel.—Kirkwall, Orkney, 1876.

*F. vespertinus*, Linn.—Bempton Cliffs, near Bridlington, Yorkshire, July 6th, 1865. *Vide* 'Handbook of British Birds,' p. 87, and 'Handbook of Yorkshire Vertebrata,' p. 47.

*F. aesalon*, Tunstall.—A female Merlin killed at Ramsdale, Notts, in November, 1870, presents a curious appearance, being quite half as large again as an ordinary specimen. 'Birds of Nottinghamshire,' p. 7.

*Circus cineraceus* (Mont.)—Obtained near Salisbury, 1871.

*Milvus iclinus*, Savigny.—Shot by W. Wilson, at Sanday, Orkney, in April, 1877.

*Scops giu* (Scop.)—Renwick, Cumberland, May 15th, 1875. Recorded in 'The Field,' 22nd May, 1875.

*Cinclus melanogaster*, C. L. Brehm.—Shot near Southwell, Notts.

*Oriolus galbula*, Linn.—A male, Warwickshire, May, 1870, vide 'The Zoologist,' 1871, p. 2765; a female, Horsham, Sussex, 1872.

*Cyanecula suecica* (Linn.)—A red-spotted male Bluethroat is in a case with a male Redstart, and a label on the case, on the handwriting of Mr. Sim, of Aberdeen, runs as follows:—"Both birds were caught as they flew on board a fishing-boat about six miles off Aberdeen. The Bluethroat was captured on the 16th May, 1872." 'Handbook of British Birds,' p. 104.

*Pastor roseus* (Linn.)—Adult male, Ramsdale, Notts, Sept. 1856. 'Birds of Nottinghamshire,' p. 26.

*Pyrrhocorax alpinus*, Koch.—A female example procured in Oxfordshire, and mentioned in 'The Zoologist,' 1881, pp. 442, 471, and 1882, p. 431.

*Merops apiaster*, Linn.—Two fine specimens. One killed at Stainsby Gardens, Derby, May 4th, 1879 (Zool. 1879, p. 461), and the other at Ingoldsby, near Bowes, Lincolnshire, July, 1872 (Zool. 1882, p. 149).

*Cypselus melba*, Illiger.—Finchley, August, 1860. Recorded in 'The Field,' March 13th, 1875, and 'The Zoologist,' 1879, p. 489.

*Caprimulgus ægyptius*, Licht.—Since taking my notes of this collection, a brief record, by Mr. Whitaker, of this interesting specimen has appeared in 'The Zoologist,' 1883, p. 374, and a longer account with notes on the species by Mr. Harting, in 'The Field' of Sept. 15th, 1883.

*Syrnhaptes paradoxus* (Pall.)—A male, one of four obtained at Farnsfield, Notts. Two females caught June, 1863, in rabbit-traps set for crows, in a potato-field near Mansfield. Their companions (some six or eight in number) remained about the place for upwards of a month. 'Birds of Nottinghamshire,' pp. 35, 36.

*Tetrao tetrax*, Linn.—A pair of the old Nottinghamshire stock, shot at Ratcher Hill, Mansfield Forest.

*Tringa canutus*, Linn.—In breeding plumage. Fountain Dale. 'Birds of Nottinghamshire,' pp. 44, 45.

*Ardea ralloides*, Scop.—Bestwood Park, Notts, July, 1871. Zoologist,' 1871, p. 2803, and 'Birds of Nottinghamshire,' p. 50.

*Ardetta minuta* (Linn.)—Scarborough, February 25th, 1879. 'Handbook of Yorkshire Vertebrata,' p. 50.

*Phalaropus hyperboreus* (Linn.)—One in breeding-dress, Ramsdale Pond, Notts, July 6th, 1843. 'Birds of Nottinghamshire,' p. 46.

*Anser cinereus*, Meyer.—One shot out of a flock of a score at Walling Wells by Sir J. White, June 29th, 1880.

*Clangula albeola* (Linn.)—Bessingly Beck, near Bridlington, Yorkshire, winter of 1864-5. See 'Zoologist,' 1865, p. 9659. 'Handbook of British Birds,' p. 161; 'Birds of the Humber District,' p. 177; and 'Handbook of Yorkshire Vertebrata,' p. 57.

*Cosmonetta histrionica* (Linn.)—Male, Filey, Yorks., autumn of 1862. Mr. Roberts, of Scarborough, saw some men throwing this bird into the sea for a dog to retrieve. They had found it dead on the shore. 'Handbook of Yorkshire Vertebrata,' p. 58.

*Somateria mollissima* (Linn.)—Shot near Nottingham, Nov. 16th, 1882; the only example procured in the county. Zool. 1883, p. 129.

*Mergus merganser*, Linn.—An adult male, Park Hall, Notts, 1876. 'Birds of Nottinghamshire,' p. 64.

*M. albellus*, Linn.—An adult male, Thornton Reservoir, Leicester, 1877.

*Xema Sabinii* (Leach).—Bridlington, Yorkshire, Oct. 14th, 1875. 'Handbook of Yorkshire Vertebrata,' p. 81.

*Pagophila eburnea* (Phipps).—Shot off the North Pier, Aberdeen, Nov. 17th, 1874.

*Stercorarius crepidatus* (Banks).—Mansfield, 1880.

*Puffinus griseus* (Gmel.)—Flamborough, Oct. 1881.

Amongst the hybrids in this collection I particularly noticed one between Goldfinch and Linnet, and another between Linnet and Greenfinch, obtained in Cambridgeshire (Zool. 1883, p. 302).

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## ORNITHOLOGICAL NOTES FROM DEVON AND CORNWALL.

BY JOHN GATCOMBE.

ON September 3rd, during a trip up the river Tamar, where few waders but Herons and Curlews were to be seen, I was much interested in watching the struggles of a Cormorant with a large fish on a mud-flat near the river, which it must have just caught, or possibly found left dry by the tide, but had the greatest difficulty in killing and swallowing. This was the first time I ever saw a wild Cormorant kill and eat a fish out of the water.

On Sept. 5th a Fork-tailed Petrel, *Procellaria leucorrhœa*, was picked up dead by a rural postman on the road near Cargreen, a village close to the Tamar. Its occurrence inland was no doubt due to the terrific gale which took place on the 1st of that month. It appeared to be a bird of the year, and in a most interesting state of change, the new dark slate-coloured feathers on the wings and other parts of the body contrasting strongly with the old rusty brown and weather-worn plumage of the previous season.

By the 8th September some Common Redshanks were to be seen in the markets, and a very young Black Grouse, which latter was no doubt bred on Dartmoor. A day or two afterwards, on my way to Exeter, I observed on the mud-banks of the rivers Teign and Exe many Herons and large numbers of Black-headed Gulls, both old and young. On the 13th quite a flight of Titlarks seem to have arrived on the coast, all in very bright and newly-moulted plumage. I noticed also some Cormorants, with white breasts and bellies, flying overhead, in which stage of plumage I have often remarked them in the autumn, and have no doubt that such birds are the supposed Northern Divers occasionally mentioned as having been seen standing bolt upright on the rocks. On the 24th numbers of Wheatears appeared on the coast, after a strong gale from the N.E. during the previous night, and large flocks of Scoters, *Ædemia nigra*, I was informed, were to be seen in Start Bay.

On October 1st I heard of a white Spoonbill having been killed by a wildfowl-shooter on the St. Germans river, and sent to Mr. Vingoe, of Penzance, for preservation. This river seems

to be a favourite resort of the species when it visits us, as so many have been obtained there from time to time.

On October 2nd, wind north and very cold, flocks of Skylarks were seen crossing the Sound, flying N.W. Examined an adult Gannet, Arctic Tern, and young Storm Petrel (*Procellaria pelagica*) at the Stonehouse birdstuffer's, all obtained in the neighbourhood. The Petrel had been caught and brought into the house alive by a cat, from the garden of the late Mr. Charles Trelawny, situate in the centre of Plymouth, after a severe gale from the north. It was a very young specimen, still showing some of the nestling down, especially on the abdomen and under tail-coverts; the greater wing-coverts, too, were prettily tipped with white, forming a conspicuous bar across the wing.

On the 10th October I visited Looe and Polperro, and was shown the house in which the late Mr. Jonathan Couch lived, and the room in which he died, now converted into a Reading Room and small Library, called "The Couch Reading Room," *in memoriam*. When passing by the St. Germans mud-flats, in the train, I remarked a vast number of Curlews; a flock consisting of fully two hundred rose together at the report of a fowling-piece discharged from a boat on the river. I bought in the Plymouth market another young male hybrid between Pheasant and Black-cock, similar to the one described by me (Zool. 1879, p. 60). The skin is now in the fine collection of varieties and hybrids belonging to my friend Mr. Frederick Bond, of Fairfield Avenue, Staines.

A nice specimen of the Cornish Chough examined by me had been sent up from Padstow; in its stomach I found only the mandibles of beetles. Some Common Terns were forwarded for preservation from Starcross, on the coast of Devon, but I saw none near Plymouth during the past autumn.

A friend told me that, when cruising in his yacht off Plymouth Sound, he noticed a tremendous struggle in the water between a Cormorant and large eel, which had twisted itself so tightly round the bird's neck as to almost cause suffocation, but before getting his boat quite close enough, as he thought, to pick up the exhausted bird, it just managed, with some extra exertion, to swallow its prey and make good its escape.

Scaup ducks were rather plentiful during October. There were four young birds of this species at a poulterer's shop in

Devonport, and my friend Col. Marcon killed a young male assuming the adult plumage, on the river Yealm, near Plymouth; its stomach was distended with small spiral mollusks, mixed with the claws and remains of minute crabs.

On November 12th I observed three or four immature Black Redstarts near the Plymouth Citadel, but a pugnacious Robin having quarters in the same locality, to my great annoyance, constantly trying to drive them off, which he effectually did on their attempting to approach his domain. The following day I saw Redstarts at the Devil's Point, Stonehouse, and an old male with the others near the Citadel, the Robins again allowing them no peace.

On November 14th I saw another adult male Redstart near the Point. At the birdstuffer's there were some Owls, both brown and white, with one Short-eared Owl, the first and only specimen the stuffer had received for the season. The stomach of the Barn Owl contained three whole shrews with the remains of others. A great many Woodcocks were brought to the markets about this date, and I examined a nice male Lesser Spotted Woodpecker and Water Ouzel, both obtained in the neighbourhood of Plymouth.

The following albino varieties were observed or procured:— A white Swallow seen near Dartmouth; a white Bullfinch killed at St. Germans; and a white Linnet shot out of a flock of birds of the ordinary colour, in the neighbourhood of Plymouth, by my friend Mr. C. Clark, of St. James Place. This specimen, the prettiest variety of Linnet I ever saw, was of a delicate pure white, with just a brownish feather on either side of the tail.

Kingfishers were very plentiful last autumn, and many, I am sorry to say, found their way to the local birdstuffers.

During the first week in December many Black Redstarts were observed on the coast; one was killed on the Laira embankment near Plymouth, and others observed in different localities. On the 10th a Long-eared and a Short-eared Owl were brought to the Stonehouse birdstuffer from Cornwall, the latter being only the second recorded during the season. White and Brown Owls, I am sorry to say, are almost daily brought in, and the stomachs of all I have examined were invariably filled with the remains of rats and mice. Two specimens of the Cornish Chough were also received, both of which were caught in "gins," and

had their legs badly broken. I found the stomach of one quite empty, but that of the other was crammed with the pupæ of some dipterous insect. A Shelldrake was killed in the neighbourhood, the only one I heard of last year. Numerous Redshanks were to be seen in the markets, and Kingfishers seemed plentiful, judging from the numbers sent to be stuffed.

### HABITS OF THE HARVEST MOUSE.

BY G. T. ROPE.

HAVING at various times kept the Harvest Mouse, *Mus mes-sorius*, in confinement, I have observed certain little peculiarities in their habits and manner of life which may be worth recording. First, as to their food and manner of feeding, I have invariably found them exhibit a marked preference for wheat, rejecting while that is to be had all other kinds of grain. They will, however, eat both oats and barley when their favourite food is withheld. Unlike most of the British mice and rats in a state of captivity, they do not care for bread, though perhaps they might eat it if kept without corn. I have found *M. sylvaticus* and our two smaller Voles prefer bread to almost any other kind of food. Dr. H. Laver, of Colchester, in a communication relating to the habits of these mice in Essex, which lately appeared in 'The Field,' states that the stacks in which they are most likely to be found, in his neighbourhood, are those of oats and wheat, and sometimes barley; adding that he finds them more frequently in corn stacked in the fields, than in that which is carted home. In this district I have found them as often in stackyards attached to farm buildings as in outlying stacks, and principally in those of wheat, oats not being much grown in these parts. Last year a great many were captured here in a barley-stack, but wheat-stacks seem to be their principal winter rendezvous in this district. After the stacks are threshed, these mice often remain in the straw throughout the winter. Their manner of disposing of a grain of wheat is as follows:—Sitting up and holding the grain in a horizontal position between the fore paws (one being placed at each end), the little animal begins dexterously and rapidly turning it round, like a wheel on its axle, at the same time applying to it the edge of his sharp incisors, and by their means

slicing off the outer skin or bran, and letting it fall like the shavings from the tool of a wood-turner at his lathe, to whose operations the whole process bears a striking resemblance; nor does he begin eating till he has reduced the grain to a perfectly white and almost cylindrical body. On placing a Harvest Mouse for a few minutes in a vessel containing broom-seed, I was surprised to see it, after searching about among the seeds, pick up one and devour it.

As to their carnivorous and insectivorous propensities, these mice are well known to be fond of flies, of which they will devour several kinds; they catch them in a singularly adroit manner, and without the least apparent effort or exertion. On a fly being put into the cage, the mouse, instead of rushing about after the insect, appears at first to take no notice whatever of it; but when the latter, in buzzing about the cage, approaches within its reach, in the twinkling of an eye he has it firmly grasped in his paws, and it is devoured almost before one can realise the fact of its being caught, the wings and legs being generally rejected. These mice will probably devour many other insects, and I have seen woodlice eaten by them. In common with *M. musculus*, *M. sylvaticus*, and *A. agrestis*, the present species appears to possess carnivorous tastes, and cannot honestly be declared innocent of the charge of cannibalism; one of mine, having died from the effects of an accident, had its head eaten by its companion. The prehensile power of the tail is certainly more perfectly developed in this than in any other British species of its genus; though not altogether wanting in *M. musculus*, as may be easily seen in the pole-climbing feats of the trained mice so often exhibited in the streets of London and elsewhere. The voice of the Harvest Mouse is not pitched so high as that of the Common Mouse, and more resembles a harsh grating chirp than a squeak. I have never as yet been so fortunate as to get this little animal to breed in confinement, but do not as yet despair of success.\* I find that even under the disadvantage of a square sleeping-box, with which my only present example (a female) is provided, and which is much larger than necessary for so small a tenant, the superior

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\* In 'The Field' of Jan. 2nd, 1875, will be found an account of some young Harvest Mice which we had at that time in confinement, supplemented by some interesting remarks by the late Dr. J. E. Gray on the behaviour of a second litter which we had presented to Mrs. Gray.—ED.

architectural skill possessed by this little creature, as compared with other rats and mice, is decidedly apparent. The bedding (consisting of hay alone), though merely stuffed into the box so as nearly to fill it, has been arranged so as to form a round and compact nest, about the size of those built in the spring and summer to serve as nurseries, but differs from these latter in possessing two opposite entrances, so that if disturbed at one the mouse makes her escape at the other. The nest is lined with small particles of hay, split by the little animal's teeth, and thus rendered softer and more suitable for the purpose. These mice seem to have a decided partiality during the summer months for the borders of ditches, building their nests among the tall rank herbage growing in such situations, in low bushes, or even in the reeds growing in the ditch; see 'Zoologist,' June, 1881, p. 233, where a very interesting account is given by Prof. H. Schlegel of a colony of Harvest Mice, discovered by him near the town of Leyden, containing over fifty nests, some of the colonists having even adapted to their own requirements the nests of aquatic warblers built in the same spot, by covering them with a cap of grass. Of the two nests, which is all I have been fortunate enough to find up to the present time, one was built in a low blackthorn bush growing by the side of a ditch, and I once picked up a freshly-killed mouse of this species in a similar situation; the other nest was in a plant of the common broom. I am not aware that this habit of congregating during the breeding season has ever been observed in England. Although a most accomplished climber, every movement being performed with consummate grace and ease, this species lacks the extraordinary speed and activity which is so characteristic of our familiar little household thief, and is much more easily pounced upon when discovered. I have repeatedly seen a Harvest Mouse support the whole weight of his body on the tail, for a second or so, in trying to climb out of an upright glass jar, the fore paws alone merely touching the glass to preserve the animal's balance.

This little creature, like its congeners, *M. musculus* and *M. sylvaticus*, bites savagely when handled, and, from a habit (common to all three) of hanging on like a bull-dog, at the same time moving the jaws about while the teeth are still in the wound, makes one a little cautious after the first experience, especially where a sound finger is an object.

The colour of the Harvest Mouse, though very beautiful, is in

most works given in rather general terms, without going much into details; and gives the idea of a uniform tint prevailing on the upper parts, whereas, in all the specimens which I have examined, the bright sandy yellow or orange fawn of the upper part was purest and brightest towards the tail; being focussed (so to speak) on the hind-quarters just at the root of the tail, and extending underneath as far as the vent. This bright but delicate tint shades off gradually, above, into the light yellowish-or orange-brown, which is the prevailing colour of the upper parts, the latter hue becoming again brighter and lighter as it extends downwards to meet the white of the under parts. The fur of the cheeks and that surrounding the ears is also bright sandy or orange; the hams are nearly always of that colour, varying, however, in intensity in different individuals. There is considerable variation, too, in the colour of the upper parts, the brilliant fawn tint being more or less wanting in some specimens, whereas in others it is more generally diffused, and less concentrated on the hind-quarters, being, I fancy, most pronounced, as a rule, in the female sex; but of this fact I cannot speak positively, not having had the opportunity of examining anything like so many females as males. In a very large and probably old male, which I kept lately in a cage with others, the orange tint was almost altogether absent, the fur of the upper part being of a nearly uniform brown, of a similar shade to that of a very old example of *M. decumanus*, a species, by the way, which appears to me to approach nearer in the form of the head and general expression of countenance to the Harvest Mouse than does either *M. musculus* or *M. sylvaticus*.

Another male had the middle of the back of a dark red-brown, inclining to purple; this purplish shade, which in a less degree is visible on the back of most specimens, being produced apparently by an unusual abundance of the longer and coarser hairs which are found on that part of the body. The long and beautifully-formed feet are covered with fine hairs of a yellowish colour, shading off on each side to white, the under surface being naked. The tail is scantily furnished with short hairs as far as the extremity.

The average dimensions of seven adults, irrespective of sex, is as follows:—Length of head and body, 2 in.  $7\frac{1}{2}$  lines; length of tail, 2 in. 1 line; total length, 4 in.  $8\frac{1}{2}$  lines.

## NOTES AND QUERIES.

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**Wanton destruction of Animal Life in Shetland.**—The 'Shetland Times' for the 12th January last contains the following mischievous advertisement:—

"DESTRUCTION OF VERMIN.—Mr. Urquhart will pay the undernoted prices for Vermin brought to him:—1s. for every Gyr or Peregrine Falcon, Osprey, Buzzard, Kite or Hobby; 6d. for every Black-backed Gull, Raven, Merlin, and every species of Hawk and Harrier; 3d. for every Hooded Crow; 6d. for every Weasel.

By order of Committee of Commissioners of Supply.

Lerwick, 12th January, 1884."

If it is not too late to protest against such wholesale slaughter, we would urge some of our northern correspondents to exert their influence to avert the blow which seems destined to fall upon the fauna of Shetland. If the fate of the above-named animals is sealed, then it is, perhaps, as well that Dunn's 'Ornithologist's Guide' and Saxby's 'Birds of Shetland' should have been written while the island still had a fauna of its own.

**Method in recording Observations.**—In sending you the record of a specimen of the Little Gull, *Larus minutus*, observed in Scotland, I wish particularly to direct the attention of British ornithologists to the necessity now-a-days of recording such occurrences on some methodical plan, as all such records have direct and often most valuable bearing upon the causes and reasons of migratorial phenomena. I have an idea that if the proprietor of 'The Zoologist' would issue to his principal ornithological contributors a printed form for such records, to ensure uniformity, each single sheet being intended to contain full particulars of each separate occurrence or group of occurrences, a very great and very useful assistance would be rendered to students of migration generally, and to our British Association Committee in particular. The Americans have taken up the subject keenly, and you may depend upon it they will not be long before they have some such uniform method for recording issued to hundreds of collectors and contributors over the whole States and Canada. I am in correspondence with Mr. Merriam, the Secretary of the Migration Committee of the American Ornithologists' Union, and he means work. If Mr. Newman sees the advantage of the above suggestion, let it be begun with a New Year, and issue to those desiring forms along with the January or February number of 'The Zoologist.' These forms could be supplied gratis singly, or to order in blocks or with counterfoil, for the recorder's own use, in lots of ten, twenty, thirty, or more. At the end of the year each recording ornithologist would have a complete list of all occurrences in his own district on his counterfoil, and the Editor of 'The Zoologist'



the duplicates for publication. Had this been done during the past few years our records would long since have solved the mystery of migration—of this I feel firmly convinced. A volume of such forms would soon come to be indispensable to the working ornithologist.—JOHN A. HARVIE BROWN.

[This communication being signed also by Mr. John Cordeaux, the Secretary of the British Association Committee on the subject of Migration, we assume that he approves of the scheme above mentioned.—ED.]

The following is the "form" suggested:—

*Form for more uniformly recording the Occurrences of Rare Birds  
or other Migrational Phenomena.*

Date.	Locality.	Species.	Age: adult or young.	Sex.	Alone or in a flock.	With its own species or others.	Direction of Wind and strength.	Prevailing Wind for past three or four days.	Weather at time of capture: Mist, Snow, Rain, &c.
Nov.	N. Uist	<i>Larus minutus</i>	Juv.	?	Alone	?	S.W.	S. & W.	Clear

REMARKS.—This rare British bird was shot at Newton, N. Uist, by Mr. John MacDonald, factor there. It had been seen previously on Bunera Island, Sound of Harris. It is a bird of the year, and when obtained was found to have one foot wanting. Flying southwards at the time it was shot.

NOTE BY MR. CORDEAUX.—“Although the Little Gull is a rare wanderer to the West coasts of Scotland, seldom a year passes without examples being recorded on the East coasts of Great Britain, more especially in the neighbourhood of Flamborough Head, and sometimes in very considerable numbers. Thus, in the winter of 1869-70, after a terrific three days' gale from the east, on February 12th, 13th and 14th, twenty-nine were shot south of the headland, nineteen of which were old birds in winter plumage. It occurs in large numbers in the neighbourhood of Heligoland in the autumn. On September 5th, in 1880, enormous numbers were seen on the water near the island.”

[Before any steps are taken to carry out Mr. Harvie Brown's suggestion, it would be desirable to know the views of other correspondents on the subject. At present it is our impression that it would not meet with universal favour. Many would find it irksome to have to record their facts in so formal a way, and we must say, candidly, that such formality would in our opinion detract very much from the pleasure which we now derive in perusing the original observations which are received from all parts of the country.—ED.]

**Prosecutor of the Zoological Society.**—We learn that Mr. Frank E. Beddard, M.A., of Oxford, Naturalist to the ‘Challenger’ Commission, has been selected out of thirteen candidates for the post of Prosecutor to the Zoological Society of London, in succession to the late Mr. W. A. Forbes. Mr. Beddard was a pupil of the late Prof. Rolleston, and for the past year has been employed on editorial and other work connected with the issue of the official reports on the scientific results of the ‘Challenger’ Expedition. He has also been entrusted with the examination and description of the *Isopoda* collected by the Expedition.

#### MAMMALIA.

**The Burmese Elephant at the Zoological Gardens.**—By the time these pages are in the hands of our readers most of them doubtless who are within reach of the Zoological Gardens, Regent’s Park, will have gratified their curiosity by inspecting the singular-looking Elephant which is at present on view there, and which has been imported at considerable trouble and expense by Mr. P. T. Barnum, from a village called Doang Damee, in the State of Karennee, a mountainous country lying to the north-east of Pegu. For those who, residing at a distance, may not have an opportunity of seeing the animal, the following description of it, communicated to ‘The Times’ by Professor Flower, F.R.S., President of the Zoological Society, will doubtless prove of interest:—

“The Burmese Elephant, belonging to Messrs. Barnum, Bailey, and Hutchinson, now deposited in the Zoological Society’s Gardens, Regent’s Park, is apparently not quite full grown, being between 7 ft. and 8 ft. in height, and has a well-formed pair of tusks about 18 in. in length. It has a remarkably long tail, the stiff bristly hairs at the end of which almost touch the ground. The ears are somewhat larger than the ordinary Indian Elephant, and are curiously jagged or festooned at the edges; whether as a natural formation or the result of early injuries it is difficult to say. It is chiefly remarkable, however, for a peculiarity of coloration which is quite unlike that of any Elephant hitherto brought to this country. As is well known, the special colour of the skin of all animals depends upon the presence in the deeper layer of the epidermis, or outer skin, of certain minute dark particles or ‘pigment corpuscles,’ which obscure or modify the pale pinkish colour of the true skin beneath. In this Elephant the general surface of the integument is quite as dark, if not darker than that usually seen in its kind, being, perhaps, of rather a more bluish or slaty hue. There are, however, certain definite patches, disposed with perfect bilateral symmetry, in which the pigment is entirely absent, and the skin is of a pale reddish brown or ‘flesh-colour.’ These patches are of various sizes, sometimes minute and clustered together, producing only an indistinct mottling of the surface, sometimes in large clear spaces, but which are

mostly, especially at the edges, dotted over with circular pigmented spots of the prevailing dark colour about half an inch or more in diameter, which give a remarkable and even beautiful effect. The largest and clearest light-coloured tract is on the face, extending from the level of the eyes to the base of the trunk. A few white patches can be detected at various parts of the dorsal surface of the trunk, and more on its under surface. There is a very distinct and circumscribed oval light patch behind each eye. Another, which is larger and more diffused and speckled, is seen upon each side of the neck, behind the ears, and extends to the throat and chest, so as to form a sort of collar. The eyes themselves are of the usual colour and surrounded by normally pigmented skin. The free border of the outer surface of each ear, extending inwards to the breadth of 6 in. in the middle part, is light coloured, but variegated with round dark spots. The greater part of the under surface of the ear is light. A group of small, not very distinct, uncoloured spots can be detected on the outer side of the fore limbs, above the elbow joint, and there is a similar one, still less distinct, on the outer side of the upper part of the hind limbs. The hoofs are of a pale horn-colour, with a few longitudinal dark streaks. The animal is therefore not a pale variety of the ordinary Elephant, as some have supposed the so-called 'White Elephant' to be, but one characterised by a local deficiency of the epidermic pigment, in symmetrically disposed patches, and chiefly affecting the head and anterior parts of the body. It does not result from any disease of the skin, as has been suggested, but is doubtless an individual congenital condition or defect. If Elephants are prone to such a condition, it is easy to believe that sometimes it may exist greatly in excess of that shown in the specimen now exhibited, and if complete and extending over the whole of the integument, as well as the tissues of the eye, would constitute true 'albinism.' It is perfectly clear that the skin of an Elephant could not under any circumstances present the milky whiteness some of us have lately been picturing to ourselves, as this one clearly shows what may be called the 'uncoloured' tint of its skin, strongly tinged by the hue of the blood circulating within its tissues. Unpigmented hair or feathers are pure white, hence albinism in a furred or feathered animal produces a perfectly white effect, which the almost naked skin of an Elephant can never show. Such local deficiencies of pigment are common enough in domestic animals, and are occasionally met with in the dark races of men. They are also by no means unknown among wild animals, but very rarely present the perfect bilateral symmetry noticeable in the very curious and interesting specimen now to be seen in the Zoological Society's Gardens."

**Badger in North Yorkshire.**—On the 5th December last the Bedale hounds met at Sleningford Park, the seat of Mr. John Dalton, six miles from Masham and four from Ripou. The covers having been drawn blank,

a terrier was sent up an artificial earth which sometimes holds a fox, but it shortly emerged, bearing signs of having come off second best in an underground conflict. A second terrier was then procured, and both went up the earth. A confused scuffling was heard, and soon both dogs appeared, having been unable to dislodge the occupant. Spades were now brought into requisition, when to the astonishment of all present a fine Badger bolted, passed right through the pack standing round, and escaped in the surrounding cover, the hounds not owning the scent. It is many years since a Badger has been seen in the neighbourhood, though they were once plentiful.—THOMAS CARTER (Burton House, Masham).

**The Depredations of Squirrels.**—Whilst walking through an old plantation here a few days ago my attention was directed to a couple of Squirrels busily engaged in depriving a cluster pine of its cones. As the cones were quite green and hard, I was determined, if possible, to find out their reasons for taking the cones. This, however, was apparent, for lying at the bottom of the tree were several cones gnawed to the heart and all the seeds extracted. The cones were gnawed through at the base and carried by the Squirrels to a neighbouring spruce tree, under the dense shade of which they greedily devoured the seeds from the cones. Some of the cones were too heavy for them to carry, and these they let fall to the bottom, where, no doubt, they were feasted on at leisure. Here the Squirrels are very destructive to the young buds of the horse-chestnut, indeed to such an extent that we have several times had to put a stop to the mischief. Lime trees often suffer severely by having the bark torn from their branches, evidently as material for nest-making, and the holly occasionally is treated in a similar manner.—A. D. WEBSTER (Llandegai).

**Black Rat in Devon.**—During the last week of December I found a specimen of the old English Black Rat, *Mus rattus*, lying dead in the street at Devonport, which I secured and took to the taxidermist for preservation. Besides the difference of colour, the ears and tail of this species are much larger and longer, in proportion to its size, than those of the now much too common Brown or Norway Rat, *Mus decumanus*.—JOHN GATCOMBE (Stonehouse, Devon).

**Destruction of Trees by Hares and Rabbits.**—A writer in the new weekly journal 'Woods and Forests,' lately started by the accomplished editor of 'The Garden,' remarks:—"It is difficult to get two people to agree as to the trees with which Rabbits and Hares meddle. Some experienced planters say that Rabbits and Hares cut *Pinus laricio* very much if planted small, but do not touch *P. austriaca*. Now, as for the latter, I can confidently assert that they cut it more than any other of the pine tribe. With me they have attacked and thoroughly destroyed fine plants of it four feet and five feet high. A neighbour who has planted

*P. laricio* largely (I have none except guarded) says that it is rabbit-proof, and, on his assertion, I am planting some hundreds of it this season. The fact is, I believe, in a really severe season Rabbits will attack anything,—in a deep snow I have had yews eaten down,—but in the generality of years certain things escape." Another writer in the same journal (Dec. 12th) says:—"I have hit upon a good material for protecting the bark of young trees from the attacks of Hares and Rabbits, and one which can be readily applied. Virgin cork, so much employed in the construction of Ferneries, and which can be easily placed round the stems of young trees, and attached in such a way that the attacks of Hares and Rabbits will be rendered ineffectual. The mischief caused to specimen trees planted near dwelling-houses, in parks, or on lawns, by cats and dogs, &c., may also be prevented by the same means. I first fix the pieces in their proper position, and then fasten them together with wire or strong twine, an operation which can be done at a trifling expense; but, of course, such tree-protectors might be made to close round the stems, and open and shut by means of hinges." Apropos of forestry, we observe that in the same number of this new periodical (pp. 28, 29) an extremely ingenious instrument for measuring heights of trees, known as "Kay's Dendrometer," is described, with illustrations. It is to be obtained of Messrs. Dickens & Co., 1, Waterloo Place, Edinburgh, and we imagine that some of our readers would find it both useful and amusing in determining the heights of birds' nests.

**Bottle-nosed Dolphins at Plymouth.**—On December 15th I examined two immature Bottle-nosed Dolphins, *Delphinus tursio*, which had been captured in shallow water on the mud banks of Hooe Lake, near Plymouth, one measuring eight feet nine inches, and the other about eight feet in length. Their beaks or snouts were much shorter and thicker, in proportion, than those of the Common Dolphin, *Delphinus delphis*, and the teeth much less numerous, there being only about twenty-five in each jaw. These were not truncated, as would have been the case, I believe, in older animals; the pectoral, dorsal, and caudal fins were also smaller in proportion to the animal's size, and the colours on their bodies much more uniform, without any signs of the wavy lines so often seen on the sides of the more common species. They were both females. *Delphinus tursio* is, I think, rare on our coast. The only one I ever before recorded was driven on shore under the Plymouth Hoe a few years since—an adult male, twelve feet long, with truncated teeth, the skull and bones of which are now in the possession of Mr. W. Hearder, Union Street, Plymouth.—J. GATCOMBE (Stonehouse).

#### BIRDS.

**Mr. Gunn's Lesser Terns at the Fisheries Exhibition.**—My attention has been drawn to a notice in 'The Zoologist' for last November (p. 463) by Mr. E. Cambridge Phillips, of the collection of stuffed birds and fish in

the late Fisheries Exhibition in London, in which all due credit is given to Mr. Gunn, naturalist, of Norwich, for his extensive series of fish-eating birds and cases of stuffed fish, the branch of taxidermy in which he chiefly excels. Special mention, however, is made by Mr. Phillips—and in other journals I have remarked similar comments—of Mr. Gunn's case of Lesser Terns, a sensational group most likely to attract attention; but as, with regard to that particular case, Mr. Gunn seems inclined to absorb all the credit due to the sentiment and design, in justice, at least, to a Norwich birdstuffer who has been dead some years, I must ask permission to explain whence Mr. Gunn got his inspiration, and how such a group of Terns happened to form a part of his collection. More than twenty years ago I visited Salthouse, on our Norfolk coast, where, at that time, a large colony of Lesser Terns bred on the beach, and, desirous of having a pair, with the eggs, for my collection, and little contemplating the sad rebuff which my collecting fit would experience, I watched a pair to their nest and shot one as they rose. The bird fell dead; its mate, unscared by my presence and the noise of the gun, hovered low over the fallen victim, and once even attempted to lift it up by the bill. This was "too too," and I killed the bereaved one to end its sorrows, though not my vexation at the result of the first, thoughtless, shot. Thinking over this scene, it struck me that a warning group might be made if the birds were arranged in a case, in exact imitation of what I had witnessed, with the eggs in a hollow amongst shingle, gathered on the beach. Making a rough sketch of what I wished to have represented I took it to my then birdstuffer, Mr. John Sayer, of Norwich (to whom Mr. Gunn was formerly assistant), and from my drawing he executed the beautiful case in my possession, which has been so generally admired, and which, amongst my other exhibits in the Norwich Fisheries Exhibition, in 1881, attracted special notice. Whether Mr. Gunn, whose collection, at the Drill Hall, was arranged just opposite mine, observing this fact, thought that a similar group would be an attractive feature amongst his own cases in London, I must leave; but with the exception of the stuffing of his own birds, slightly varying the position of the hovering Tern by suspending it by the *tail* instead of the *wing* (which Sayer did in the first instance, but altered at my suggestion), and placing *four* eggs in the nest instead of *three*, a mistake pointed out by Mr. Saunders, in his paper in 'The Ibis' (1883, p. 352), neither the sentiment nor the design is Mr. Gunn's more than a picture painted from the work of some "old master" (to make the simile correct), with a single figure, or tree in an altered position, could be called an original! I have, of course, no copyright in my own case of Terns, though I have heard that Mr. Gunn, himself I presume, fearful of imitators, has registered all his designs (?); and in his Catalogue (p. 18) appears the following entry:—"Case 122. LESSER TERN.—Pair of adult birds and

nest of eggs, Norfolk, 1879. This group is entitled 'The Widowed Bird, and illustrates the well-known fact of the living bird hovering over its dead or wounded partner.' Now, it so happens that two or three of my own friends, who had seen Mr. Gunn's Terns in London (not noticing the altered position of the hovering bird), have asked me whether I lent my case to Mr. Gunn for exhibition, *because it was his own work*. I may state, however, that Sayer did execute a copy for another customer, with my permission, though, like most *replicas*, it was not equal to the first. This, if I remember right, was not very long since in Mr. Gunn's hands to dispose of. On the principle, therefore, of "*Palman qui meruit ferat*," the design, unquestionably, is not Mr. Gunn's; the sentiment, perhaps, may be traced home in the following couplet which I wrote at the time, and had placed on the front of my case "to point a moral":—

Have they no feeling? or does man pretend  
That he, alone, can make or mourn a friend.

Now, it has been said that "imitation is the sincerest form of flattery." I ought to feel proud, therefore, that Mr. Gunn has appended the following lines to the entry of Case 122 in his Catalogue:—

"Oh, pity the sorrow of a lonely mate  
Whose partner met with a cruel fate;  
And your voice in future protesting  
The wanton destruction of birds when nesting."

—HENRY STEVENSON (Norwich).

**Wildfowl at Aldeburgh.**—With regard to Mr. Rope's statement (Zool. 1883, p. 496) concerning the breeding of the Shoveller near Leiston, I may say that while at Aldeburgh last summer I saw at least twenty Shovellers, both mature and immature, in the poulterers' shops, and naturally concluded that the immature birds had been bred in the neighbourhood. I was, however, surprised to see amongst them an immature Gadwall, which I purchased. I afterwards procured an immature Pochard; and, after I had left Aldeburgh, a male Pintail, in summer plumage (shot on September 17th), was sent up to me. I saw an immature Great-crested Grebe that had been shot by a gunner the summer before last, and another that had been shot on the Alde River. On August 7th a fisherman brought me a nearly mature Red-necked Grebe in summer plumage that he had shot on the Alde River.—THEO. LISTER (Erfurt Lodge, Greenwich).

**Pale-coloured Kestrel from Skye.**—Referring to Dr. Saxby's remarks ('Birds of Shetland,' p. 28) upon "the exceedingly pale and faded appearance of the plumage of Kestrels killed in Shetland, especially in autumn," I may mention that a specimen which my friend the Rev. H. A. Macpherson sent me in May last, from the north-west coast of Skye, exhibited this peculiarity

in a marked degree. It was a fairly old male, with bluish head and tail ; this colour was very pale, and the "red" of the body was really more of a yellowish brown, and presented a most washed-out appearance. It was also a very small bird, but, owing to the warm weather and delay in transit caused by the railways, it arrived in such an advanced state of decomposition that I was unable to take any measurements. — OLIVER V. APLIN (Great Bourton, near Banbury).

**Food of the Stone Curlew.**—On skinning a Stone Curlew the other day I remarked the stomach distended with some hard substance, and, on opening it, found that it contained an entire *Helix variabilis*, the diameter of which was about one inch and height about five-eighths: the substance of the shell of this species is thick. The stomach contained nothing else, nor did there appear to be room ; the mollusk was slightly digested, and the epidermis around the apex of the shell had been removed by the action of the gastric juices. The bird was fat and in good condition ; it must have experienced considerable difficulty in passing the shell down the gullet.—E. F. BECHER (Malta).

[In many grallatorial birds the gullet is very distensible. We have taken a number of cockles of large size with the shells entire from the stomach of a Curlew, and wondered how they could have been swallowed whole.—ED.]

**Great Grey Shrike at York.**—On November 3rd, 1883, my father saw a bird in our grounds which, from his description as to the colouring, note, &c., must have been a Great Grey Shrike. It had been seen about the place for some few days, though after the 3rd I could hear nothing more of it. A week or so after this a Great Grey Shrike was killed in the immediate neighbourhood of this city, and I was shortly afterwards able to examine it. I found it to be a female of the northern type of *Lanius excubitor*, i. e., *Lanius major* of Pallas. This is the second instance which has come under my own notice of the capture of the above type in our county. The other one, which is now in my collection, was taken five or six years ago only a few miles away.—J. BACKHOUSE, JUN. (West Bank, York).

**American Bittern in Sussex.**—A specimen of this bird was shot from a patch of reeds near Amberley, in this county, on November 30th last, by a man of the name of Knight, who attempted to stuff it, but, making a mess of it, the bird was handed over to Pratt, the naturalist, of Brighton. It proved, on dissection, to be a female, and the stomach was quite empty. The flesh had not been taken out from the wings, and it was quite fresh when I saw it. It is now in my collection.—W. BORRER (Cowfold, Sussex).

**Records of the Hoopoe in Hampshire.**—A slight mistake occurs in my note on this subject (p. 28) which I should be glad to have corrected, as it rather alters the meaning. In the fourth line from the bottom



“'s birds” (I probably omitted it in my copy) should be inserted after Tunstall, so that the sentence would read “and probably Tunstall's birds did not either.”—OLIVER V. APLIN (Great Bourton, near Banbury).

[Our correspondent appears to have overlooked the remarks on this subject made by Prof. Newton, who in a couple of lines (Yarrell's ‘British Birds,’ 4th ed. ii. p. 421) has anticipated the suggestion that the records by Tunstall and Gilbert White possibly referred to the same bird.—ED.]

**Lapwing perching.**—The note on Snipe perching (p. 28) reminds me of a somewhat similar occurrence on the part of another of the Grallatores which I witnessed, and which perhaps it may also be worth while to record in the pages of ‘The Zoologist.’ I was making a walking tour through parts of Wharfedale, Airedale, and Nidderdale (Yorkshire) in July, 1875, and, when in the neighbourhood of Appletreewick, in Wharfedale, a flock of Lapwings and Starlings rose from a pasture on my approach. They flew only a short distance, I think to the next field, and one of the Lapwings alighted on a stone wall, where it remained for a short time, and then rejoined its companions. I mentioned the fact, which at that time was to me unique, in a letter to the late Mr. W. C. Hewitson, who informed me that it was not an uncommon thing with some waders which do not habitually perch in this country to do so in Norway, but that there they had generally been observed to perch on trees.—J. E. PALMER (Lyons Mills, Straffan, Co. Kildare).

**Little Bustard in Co. Cork.**—In ‘The Field’ of Dec. 8th I notice the reported occurrence of the Little Bustard, *Otis tetrax*, near Youghal, mentioned by Mr. H. F. Allin. Will any of your readers kindly tell me whether this is the first of the species observed in this county. I do not find the name of this bird in Dr. Harvey's ‘Fauna of Cork.’ By-the-by, has any naturalist continued observations or published a supplemental list since the publication of Dr. Harvey's work?—C. DONOVAN, JUN. (Myross Wood, Leap, Co. Cork).

**Great Grey Shrike in Somersetshire.**—A very good specimen of the Great Grey Shrike, *Lanius excubitor*, was shot near Clevedon on Dec. 15th, 1883. Although this may not be considered a very rare bird in this county, it is nevertheless far from common.—ROGER FORD (Wraxall Court, Somerset).

[Mr. Cecil Smith, in his ‘Birds of Somersetshire,’ p. 46, remarks upon the rarity of this species in his county, and states that at the date of publication (1869) only two specimens had come under his notice. In Cornwall also it is regarded as a rare winter visitant.—ED.]

**Curious Variety of the Blue Tit.**—Towards the end of November last a singular variety of the Blue Tit was captured near Oxford. Its colour is a uniform dull yellow all over, very similar to that of a Canary, but the

species could be immediately recognised by its bill and feet, and the feathers being slightly elevated on its head. It has since been preserved for the Museum.—J. R. EARLE (15, Norham Road, Oxford).

**The Plumage of the young Kestrel.**—Having had ten or twelve young Kestrels, mostly from different districts, within the last four years, I am pleased to be able to corroborate the fact, mentioned by Mr. F. C. Aplin in your December issue, that the young males have the blue tail, and are thus in the nest distinguishable from the females. Besides the authors mentioned by Mr. Aplin, the Rev. F. O. Morris, in his 'British Birds,' falls into the same error in stating that until after the first moult there is no difference in the plumage of the sexes.—HUGH TURNER (Ipswich).

**Scaup Duck in Notts.**—On December 1st I shot a female Scaup on Mansfield Reservoir; it was quite alone, and, as this piece of water is about forty miles from the sea, I think its occurrence worth recording. This is only the third or fourth instance in which the Scaup has been killed in this county.—J. WHITAKER (Rainworth Lodge, Mansfield).

**Strange behaviour of Starlings.**—On November 7th I shot at three Starlings feeding close together, but separated by a few feet from the flock to which they belonged. I should think I was distant from them about thirty yards. Of course at the report of my gun every bird, with the exception of the two I killed, took wing. To my surprise, however, three birds turned back, and then the whole flock returned, and for about a minute hovered over the dead ones. They seemed anxious to settle, but did not do so, the nearest birds being about two feet above their dead companions; they then took flight to return no more, though I waited to see what would be the result. Was it curiosity or compassion which impelled their return?—W. BECHER (Hill House, Southwell, Notts).

**Hybrid Pheasants.**—Early in December last a Mr. Smith, of Croydon, shot, near Woking, three hybrid Pheasants, a cross with the common fowl, which were sent for preservation to Charles Thorpe, of South Croydon, in whose shop I saw them in the flesh; two were males, nearly black in colour, and much larger than either parent, one weighing 4 lb. 9 oz., the other over 4 lb.; the third, a hen, resembled the Pheasants, and weighed 2 lb. 14 oz.—PHILIP CROWLEY (Croydon).

**Rare Birds in Lincolnshire.**—Allow me to record the occurrence in Lincolnshire during the past year of the following birds, which have passed through my hands between January 1st and March 31st, 1883, and which have been preserved by Mr. Barber, taxidermist, of this city:—A male Osprey was killed at Hartsholme; it was in splendid plumage and condition, and had frequented the lake for several days previously. An adult female Kite was shot at Croft Bank, near Skegness; the stomach

contained a mass of half-digested earthworms. Two female Peregrines were shot at Branston, one adult, the other in immature plumage; their stomachs contained one shrew mouse, three frogs, one toad, and a mass of frog, mouse, and lark remains—the mouse was nearly entire. The Common Buzzard was pretty numerous in this county last year: I had no less than twelve specimens in hand, and the majority were immature birds. Their stomachs contained nothing worth recording, but in one I found two pheasant chicks, two partridge chicks, two mice, and the remains of some frogs. I had one specimen of the Honey Buzzard (a female) from Gainsborough. A fine male Hoopoe was shot at North Hykeham; its stomach was full of lepidopterous larvæ, which I could not distinguish, as they were too much digested.—J. F. MASHAM (South Park, Lincoln).

**Curious Variety of the Guillemot.**—A Guillemot was shot in Torbay by Mr. Drummond on November 27th, 1883, and was taken at once to the Torquay Natural History Society, where it was carefully examined by Mr. W. Else, the curator, an experienced taxidermist. It answers completely to Yarrell's description of the Common Guillemot (*Uria troile*), with the single exception that those parts of it which should have been black are a very light ash-grey, while the shafts of some of the small feathers in the said parts are brown. In short, looked at casually, the bird would be pronounced to be entirely white. As the irides were dark hazel it cannot be regarded as a case of albinism; nor does it appear to be a case of disease, for the bird was in good condition, and weighed 36 oz. average, while an ordinary specimen of the Common Guillemot, also in good condition, shot in Torbay a few days after, weighed 34 oz. Yarrell makes no mention of such a variety. It is now in the Museum of the Torquay Natural History Society.—WILLIAM PENGELLY (Torquay).

**Curious Nesting-place of the Sand Martin.**—Underneath a bridge of the London and North Western Railway, which crosses the canal at Oxford, we found a nest of the Sand Martin, containing one egg. The nest was placed in a hole between the bricks, and could not possibly have been excavated in any way by the old birds.—J. R. EARLE (15 Norham Road, Oxford).

**Kite and Marsh Titmouse in the Pyrenees.**—I was at Eaux Bonnes, in the French Pyrenees, which is only a few miles from Argeles, for a few days in December, 1876. I had not any gun, but I scrutinised every bird with a pair of binoculars, and I noted two species—the Common Kite, *Milvus regalis*, and the Marsh Titmouse, *Parus palustris*—not met with by Mr. James Backhouse (p. 20). Of the latter bird I identified two examples, while of the former I saw eight or ten in one valley; and I remember that one passed the carriage so near as to make me long particularly for a gun.—J. H. GURNEY, JUN. (Hill House, Northrepps, Norwich).

**Unusual Variety of the Common Sandpiper.**—Through the gift of Mr. Backhouse, jun., of York, I have been able to add to my collection of varieties a specimen of the Common Sandpiper with white wings, the rest of the plumage being of the ordinary colour.—J. WHITAKER.

**Recent occurrence of the Crane in Co. Mayo.**—I am indebted to the kindness of Mr. John C. Hearne, of Killoshine Cottage, near Ballinrobe, for a specimen of the Crane, *Grus communis*, recently shot near Lough Mask. It was an immature male, and weighed in the flesh, when I received it on January 5th, eleven pounds. It measured, from bill to tail, 3 ft. 6½ in.; from bill to longest toe, 4 ft. 7 in.; spread of wings, 6 ft. 9 in.; from carpal joint to end of longest primary, 1 ft. 10 in. The beak was of a yellowish horn-colour; the irides, which were narrow, were yellowish, as far as I could judge in the sunken condition of the orbits. There is no black nor white on the plumage of the head, which has a tinge of brownish buff, and the feathers of the back have brown mingled with the general grey colour of the plumage. The tertial plumes are not developed. Messrs. Williams & Son, of Dublin, in whose hands I have placed it, inform me that the stomach contained some small freshwater snail-shells. Mr. Hearne wrote to me on the 2nd of January that he had shot it on the previous day near Lough Mask and the mountains. He saw it alight with another on a stubble-field. In a note by Dr. Harvey, referring to the Crane in the museum of Queen's College, Cork, he states that it was "from Annah Bog, Kinsale, shot on the 17th November, 1851, by Commander Douglas." He adds:—"Of four which were seen three were obtained; two, I understand both males, were sent to the Dublin Natural History Society. I know of no other instance of the occurrence of the bird in Ireland since the great frost of 1739, when one was taken in Cork Harbour." Smith, in his 'Natural History of Waterford' (p. 336), states that in 1739 Cranes were seen in the counties of Cork and Waterford. Two instances of its occurrence in Ireland within the present century are mentioned by Thompson (vol. ii. p. 132), and he quotes Geraldus Cambrensis to show that in the days of that writer flocks of a hundred Cranes were frequently to be seen. See also 'Zoologist,' 1881, p. 436. The two male birds mentioned above as shot in 1851 are now in the Museum of Science and Art, Dublin.—R. J. USSHER (Cappagh, Co. Waterford).

**Breeding of Redshank in North Yorkshire.**—On the 9th April last a pair of Redshanks made their appearance in a large marshy field here, and seemed to find abundance of food, as they could always be seen there. On the 13th May I found the nest of the birds in the centre of the enclosure. The eggs, four in number, were snugly concealed in an overhanging tuft of grass, and a few pieces of bent and grass only intervened between them and the ground: they were very richly marked specimens.

This is the first known instance of Redshanks breeding in this locality. A pair of these birds visited the same piece of land six years ago, but after staying a day or two they disappeared, and though they might have bred on some of the moors around, I never heard of anyone having noticed them.—THOMAS CARTER (Burton House, Masham).

**Snow Bunting in Somersetshire.**—I have just seen a specimen of the Snow Bunting, which was picked up at Lodway about the middle of December last. It is a scarce bird in this county. The weather here (Jan. 22) is like April, and I hear that some Starlings have commenced building already.—ROGER FORD (Wraxall Court, Nailsea, Somerset).

[Mr. Cecil Smith, in his 'Birds of Somersetshire,' has noticed the occurrence of the Snow Bunting at Weston-super-Mare. It occurs on the coasts of Devon and Cornwall in late autumn and winter, and ought not to be rare at the same season in Somersetshire.—ED.]

**Common Sandpiper in Winter.**—As the Common Sandpiper, *Totanus hypoleucus*, has hitherto, I believe, been considered only a summer visitant to England, the following instances of its remaining here through the winter may be interesting:—In 1879 a Common Sandpiper was brought to me that had been killed on the Severn near Leighton, on Nov. 27th. In 1882, I saw one near Leighton on Dec. 19th, and frequently afterwards up to the end of March. Mr. H. P. Shaw also shot one, near Cound, on Dec. 26th of that year. In 1883, I again saw one of these Sandpipers near Leighton on Dec. 8th, and one, probably the same bird, was shot there on the 21st of that month. The three that have been killed were all birds of the year, but in very good plumage. They were excessively wild and difficult to get near. The one shot by Mr. Shaw is now in my possession, and that killed on the 21st December is being preserved by Mr. Henry Shaw, of Shrewsbury. I may add that this Sandpiper is common in Shropshire in summer, usually arriving in April, and leaving again in September, or the early part of October. There is no doubt about the specific identity of the birds mentioned. They were very fat, and had evidently, from the bright state of their plumage, found plenty to eat. No symptoms of any previous wound could be found when skinning them, and they certainly were well able to fly.—WILLIAM E. BECKWITH (Eaton Constantine, Salop).

**Common Buzzard in Nottinghamshire.**—One of these birds alighted near the hall-door at Fountain Dale, where it allowed itself to be caught. It was put in a stable, but the next morning died, evidently from shot-wounds. It was in very poor condition, and its plumage was much draggled. The Buzzard is now a rare bird in these parts, and as it is at once shot or trapped when seen, I am afraid its breeding in any of the large woods here is now a thing of the past.—J. WHITAKER (Rainworth Lodge, Notts).

**Hybrid Canary and Serin Finch.**—I have lately acquired the only hybrid between the Serin Finch and Canary that I know to have been reared in England. It is a male, and sings the Goldfinch-song with accuracy and spirit. It was reared in confinement, in June, 1883, by Mr. J. H. Verrall, of Lewes. It closely resembles a Serin, but the tail is longer, and there is a green shade about the plumage, strongest on the breast. The shape of the head and bill are exactly those of the Serin. It was bred between a male Serin and a yellow domesticated female Canary.—H. A. MACPHERSON (Carlisle).

**Wryneck in Winter.**—On the 1st of January, in Norfolk, I both saw and heard a Wryneck. Is not this a very uncommon occurrence, or has the Wryneck ever been known to stop through the winter? The bird uttered its note, so well known in spring time, only a few yards above my head, it being perched upon the tree under which I was passing. It sounded so loud that I looked up, expecting to see a Kestrel, and was very much surprised to see the Wryneck fly off.—A. H. UPCHER.

**Night Heron in Kent.**—At a meeting of the Zoological Society held on the 15th January last, the Secretary exhibited a specimen of the Night Heron, *Nycticorax griseus*, which had been shot during the previous month of December in Plumstead Marshes, Kent. See 'Handbook of British Birds,' p. 56.—J. E. HARTING.

**Little Gull and Hawfinch at Penzance.**—Mr. Edward Vingoe has a specimen of the Little Gull, *Larus minutus*, lately shot by him on Lariggan Rocks, to the westward of Penzance. It is now with his father, Mr. W. H. Vingoe, who will set it up. The Hawfinch has been observed at Pendarves, near Camborne. The fact is worth notice, because the occurrence of this bird in West Cornwall is very rare.—THOMAS CORNISH (Penzance).

**Gulls in the Isle of Wight.**—Mr. Rogers, from whom I heard this morning (Jan. 15th), says that neither the Kittiwake nor the Black-headed Gull breeds in the Freshwater cliffs, as stated in my note (p. 30). The fact is that Mr. Rogers's letters are seldom punctuated, and the two specimens referred to, though frequenting the cliffs, do not breed there. I shall therefore feel obliged by the correction of this statement.—H. HADFIELD (High Cliff, Ventnor).

#### FISHES.

**Sharks on the Coasts of Devon and Cornwall.**—Since my notice of the appearance and capture of Sharks on the coasts of Devon and Cornwall in September last (Zool. 1883, p. 471), on my way to Polperro, through Looe, I called on Mr. Stephen Clogg, who told me of many more that had been caught on that part of the coast, among which were one or two

Threshers, *Squalus vulpes*, and on my visiting the beach, after leaving his house, I saw an exceedingly fine Blue Shark, *S. glaucus*, which had been brought in during the night, moored to the quay, Mr. Clogg showed me the original water-colour drawing of the immense Basking Shark, *S. maximus*, 31 ft. 8 in. long, that was taken in Cornwall many years since, and from which the figure in the late Mr. Couch's work on British Fishes was copied. I do not remember Sharks ever having been more plentiful on our coasts than during the past autumn.—JOHN GATCOMBE (Stonehouse).

**Ray's Bream in Cornwall.**—Mr. F. W. Millett, of Marazion, has handed me a very fine specimen of Ray's Bream, *Brama Rayii*, which was taken by him, on the 29th November last, on the beach between Penzance and Marazion. As in the case of all previous specimens obtained, this fish was found dead and washing on the beach at the edge of the waves.—THOMAS CORNISH (Penzance).

#### CRUSTACEA.

**Dwarf Swimming Crab at Penzance.**—On January 15th I obtained a second specimen of the Dwarf Swimming Crab, *Portunus priscillus*, and, singularly enough, I found it where I found my first—on a doorstep in the middle of Penzance. I have no doubt that it was rejected from his basket by a dealer in sprats caught in St. Ives Bay, who had just passed on. If so, it shows that the crab must have been swimming with the sprats when they were taken in a seine-net. It is not by any means a common crab in the seas of West Cornwall. After watching for it for twenty-five years I have only obtained two specimens which I have identified, and seen one living crab, which I believe to have been *P. pusillus*, in a rock-pool of salt water at Prussia Cove, but, as I failed to capture it, my identification is not complete.—THOMAS CORNISH (Penzance).

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#### MEMOIR OF THE LATE PROFESSOR SCHLEGEL.

ON January 17th, at the age of 79, died Professor Hermann Schlegel, for five and twenty years Director of the Royal Museum at Leiden, and for nearly fifty years one of the most indefatigable zoologists the world has ever seen—a man whose name is known not only throughout Europe, but in every part of the globe where the literature of zoology is studied or read.

It would indeed be difficult to point to any one who, as a Professor, has done more for students than he has done, for his teachings have not been imparted merely to those in his own

country, but have been acknowledged and appreciated by students of all nations.

The reputation which he has enjoyed, and the respect which he has justly earned, have been due to various causes; partly to his natural ability and command of languages, partly to his method of study, and partly again to the splendid opportunities which he enjoyed for prosecuting his studies in a museum which, mainly through his instrumentality, has become one of the finest in Europe.

By the agency of well-trained Dutch collectors in Japan, the Dutch Indies, and various islands of the Malay Archipelago, the most valuable collections found their way to his study, and were systematically examined and described, and eventually arranged in the wonderful Museum at Leiden, of which he was appointed Director in 1858, on the death of his predecessor in that office, the eminent naturalist, Temminck.

No collections could have been turned to better account, for they furnished materials for the most important memoirs on the zoology of countries previously little explored by zoologists, and led Prof. Schlegel to acquire the comprehensive knowledge and sound views of classification which were subsequently made manifest in so many of his published memoirs.

Perhaps no work relating to the zoology of the East (unless it be Jerdon's 'Birds of India') has been more frequently consulted than Temminck and Schlegel's 'Fauna Japonica'; while no Museum Catalogues (if we except those of our own British Museum) have been found more useful by students than the eight volumes known as the 'Museum des Pays Bas' put forth by the untiring industry of Professor Schlegel. His appreciation of a large series of every species collected for him was well known, and went far to establish that confidence which was expressed in the opinions so often asked of him by fellow-workers. The acquisition of so large a number of specimens of each species as he possessed, collected at different seasons and in various localities, prevented him from falling into the too common error of making new species out of mere examples of individual variation, while it enabled him at the same time to note and fully describe the limits of variation in any given species of which a sufficient number of examples were available for examination.



One of his earliest works was his 'Essai sur la physiognomie des Serpens,' which appeared in 1837, in two vols. 8vo, with a folio Atlas. This may be said to be the first really scientific work on Serpents ever published, and, although since that date great advancement has naturally been made in the science of Ophiology, this work still remains a monument to the learning and zoological acumen of its author.

In 1844 appeared his 'Revue Critique des Oiseaux d'Europe,' in French and German, a most useful book in its day, and one which is still quoted with approbation.

Ten years later came his 'Vogels van Nederland' (of which another edition appeared in 1878), and in 1857 his useful 'Handleiding der Dierkunde,' in two vols. 8vo, with folio Atlas.

His intimate knowledge of the birds of prey, as exemplified in 'Die Europäischen Tag-Raubvögel' and his 'Traité de Fauconnerie,' was universally recognised; the last-named folio volume, illustrated by Joseph Wolf with coloured figures, life-size, of all the hawks used by falconers, being justly regarded as the finest work on falconry produced in modern times.

Quite as important as the 'Fauna Japonica' or the 'Vogels van Nederlandsch Indie,' published in 1863, are the 'Recherches sur la Faune de Madagascar,' in which, with the aid of those observant travellers, Pollen and Van Dam, the most valuable additions were made to our knowledge of the Great African Island, whence many rare species were described and figured.

Not to mention the numerous essays and memoirs which Schlegel's busy pen contributed, in several languages, to various zoological journals during his long scientific career, we may refer to his latest publication—which happens to be in English—'Notes from the Leiden Museum,' a useful periodical which has found much favour with zoologists in this country. Our readers may remember that an interesting article by Professor Schlegel "On the Winter Nest of the Harvest Mouse" was reprinted from these 'Notes' in 'The Zoologist' for June, 1881.

For some months before his death, his friends had observed with concern his failing health and fading eyesight, which gradually put a stop to that active daily routine in which he delighted, but which nevertheless did not deter him from visiting to the last the Museum in which he had so long and ably worked, and in which his interest seemed as keen as ever.

Could his friend Prince C. L. Bonaparte have been now amongst us, what a tribute would he not have paid to the memory of one whose fame he long ago predicted, when, in that elegant Latin preface to his ' *Conspectus Generum Avium*,' which he dedicated to Schlegel in 1850, he referred to the bright expectations of a career which have since been so nobly realised.—J. E. H.

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## SCIENTIFIC SOCIETIES.

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### LINNEAN SOCIETY OF LONDON.

January 17, 1884.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Mr. A. Pennington was elected a Fellow of the Society.

A presumed portrait, in oil, of Linnæus was exhibited on behalf of Mr. F. Piercy.

A paper was read by Mr. A. D. Michael, "On the 'Hypopus' question, or life-history of certain Acarina." From a careful series of experiments and observations he concludes that true Hypopi are not adult animals, but only a stage, or heteromorphous nymphs, of *Tyroglyphus* and allied genera. Nor do all individuals become Hypopi, which latter stage takes place during the second nymphal ecdysis. It seems a provision of nature for the distribution of the species irrespective of adverse conditions. Hypopi are not truly parasitic, nor confine themselves to any particular insect. A new adult form described is called by the author *Disparipes bombi*, and he believes there are other species of the genus *Donnadieu*, bee-parasites admitted to be adults, though it is uncertain if they are identical with Dufour's *Trichodactylus*. The following specimens were exhibited under the microscope in illustration of the paper:—*Disparipes bombi*, inert fully grown nymph, showing the adult female fully formed inside; also male, female, and latter from under side, of the new species *D. bombi*.—J. MURIE.

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### ZOOLOGICAL SOCIETY OF LONDON.

December 18, 1883.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of November, and called special attention to a pair of Gold Pheasants, presented November 10th by Sir

Henry W. Tyler, and remarkable for the hen bird having gradually assumed the (now nearly complete) dress of the male; and to a young pair of singular Deer of Manchuria called Père David's Deer, *Cervus Davidianus*, purchased November 16th.

Dr. F. Leuthner read an abstract of a memoir which he had prepared on the *Odontolabani*, a subfamily of the coleopterous family *Lucanidæ*, remarkable for the polymorphism of the males, while the females remained very similar. The males were stated to exhibit four very distinct phases of development in their mandibles, which the author proposed to term "priodont," "amphiodont," "mesodont," and "telodont." These forms were strongly marked in some species; but in others were connected by the insensible gradations, and had been treated by the earlier authors as distinct species. The second part of the memoir contained a monograph of the three known genera which constitute the group *Odontolabini*.

Mr. E. B. Poulton read a memoir on the structure of the tongue in the *Marsupialia*. The tongues of species of nearly all the important groups of this subclass were described in detail. It was found possible to classify the tongues in three divisions. Of these *Hulmaturus* was the type of the lowest, *Phalangista* of the intermediate, and *Perameles* of the most advanced division.

Mr. J. Wood-Mason read a paper on the *Embiidæ*, a little-known family of insects, on the structure and habits of which he had succeeded in making some investigations during his recent residence in India. He came to the conclusion that the *Embiidæ* undoubtedly belong to the true Orthoptera, and are one of the lowest terms of a series formed by the families *Acridioideæ*, *Locustidæ*, *Gryllidæ*, and *Phasmatidæ*.

Mr. G. A. Boulenger read an account of a collection of Frogs made at Yurimaguas, Huallaga River, Northern Peru, by Dr. Hahnel. The collection contained examples of eighteen species, eight of which were regarded as new to science.

Mr. W. F. R. Weldon read a paper on some points in the anatomy of *Phænicopterus* and its allies. An account was given of the air-cells of the Flamingo, which were shown to differ from those of Lamellirostres, and to agree with those of Storks—(1) in having the præbronchial air-cell much divided, (2) in the feeble development of the posterior intermediate cell, and (3) in the great size of the abdominal cell. The pseudepiploon was also shown to differ from that of Lamellirostres, and to agree with that of Storks, in extending back to the cloaca. A detailed comparison between the muscles, especially those of the hind limb, gave the same results. The larynx, however, being Anserine, and the skull intermediate, the position expressed by Huxley's term *Amphimorphæ* was considered fully justifiable.

Mr. Sclater read a paper, in which he gave the description of six apparently new species of South-American Passeres.

January 15, 1884.—E. W. H. HOLDSWORTH, Esq., F.Z.S., in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of December, 1883.

The Secretary exhibited, on the part of Mr. H. Whitely, an immature specimen of the Night Heron, *Nycticorax griseus*, which had been shot in Plumstead Marshes, Kent, in December last.

A communication was read from Mr. J. C. O'Halloran, Chief Commissioner and Police Magistrate for Rodriguez, accompanying a specimen of a large Lizard found only in that island, and very rare there. The specimen had been identified by Mr. Boulenger as *Phelsuma Newtoni*, belonging to the family *Geckotidae*.

Sir Joseph Fayrer exhibited some additional specimens of the horns of Deer gnawed by other Deer, in confirmation of previous remarks on the subject.

Canon Tristram exhibited and made remarks upon some specimens of species of the genus *Pachycephala*, which appeared to have been ignored or wrongly united to other species in a recently published volume of the 'Catalogue of Birds of the British Museum.'

Mr. W. F. R. Weldon read a paper in which he gave a description of the placenta in *Tetraceros quadricornis*. The author showed that this placenta is intermediate between that of *Moschus* and that of the typical *Bovidae*, having few cotyledons with diffuse vascular ridges between them. Associated with this primitive character is a uniserial psalterium.

A second paper by Mr. Weldon contained some notes on the anatomy of a rare American Monkey, *Callithrix jigot*, which had recently died in the Society's Gardens. The author gave a description of the external characters, and the principal viscera were compared with those of *C. moloch* and of *Mycetes*.

A communication was read from Mr. E. J. Miers, giving an account of a collection of Crustacea from the Mauritius, which had been forwarded to the British Museum by M. V. de Robillard. In the collection was an example of a new species of *Callianassa*, proposed to be called *C. Martensi*.

Mr. Francis Day read a paper on races and hybrids among the *Salmonidae*, and exhibited a series of specimens of young Salmon and hybrid *Salmonidae* reared at Sir J. Gibson Maitland's Howietown Fish Establishment.

Prof. F. Jeffrey Bell read a paper on the generic position and relations of *Echinanthus tumidus* of Tenison-Woods, from the Australian Seas, which he showed to belong to a different genus, proposed to be called *Anomalanthus*.—P. L. SCLATER, *Secretary*.

# THE ZOOLOGIST.

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## THE RED-DEER OF EXMOOR.

THOSE who have ever given the subject a thought must sometimes have wondered what there is peculiar about that corner of the West of England which continues to harbour the wild Red-deer when no other part of England affords it shelter. The fact is that the country around Exmoor has not changed with the times, but has remained what it is for ages, a vast uncultivated hilly moorland, a land of mist and heather, resembling nothing so much as a Scotch deer-forest moved south, and therefore as attractive to deer now as it must have been centuries ago when King John hunted in Somersetshire, and flew his jersfalcons at the cranes on its wild wastes.

The moors of the Exe river are not flat stretches of marshland, but hills of great height, covered with heather. The term mountains may almost be applied to them; numbers of the ridges are twice the height of Beachy Head, or the Dyke at Brighton; Dunkery Beacon is three times as high. But the conformation of the country is such that on entering it the elevations do not seem very unusual, for as it is all high and raised, the eye has nothing with which to contrast it. When on the moor it appears an immense table-land, intersected by deep narrow valleys, called coombes, at the bottom of which a stream always flows. At some distance apart are ranges of hills rising gradually, and with gentle slopes above the general level of the moor. The curves appear so moderate and the ascent so easy,

that there can be no difficulty in walking or riding over them. But on going towards hills which seem only a mile or two away the table-land sinks in a deep coombe, which has to be descended and reascended, and the sides are high and steep. Presently another coombe intervenes, and after five or six miles' walking very little progress seems to have been made. At last the slope of the hill is reached, and has now expanded into a mountainous ascent, not to be overcome without much labour and more time.

The country is in fact very deceptive, much wider and much more difficult than it looks. The expanse confuses the eye, and will not allow it to judge distances. The illusion is assisted by the smooth outline of the moors without a fence for miles together, and without a visible tree; for the covers are in the coombes, and there are few or no copses on the hills. Nothing breaks up the surface and measures the view. Heather covers the largest part of the ground, which is never ploughed or sown, and where there are no flower-grown meads. One vast breadth of open, wild, and treeless country reaches in every direction, and it is at once obvious why the deer have remained at large since the earliest times, for the land is in the same condition as it was centuries ago. The plough has not touched it, and civilization has not come near.

The questions naturally arise, Why has Exmoor remained in this condition uncultivated for so many centuries? Why does it still defy agriculture and improvement? These questions have been asked and answered in a very pleasantly-written volume\* recently published by Mr. Richard Jefferies, the author of 'Wild Life in a Southern County,' 'The Gamekeeper at Home,' and other works, which have been already noticed in the pages of this Journal. According to this author, three impedimentary causes present themselves—the nature of the soil, the cost of labour, and the character of the climate.

The soil, he says, consists of a black friable peat, in some places deep, in others shallow. Under a hot sun it becomes dry, but during the winter, and indeed for the greater part of the year, it is soft and watery. Bogs are numerous, and springy places that are almost bogs. Labour must first be expended in clearing

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\* 'Red Deer,' by Richard Jefferies. Post 8vo, pp. 207, London: Longmans, Green & Co. 1884.

the surface of heather, whortleberries, and rough grass. Lime must then be carried up, and the cost of haulage equals the price of the material. When ploughed and laid down to grass, unless broken up from time to time, the ground will revert and yield nothing but rushes. Acres upon acres may be seen covered with rushes where land has been reclaimed, and has reverted to waste.

The deer not only lie in the heather, but find abundant shelter in the copses which skirt the coombes. Of late years, owing to the protection afforded them, or rather to the freedom from molestation which they enjoy through the liberal and sportsman-like feeling of the west country farmers, who like to see them hunted legitimately, but not poached, the deer have notably increased in numbers. A few years ago, if seven or eight were killed in a season it was as much as was expected. Once eleven were killed, and it was thought that such a number would never be reached again; but in the season of 1881-82 no less than a hundred and one deer were killed, the slot of the hundredth being mounted in silver, and preserved at the huntsman's house. He reckons that there are fifty stags in the district, and some two hundred and fifty deer of all sizes. But, besides these, there must be many more outlying in the broad tract of country they now roam over.

They are no longer limited to the moors—they roam over a region of which Exmoor forms only a corner, and which is thus described by Mr. Jefferies:—"With a pencil," he says, "draw a line on the map from Bridgewater to near Ilfracombe, from Ilfracombe down to Exeter, and again from Exeter up to Bridgewater, enclosing a triangle, each side of which on the map would be about fifty miles, but to ride twenty more, on account of the irregular ground. It is not to be supposed that every acre of this region is visited by the deer, but, either while wandering at will, or running before the hounds, it is crossed and recrossed, and marked by their 'slot' or footprints. They have been killed at the very gate of Exeter city, and recently Tiverton has become a pivot of the hunt.

"This country contains a large part of Somerset and Devon, Exmoor and part of Dartmoor, the Dunkery Hills, and the steep Quantocks, besides numerous minor ranges.

"The moors of the Exe, the original home of the Deer, are but a corner. There are vast stretches of fertile land in the

valleys and plains, cultivated to the highest degree, innumerable meadows, each with its thick hedges and trees; so that with the copses and covers they resemble woodlands. The triangle above described has within it not only moors and hills, but good farming land, a city, and many large towns. The paths of the deer wind round about the rich and enclosed districts, but if chased they frequently go straight across them.

“So wide a space may more aptly be called a country than a district, and it is strictly correct to say that the Red-deer are now local. They are the Red-deer of the West of England.”

The mode of hunting them as pursued in Devon and Somerset has been so well described by Collyns in his ‘Chace of the Wild Red Deer,’ published in 1862, that we need not dilate here upon it, or follow Mr. Jefferies over this portion of the subject, with which he is evidently less familiar. His description, however, of the habits of deer (either as observed by himself or gathered from the huntsman) is extremely interesting, and developes some characteristic traits which would have escaped an ordinary observer.

Stags, he says, carry their necks perpendicular; hinds hold them aslant. In jumping the walls of the country, made of loose flat stones, the stags leap to the top, which is always broad, and then down the other side; hinds regularly climb them, getting their fore feet on the top of the wall, and digging their hind hoofs into the earth and loose stone, and making a sort of step.

The stag drops his antlers in March; but few of these cast horns are found compared to the number that must be shed, and those that are found are more often single horns than pairs. Certainly the extent of the woods is very great, but they are traversed by gamekeepers and others; the moors are crossed by shepherds; and all keep a sharp look-out for horns, which are valuable.

Mr. Jefferies thinks it possible that the stag may drag brambles or branches over the dropped antlers if they chance to grow at hand, but he makes no allusion to the well-known fact that a great many of shed antlers are devoured by the deer themselves, which have been often disturbed while in the act of gnawing them.

In the West of England, he tells us that a good pair of antlers will fetch £5, and as much as £10 has been given for a pair with a remarkable number of points. These prices show



that it is not so easy to find a pair of dropped antlers as might be imagined. Many of the horns sold are odd antlers dropped by different stags; these are fitted together, and generally to a hind's head. The stag's head is generally claimed by the master of the hounds, consequently few genuine heads of the red stag come into the market. The weight of the stag varies: tweve score is a good weight; some are not more than nine, but the huntsman has killed at fourteen score or 280 pounds.

On the subject of the food of Red-deer Mr. Jefferies has much to tell us. They will have the best of everything, he says, and roaming about at night select the meadow with the most succulent grass. They enter orchards, too, in spring, for the long grass that grows between the apple-trees, and again in autumn for the apples, of which they are very fond. Turnips are a favourite food, and leaving the moors they wander miles down into the cultivated fields to find them. The stag, as he walks across the turnip-field, bites a turnip, draws it from the ground, throws it over his shoulders, the jerk detaching the fragment he holds between his teeth, and which is the only portion he touches. He takes but one bite at each turnip, casting the remainder aside in this way, and his course can be traced from one side of the field to the other by the turnips pulled and thrown away after his snatch. In this disdainful manner he damages far more than he actually eats. Hinds eat the turnip down to the ground as a sheep would.

A herd of stags getting into a turnip-field will eat broad patches and paths about it. In a small field they may destroy every root. Potatoes they are very fond of, and get at them by sweeping away the earth with their fore feet. Carrots, too, attract them, and cabbages. They will strip a garden of cabbages in no time as clean as possible. But perhaps the greatest injury is done to wheat. Deer visit the wheat-fields at two seasons. They come as soon as the green leaf shoots up, and nibble it, and are especially fond of it just before the ear appears, when it is full of succulent juice. They return again when the ears are ripe, and lying down in the daytime, when the wheat at its height conceals them, they will eat and destroy many pounds' worth of grain before they are discovered and driven away.

The damage they do to crops is so extensive that without the goodwill of the farmers, stag-hunting could not last a single

season. Nothing could demonstrate more thoroughly the enthusiasm which hunting the Red-deer inspires in those who follow it than the fact that the farmers over such an immense breadth of country should unanimously agree to endure these losses. Compensation is of course paid, but even compensation may fail to recoup. Unhesitating goodwill alone can explain the continuance of stag-hunting under such circumstances. Only the noblest sport of all—the chase of the wild Red-deer—could excite a whole country to such generous enthusiasm.

Those who are unacquainted with this part of the West of England would do well to obtain and read Mr. Jefferies' book, from which we have quoted. His vivid description of the appearance and habits of the Red-deer as studied in its last English haunt, with all the natural surroundings which go to charm the eye of an observer, cannot fail to interest even those who do not profess to be naturalists.

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### THE NIGHTJAR.

BY F. NORGATE.

THE few facts which I have noted in my diary, with some additional notes from memory, and from others who have had greater opportunities for observing this species than I have had, refer only to the counties of Norfolk and Suffolk, from 1859 to 1883. The wild haunts, crepuscular habits, strange noises, and the vulgar errors as to the food of this bird, have made it a great favourite with me.

In Norfolk the eggs are commonly thought to be those of the Cuckoo by the non-ornithological birds'-nesters, many of whom recognise the churring song of the Nightjar as "the noise of the scissor-grinder," without knowing that the two oval stone-like eggs which they see on the bare ground, without the slightest vestige of a nest, are laid by the same bird.

I need hardly allude to its habit of squatting lengthwise along a bough (rather than across the bough), and I am probably unable to describe accurately to those who have not heard it the churring or jarring song, which reminds me somewhat of the croaking of frogs. This churring is usually uttered from a bough,

and is continuous for many minutes, occasionally altering in tone suddenly. The call-note is perhaps even more difficult to describe. It is a single note like that produced by twanging a short bit of india-rubber cord when it is tightly strained, or a metallic tongue fixed by one end in a vice. This note is uttered on the wing at intervals of a few seconds, as also the occasional clapping noise, which seems to be made by a single stroke of the wings clapped together.

The Nightjar arrives in Norfolk and Suffolk by the second week in May, or possibly earlier. On the 11th of May, 1882, I heard it on Sparham Heath, in the county of Norfolk. On the 16th of May, 1883, I saw and heard one at Downham, in Suffolk. On the 25th, at the same place, I saw many flying about in the evening, three or four being in sight at once.

The two following dates were given me by two gamekeepers, and I have reason to think they are correct:—Nightjar at Heydon, May 10th, 1876, and at Taverham, May 13th, 1879.

The following dates are for Nightjars' eggs, all found or seen by me in the above-named counties, between 1863 and 1883.

- May 25. In Hockering I saw one egg, which had been taken.  
 „ 30. Two eggs brought from Lyng, and two found yesterday.  
 June 2. Two fresh eggs in game shop in Brandon (laid some days ago?).  
 „ 7. Two, shown to me, but found some days ago.  
 „ 8. Six, like *all* the above named, possibly laid some days before I saw them; four of these six were sat on.  
 „ 9. Two; a fresh-laid clutch.  
 „ 11. Six. Three clutches, nearly fresh, sat on, and much sat on.  
 „ Between June 11th and 28th, inclusive, I saw fifteen clutches (twenty-nine eggs altogether), in Downham, Herringfleet, Cawston, Lyng, Sparham, Hockering, and Heydon.  
 July 5. Two, amongst green brakes in the Swannington sheep-walk.  
 „ 7. One fresh-laid egg in Bluestone Wilderness.  
 „ 8. Two, nearly hatched, at Drayton Drury.  
 „ 13. Two, nearly hatched; one was chipped  
 „ 14. One, at Sparham, on the Heath.  
 „ 27. Two, *fresh-laid*, at Hockering.  
 Aug. 4. Two; one was clear and probably rotten, the other much incubated.

I think the last-named was possibly a third clutch and a failure, or, supposing the bird had been robbed of eggs earlier in the season, this was probably a fourth or fifth clutch. I have

reason to think, however, that this bird had not been robbed this year. Mr. J. H. Gurney, jun., and Capt. Feilden were with me when we found this clutch, and Mr. Gurney was also with me at the same place, on the 19th of the previous month, when we saw three or four young Nightjars not only flying well, but pretty shy for young birds.

On heaths and in open country away from trees, the Nightjar chooses a small bare spot of earth where there are rounded bleached stones much resembling the eggs in size and colour. The two eggs are often different in size, shape, and colour, and, when hatched, one young bird is sometimes about double the size of the other. This irregularity tends to make both eggs and young less easy to find.

I will now give a table of dates for young and late Nightjars in Norfolk and Suffolk, all observed by me, except where other authority is given.

- June 28. Mr. F. D. Wheeler found two, nearly able to fly.  
 „ 29. Two nearly feathered; old bird sitting on them.  
 July 2. Two at Drayton Drury.  
 „ 13. Two strong fliers flew with mother from two eggs.  
 „ 14. Two downy ones about three days old.  
 „ 17. Nightjars hatched at Heydon.  
 „ 19. Two just hatched from eggs found with former brood.  
 „ 19. Three or four strong fliers, rather shy for young birds.  
 Aug. 6. Two downy ones. I saw nine or ten Nightjars flying the night before.  
 „ 7. Two and their mother, and a young one of former brood, all flew up from within a few feet of spot where they were hatched.  
 „ 14. I saw Nightjars at Drayton, possibly old birds.  
 Sept. 15. Three dead Nightjars in a shop in Norwich, "brought in on Saturday" previous.  
 Oct. 14. My brother-in-law, Mr. J. E. Cremer, saw a Nightjar in Sparham.

I feel quite sure that several years ago, when shooting in turnips in Sparham, I saw a Nightjar on the wing, but I can find no note of it in my diary. It was probably in September, possibly later.

On the 5th of August, at Beeston Regis, I shot a female Nightjar which was hawking about on the wing, in company with eight or nine other birds of the same species, and apparently

in good health. On skinning it I took from its stomach several large moths, and found, living, in its eyes and brain, twenty-four round greyish white parasitic worms, each about half an inch long, and spirally coiled up. The following day I found one young Nightjar, about the size of a Starling, and without feathers. An old Nightjar fluttered away from it along the ground, apparently carrying something, about the size of the young one, in its mouth. On returning to the spot I found the old bird and two young ones. Two or three days afterwards I looked in vain for them, and suppose the old one had removed them both.

Mr. Baker, the Cambridge taxidermist, in 1875, told me he was once walking with the late Mr. Clough Newcome at Feltwell, when they found a clutch of two Nightjar's eggs. Baker touched one, and wished to take them, but left them till he should return that way. Mr. Newcome said the old one would remove them after the handling. When they returned the eggs were gone.

On the other hand, last year when a Nightjar was hatching and rearing a second clutch, with the assistance (or very close company) of two older young ones, near my house, she was visited and disturbed day after day for weeks, but I could never see that the young were shifted more than a yard or two; possibly they crawled that distance when hungry to meet the mother, for they are much more active with their feet than they appear to be before they are disturbed. After the young were able to fly a few yards they returned to about the same spot where they were hatched. My attention was called to this double brood on the 13th of July, when a gamekeeper stated he had seen two young "Night-hawks" about a fortnight ago, and told me where to find them, which I did the same day. Three Nightjars flew up from the same spot. The two young ones were greyer and lighter in colour than the old bird, which feigned lameness considerably, fluttering along the ground, and often alighting very near me.

On looking at the place whence they arose, I found two Nightjar's eggs much sat on; one was chipped. The next day I saw the old female and two young ones fly up together from the two eggs. The same day, at a few hundred yards distance, I found another female Nightjar sitting on two downy young

ones, about three days old. On the 19th I inspected the double brood, and again saw the old one fly off from two very small downy young ones, the eggs being hatched and the egg-shells lying near. I did not see the fledged young of the former brood on the 19th, but the next day one of them flew up with the mother from the newly-hatched young ones.

On the 7th of August I saw the old one and the two last-hatched young ones fly from the spot where they were hatched, or within a yard or two of it, for they had shifted their home a few feet now and then. I also saw a fourth bird—evidently one of the older young ones of the former brood—fly from a spot about three yards from the others.

I never saw more than two Nightjar's eggs in one clutch, but have heard of a brood of three young ones found, about the year 1868, by an old woodman, who showed me where he found them. He was well acquainted with the bird and its eggs and habits. Another man, in 1877, told me he had once seen three "Night-hawk's" eggs in one clutch.

On the 29th of June, 1876, in Hoekering Wood, I saw a female Nightjar sitting on her two young ones, which were nearly feathered. The old bird on my approach remained motionless, except that it closed—or nearly closed—its large eyes, or at any rate that eye which I could see, as if it was aware that its eyes were the most conspicuous part of it.

All the newly-fledged Nightjars seen by me are of a lighter and more uniform brownish grey colour than the old birds, and do not exhibit the white spots which are so visible on the tail and wings of old males.

In woods of oak or mixed timber, the Nightjar usually chooses a small bare spot of ground in the "low fell"—*i. e.* where the brushwood had been cut a year or two ago and the stumps are growing bushy again. In such places there are many "spoll-heaps" and scattered "spolls" on the rough butt-ends which have been chopped off from the felled underwood in making hurdle-stakes, bobbin-wood, and hoop-wood. These "spolls" vary from six inches to about eighteen inches in length, and they are so irregular in shape and colour that it is no easy matter to identify a sitting Nightjar amongst them.

On open treeless heaths the barest soil is chosen, such as where a few turfs have been cut, and one or two short rotten

stumps of furze have been left lying among the bleached pebbles. Here the bird resembles the bits of dead furze-wood, and the eggs are very like the pebbles.

I generally find the Nightjar most abundant in such places as the pine woods in the Breck District, especially where a large extent of heath has been overgrown by self-sown Scotch pines scattered in clumps, with plenty of open spaces and single isolated trees. Here I have found three clutches in about two hours; in all the eggs were on bare earth or amongst dead pine-needles and old cones, just under the outer ends of the lowest boughs of large isolated specimens of *Pinus sylvestris*. There was also plenty of pine-bark and bits of dead wood lying about, and matching very well, in colour and shape and size, the sitting Nightjar. I searched in vain where the trees were growing in numbers close together.

Although the evening is usually the active time for the Nightjar, I heard one on the 12th of July, 1874, "jarring" at 4 p.m., and a few days previously I heard one in the early morning before breakfast. Gamekeepers in the Breck District (in both counties) shoot Nightjars because they make a noise at night. I fancy Pheasants are not troubled with nerves so much as the gamekeepers seem to be, and that neither Nightjars nor Nightingales (whose eggs are destroyed for the same reason) are likely to spoil the night's rest of any kind of game.

The foregoing notes show that the Nightjar arrives here in the second week in May or earlier, and lays its two eggs as early as the last week in May, and as late as the first week in July, or later, as some of those mentioned were found unhatched in the first week in August; that its young are hatched pretty early in June, and are nearly able to fly by the 28th of that month; that it occasionally raises more than one brood, one brood apparently assisting in keeping the eggs of a later brood warm; that the late brood fly well by the first week in August; and, lastly, that the Nightjar remains here till the middle of September, and has been seen on the wing as late as the middle of October.

I should be glad to know if the Nightjar usually stays later in the South of England than it does here; if there is any proof of its carrying its young or eggs; and if it ever lays more than two eggs in one clutch.

THE ORNITHOLOGY OF RIDING MILL ON TYNE AND  
NEIGHBOURHOOD.

BY THE REV. HENRY H. SLATER, F.Z.S.,  
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A MANUAL of the Ornithology of any county, in order to be exhaustive, must necessarily be to a considerable extent a compilation. Human life is too short for any one man to pass, in each part of a tract of country so large as an English county, a length of time sufficient to enable him to write a memoir of its Ornithology—from his own observations alone—with that fulness which is demanded of all such publications now-a-days.

It is in the hope of being of some small assistance, in the event of such a work being undertaken by Northumbrian ornithologists, that the present notes are now put together. They are merely a digest of the contents of such of my ornithological note-books as relate to the neighbourhood of Riding Mill; these notes were accumulated during a close and pretty constant observation of the fauna of that neighbourhood from the year 1868 to 1883; and nearly all the items inserted are the results of my own observations alone.

The sequence of the birds has been decided by Dresser's 'List of European Birds' (London, 1881).

Missel Thrush, *Turdus viscivorus*, L., and Song Thrush, *T. musicus*, L.—Resident and common.

Redwing, *T. iliacus*, L.—An abundant winter visitor; its earliest appearances at Riding Mill, as noted by me, are Sept. 21, 1873, and Sept. 18, 1877; its latest stay, April 29, 1877, May 3, 1878. Its note, whilst in this country, consists of a sort of low monosyllabic "cluck," but in its breeding quarters, near the Arctic Circle, it has a fine wild song.

Fieldfare, *T. pilaris*, L.—A winter visitor, but in very irregular numbers, being very scarce some years. My earliest record is Oct. 9, 1878; the latest stay, May 15, 1879; these two being in the same winter, when they were unusually plentiful with us.

Blackbird, *T. merula*, L.—An abundant resident, whose numbers are, however, largely reinforced at the times of the autumn and spring migrations. Like the other members of the Thrush family, the Blackbird is very subject to internal parasites;



several species of *Tænia*, besides *Filaria*, of large size, and in surprising numbers, are found in the intestines of this bird. In addition, both the Blackbird and Fieldfare are frequently found to have a *Filaria* under the tendon of Achilles. I have never seen the occurrence of parasites in this part of the frame mentioned by other observers, but in some years the Blackbird seems to be as often saddled with this uninvited guest as not.

Ring Ouzel, *T. torquatus*, L.—Rarely seen near Riding Mill, but is occasionally found on the higher ground—*e.g.*, near Healey, and towards Blanchland; in the former place it occurs sparsely, but will probably be found to breed near the latter.

Dipper, *Cinclus aquaticus*, Bechst.—Resident and common up all the smaller streams, but not so often seen on the Tyne. Were it not that the statement still “periodically” finds its way into print, and that much ignorance on the subject yet prevails amongst persons of the gamekeeper class, it would hardly be worth while to mention that the instances of this bird being found to have been feeding on the ova of fish are so few as to form the rare exception.

Wheatear, *Saxicola ænanthe*, L.—A summer visitor, and one of the first to make its appearance, my earliest record being March 21, 1876. Rare near Riding Mill; a pair or two breed near Healey, and it becomes commoner the higher the altitude, and the opener and stonier the ground.

Whinchat, *Pratincola rubetra*, L.—A summer visitor; not uncommon, but local. Seems to be more abundant near Dipton House than anywhere else, where a few pairs may often be met with during the summer.

Stonechat, *P. rubicola*, L.—A resident, but in small numbers. A fine old male in my collection was shot at Healey, Dec. 21, 1877.

Redstart, *Ruticilla phœnicurus*, L.—A summer visitor, but not abundant. Earliest record, April 23, 1878.

Redbreast, *Erithacus rubecula*, L.—An abundant resident.

Whitethroat, *Sylvia rufa*, Bodd.—One of the most abundant summer visitors. Earliest record, April 27, 1876.

Lesser Whitethroat, *S. curruca*, L.—An uncommon summer migrant. I have only thrice seen the nest near Riding Mill. Earliest record, April 27, 1872.

Blackcap, *S. atricapilla*, L.—A summer visitor, more abundant near Riding Mill than anywhere else I know. I found, without

looking for them, four nests of this bird within about three-quarters of a mile of country, in 1883. Earliest recorded appearance, April 18, 1871.

Garden Warbler, *S. salicaria*, L.—A summer visitor, but much less abundant than the last, of which half-a-dozen examples may be met with to everyone of this. Earliest record, April 27, 1870.

Golden-crest, *Regulus cristatus*, Koch.—A resident, breeding not uncommonly. Its numbers are greatly increased during the winter, when fir-woods sometimes appear almost alive with these birds.

Chiffchaff, *Phylloscopus collybita*, Vieill.—A summer visitor, but in small numbers, and very local in its distribution. A pair or two are invariably seen in two small woods up the burn, belonging to Mr. Henry Straker, where they may be counted upon with certainty at the proper season; elsewhere they are seldom noticed.

Willow Wren, *P. trochilus*, L.—The most abundant summer visitant. Earliest records, April 8, 1877; April 12, 1869, 1872, and 1874. In song, usually, about a week after its arrival, but this depends partly on the state of the weather.

Wood Wren, *P. sibilatrix*, Bechst.—A summer visitor, nowhere commoner than near Riding Mill, where it occurs in every wood (except those consisting of Scotch fir) where the trees are pretty tall, though it prefers those with little undergrowth. I found four nests in one morning late in May, 1883, in one wood, by watching the birds go to the nests. Earliest record, April 3, 1876, but this is unusually early, and the bird is very seldom seen before the middle of that month.

Sedge Warbler, *Acrocephalus schœnobænus*, L.—A summer migrant, common enough by the Tyne, but not often seen elsewhere. Earliest records, April 24, 1871 and 1877.

Grasshopper Warbler, *Locustella œvia*, Bodd.—A summer visitor, local in distribution. On Broomley Fell it is very common amongst young fir-growth planted amongst heather; here it is by no means uncommon to hear four or five singing at the same time.

Hedgesparrow, *Accentor modularis*, L.—Resident and common.

Long-tailed Titmouse, *Acredula rosea*, Blyth.—A common resident. As it is a sociable bird in general, so it appears to be in the breeding season also. I have noticed that if you find a

nest in a hedge, you may expect to find another or two not far off. There can be little doubt of the propriety of separating this bird from the white-headed continental form; the latter, as well as in the bright yellow eyelids and white head, differs also somewhat in note and habits. The mere fact of the similarity of the immature individuals ought not to have much weight; the young of the Rook and Carrion Crow are not separable, yet who doubts that the species are distinct?

Great Titmouse, *Parus major*, L.; Coal Tit, *P. britannicus*, S. & D.; Marsh Tit, *P. palustris*, L.; Blue Tit, *P. cæruleus*, L.—Common and resident.

Nuthatch, *Sitta cæsia*, Wolff.—I cannot mention this bird as having occurred near Riding Mill, but there is an adult specimen in my possession, which was shot near Wolsingham in the year 1873, and which was skinned and given to me by the Messrs. Tinkler, birdstuffers, of Stanhope.

Tree Creeper, *Certhia familiaris*, L.; Wren, *Troglodytes parvulus*, Koch.—Common and resident.

White Wagtail, *Motacilla alba*, L.—On the 19th April, 1878, I saw a fine male of this uncommon species, in full nuptial dress, in a small field near Riding Mill. It was extremely tame, and I watched it for some time with the greatest interest, being occasionally within ten yards of it. I looked for it subsequently, but in vain.

Pied Wagtail, *M. lugubris*, Tem.—A common summer visitor. I have never known it pass the winter at Riding Mill, though it occurs sometimes as late as mid-October.

Grey Wagtail, *M. melanope*, Pall.—Common in summer by stream-sides, breeding in some abundance by the burn. I have never seen it in the winter.

Yellow Wagtail, *M. raii*, Bp.—A summer migrant, much rarer than the last; indeed I have only three records of its appearance, April 18, 1875, June 15, 1876, and March 14, 1878. The bird seen in the second instance, a young male, is in my possession.

Meadow Pipit, *Anthus pratensis*, L.—A common summer resident, leaving the neighbourhood (for the seaside, in all probability) late in autumn, and returning early in spring. I have taken considerable pains to satisfy myself as to whether this autumnal migration of the Meadow Pipit is partial only or complete, and find it to be the latter. The Titlarks, with us, begin

to gather themselves into flocks during the month of September, and after the end of October none are to be seen, search the likeliest places as much as you will. From the middle of February to the middle of April (according to the state of the weather) they re-appear in flocks, which quickly break up and disperse. I have seen a good many individuals about this time in a very dark, dingy state of plumage, like that of the London Sparrows, as if they had been staying in a smoky neighbourhood, which may easily have been the case. I have noticed the same peculiarity about the Sky Larks in spring, who leave us during the winter in much the same way, but who do not leave the neighbourhood so completely.

Tree Pipit, *A. trivialis*, L.—A common summer visitor. Earliest record, April 12, 1868; usually seen about the third week in that month, leaving about the end of July.

Spotted Flycatcher, *Muscicapa grisola*, L.—A common summer migrant, appearing generally about the first week in May. Earliest record, April 28, 1878.

Pied Flycatcher, *M. atricapilla*, L.—An uncommon summer visitor. I never came across it near Riding Mill until 1874, after which I have seen it every year until 1878. On May 8, 1874, I saw three pairs the same day by the Devil's Water. I found, but did not take, the nest with three eggs, by the Devil's Water, near Swallowship, in May, 1876. This bird should be looked for by burn-sides early in May, where it resorts especially to branches of trees which overhang the water. Late in May, 1883, I saw a male in full breeding dress near Smithyburn, close to Stockfield. I watched it for some time with my glass, and saw it thrice peer into a hole in a dead oak-branch. Getting the assistance of the woodman, and fetching a long ladder, with considerable labour, from Bromley, I ascended the tree, sawed off the branch with great care, and lowered it with a rope, the bird showing himself at intervals, apparently in a state of great agitation. I then descended to investigate. There was no nest whatever, and I was obliged to come to the conclusion that the bird had deliberately, seeing my object, "taken a rise" out of me. At least I can think of no other explanation for the interest he took in that hole. I may mention that the Pied Flycatcher used to breed regularly in the farmyard at Broadwood, near Lancaster; the place selected was a pillar of masonry, which with

others had formerly supported a conical roof covering a threshing-machine crank, worked by horse-power. The roof was gone, and the pillars stood, each capped by a flagstone, under which the nest was placed. I find by my notes that the bird nested there in 1866, 1867, and 1868, and always in the same pillar. I have eggs from there.

Swallow, *Hirundo rustica*, L.; Martin, *Chelidon urbica*, L.; Sand Martin, *Cotile riparia*, L.—Common summer visitors, the first and last the commonest.

Goldfinch, *Carduelis elegans*, L.—I have not met with this bird in Northumberland nor in Durham, but in 1866 I took a nest with four eggs near Cronkley Scar, in Upper Teesdale: this was within a quarter of a mile of the county of Durham.

Siskin, *Chrysomitris spinus*, L.—A rare occasional winter visitor, never seen in large numbers, but usually in twos and threes. Very irregular in its appearance.

Greenfinch, *Ligurinus chloris*, L.—A common resident.

Hawfinch, *Coccothraustus vulgaris*, Pall.—One day, late in the summer of 1871, as I was sitting by a hedgeside whilst out shooting rabbits, a female Hawfinch flew on to the hedge close to where I was, and remained there for some little time without seeing me. This is the only instance I know of its appearance here.

Sparrow, *Passer domesticus*, L.—A common resident.

Tree Sparrow, *P. montanus*, L.—A rare occasional visitor. One specimen in my possession was shot during the autumn of 1877 at Riding Mill. I took the nest some years ago at Durham; it was in a hole in a tree not far from the Prebend's Bridge.

Chaffinch, *Fringilla cælebs*, L.—A common resident.

Brambling, *F. montifringilla*, L.—A rare and irregular winter visitor.

Linnet, *Linota cannabina*, L.—A common resident.

Mealy Redpoll, *L. linaria*, L.—A rare and irregular winter visitor, usually in small numbers, consorting usually with the following. One shot by me at Healey in November, 1878.

Lesser Redpoll, *L. rufescens*, Vieill.—A resident, pretty common. Large flocks occasionally seen during the winter (when this bird is much more plentiful, owing to immigration from the more northerly parts of the kingdom); these flocks number several hundreds.

Bullfinch, *Pyrrhula europæa*, Vieill.—A shy but common resident. I rarely go out near Riding Mill without seeing or hearing this bird, and could make sure of shooting a couple of specimens any day I might wish to do so.

Crossbill, *Loxia curvirostra*, L.—A winter visitor, of rare and irregular occurrence. It is possible that odd pairs may remain to breed, especially in the fir woods towards Dilston, where it seems to occur oftenest.

Common Bunting, *Emberiza miliaria*, L.—Common during the summer months, moving towards the sea in autumn, to swell the flocks which are usually seen there during the winter.

Yellowhammer, *E. citrinella*, L.—A common resident.

Reed Bunting, *E. schæniclus*, L. Common during the summer by the Tyne, not often seen elsewhere.

Snow Bunting, *Plectrophanes nivalis*, L.—A winter visitant in small numbers, only seen on higher ground, as at Healey, and then usually on or near stone walls. Towards the moors it occurs more frequently.

Sky Lark, *Alauda arvensis*, L.—Common throughout the summer, the majority leaving (for the sea coast?) late in autumn.

Wood Lark, *A. arborea*, L.—I have observed this bird but once, in 1876, when a pair nested within a hundred yards of my father's house. I had frequent opportunities of watching them and examining the nest, until the young were fledged, when they left. I was in hopes that they might return the next year, but I never saw them again.

Starling, *Sturnus vulgaris*, L.—Common. An admirable mimic, imitating the notes of the Swallow, Swift, Sparrow, Chaffinch, Magpie, Curlew, Redshank, and other birds, including the domestic fowls. I have even heard them echo the whistle with which my father's poultry are called to be fed.

Jay, *Garrulus glandarius*, L.—I cannot agree with Mr. Hancock's remarks ('Birds of Northumberland and Durham,' 1874, p. 41) on the impending extinction of this species. It is seldom you go out shooting in the woods near Riding Mill without meeting with this bird; near Healey it is commoner still. I was once trying to stalk what I imagined to be a Carrion Crow, until I found that the note (an exact imitation of that of the Carrion Crow) proceeded from the throat of a Jay, which I watched for

some time. The bird contorted its neck oddly while uttering this note, as if its production required a considerable effort.

Magpie, *Pica rustica*, Scop.—A resident, somewhat more abundant than the last, and I think on the increase here.

Jackdaw, *Corvus monedula*, L.—A resident, breeding in old buildings, in rocks by burn-sides, in clay cliffs (such as Thornbrough Scar), and in the bases of such Rooks' nests as consist of the accumulated materials of several years.

Carrion Crow, *C. corone*, L.—A resident, and pretty common; its numbers have perceptibly decreased since 1868.

Hooded Crow, *C. cornix*, L.—A rare and accidental visitor, only seen about the seasons of the migrations.

Rook, *C. frugilegus*, L.—A common resident. There are rookeries near Bywell, Styford, and Healey Halls.

Raven, *C. corax*, L.—A rare accidental visitor at migration times. I saw one near Sealey in the autumn of 1873; another crossed the Tyne Valley near Riding Mill on Oct. 23, 1878. On both occasions my attention was called to the bird by its note.

Swift, *Cypselus apus*, L.—A common summer visitor.

Nightjar, *Caprimulgus europæus*, L.—A summer visitor, not uncommon. Breeds in some numbers on and near Broomley Fell, where it is usually to be seen on a summer evening.

Greater Spotted Woodpecker, *Picus major*, L.—I possess an adult male, shot near Corbridge in 1872, the only instance of its occurrence that has come under my notice. It nested near Ripon in 1881.

Green Woodpecker, *Gecinus viridis*, L.—Occasionally seen in the older woods. Is far from uncommon near Healey and Minster Acres, where I have noted it on a good many occasions. There was a nest near Healey in 1878 in a dying Scotch fir. It used, moreover, to breed regularly at Woodlands, where I have several times found the nest.

Wryneck, *Jynx torquilla*, L.—I never noticed this bird here till 1883. About the middle of May, in that year, I heard one day the scream of a Wryneck (with which I am familiar) in a damp wood of alder and birch in a gill a little S.W. of Dipton House. I approached the bird and watched it for some time, then and subsequently, but failed to find the nest, of the existence of which I had little doubt. When Mr. Hancock (*l. c.*, p. 24) speaks of Northumberland being the bird's "northern limit," is

he not speaking of its distribution in Britain alone? It has nevertheless occurred more than once in the Orkneys, and I have seen half-a-dozen examples in a day in Central Norway, about 62° North.

Kingfisher, *Alcedo hispida*, L.—A resident, usually, however, leaving the neighbourhood in very severe weather. Some years it is more abundant than others; seldom seen except by the Tyne. My notes mention four nests in 1877, in little more than a mile and a half of the river.

Cuckoo, *Cuculus canorus*, L.—A common summer visitor.

Barn Owl, *Strix flammea*, L.—A resident, pretty common.

Long-eared Owl, *Asio otus*, L.—A resident, but not abundant. Breeds sparingly in the less-disturbed woods.

Short-eared Owl, *A. accipitrinus*, Pall.—A winter visitor, which I have only once met with here.

Tawny Owl, *Syrnium aluco*, L.—A resident, and probably as common as the three foregoing species together, and a very favourite bird of mine. I know of several nesting-places of this bird near here. On one occasion I found a large ejected pellet (the means by which the Tawny Owl avoids the discomforts of indigestion), which I had the curiosity to investigate. I found therein the remains of no less than twenty-four field mice,—there being twenty-four of the right half of the lower jaw,—of two shrews, and two beaks of small birds. I may here remark that St. John states that Owls (he referring especially to the present species) never eat Shrew-mice. Of the incorrectness of this I have had proofs, of the nature of that mentioned above, on several occasions. He observes, on the next page, that Shrew-mice are in the habit of barking trees! In the first-place, their little jagged teeth are utterly unfitted for any such task; in the second, the muscular strength of their jaws renders the feat impossible; in the third, what on earth should lead them to do anything of the kind, seeing they are strictly insectivorous in diet, and that they hibernate during the time of scarcity of food? I merely mention this last case to show that it is not improbable that St. John might be in error as to Owls eating Shrews.

Hen Harrier, *Circus cyaneus*, L.—William James, my late gamekeeper, had a stuffed example of this bird, an adult female, shot by himself on the Bog Hall estate, near Minster Acres, about the year 1873.



Sparrowhawk, *Accipiter nisus*, L.—A resident, not uncommon, and breeding in all the larger and more unfrequented woods. It is a great ornithological treat to watch this bird dash at full speed through a thick wood, avoiding the branches by the merest shave. The female appears much more abundant here than the male.

Merlin, *Falco æsalon*, Tunst.—Being almost exclusively a moorland bird, is seldom seen very near Riding Mill. In the autumn of 1877 I saw a fine old blue male one day at Branch End, near Sealey. I have several times seen Merlins whilst driving between Riding Mill and Stanhope; and up North Tyne, above Bellingham, they are plentiful enough.

Kestrel, *F. tinnunculus*, L.—A resident, slightly commoner than the Sparrowhawk.

Heron, *Ardea cinerea*, L.—A resident, and not uncommon, which does not appear to have decreased in numbers since 1868.

Little Bittern, *Ardetta minuta*, L.—I am not able to record this bird from Riding Mill, but I possess an immature example which was shot on the Wear, between Stanhope and Frosterley, in or about the year 1869, and brought in the flesh to Messrs. Tinkler, the Stanhope birdstuffers, who afterwards kindly gave it to me.

Pink-footed Goose, *Anser brachyrhynchus*, Baill.—I have several times seen geese pass over which were most likely of this species. On the evening of the 8th December, 1878,—being, of course, a Sunday,—I heard a flock of wild geese on the Tyne above Riding Mill. I carefully abstained from going to look at them, hoping to get a shot the next day, but they left at daybreak, and were seen at that time at Corbridge. These were also, most likely, Pink-footed Geese.

Common Wild Duck, *Anas boschas*, L.—Occasionally seen on the river. During very severe frosts odd examples are met with on the burns.

Shoveller, *Spatula clypeata*, L.—A pair rose from the Tyne, on March 1, 1877, when I went down to fish for Salmon, and, for some reason, flew straight towards me, and passed close over my head.

Teal, *Querquedula crecca*, L.—Occasionally on the Tyne in spring and autumn.

Wigeon, *Mareca penelope*, L.—An occasional visitor, during the winter months, in small parties.

Tufted Duck, *Fuligula cristata*, Leach.—I observed a male of this species on the Tyne on Feb. 12, 1875. It is possible that it may have been a Scaup, as it was nearly a hundred yards distant from where I stood watching it, but I do not think it was.

Golden Eye, *Clangula glaucion*, L.—I have several times seen females or immature examples of this salt-water duck on the Tyne; once I noted an old male.

Goosander, *Mergus merganser*, L.—Several times seen alive on the Tyne, generally young examples or females. On Dec. 21, 1878, a fine old male, in the flesh, passed through my hands, which had been shot on the Tyne at Smithy Burn, near Stocksfield.

Red-breasted Merganser, *M. serrator*, L.—I only once satisfactorily identified this bird near Riding Mill.

Ring Dove, *Columba palumbus*, L.—Common; to some extent migratory during the winter months. On Oct. 1, 1876, when I was ascending a crab-tree, with a view to gathering the fruit for culinary purposes, I was surprised to see a Ring Dove fly off from a nest in the tree, and to find that she was sitting on an egg.

[Stock Dove, *C. ænas*, L.—The occurrence of this species in the neighbourhood has been several times reported to me, but I have never been able to confirm it, though I have shot a good number of Pigeons in the woods. I heard, too, that it had nested in the Scar at Thornbrough, but, though I have seen many Ring Doves fly from holes in that Scar, where they regularly nest, I never saw a Stock Dove.]

Pheasant, *Phasianus colchicus*, L.—By the introduction of the oriental race of the Pheasant the breed of English Pheasants has been completely modified, both in appearance and habits, and the bird should be called "*P. torquato-colchicus*." On the higher grounds near Riding Mill wild-bred birds still occur, which have little or no trace of the white collar, and are of a darker colour than most English Pheasants, approximating nearly to the true *colchicus*; I once shot a male of the Bohemian variety on the estate of Henry Straker, Esq., and another on the Healey Estate with a white head.

Partridge, *Perdix cinerea*, Lath.—A common resident, yet, like most birds, to some extent migratory. I have known, on the Healey Estate, a large covey vanish in the beginning of the

shooting season, in such a complete manner as to raise suspicions of its having met with foul play; about the end of January the covey returned to the same spot in undiminished numbers (it had been frequently looked for meanwhile in vain), and in a few days the members separated and paired off.

Quail, *Coturnix communis*, Bonnat.—A casual summer visitor. Curiously enough, it only seems to occur on the high ground near Broomley, where I have several times heard it. A keeper of the late George Fenwick, Esq., informed me that he generally noticed some Quail there every year, and that he had once taken the nest. His account may be relied on, as he certainly knew the bird, and showed me a specimen he had shot and stuffed himself.

Grouse, *Lagopus scoticus*, Lath.—Rare near Riding Mill; a few pairs only breed on Broomley Fell (on the Healey Estate), or did as late as 1878, when I ceased to have the shooting there. Towards Blanchland, of course, Grouse are much more numerous.

Black Grouse, *Tetrao tetrix*, L.—Used to be much more common near Healey than the last, and might be plentiful there if there were more suitable ground, and if the grey-hens would choose the places for their nests with more judgment; but, from their choosing spots particularly exposed to the action of the water, their chicks, which are very delicate in constitution, probably suffer more from a wet hatching season than those of any other species. I never killed more than five brace in a day, and I should say that they have decreased there of late years, owing to the growing up of young trees in all the open spaces, by which alone the young birds were preserved in wet summers.

Water Rail, *Rallus aquaticus*, L.—Most probably more common than it appears to be, owing to its retiring nature. A male in my possession, shot near Healey Church, on Nov. 20, 1878.

Corn Crake, *Crex pratensis*, Bechst.—A common summer visitor, and apparently not decreasing in numbers, as would seem to be the case in some places. I was very much surprised, on June 3, 1876, by finding that a Corn Crake, which I had stealthily approached while uttering its peculiar note, was perched on the top of a high hedge; there was no doubt whatever on this point, as I got quite close to it.

Waterhen, *Gallinula chloropus*, L.—Not uncommon by the Tyne; occasional by burnsides. A few pairs breed every year at the mill-dam at Riding Mill.

Pratincole, *Glareola pratincola*, L.—I may here mention that a specimen of this bird was killed near Stanhope on July 14, 1876. For this piece of information I am indebted to the Brothers Tinkler, the Stanhope birdstuffers.

Golden Plover, *Charadrius pluvialis*, L.—I have never noticed or heard of this bird on the higher ground, but flocks often pass a few days in the grass-fields near the river on their way to and from the fells at migration times. On March 24, 1879, I watched for some time a flock of about fifty near Broomhaugh, some of which ran within twenty yards of where I was concealed. Early as it was, about half of them had the full black breast of summer, whilst the rest showed no sign of change whatever; I could not perceive that one was in a transition state of plumage.

Grey Plover, *Squatarola helvetica*, L. — An accidental visitor. On Oct. 27, 1877, five Grey Plovers crossed Broomley Fell, where I was shooting; they passed close enough to where I was for me to see distinctly the colour of the axillaries.

Lapwing, *Vanellus vulgaris*, Bechst. — A common summer visitor, appearing as early as Feb. 12 (1878), and breeding in all suitable places.

Woodcock, *Scolopax rusticula*, L.—A resident, breeding not uncommonly in all suitable woods near Riding Mill, but their numbers are largely reinforced at the time of the autumn migration. I have known of a nest or two every year since 1869. I cannot think that the Woodcocks leave the neighbourhood as soon as the young are able to fly, according to the opinion of Mr. St. John; and the following records, which I collected with a view to satisfy myself on this point, are my grounds for the belief:—1876, Aug. 20, one seen at Riding Mill by myself. 1877, Aug. 9, one seen at Healey by William James, my keeper; Sept. 8, one by myself at Riding Mill; Sept. 20, one at Broomley by keeper of Mr. George Fenwick; Oct. 23, one, and one next day, at Healey by myself. 1878, May 20, one near Healey, with three young ones, by my keeper; June 19, five, four of them young ones, near Dipton House, by Mr. Straker's coachman; July 21, two, at Healey, by myself; Aug. 29, one, near Riding Mill, by myself. 1883, July 5, three at dusk, Riding Mill, by myself.

I have had a good many opportunities of watching the old birds carry their young to the feeding-grounds; this is effected by pressing the young to the breast with the feet, but the young bird must be partly between the legs also, as it is so far "aft." I have also seen Woodcocks "tilting" in the air, after the manner described by Charles St. John, but later in the year than he speaks of it as occurring, *i. e.* about the middle of May.

Snipe, *Gallinago caelestis*, Frenzel.—Not uncommon during the winter months in suitable localities. Breeds sparingly near Healey.

Jack Snipe, *G. gallinula*, L.—A winter visitor in irregular numbers. My earliest record is Oct. 9, 1878.

Dunlin, *Tringa alpina*, L.—Single birds are occasionally seen in spring by the Tyne, doubtless on their way to breeding-grounds up the country.

Redshank, *Totanus calidris*, L.—Occasional examples seen by the Tyne at migration times.

Curlew, *Numenius arquata*, L.—A summer visitor, only seen on Broomley Fell, where one or two pairs breed, or used to, every year, whence I have examples both of the birds and eggs. In 1877 it had arrived as early as March 27.

Arctic Tern, *Sterna macrura*, Naum.; Common Tern, *S. fluviatilis*, Naum.—Rare casual visitors occasionally seen on the Tyne.

Black-headed Gull, *Larus ridibundus*, L.—A migrant, passing up the Tyne Valley in some numbers every year from the end of April to the middle of May.

Common Gull, *Larus canus*, L.; Lesser Black-backed Gull, *L. fuscus*, L.—Seen occasionally in stormy weather.

Manx Shearwater, *Puffinus anglorum*, Temm.—It may not be out of place to mention that an exhausted specimen of this bird was found and picked up on Crawley Side, near Stanhope, on Sept. 9, 1876.

Little Auk, *Mergulus alle*, L.—I obtained a specimen at Holy Island on Jan. 1, 1879; it was shot in the deep water between the Island and the Beacon.

Red-necked Grebe, *Podiceps griseigena*, Bodd.—I shot a pair near the Inner Farne in the first week of December, 1876, an adult female (with a neck still partially red), and a young male. There were half-a-dozen others.

Lesser Grebe, *P. fluviatilis*, Tunst.—A rare occasional visitor, only seen on the Tyne. A pair, one of which I saw in the flesh, were shot by a loafer at Smithy Burn on Jan. 14, 1878. It is odd that this bird has not been observed more frequently, since Mr. Hancock, in his Catalogue of Northumberland birds, includes it as a resident.

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## AMERICAN ORNITHOLOGISTS' UNION.

### BIRD MIGRATION.

At the first congress of the American Ornithologists' Union, held in New York City, September 26th to 28th, 1883, a Committee was appointed to investigate in all its bearings, and to the fullest extent possible, the subject of the migration of birds in the United States and British North America. The work will not be limited to the accumulation of records of the times of arrival and departure of the different species, but will embrace the collection of all data that may aid in determining the causes which influence the progress of migration from season to season. For example, severe storms, gales of wind, protracted periods of unusually high or low temperature (for the locality and time of year) are among the atmospheric conditions that are known to exert marked effects upon the movements of birds. The opening of the leaves and the flowering of certain plants, with the correlative appearance of a multitude of insects, are also among the actors that have to do with the abundance of many species. Hence the careful registration of certain meteorological phenomena, and of the state of advancing vegetation from day to day, will constitute prominent items in the record-books of the observer.

For the purpose of rendering the result of the season's work as full and valuable as possible, the Committee earnestly solicits the co-operation of every ornithologist, field-collector, sportsman, and observer of nature in North America.

For convenience in collecting and arranging the enormous mass of material which will be accumulated by the joint labours of this army of field workers, it has been deemed advisable to divide the vast expanse of territory embraced in the United

States and British North America into thirteen Districts (which are specified in a circular issued by the Committee from which we quote), each of which will be placed under the immediate direction of a competent Superintendent.

The home of each observer is called a Station, and is recorded by number upon the books of the Committee. The Committee particularly requests that all persons who are willing to aid in the work will *immediately* communicate with the Superintendents of their respective Districts. Those residing in Districts whose Superintendents have not as yet been named may address the Chairman.

It is the duty of each Superintendent to exert himself to the utmost to increase the number of observers in his District; to answer the questions they may put to him concerning the details of the work, &c.; to collect at frequent intervals the product of their labours; to ascertain from these data the whereabouts of certain species in winter, and the times of leaving their winter homes; to determine if possible the number and extent of the chief avenues of migration within the limits of his District, and the average rate of speed at which the different species travel; to locate the *breeding areas* of the summer residents; and, finally, to submit the result of the season's work to the Chairman of the Committee. The Chairman shall, in turn, arrange, condense, and systematise the material received from the Superintendents of the several Districts, and shall present to the Union the fruits of the joint labours of all the collaborators, together with any comments, deductions, or generalisations he may have made upon the same.

The data collected may conveniently be arranged in three general classes: *a.* Ornithological Phenomena. *b.* Meteorological Phenomena. *c.* Contemporary and Correlative Phenomena.

(*a*) *Ornithological Phenomena.*

Each observer is requested to prepare, at his earliest convenience, a complete list of the birds known to occur in the vicinity of his Station, and to indicate (by the abbreviations enclosed in parentheses) to which of the following five categories each species pertains:—

1. *Permanent Residents*, or those that are found regularly throughout the entire year (R).

2. *Winter Visitants*, or those that occur only during the winter season, passing north in the spring (WV).

3. *Transient Visitants*, or those that occur only during the migrations, in spring and fall (TV).

4. *Summer Residents*, or those that are known to breed, but which depart southward before winter (SR).

5. *Accidental Visitants*, or stragglers from remote districts (AV).

It is desirable also to indicate the relative abundance of the different species, the terms to be employed for this purpose being: *Abundant, Common, Tolerably Common, Rare.*

In many species the males arrive in advance of the females; hence it is important to note the sex of the first comers, and the date at which the opposite sex is first seen.

In recording arrivals and departures it is highly important to distinguish between the movements of the great bulk of the species and those of the forerunners or advance guard. For this purpose two dates should be recorded for the incoming, and two for the outgoing of every non-resident species, as follows—

1. The first appearance of the species (F).
2. The arrival of the bulk (BA).
3. The departure of the bulk (BD).
4. The last individual seen (L).

In addition to the above, which may be regarded as *essential data*, there are many other noteworthy details which bear more or less directly upon the complicated problems involved in the study of migration. Among such may be mentioned the bodily condition of the bird (whether fat or lean), the moult, and the periods of song. The time of mating, when observed, should always be recorded.

#### (b) *Meteorological Phenomena.*

Extended meteorological data are not required, though the observer would derive material assistance from a systematic weather record. The Committee desires information upon—

1. The direction and force of the wind.
2. The direction, character, and duration of storms.
3. The general conditions of the atmosphere, including rainfall.
4. The succession of marked warm and cold waves, including a record of all sudden changes of temperature.



*(c) Contemporary and Correlative Phenomena.*

The Committee desires that the data under this head be as full and complete as possible, and requests exact information upon :—

1. The date at which the first toad was seen.
2. The date at which the first frog is heard.
3. The date at which the first tree-toad or “peeper” is heard.
4. The dates at which certain mammals and reptiles enter upon and emerge from the state of hibernation.
5. The dates at which various insects are first seen.
6. The dates of the flowering of various plants.
7. The dates of the leafing and falling of the leaves of various trees and shrubs.
8. The dates of the breaking up and disappearance of the ice in rivers and lakes in spring, and of the freezing over of the same in the fall.

The Chairman of Committee on Migration is Dr. C. Hart Merriam, of Locust Grove, Lewis County, New York.

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## NOTES AND QUERIES.

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**Method of recording Observations.**—With regard to Mr. Harvie Brown's communication on a more uniform method of recording observations (p. 60), I think that the use of the suggested form would lead to useful and valuable results which might not be obtained in any other way. There can be no doubt as to the value of such a system. At the same time I think that its exclusive adoption would probably cripple original observations; and I thoroughly appreciate your remarks as to such formality detracting from the pleasure derivable from more original communications. I therefore hope that original observations may be kept up as at present, and that the suggested form, or possibly a slightly more elaborated one, may be brought into use. Would it not answer the purpose fully for the filled-up forms, or a synopsis of them, to be published in 'The Zoologist' annually? I am inclined to think that a full and detailed synopsis of the forms, complete for a year, would be more convenient and useful than a number of untabulated forms in each number of the Journal.

—J. E. PALMER (Lyons Mills, Strafford, Co. Kildare).

**Supplement to the Vertebrate Fauna of Yorkshire.**—Messrs. W. Eagle Clarke and W. Denison Roebuck, Leeds, are preparing a Supplement

to their 'Handbook of the Vertebrate Fauna of Yorkshire,' and would be glad to have notes of additions or corrections to that work, or notices of the occurrence of any species of quadrupeds, birds, reptiles, or fishes in Yorkshire, which their friends may be pleased to communicate. As they wish to publish in the April magazines, it is hoped that the desired information may be sent them immediately.

#### MAMMALIA.

**The Burmese Elephant at the Zoological Gardens.**—The question that appears most to interest the public mind in the matter of this Elephant is that of whether his peculiarity be a disease or not a disease. Now in styling it leucoderma, which is a known and definite disease, I differ point-blank from Prof. Flower, who says (p. 63), "it does not result from any disease of the skin, but is doubtless an individual congenital condition or defect." He then goes on to say that if it extended over the whole of the integument, including the eye, it would constitute true "albinism," so that he commits himself to regarding the condition as "congenital" partial albinism, which I aver it is not. Prof. Flower concludes by expressing some surprise at the perfect bilateral symmetry noticeable in this instance, which he says is very rarely present in the local deficiencies of pigment found either in domestic animals or dark-skinned men. Now as to that last assumption he is partly right and partly wrong. Leucoderma is so extremely rare a disease, either in man or in animals, that it is possible Prof. Flower has never seen a case of it. For the twenty years that I have been surgeon to the British Hospital for Diseases of the Skin, during which time very many thousands of cases of skin disease of all kinds have passed under my hands, I have met with but very few cases of leucoderma. I might almost say I could count them on my fingers. In the dark races of mankind it is supposed to be commoner than in Europeans, but this supposition may well arise from the fact that in a black man the disease constitutes a much more striking phenomenon than in a white man, and that in the black races of man, who go about more or less completely unclothed, the condition is much more exposed to general observation. Now it is of the essence of leucoderma that it is not congenital. The individual affected with leucoderma is not born so. It is a condition he acquires during his lifetime, sometimes at an early, sometimes at quite an advanced age; and then, again, it does not commence all at once as a large patch, but, beginning in one or more small spots of decoloration, gradually extends, until by degrees, spreading more in some directions than in others, it at length forms large patches of irregular shape, which, however, always have one notable peculiarity—namely, that more or less perfect "bilateral symmetry" which seems to have rather surprised Prof. Flower in this instance. Now from enquiry of Mr. White, in whose charge the Elephant

is, I learn that the Elephant is fifteen years old; that the white patch was at one time no bigger than my fist; that the patch began to spread from small dimensions to its present gigantic size when the animal was about five years old; that Mr. White has been told that the animal exhibited a very little patch indeed when he was as young as one year old; and that Mr. White should imagine that the animal must have been born with the patch, but that he had never been told so. Now, this history, for so far as it may help, tallies with leucoderma, but is quite opposed to congenital albinism. Then, as to the question of bilateral symmetry, I have before me a photograph of a well-marked example of the piebald negro—that is to say, of a negro affected with leucoderma. The negro is most extensively and grotesquely piebald, but the bilateral symmetry exhibited by his piebaldness is most exact. Now, it may be asked, do I deny the possibility of such a thing as a partial congenital albinism? By no means. Such a thing is quite well known, and I have repeatedly met with it. There are many people now living in this country who have been born with a white lock of hair, the rest of their hair being of a natural colour. But here comes the point. Such patches always remain stationary; they do not increase progressively in size, and, moreover, they fail to present bilateral symmetry; they are perched oddly on one side only of the individual, and there is no corresponding patch on the other side. Then why do I call the Elephant's patch a disease? Does it not come to the same thing, in effect, in the one case as in the other—namely, to a sheer local deficiency of the epidermic pigment? Well, scarcely so. In the first place, the fact of leucoderma commencing during the lifetime of the individual constitutes it a disease as against local albinism, which, being congenital, is a malformation or deformity of the skin; but this is by no means the only difference between the two. The one is not bilaterally symmetrical; the other is so. The one has no tendency to spread; the other has a tendency constantly to spread by slow degrees as long as it lasts. And then comes a very important difference. Congenital local albinism is a thing which it is impossible to cure, whereas leucoderma is open to the possibility of being cured—in fact, it sometimes cures itself. I have known three instances in which it has undergone spontaneous recovery within an average period of six years. When I was taken to see the White Elephant I naturally expected to see an albino—that is to say, an animal entirely white or faint pink (as Prof. Flower properly puts it), and with pink eyes. Such a thing is not unknown among the Pachydermata. It occurs in Pigs, for example. In some animals true albinism is notoriously common—in the Rabbit, for example. In the Elephant it is obviously extremely rare; but so also is leucoderma. There is one point I would touch on before I conclude. A popular impression has gained ground that this animal may have the leprosy, and it may be asked, Has leucoderma anything to do with the

leprosy? Most certainly not. For example, leprosy undermines the health most miserably, and always eventually kills the individual affected with it; whereas leucoderma exerts no influence whatever either on the health of the object of it or on the duration of his life.—BALMANNO SQUIRE.—[From 'The Times,' in reply to Prof. Flower's letter, printed in 'The Zoologist' for February, pp. 62, 63.]

**Stoats acquiring the Ermine Dress in Mild Seasons.**—A Stoat, in full ermine dress, was killed at Broughton on the 19th January last. The whole of the upper parts were of an unusually pure white, with the exception of a very slight tinge of yellow (less than is shown in many made-up furs) at the base of the tail, and a narrow light brown mark on the near fore leg. Mr. Wyatt tells me that he received another a few days before, but this had a dark patch on the crown of the head, the part which is, I believe, least often white, the tip of the tail of course excepted. Is it not contrary to the generally accepted opinion for Stoats to change during such mild seasons as the present? I observed the same thing in the mild winter of 1881-2. They do not all change, for the day I handled the white one—four days after it was captured—I saw a specimen in the flesh which did not show a sign of white on the upper parts.—OLIVER V. APLIN (Great Bourton, near Banbury).

[We should be glad to have some expression of opinion, founded on observation, as to whether the assumption of the ermine dress in the Stoat is the result of a gradual change of colour in the hair, or an actual growth of new hair. Has any correspondent ever kept a Stoat in confinement and observed the changes of colour in summer and winter? What is the origin of the provincial name "lobster" applied to this animal in some of the eastern counties of England? Can it have any connection with the change of coat analogous to the change of shell which takes place annually in Crabs and Lobsters, and which is well known to the east coast fishermen? —ED.]

**Note on the Harvest Mouse.**—I may make a few slight additions to Mr. Roper's interesting account of the Harvest Mouse. In confinement these mice are very fond of canary-seed, as much so, according to my observation, as of wheat. They also much appreciate a small bone of cooked mutton, especially a bone from a mutton chop after it has left the table; the fragments of meat attached to the bone are very attractive to the Harvest Mice, and a constant supply of such bones seems to diminish their propensity to cannibalism, to which they are much addicted where several are confined in the same cage, and I think especially during the spring months. I once saw the commencement of the act of cannibalism, at a time when several instances had occurred amongst the Harvest Mice which I was then keeping. The cannibal, a large specimen, was busy

nibbling one ear of a smaller mouse, which was crouching in a quiescent state, as though in some manner mesmerised; but when I interrupted the operation and removed the patient from the cage to some rough grass it speedily recovered its activity and made its escape. These mice, after being kept for some months in confinement, may not unfrequently be seen nibbling off the tops of their own tails, just as is sometimes done by tame monkeys. I may add that in the spring I give my Harvest Mice twigs of hazel, the leaf-buds and partly-expanded leaves of which they devour with great avidity. Also that a bunch of fresh moss, with the earth adhering to the roots, seems to be a great treat to them; they eagerly burrow into it, probably in search of small insects and similar dainties.—J. H. GURNEY (Northrepps Hall, Norwich).

## BIRDS.

**Rough-legged Buzzard in Shetland.**—Some weeks ago I received from my native island of Unst a fine specimen of the Rough-legged Buzzard, *Buteo lagopus*, shot at Haroldswick. This bird, although frequently occurring elsewhere in the British Isles, has not before been observed in Shetland, so far as I am aware. It is not included in Dr. Saxby's list, and its appearance in Unst is therefore possibly worthy of being recorded as an addition to the number of occasional feathered visitors. I am indebted for this handsome bird to Mr. Thomas Thomson, of Baltasound, who carefully preserved the skin and sent it to me. He mentions that it was a female, and apparently adult, both observations being borne out by the measurements and plumage.—T. EDMONDSTON (Jan. 24).

**Waxwing in Shetland.**—A specimen of the Waxwing was shot in January last at Norwich, Unst, and submitted to Mr. J. T. Garrick, who writes, "This bird has been met with in Shetland only at very rare intervals. Dr. Saxby has mentioned its occurrence in Unst in 1861, and again on the mainland in 1866. In the spring of 1851 several were seen on the mainland by Mr. Dunn." Unfortunately the specimen now referred to had been kept unskinned so long that it was found impossible to preserve it.

**Food of the Stone Curlew.**—In my note on the food of the Stone Curlew (p. 68) I see I must have made a clerical error, writing *Helix variabilis* for *Helix vermiculata*. Both are equally common here, but the substance of the shell of *H. vermiculata* is considerably thicker than that of *H. variabilis*, and is also larger.—E. F. BECHER.

**Wildfowl in North Oxfordshire.**—A Dunlin, *Tringa alpina*, was shot in the Cherwell Valley, at Gouldern, on November 9th; it was seen in company with two others wading in a partly flooded meadow, and allowed my informant to walk up within shot. Wildfowl have not been plentiful this winter. Of Mallard and Duck we have had comparatively few, and

there has been no great flight of birds bred at a distance. I saw the first Teal on October 6th. On the 21st of that month I counted eight Pochards on Clattercutt Reservoir, and have since seen as many as a score together. A Tufted Duck has been joined by three others. Wigeon appear to have been very scarce, the first I heard of was on November 19th. On the 12th January I watched for some time three Goldeneyes, *Clangula glaucion*, on the reservoir. One was a beautiful male, almost, if not quite, adult; the others were in brown plumage, and apparently females, from their smaller size. Some of the common Wild Ducks were paired by that date, as one might almost expect, considering the extremely mild season. A male Siskin, which I have since obtained, was taken by a Goldfinch catcher at Broughton about November 10th; this may have been one of the Northamptonshire birds (Zool. 1883, p. 502) which had passed further south-west.—OLIVER V. APLIN (Great Bourton, near Banbury).

**Grey Shrike near Carlisle.**—A female Shrike was shot on the 16th January last, in the immediate neighbourhood of Carlisle, which appears to be intermediate between *Lanius major* and *L. excubitor*. The bases of the secondaries are slightly tinged on the inner edge with greyish white, but the outer edges are black. It was much discoloured by smoke, having haunted the neighbourhood of the Caledonian Railway for at least a week. When observed by me, on January 12th, it was perched almost motionless on the inside of a tall hedgerow, towards the top. It looked very grey and dark, until it saw me, when it flew swiftly across the corner of the field, showing well the first white bands across the black wings. The Great Grey Shrike has often occurred in Cumberland,—an old male was shot at Kirkclinton last December,—but I have not yet examined a local thoroughbred Pallas' Grey Shrike. The above-mentioned female Shrike weighed two ounces and half-a-drachm.—H. A. MACPHERSON (Carlisle).

**Variety of the Yellowhammer.**—Last March a curious variety of the Yellowhammer, with bright rufous marks, about one-fourth of an inch long, on either side of the chin, and a tinge of the same colour over the eye, was netted at Coldham Common, near Cambridge, and is at present in the possession of Mr. Daggett, taxidermist. The rest of the plumage is of the normal type of a cock bird.—J. H. GURNEY, JUN.

**Little Gull at Rainham, Kent.**—A Little Gull was shot on the Medway near here on the 17th September last. It was prettily mottled on the back with black and white, all the under plumage being a pure white. The bird is still with Mr. Charles Gordon, of the Dover Museum, where I sent it to be stuffed. On the 7th February, 1870, I shot an immature Little Gull when flying over a ploughed field beside the river; the wind at the time was blowing strong from the east. On the 14th a Little Gull, an adult in winter plumage, was brought me, which was

shot at the entrance to Milton Creek. Later in the season, about the latter end of March, the same year, I observed another Little Gull, with a black head, flying amongst a flock of sheep, having separated itself from a flight of the common species flying up our creek.—WALTER PRENTIS (Rainham).

**Snow Bunting in Somersetshire.**—Since sending you a notice last month of a Snow Bunting being picked up at Lodway, I hear from Mr. John Marshall, of Taunton, of one having been shot in fine plumage on November 5th, 1883, near Huntspill.—ROGER FORD (Wraxall Court, Nailsea, Somerset).

**Occurrence of the Common Sandpiper in Winter.**—In last month's issue (p. 73) I note the occurrence of the Common Sandpiper, *Totanus hypoleucus*, Linn., in winter, mentioned by Mr. W. E. Beckwith. I shot one on January 15th last on the rocks by the sea below the village of Glandore. The bird was in good condition, and in no way (so far as I could see) suffering from any injury.—C. DONOVAN, JUN. (Myross Wood, Leap, Co. Cork).

[The bird, which has been obligingly forwarded by our correspondent, is unquestionably the Common Sandpiper (*T. hypoleucus*).—ED.]

**Greenland Falcon in Co. Donegal.**—In the January issue of 'The Zoologist' (p. 31), Mr. A. G. More stated that I had received a specimen of the Greenland Falcon from Mr. Steward, of Horn Head. On the 1st January I obtained another from the same locality. This specimen is an adult female, in splendid plumage. I have since heard that a third was seen in the same place.—H. BECHER (Beechwood, Dalkey, Co. Dublin).

**Long-tailed Duck in Cumberland.**—The most unusual visitor to Cumberland that I have come across is a fine drake of *Harelda glacialis*, which I found harbouring on Monkhill Lough, about three miles from the estuary of the Eden, on January 24th and several subsequent days.—H. A. MACPHERSON (Carlisle).

**Erratum.**—In the paragraph on the "Curious Variety of the Guillemot" (p. 71), the word "average", in line 11, should be "avoirdupois."

#### FISHES.

**Turbot coloured on both surfaces.**—I have heard, on good authority, of the capture in Penzance Bay of a Turbot coloured on both sides, and having the Turbot "knobs" on each side. The people who got it unfortunately sent it to market instead of forwarding it to me, and so I lost the opportunity of seeing it. The occurrence of the "knobs" on the under side of a self-coloured Turbot is so unusual, if not altogether unique, that the mere report of it seems worth recording.—THOMAS CORNISH (Penzance).

**Spawning of Fish.**—Last week I was fortunate to get hold of two of the *Gadidæ*, heavy with roe. The first was *Gadus pollardii*, or the Whiting Pollack of Couch, of about 12 lbs. weight, the roe of which was 15 oz. On weighing a half grain, and counting them and computing the number, I found it contained 4,200,000 eggs. My next fish was the *Gadus virens*, or the Coalfish of Couch, and 21 lbs. weight, the roe being 33 oz. Here I again weighed and counted a half grain, and on working out the result I found it to contain 8,260,000 ova. There was not the least difficulty at getting at these results. After allowing the eggs to remain in boiling water a few minutes they readily separated, and a magnifying glass and needle soon told the story. From these figures I think we may reasonably expect that Whiting Pollacks of 20 lbs. weight may be expected to give about 7,000,000 eggs, and Coalfish of 30 lbs. weight full 12,000,000 of eggs.—MATTHIAS DUNN (Mevagissey, Cornwall, Jan. 22).

**Greater Pipe-fish in Mount's Bay.**—I received, on February 16th, a very good specimen of the Greater Pipe-fish, or Greater Sea-adder (*Syngnathus acus*) taken in Mount's Bay. It was a female heavy with roe, but not in a fit state for preservation. I do not regard the fish as a rare one in our British seas, but only as one the occurrence of which usually escapes observation.—T. CORNISH (Penzance).

#### CRUSTACEA.

**Floating Crabs at Penzance.**—I have recovered from a derelict water-logged barrel of paraffin, which drifted ashore near Newlyn West, four specimens of the "Floating Crab," *Planes Limnæana*. They were found in the seaweed which had attached itself to the barrel and much mixed up with barnacles. They were all alive when I received them, and one of them had lost its right claw and portions of its two foremost right legs. The loss of the claw was evidently recent, but the loss of the legs was not so; their broken joints were blackened and shrunk. On the stump of the foremost of these legs there was established parasitically a barnacle, of course of very small size. The crab itself did not measure an inch across the carapace. It is a curious coincidence that in January, 1882, I made a similar recovery of very many specimens of this crab from a derelict paraffin cask picked up off Mount's Bay. Two of the four specimens of my present take were males and two females, and the colours of the whole were various. I hope to preserve them all, but their actual physical strength is such that (as I observed in January, 1882) they require perfectly unusual treatment in pinning down. I do not think I am overstepping the fact when I say that a lobster of 8 lbs. weight, or a common crab of 6 lbs., would succumb more readily to the pinning-down process than these little, but very active and powerful, creatures, any one of which could easily be placed within the limits of one square inch.—T. CORNISH (Penzance).



## ANNELIDES.

**Phosphorescence of Syllis.**—During the month of December, 1883, immense quantities of Corallines were thrown up on the beach at Langstone Point, near Dawlish, and also near Exmouth. There were literally cart-loads of them, as remarked by Mr. C. W. Parker, of Warren Cottage, Starcross, who showed me a mass he had brought up from the beach into his study, and which displayed beautiful phosphorescent particles in the dark. The greater part of the mass consisted of *Sertularia abieteria*, much finer and larger than I ever before saw it on this coast; but several other species of Corallines were mixed up with it. On examination the luminous spots were found to be individuals of a small species of *Syllis*, living in transparent membranaceous tubes closely adherent to the *Sertularia* by their whole length, but some of the worms had left their habitations and were wandering about the Corallines. When the mass was shaken up flashes of light were seen in all directions, and it then resembled a handful of moss filled with glow-worms. The brilliant blue light was quite under the control of the animals whilst alive, and was only shown when they were disturbed or touched. The light played up and down the whole length of the body, and if a worm was crushed on the fingers the luminous particles adhered to them like phosphorus. Some of the worms lived for many days after being brought into the house. Fresh water did not extinguish their light, but diluted spirits did so very quickly. — W. S. M. D'URBAN (Albert Memorial Museum, Exeter).

## ARCHÆOLOGY.

**“The Sea-blue Bird of March.”**—This passage in Teunyson's ‘In Memoriam,’ &c., has long puzzled commentators, though all were agreed that it referred to the Kingfisher. In ‘The Academy’ for February 16th, p. 114, Professor Whitley Stokes has traced the phrase to a fragment of Alcman, the Spartan lyric poet, who flourished about the year 650 B.C., where he calls the halcyon ἀλιπόρφυρος εἶαρος ορνίς, *the sea-purple bird of Spring*. The preservation of these lines of Alcman, by Antigonus of Carystus, is due to their embodying one of the many myths about the Kingfisher, *viz.* that the males (especially called κηρύλοι, whence Boie's *Ceryle*), when their parents were too old to fly, carried them about upon their wings. The epithet “of Spring” is not quite clear, for the famous “halcyon days,” when the sea was fabled to be calm for a fortnight while the Kingfishers built their nests, were always said by the ancients to occur in winter. Aristotle, the chief authority for this legend, expressly says that “birds generally pair in the spring and summer, except the halcyon. This bird,” he continues, “hatches its young about the time of the winter solstice.” But the poet, though he wrote some three centuries before the philosopher, may have wished to correct the current improbable belief.—HENRY T. WHARTON.

## SCIENTIFIC SOCIETIES.

### LINNEAN SOCIETY OF LONDON.

*February 7, 1884.*—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Mr. Henry Groves, of Florence, and Mr. F. L. Keays, of Cobham, were elected Fellows.

There was exhibited, on behalf of Mr. Arthur C. Cole, a box containing mounted preparations, illustrative of his 'Studies in Microscopic Science,' a work devoted to Animal and Vegetable Histology, now being issued in parts.

The second part of the Rev. A. E. Eaton's monograph, "On the Recent *Ephemeridæ*, or Mayflies," was read in abstract. In this he takes into account the genera from *Potamanthus* (and end of group *Pentagenia*) to *Callibites* inclusive, the part being accompanied by over twenty plates.

Another paper, read in abstract, was "A Catalogue of European and North Atlantic Crustacea," by the Rev. A. M. Norman. In this an attempt has been made to gather together all the forms known and recorded of the above group. Notices of many of the species are only to be found in obscure periodicals, &c., almost in every language; consequently since the publication of Milne-Edwards' 'Histoire Naturelle des Crustacés,' in 1834, the numbers have increased nearly threefold, revision therefore becoming highly necessary.

Mr. B. T. Lowne contributed an interesting memoir embodying his researches on the compound vision of insects. He compares the structures of the simple ocellus with those of the compound ocellus (common in larval insects), and with those of the compound eye. The compound eye, according to him, is composed of aggregate compound ocelli, or the latter in the larval insects is merely equivalent to a single segment of a compound eye. He refers to the development of the compound eye, and points out that in many larvæ during moulting stages the "segregate" retina is finally replaced by another. He describes a deep spindle-like layer in intimate connection with the nervous structures, and which he regards as playing an important part in the phenomena of compound vision, rather than that this is dependent solely on the number of corneal facets.

*February 21, 1884.*—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Mr Alfred Prentice Young, of Bombay, and Mr. D. Sullivan, of Victoria, were elected Fellows of the Society.

Mr. R. Miller Christy brought before the notice of the Society a series of Lepidoptera, Hymenoptera, &c., captured by him in Manitoba, some of the Humble Bees being supposed to be new to science.

A paper was afterwards read by Mr. Christy, "On the power of penetrating the Bodies of Animals possessed by the Seed of *Stipa spartea*."

A communication followed, from Mr. Stewart O. Ridley, "On some Structures liable to Variation in the Subfamily *Astrangiaceæ* (*Madreporaria*)," in which he remarks that although the columella has been taken in many groups of *Madreporaria* for distinguishing genera, yet a study of a series of specimens of *Astrangiaceæ* (*Phyllankia papuensis*) shows that within a single colony we may have the papillar and the trabecular forms, both to all appearance well developed, owing to the union in some ~~cuticles~~ <sup>cuticles</sup> of the trabecular by a continuous lamina. Similarly, in the allied species *P. dispersa*, the costæ, insisted upon in the description of the species of the genus by MM. Milne-Edwards and Haime, may either be present or absent in the same colony. Thus great care must be exercised in the employment of columella and costæ in the specific distinction of the *Astrangiaceæ*.—  
J. MURIE.

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ZOOLOGICAL SOCIETY OF LONDON.

February 5, 1884.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

Mr. F. Day exhibited and made remarks on a specimen of a Dog-fish, of which the entire interior had been eaten out by Isopod Crustaceans of the genus *Conilera*.

Mr. G. F. Butt exhibited two specimens of a singular variety of the Red Grouse, shot in Westmoreland.

A communication was read from Mr. W. Leche, of the University of Stockholm, in which he gave an account of a collection of Bats from Australia. Two new species were described and named respectively *Nyctinomus Petersi* and *N. albidus*.

Mr. Sclater read some notes on the Lesser Koodoo, *Strepsiceros imberbis* of Blyth, with a view of confirming the distinctness of this Antelope from its larger relative *Strepsiceros kuda*.

A communication was read from Mr. R. Bowdler Sharpe, containing the description of a new species of Bush Shrike of the genus *Laniarius*, based on a specimen obtained in Ashantee by Mr. Godfrey Lagden, which he proposed to call *L. Lagdeni*, after its discoverer.

Prof. Flower made some remarks on the chief points of interest exhibited by the Burmese Elephant now in the Society's Gardens.—P. L. SCLATER, Secretary.

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ENTOMOLOGICAL SOCIETY OF LONDON.

At the Annual Meeting held January 16th, 1884, J. W. Dunning, Esq., M.A., F.L.S., &c., President, in the chair, an abstract of the Treasurer's

accounts for 1883 was read by Mr. J. Jenner Weir, one of the Auditors, and the Report of the Council for 1883 by the Secretary. During the year the Society had elected seventeen new Members and one Subscriber; it had lost four Members by death (Messrs. B. Cooke, W. A. Forbes, P. H. Harper, and E. Sheppard), and three by resignation. To the regret of all entomologists, two names which had long graced the list of Honorary Members had to be erased—Professor P. C. Zeller, who was elected an Honorary Member as long ago as 7th May, 1849, died suddenly at his residence near Stettin on March 27th last, and Dr. John L. Leconte, elected an Honorary Member on April 6th, 1863, died at Philadelphia on November 15th. To fill the vacancies thus created, two names would be submitted at an early meeting. The way in which the proposal was received that Prof. Westwood should be made Honorary President for life formed a fitting celebration of the fiftieth anniversary of the foundation of the Society. The 'Transactions' for the year (exclusive of the 'Proceedings') form a volume of 448 pages, containing twenty-two memoirs contributed by eighteen authors; they are illustrated with twenty-one plates, two of which are coloured. The Library had been increased during the year by the usual serials and a few other purchases, and by many donations from members and others; a special vote of thanks had been accorded to the President for his munificent gift of a complete set of the 'Annals and Magazine of Natural History' as far as published, to vol. xii. of the 5th series; in all ninety-two volumes.

No Members having been proposed other than those recommended by the Council, the following were declared to be the Members of Council for 1884:—T. R. Billups, J. W. Dunning, E. A. Fitch, F. Grut, W. F. Kirby, G. Lewis, R. M'Lachlan, J. W. May, R. Meldola, F. P. Pascoe, E. Saunders, Sir S. S. Saunders, J. W. Slater.

The following officers were declared to be re-elected:—*President*, J. W. Dunning, M.A., F.L.S., &c.; *Treasurer*, E. Saunders, F.L.S.; *Secretaries*, E. A. Fitch, F.L.S., and W. F. Kirby; *Librarian*, F. Grut, F.L.S.

The President then delivered an address, at the conclusion of which Mr. H. T. Stainton proposed a cordial vote of thanks to Mr. Dunning for his services as President during the year, and requested that he would allow his address to be printed with the 'Proceedings.' The proposal was seconded by the Rev. H. S. Gorham, and carried unanimously.

Mr. R. M'Lachlan proposed a vote of thanks to the Secretaries, Librarian, and Treasurer, which was seconded by Mr. J. W. Slater, and carried unanimously.

Messrs. Saunders, Fitch, and Grut made some remarks in acknowledgment.—E. A. FITCH, *Hon. Secretary*.

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NOTES ON THE SEAL AND WHALE FISHERY OF 1882.

BY THOMAS SOUTHWELL, F.Z.S.

THE Newfoundland Seal Fishery, although vigorously prosecuted for the past 120 years, has been strangely neglected by British vessels, and, so far as this country is concerned, is quite a recent industry. The season of 1876 was the first, with one trifling exception, in which our sealers took part in the annual harvest of the Labrador ice. At present several vessels belonging to British owners are annually present at the fishing, but hitherto Dundee is the only British port from which vessels are dispatched direct to St. John's. They leave Dundee about the first week in February, and having made up their full complement of hands clear out from St. John's on the 10th March. They are allowed to take Seals as soon after that date as they can come up with them. If successful in getting a cargo early, they land their produce at St. John's, and make a second trip to the ice, or proceed to the north of Iceland to shoot Hooded Seals before going north to the Whale-fishery.

In Greenland the close time terminates with the 2nd April. The main take of Seals is speedily over, but some of the crews continue to shoot old Seals, or go south to Iceland to look for Hooded Seals, till the 20th May, when they take their departure for the Whale-fishery, for which purpose they proceed to Davis Straits, or to the ice between Greenland and Spitzbergen.

The Seal which forms the chief object of pursuit, both in the Labrador and Greenland Seas, is known by the sealers as the

Saddle-back or Harp Seal (*Phoca grœnlandica*, Fab.); it is restless and gregarious in its habits, and as the breeding season approaches congregates on the ice off Newfoundland in countless numbers. In the Greenland Seas it is also found at the same season in large but—owing to undue persecution—greatly diminished packs. This migration takes place with great regularity, and the sealers know almost to a day when the old Seals will take to the ice to produce their young. In the latter locality the young are almost all born by the 1st April, and on the 3rd the slaughter takes place; on the Newfoundland ice the young are produced some fortnight earlier; there are also a larger number of Hooded Seals found there than further north.

Later in the season the Greenland ice is invaded by large numbers of Seals from the Labrador ice, on the breaking up of which they travel northward, still along the margin of the ice, resting as they go, till they reach latitude  $76^{\circ}$ ; they then make for the south end of Spitzbergen, and even pass on to the shores of Novaya Zemlya.

Between Iceland and Greenland the Hooded Seal (*Cystophora cristata*, Erxleben) is met with in considerable numbers in the month of June, after the Labrador ice has disappeared, and since 1877 they have been hunted with considerable success. These chiefly fall to the Norwegians, though some of our ships also take part in their pursuit, but this locality has of late years offered another inducement to the whalers which I shall mention shortly. The sealing voyage over, most of the vessels go north for the whaling voyage, either to the Greenland Seas, lying between  $70^{\circ}$  and  $80^{\circ}$  N. latitude and  $20^{\circ}$  W. and  $10^{\circ}$  E. longitude, or to Davis Strait.

The Newfoundland sealing in the season of 1882 opened under the most unfavourable circumstances, owing to the vast accumulation of ice in the Atlantic. All through the spring, and quite into the month of June, reports represent the Newfoundland Seas as bristling with huge icebergs, whilst from Cape Breton to 200 miles S.E. of Cape Rice stretched a tremendous pack of heavy ice, which the sealers on their arrival in vain tried to penetrate, effectually closing the port of St. John's. On the 2nd March five of the Dundee vessels were reported still fast in the ice, and they only reached St. John's on the 9th March,

barely in time to make their arrangements for sailing on the 10th, the day fixed by law for their departure.

On the 21st May H.M.S. 'Teredos' reported the ice as nearly solid from Cape Breton to Newfoundland; twenty-one ships were still locked in the ice N.W. of Cape Race, and one large ship of 1000 tons rested forty feet above the water, having been thus forced up by the pressure of the ice, and at the end of the month of May there were still many ships imprisoned in the vast ice-field off Cape Breton. It is not surprising, therefore, that the Dundee vessels were much less successful in that season than in that of 1881, the take of Seals being only 63,204, against 139,985 in the previous year. The 'Arctic' and the 'Thetis' were the most successful, the former taking 24,663 and the latter 10,598 Seals, the remaining four vessels securing 27,943 Seals between them. The 'Wolf' was also reported "full," and the 'Proteus' and 'Walrus' (all three belonging to British owners), the former with 8000 and the latter with 7800 Seals. The Newfoundland voyage, notwithstanding the difficulties which the vessels encountered, may, so far as the British vessels are concerned, be said, upon the whole, to have been a successful one, although far short of the exceptional season of 1881. The 'Thetis' proceeded from St. John's direct to the Greenland Seal fishery, and succeeded in shooting 3317 old Seals and eight Bottle-nose Whales, thus making a very successful voyage. I believe fourteen vessels belonging to British owners, in addition to the Dundee sealers, left St. John's Harbour on the 10th March.

The Greenland sealing voyage is a record of successive storms and fogs. Capt. David Gray, of the 'Eclipse,' has published extracts from his log in 'Land and Water' for December 9th, 16th and 23rd, from which it will be seen how perilous is the navigation of the high latitudes visited by the sealers in the early spring. Not only have they to contend with the ordinary risks of navigation, but there is the constant dread of being beset, and thus losing the precious days which should be employed in searching for the Seals, or even perhaps of being crushed in the pitiless ice. To all this must be added the hardships from cold and fatigue, and the discomforts of a ship constantly engaged in "making off." Surely a "full" ship is not too great a reward for the skill and endurance displayed by these bold and skilful navigators.

But all the vessels which leave the ports of Dundee and Peterhead do not return successful. In the past year the 'Jan Mayen' (Salmond) was lost, and the 'Hope' returned in April with a broken shaft; in time, however, to be fitted out once more for the Arctic Seas in search of the lost 'Eira,' happily with the most complete success. More than one of the ships missed the Seals from being beset or other causes; the chief reason, however, being that, from some unexplained cause, the old Seals took to the ice much farther north and east than they were ever known to have done before; in fact, far beyond the limits laid down in the Act of Parliament for their protection. It thus happens that only eight out of the thirteen Scotch vessels which sailed for the northern sealing voyage were successful, the total take being 22,142 Seals, against 23,894 in the season of 1881; but as the Norwegian vessels took even more Seals than our own, it is probable that the whole brood was destroyed, and that had more ships been present, it would only have resulted in a lower average.

Capt. Gray tells me that the old Seal-fishing in April was a perfect failure, partly owing to the weather, and partly to the heavy ice being surrounded by thin bay-ice, which prevented the boats from getting near the Seals.

The Dundee vessels, nine in number, which went on to Davis Straits in search of Right Whales were rewarded with seventy-eight of these valuable monsters, which produced 770 tons of oil and 582 cwts. of bone, which, with oil at £33 per ton and bone at £1150 per ton, would yield a return of £58,876.

In years gone by, when the Right Whale formed almost the only prize which was considered worth the attention of the whalers, such small deer as Seals and White Whales were looked upon as hardly worth the time employed in their capture; the ships pushed on, anxiously speculating upon the chance of making the passage of the middle ice in Baffin's Bay, then so tedious and dangerous an undertaking, or wended their way north to the east coast of Greenland and the open waters of Spitzbergen. Since about the year 1837, however, sealing has been seriously prosecuted, I fear with the very serious result of ruining what, if judiciously worked, might long have remained a very lucrative business. The Whales are getting scarcer, and the costly nature of the outfit in the present day, renders failure



a very serious matter. The result is that the whalers never lose a chance, and, compared with the days that are past, often return with a very miscellaneous cargo.

The notable feature in the fishery of 1882 was the capture of a large number of Bottle-nose Whales, *Hyperoodon rostratum*. The whalers have long been in the habit of taking an occasional Bottle-nose, and many years ago the 'Chieftain,' of Kirkcaldy, caught twenty-eight of them off Frobisher Strait; but it was not till 1877, when the 'Jan Mayen,' then of Peterhead, having missed the Seals, succeeded in taking ten Bottle-noses, that their pursuit attracted much attention. Since that time, however, they have been more sought for, and now most of the smaller vessels hunt for them every season, while some of the larger vessels, in the interval between the finish of the Seal-fishery and the commencement of the whaling, go south to the north-east coast of Iceland for the same purpose. In 1880 Capt. Gray, of the 'Eclipse,' killed thirty-two of these Whales, and in 1881 they came in for their full share of attention, 111 having been taken. In the past season (1882) 463 of these animals were secured by the Scotch vessels alone, 203 of which fell to the lot of our friend David Gray.

Capt. Gray, from various causes, virtually missed the Seals (killing only 468), and gave the whole of his attention to the Bottle-noses. The first Whale was taken on April 27th, but owing to continuous gales it was not till May 3rd that he got seriously to work amongst them, the result being that by June 29th every tank was full of blubber, all the coals (except those necessary for the passage home), thrown overboard, and even the bread removed from its tank to a temporary locker to make room for the precious blubber. Thus he started for home on June 30th, arriving safely in port on July 5th, with literally a "full" ship. As the cargo was estimated to yield something like 230 tons of oil, and Bottle-nose oil has proved to be little if at all inferior to true sperm oil, being worth about £60 per ton, Capt. Gray is to be congratulated upon the results of his enterprise; but, I fear, their value having become fully known, it will in future go hard with the Bottle-noses. A considerable number of these Whales were also taken by the Norwegian fleets.

Capt. Gray, during the season of 1882, devoted his attention not only to the capture of these singular creatures, but has also

succeeded in throwing much light upon their habits and economy, of which absolutely nothing was previously known, and has settled for ever a disputed point which has long been a puzzle to naturalists. Hitherto the adult male of this species had never been described in the flesh; their properly authenticated and sexed skulls were therefore unknown. A form of skull has from time to time been met with, which by some was regarded as that of the adult male *Hyperoodon rostratum*, but Dr. J. E. Gray thought otherwise, and accordingly described it as belonging to a new species which he named *H. latifrons*; subsequently he even established for it a new genus, which he styled *Lagenocetus*. The skull which was known to us as that of the adult female and young male of *H. rostratum* (*H. butzkopf* of Gray) was remarkable for the great development of the maxillary bones, which form a crest on each side nearly as high as the occipital portion of the skull; but in the form known as *H. latifrons* these maxillary crests were vastly more developed, so as to exceed in height the hinder portion of the skull, and instead of being thin and wide apart, as in *H. rostratum*, were very much thickened and reflexed in front so as to present nearly a flat surface, with a very narrow space between them.

These two extremes, viewed by themselves, might well have been ascribed to two very distinct animals, but Capt. Gray brought home with him a series of skulls illustrating the gradual development of these remarkable crests, and clearly showing that the form of skull ascribed by Dr. Gray to *Lagenocetus latifrons* was simply that of the adult male of *Hyperoodon rostratum*.

With photographs of these skulls, Capt. Gray also very kindly sent me outlines of the animals to which they belonged, and so interesting are they that the whole series has been engraved to illustrate a communication since made by Capt. Gray to the Zoological Society of London.\* For valuable notes upon the habits and forms of these most interesting creatures I must refer to that communication.

I have elsewhere had the pleasure of recording indubitable evidence of the occurrence of the Atlantic Right Whale in British

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\* See Proc. Zool. Soc. 1862, pp. 726—731 and Trans. Norf. and Norw. Nat. Soc. vol. iii. pp. 476—481. [The above notes were written in December, 1882, and read before the Glasgow Natural History Society.]

waters, for which Science is also indebted to Capt. Gray, and his observations on the habits and development of the *Hyperoodon* are scarcely less interesting. It is gratifying in the extreme that this successful commander, whilst so fully occupied with his many and arduous duties, still finds time and opportunity to study the interesting animals with which his exceptional calling brings him in contact.

I have to express my thanks to him and to Mr. David Bruce, of Dundee, for the bulk of the information embodied in the foregoing remarks.

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### ORNITHOLOGICAL NOTES FROM CARLISLE.

BY THE REV. H. A. MACPHERSON, B.A.

THE spring of 1883 was rather uneventful in the Carlisle district, the least common birds obtained being the Waxwings already recorded (Zool. 1883, p. 299), a species of which examples have often been obtained in former years from the same localities. House Sparrows began to build on February 2nd, and I noticed a pair of Dippers paired on the 15th of the same month, though they were first observed to be building on March 26th. Great Black-backed and Black-headed Gulls were in pairs on the Eden on March 5th and 6th. Young House Sparrows flew from a nest on the 14th March, and Wheatears arrived on the 24th; I had watched a pair of Jackdaws building the previous day.

Dippers had young ones on the Eden on April 12th, on the 20th of which month I observed a single White Wagtail by the mill-stream in Denton Holme. Meantime the Sand Martin had arrived on the 8th, the Chiffchaff on the 12th, the Willow Wren on the 13th, House Swallow on the 16th; the Common Sandpiper came on the 20th, House Martin on the 21st, Corn Crake on the 22nd, Garden Warbler on the 27th, and on the 29th appeared the first male Redstart, of which my sister had seen an example at Bordighera on the 1st of that month.

On May 1st the Swift and Cuckoo reached us; though I have known the Swift appear at Oxford on May 1st, it more generally arrives there on the 2nd and 3rd. On the 4th the Common Whitethroat appeared, and on the 6th the Blackcap and Wood

Wren. On the 22nd a Lesser Redpoll's nest at Kingmoor contained four eggs; a Reed Bunting had completed her clutch two days earlier; on the 28th the Willow Wren and Meadow Pipit both had eggs. On the 18th my friend Mr. W. Duckworth—to whom I am much indebted, both for the loan of his notes for the year, which he kept simultaneously with myself, and for much general information as to the district—had the good fortune to meet with a flock of fully fifty Pied Flycatchers in the valley of the Lowther, whence I believe Heysham first obtained the eggs of this species. From their fresh and bright appearance, and from the fact that the sexes were mixed, they had probably only just arrived. Notes of former years show that they pair almost immediately after arrival, and commence looking over their breeding-holes. On this occasion, at 8.30 a.m., Mr. Duckworth witnessed a fierce combat between two males. The 18th is a late date, however, for their arrival, as Mr. Duckworth has seen them on the 7th of the month, and Heysham shot a pair on the 12th. This species, and also the Spotted Flycatcher, had fresh eggs on June 19th, when clutches of the Common Sandpiper, Stock Dove, Dipper, and Grey Wagtail were hard-set.

Here I may mention that though the Wryneck formerly occurred in the district (*cf.* Yarrell, *Brit. Birds*, ii. p. 492) we have no records of its being noticed locally for the last twenty years. The last authenticated nest was obtained somewhere about 1863 by Mr. Fell, who remembers shooting the parent birds, which Mr. Heysham obtained from him with the nest.

On June 25th Mr. Duckworth and I found young Sandpipers on the Eden. One of the old birds crossed the river and perched on a dead branch of an ash, from fifteen to twenty feet above the bank; there it contentedly remained for twenty minutes, when we left it perching as calmly as any finch could do.

On July 2nd a pair of Red-backed Shrikes were seen near Carlisle. Though established in the Lake District, *Lanius collurio* has only once before bred near Carlisle, in the memory of Messrs. Duckworth and other observers. On July 4th we found four nests of the Lesser Redpoll in a hedge near Fling Moor; one which I took, with only two eggs, was largely composed of fine fir twigs. On the previous day I had examined a brood of young Grasshopper Warblers, easily recognised by their spotted tongues. This species was not so plentiful in 1883

as usual, in Messrs. Duckworth's experience, though we knew the whereabouts of several nests.

August was only noticeable for a pair of Turnstones, which spent the last week of the month on the Eden, near Rickerby. A Woodcock also frequented the Cemetery late in August; two pairs had bred in a preserve near Cummersdale, and others at Netherby, as the Rev. A. Hodges kindly informed me.

On Burgh Marsh a brace of Wigeon were shot on September 22nd; very few Dotterel had visited it in June, and Mr. A. Smith has seen none on Rockliffe for several springs. Some young Ruffs were shot on Burgh, on passage, on Sept. 28th. On the 25th I saw a Merlin cross the Esk, apparently on passage. Formerly this bird must have been very abundant, to judge from the number of stuffed specimens possessed by our working men in the parish. Even now it breeds when permitted in the district. A rather dark immature female Merlin was trapped near Carlisle in April last; and a fine old female was shot on October 13th, in the same nursery gardens in which the other was obtained in spring. Another Merlin, also a female, was shot at Kirklington on December 17th, and I observed one or two more during the autumn.

On the 27th September a large bird of prey, identified by Mr. Smith as an Osprey, was nearly captured by a servant in a garden at Castletown, completely exhausted by the storm; after being seen by Smith and others at a close distance on the following Sunday, it departed in the direction of Skiddaw, pursued as far as the eye could reach by a mob of Rooks.

On the 29th September a young Goosander was shot on the Eden near Rockliffe; being sent into Carlisle, it was eaten by a bird-loving engine-driver. As I happened to call about the dinner hour that day, I can bear testimony that its fishy flavour had not deterred the family from picking its bones bare.

Redwings arrived on October 2nd and Fieldfares on the 3rd. A large number of Bernicle Geese visited Burgh on the 6th, when a Greenshank was shot on Rockliffe; the first Greenshank, however, was shot in mid-August, as were a couple of Green Sandpipers. Burgh and Rockliffe have their special attractions for different species; Whimbrel, for instance, though abundant on Brough in May, seldom visit Rockliffe; the Redshank and Dunlin prefer Rockliffe, especially in the breeding season, though

I saw a particularly fine clutch of Dunlin's eggs obtained by a parishioner on Burgh in 1883.

On October 13th a male Spotted Crake was shot on Rockliffe; this species visits us on passage both in spring and autumn. Probably a few pairs occasionally remain to breed in the Solway marshes. House Swallows left Carlisle on October 13th, and so did most of the House Martins, though one straggler of the latter species lingered until the 22nd. Bramblings arrived on the 15th. On the 29th Mr. Duckworth observed a single Hooded Crow near Bow; this species seldom visits the district; the only other bird of this kind seen in 1883 occurred near Eden Bridge on December 11th, but was driven away by the churlish Rooks.

November, owing to its mildness, yielded nothing of interest, except a single Shoveller drake from Rockliffe, and a female Shoveller from the Solway coast. In one evening four guns shot seventeen Bernicle Geese on Rockliffe. A single Peregrine visited Burgh Marsh.

In December a few Goldeneyes, old and young, were obtained by the fowlers, together with a few Goosanders and Scaup ducks. Two old female Scaups turned the scales at two pounds and a half and two pounds respectively, while a young Tufted drake weighed barely one pound and a half. Of waders only Knots and Bar-tailed Godwits, a Greenshank or two, a few Dunlins, Golden Plovers, Green Plovers, and Curlews came into Carlisle; a few Gray Plovers had visited Rockliffe in the course of the season. Siskins put in their appearance on December 2nd, and about a fortnight later a Great Grey Shrike was shot at Kirk-linton, as separately reported. Though locally considered very rare, I have since seen two Grey Shrikes myself (in 1844), and I have heard of at least ten specimens shot in the district at different times.

On December 22nd there was shot within our parish, and close to the town, a Corn Crake, which had been observed in the same locality for at least a month previously; notwithstanding the mild weather, it proved to be in poor condition, though it shewed no trace of any injury.

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## ORNITHOLOGICAL NOTES FROM N.W. YORKSHIRE.

BY JOHN E. TINKLER.

THE district in which these notes have been made may be roughly described as that portion of Yorkshire through which the upper waters of the Swale, together with its several tributaries, take their course.

It is a wild and picturesque tract of mountainous country, reaching its greatest elevation in Shunner Fell, 2351 feet above the level of the sea, and consists for the most part of extensive stretches of moorland, of grassy slopes, and grey limestone scars, diversified by numerous deep ravines called gills, the sides of which often form a continuous line of lofty rocks, at whose base generally runs a clear stream, which every now and then takes a leap over some impeding rock, thus forming many small and beautiful waterfalls, locally called forces.

A district of so varied a character as this naturally leads one to expect a rich and numerous avifauna, nor has one to look in vain, for in the short time during which my observations have been made more than a hundred different species of birds have rewarded my research; besides some twenty or thirty others, which I have marked as doubtful.

To begin with the birds of prey. The Osprey, *Pandion haliaëtus*, has several times been observed on the Swale below Richmond; above that place I have only one note of its occurrence. About three or four years ago one was seen frequenting the Swale near Ellerton, and, though several attempts were made to shoot it, I am glad to say that it finally escaped. This district seems especially attractive to that rarer British bird of prey, the Gyrfalcon, *Falco candicans*, for within the past few years no less than four instances of its occurrence have been noted. In either 1879 or 1880 near the Roe Beck, in Arken-garth Dale, one was observed to pounce upon and carry off a Grouse, within gunshot of the person who witnessed the circumstance. Another, an immature specimen, was shot in the early spring of 1877, or thereabouts, on the edge of Ellerton Moor, while in pursuit of a Woodcock. The other two were shot in some scars at the extreme end of Swaledale, almost upon the Westmoreland boundary. I have not seen these birds myself,

but they were reported to me as "large white hawks spotted with brown," so that I think there can be no doubt about their identity. There is reason for believing that the Peregrine Falcon, *Falco peregrinus*, is a regular visitor to our moors during winter, for at that time of year I generally have reported to me the occurrence of large hawks, which, from the description given, can only be of this species. The only time, however, on which it has positively occurred was during the winter of 1881-82, when one was shot in a field on the north side of the Swale, near Kisdon Force.

The Merlin, *Falco æsalon*, is common on the moors during the spring and summer months, generally arriving in March and leaving early in September. It breeds regularly on most of the moors in this district, and a spring seldom passes but a nest or two is discovered on our own moors in Arkengarth Dale. It is remarkable that each successive year sees the several pairs occupying the same limited district of the moor for their several nests, although each of the birds of the preceding year has been shot or otherwise destroyed.

Kestrels, *Falco tinnunculus*, though not quite so numerous as formerly, are still found in fair numbers throughout the district, and breed in many of the scars. It is, however, towards the end of July that they are most abundant, for then both old and young seem to join company and come up to the moors. In Arkengarth Dale, for instance, at this season of the year, it is no uncommon sight to see eight or ten of these birds hovering at a time, and that, too, where a month before not one was to be seen.

Sparrowhawks, *Accipiter nisus*, are also abundant, few plantations being without a pair. Although they are destroyed whenever a chance is given, their numbers do not seem to diminish; thus, notwithstanding that the keepers for the last sixteen years, with one exception, have destroyed one bird of a pair, and generally both birds in Scar Wood, yet the succeeding year has always found a fresh pair ready to supply the old one's place. The last instance of the breeding of the Common Buzzard, *Buteo vulgaris*, with us happened in the spring of 1853, when a pair built their nest and hatched five young ones on the Red Scar. Now the Buzzard is only seen at rare intervals, chiefly in autumn and winter. The last occurrence that I have noted was



in the winter of 1880-81, when one was found in a trap on Low Scollit in Arkengarth Dale.

The Long-eared Owl, *Asio otus*, is frequently observed, and, as specimens have been killed in the months of April and May, it is almost certain that it breeds with us. Two specimens of the Short-eared Owl were obtained near Richmond in January, 1854; but it is far from common, and I have never heard of its nesting with us, nor of its even being seen during the breeding-season. The Tawny Owl, *Syrnium aluco*, nests in limited numbers throughout the district, with the exception of Arkengarth Dale, where it has not been known as a breeding species for many years past, only occurring there while on feeding expeditions to the moors. Some time since a pair of Barn Owls were shot in the trees at the back of the shooting-box at Ellerton, but they are not often found so far above Richmond.

The Great Grey Shrike, *Lanius excubitor*, was obtained on November 8th, 1865, near Whitcliffe Scar; and the Red-backed Shrike, *Lanius collurio*, has been recorded as nesting near Richmond.

Spotted Flycatchers, *Muscicapa grisola*, are common summer migrants, generally appearing in May and leaving either about the end of August or beginning of September. Although the Pied Flycatcher, *Muscicapa atricapilla*, is found in Wensleydale, I have only one note of its occurrence in this district, a male being shot on April 29th, 1858, near Reeth.

The Dipper, *Cinclus aquaticus*, is very common, its favourite haunts being the rocky gills and those parts of the larger streams where a bank of rock rises sheer from the water. In winter and early spring it is generally dispersed over those parts of the district where there is water, and it is hard to say where one may not come across a pair.

The Missel Thrush, Song Thrush, and Blackbird are numerous, especially the two former. The severe winters of 1879, 1880, and 1881 greatly thinned the numbers of all three, but I am glad to say that they are now as numerous as before. Fieldfares and Redwings are winter visitors, but are not common in the higher portions of the district, being found in greater abundance as you approach Richmond.

Ring Ouzels are common summer migrants, arriving towards the end of March, when they may be found dispersed over those

parts suitable to their nesting habits. They leave us about the beginning of October, at which time the berries of the mountain ash, on which at this season they chiefly feed, begin to fail. Redbreasts and Hedgesparrows are common and resident. A few pairs of Redstarts, *Ruticilla phœnicurus*, may be seen every summer, principally in gardens, and on the outskirts of woods. Wheatears and Whinchats, *Pratincola rubetra*, are summer visitors, and are both very common, the former being the earlier of the two to appear, and found in the rougher parts of the district; while the latter frequents the enclosed fields and pastures. I have never myself observed the Stonechat, *Pratincola rubicola*, but I am told on good authority that it is common in Swaledale. Whitethroats, Willow Wrens, and Chiffchaffs are common summer migrants, increasing in numbers as you approach Richmond. The Sedge Warbler is not very common, being most abundant near Richmond. The Lesser Whitethroat, *Sylvia curruca*, Blackcap, and Garden Warbler are all very rare, and none of them, so far as I know, have been observed in the higher parts of the district. The Wood Wren, *Phylloscopus sibilatrix*, is found sparingly in most parts. The Golden-crested Wren, *Regulus cristatus*, is common in the woods about Marrick, Marske, and along the New Richmond Road. In the higher parts of the valley it is rare. The Wren, *Troglodytes parvulus*, is common and resident. The same may be also said of the Great and Blue Titmouse. The Coal and the Marsh Titmouse are resident and generally distributed. I have never seen the Long-tailed Titmouse, *Acredula rosea*, in the higher parts of the district, but it is commonly found nearer Richmond.

During the winter of 1866-67 numbers of Waxwings, *Ampelis garrulus*, were observed frequenting the district, and several were shot. The Pied Wagtail is common in summer, but at the approach of winter leaves us for the south. In mild winters, however, I have sometimes seen one or two on the roads searching for food. In the gills and by the rivers, wherever there is any rock, may be found that beautiful and elegant bird the Grey Wagtail, *Motacilla melanope*. It is a partial migrant, leaving the hill country for the plains during the winter months, returning early in spring. The Yellow Wagtail, *Motacilla Raii*, though by no means so numerous as the two former, is a regular summer visitant, chiefly frequenting rough broken pasture land. The Tree

Pipit, *Anthus trivialis*, is a common summer migrant, arriving about the middle of April and leaving again early in September. The Meadow Pipit, *Anthus pratensis*, is very abundant both on the moors and elsewhere. Towards winter it congregates in large flocks and departs southward, returning very early in spring. An odd bird or two, however, may generally be observed all the year round. I have found its nest at the height of two thousand feet above the sea. Skylarks, *Alauda arvensis*, are equally as numerous as the last-named species, but do not reach such a great elevation.

In severe winters the Snow Bunting, *Plectrophanes nivalis*, is found on certain portions of the district in large flocks numbering several hundreds each. In mild winters we still have them, but only in small parties of from twenty to thirty. Common, Reed, and Yellow Buntings are sparsely scattered over the more cultivated parts; the Yellow Bunting is more numerous near Richmond.

Chaffinches, Linnets, Greenfinches, and Sparrows are common and resident. The Tree Sparrow, *Passer montanus*, is common near Richmond. The Brambling, *Fringilla montifringilla*, has been observed in winter, but is exceedingly rare. Goldfinches have been noticed near Gunnerside, but they are not common far above Richmond. The Twite, *Linota flavirostris*, and Lesser Redpoll, *Linota rufescens*, breed with us annually, the former in limited numbers on the moors, the latter being much the commoner of the two. Bullfinches are common and resident, congregating in small parties of from three to five during winter.

About the end of October, 1858, nine Crossbills, *Loxia curvirostra*, were killed near Reeth out of a flock of eleven. They had frequented the fir plantation in which they were killed since the previous February. I am also told that the Crossbill is a regular winter visitor to some woods near Reeth. Thirty years ago the Starling was almost unknown in the district; now it is common, and, although it generally leaves us for the winter, still, when the weather is mild and open, I have noticed that a few stragglers remain behind; indeed, only a few weeks since I saw several about our church tower. In the course of an interesting note to 'The Field,' of October 20th, 1888, Mr. Ford, of Caistor, says:—"I spent nine years in the upper part of Swaledale, where these birds were then exceedingly rare; in fact, a friend

of mine told me that he recollected the first pair that came into the Dale, and that they took up their residence in a house situated in the middle of Low Row. A few years after this they made their way to Summerside, three miles higher up the valley, and I happened to live in the house where the first pair built. However, they soon increased and found their way to Muker, Keld, and other places still further up the valley. A year or two ago I went that way on an angling excursion, and, as autumn was approaching, I saw them flocking in fair numbers, as in southern counties. But the winters there are too severe for them, so they all migrate south, where there is more food for them."

Six or seven years ago the Raven might still have been found nesting on Swaledale Head, and on July 4th, 1877, a young bird of the year was shot on Water Crag. Now, I am sorry to say, I do not think there is a single pair of these fine birds to be found breeding in the whole district, owing to the constant persecution they receive at the hands of keepers and others. There was a rumour that a pair nested on the crags at the head of Oxnop Gill in the spring of 1881, and a pair were seen flying about the moor near Keld the same spring, but I could get no satisfactory evidence of their breeding anywhere in Swaledale during that year. Last spring the watcher at Tanhill trapped a pair, which, if unmolested, would probably have built in their old haunts in the neighbouring district.

Carrion Crows, though not numerous, are found scattered over most parts of the district. The Hooded Crow, *Corvus cornix*, is generally noticed on its migrations in spring and autumn; a few, however, may be seen throughout the winter on certain portions of the district. Rooks, though common, are not found in such great numbers as in some parts of the country, and the only rookeries in the district are those of Marske Hall, Draycott Hall, and Healaugh, but these are of no great extent. Jackdaws are very numerous, especially about the scars at Ellerton and Downholme.

The Jay is seldom seen above Reeth; below Reeth it is common in most of the woods. Magpies are common and resident. During winter they congregate in small parties of from three to five, and occasionally more. The Green Woodpecker is occasionally found in the district, but is far from common. The

Great and Lesser Spotted Woodpeckers have been observed, but are very rare.

A single specimen of the Hoopoe, *Upupa epops*, has occurred, one being shot some years since near Low Row, in Swaledale. The Nuthatch, *Sitta cæsia*, is very rare; specimens, however, are occasionally obtained near Richmond. Cuckoos are common summer migrants, four or five often being seen at a time. The Roller, *Coracias garrulus*, has been obtained at Marske Hall, though I have no particulars as to date or manner of capture. The Kingfisher is rare above Richmond, and I only know of one occurrence. About four or five years ago one was shot on the Swale below Ellerton Priory.

Swallows and Martins are common throughout the summer months, but have generally all left by the middle of October. The Sand Martin is found by the Swale wherever there are suitable sand-banks. In Arkengarth Dale it is unknown. Swifts are numerous in most parts of the district during summer. Nightjars are common summer visitants.

The Ring Dove, *Columba palumbus*, and Stock Dove, *Columba ænas*, are common and resident. The Rock Dove, *Columba livia*, is reported as breeding in the scars near Richmond, but I think that this bird and the Stock Dove have been mistaken for one another.

Pheasants and Black Grouse, *Tetrao tetrix*, are found near Richmond; a few of the latter, however, occur higher up the dales. The Red Grouse, *Lagopus scoticus*, is common and resident, though, after very severe snowstorms, they often pack and leave the moors in considerable numbers. Partridges are thinly scattered over the district, becoming much more numerous nearer Richmond. The Golden Plover, *Charadrius pluvialis*, is abundant and resident, breeding commonly on the moors. Their numbers, however, are largely increased during winter by fresh arrivals from the north. Lapwings are common, and their mournful cry may be heard in most parts of the district from March onwards. In winter they leave us for the coast. Dotterels, *Eudromias morinellus*, were not uncommon twenty years ago, but few have been seen of late years.

The Green Sandpiper, *Totanus ochropus*, occurs now and then in the higher parts, chiefly in August. Common Sandpipers, *Totanus hypoleucus*, are very numerous by the streams in summer,

arriving in April and leaving again in August. A few pairs of the Dunlin, *Tringa alpina*, are found breeding on some of the higher moors. They generally arrive in April and leave early in autumn.

The Woodcock, *Scolopax rusticula*, has been known to breed on the Ellerton Estate, and I have no doubt but that it breeds here and there throughout the district. Most of those, however, which we have here in winter are immigrants from Scandinavia. The Common Snipe is abundant and resident, breeding in fair numbers on most marshy grounds; while the Jack Snipe is scarce, and only occurs as a winter visitor.

The Curlew, *Numenius arquata*, breeds in abundance on all the high moorlands, less commonly on the lower. It retires from its breeding haunts early in August for the coast, where it remains during the winter, returning either in March or early in April. A specimen of the Spoonbill, *Platalea leucorodia*, was shot in one of the early months of 1867 near Reeth. Herons, *Ardea cinerea*, often pay a visit to the Swale and other streams, and are frequently observed on the moors. Moorhens and Water Rails are occasionally flushed by anglers along the Swale, but more are found in Wensleydale than in Swaledale. The Coot has been seen on Moss Dam in Swaledale, and is not uncommon near Richmond. The Landrail is in some seasons a common summer migrant, whilst in others—last year, for instance—it is just as scarce.

A fine male of the Spotted Crake, *Porzana maruetta*, was found dead at Ellerton Priory in September, 1858. Wild Duck and Teal breed in limited numbers on the moors, but are more numerous in winter. The Shoveller, *Spatula clypeata*, has been obtained at Marske. Wigeon are found in winter, but never in any great abundance. The Pochard is rarely observed, and then only in winter. A Tufted Duck, *Fuligula cristata*, was seen on the Swale in November, 1853, and a Goldeneye, *Clangula glaucion*, was observed on the Swale near Richmond in 1855. The Goosander, *Mergus merganser*, has several times been shot near Richmond. In 1854 a specimen of the Whooper, *Cygnus musicus*, was taken near Richmond.

Flocks of wild geese are often seen flying over the district in winter, but I have never been able to make out the species. The Common Tern occasionally visits us, generally before a severe

storm, and the same may be said with respect to the Herring Gull, *Larus argentatus*. A pair or so of the Common Gull, *Larus canus*, generally breeds on some peat hags on Punchard Head, in Arkengarth Dale.

[The last statement appears to require some confirmation. Is the writer quite sure that the species is *Larus canus*? If so, this is the only known breeding-place of this Gull in England.

A communication on "Migratory Birds on the Yorkshire Moors" has been received, but the note which accompanied it has been mislaid. The Editor will feel obliged if the writer will forward his name and address that the communication may appear in the next number.—ED.]

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## NOTES AND QUERIES.

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**The Ornithological Congress and Exhibition at Vienna.**—On the 4th April an International Ornithological Congress, the first of its kind, initiated by H.I. and R.H. the Crown Prince Rudolph, will be held at Vienna, at which various subjects of interest to sportsmen and naturalists, bird-fanciers, pigeon-fanciers, and poultry-breeders will be brought forward for consideration. Amongst the topics announced for discussion at this Congress, the programme specifies a project for an international law for the protection of birds; a consideration of the best means for securing an improvement in the breeding of poultry; and a suggestion for the establishment of ornithological stations throughout the globe, for the better observation and elucidation of the movements of migratory birds. In connection more or less with this Congress, an International Ornithological Exhibition will be open from April 4th to 14th, which will have considerable attractions for the general public. The exhibits will include live birds of all kinds, whether singly or in groups suitable for the aviary and poultry yard; cages, coops, drinking vessels, baths, nesting boxes, and artificial incubators; devices for the capture and transport of birds; ancient and modern sporting guns; hawks' trappings and other articles appertaining to falconry; objects of scientific interest, whether artistic or industrial; books, journals, and pamphlets relating to Ornithology; pictures, sculpture, lithographs and photographs of birds or representing bird-life; stuffed birds, birds' eggs, natural nests, parasites of birds, pathological preparations, instruments for dissecting and birdstuffing, feathers and plumassiers' work. Special prizes will be given for Canaries in song, and there will be an exhibition of artificial incubators in operation, for the best of which special prizes will also be awarded. Fuller particulars may be obtained by addressing the Secretary of the Committee, Dr. Gustav von Hayek, 3, Marokkanergasse, Vienna.

**Method of recording Observations.**—By way of supplement to my previous remarks under this heading, I may say that if the thousands of records in the forty volumes of 'The Zoologist' were indexed, working naturalists could make fuller use of them; but as the proposition to issue an Index appears to have fallen through from want of support, or from some other cause unknown to me, I suggested the method which I have already described as a means of promptly indexing all records sent by any correspondent from any part of the country. By the use of a counterfoil or duplicate form, your county correspondents could always preserve a chronological record of all county occurrences in their own hands, whilst also making them public, and county faunas would be far more easily worked out by future historians, as these files could be lent or handed over per post by the recorders to the historian who undertakes the work. The popular side of the question, and the subject of your editorial note,—in which you object to the formality and defend the originality of observations,—can also quite well be retained. Let each recorder, as usual, record in his own words, as popularly and as amusingly, or in as full detail as he chooses,—the fuller the better,—but also let him use his *forms*, and fill in upon some such plan as I suggest (and which is that used by our Committee on Migration, or somewhat similar to it), also, in order to compress into smaller space, and for easier record and reference, those important points which should be prominent in such records. I fearlessly repeat, that had some such method been in use for twenty years, or a much less time, in recording Natural History phenomena, we should long ere this have had our present knowledge of migration and other points quadrupled. Our experience as a Migration Committee tells us this as plainly as an A B C. Notwithstanding the editorial note, I hope it will yet be seen and understood that uniformity in this respect need not in any way interfere with originality of observation. They can quite well go hand in hand, by giving the original observations first, and the formal record following it. Space in 'The Zoologist' is no doubt valuable, but I feel convinced space would not be less valuable if used in some such way. Perhaps the Editor could give a monthly register in each number of 'The Zoologist' of all these occurrences, copied out from the recorders' forms, in which case only a page or two need be thus occupied, and the original observations can remain as usual in the text, with a numerical reference to the Editor's register, which latter might be arranged chronologically for further convenience. If this were done indexing would be almost unnecessary, as whoever desires to write upon the birds of Great Britain would have only to refer in future to the "Zoologist Monthly Register," and run his finger down the records as he reads, and note off under each county or district. I have no doubt some hints for the elaboration of some such plan can be given by some of your correspondents; and I feel very sure that such would prove of real advantage and utility to



all working naturalists who require to refer to the district faunas of Great Britain, without in any way interfering with observers' original notes in the body of the text.—J. A. HARVIE BROWN (Dunipace House, Larbert, N.B.).

## MAMMALIA.

**Bi-dental Skulls of the Narwhal.**—In the 'Proceedings of the Zoological Society of London' for 1871 (p. 50), Mr. Clark has enumerated eleven bi-dental skulls of this animal as then known to be in existence in various collections in Europe. Since that time I have seen a twelfth example, now in the Dundee Museum, which was brought from Prince Regent's Inlet by Capt. Gravill, of the whaler 'Camperdown.' In the late International Fisheries Exhibition most of your readers doubtless saw another example exhibited by Messrs. Stephen, of Dundee, which belonged to Mr. Daniel Bruce, of that town. It was taken in the summer of 1882, in Davis Straits, by Capt. J. B. Walker, then commanding the s. s. 'Erick.' This makes a total of thirteen known bi-dental skulls.—T. SOUTHWELL (Norwich).

## BIRDS.

**The last Great Auk.**—Under this heading (Zool. 1883, p. 470) I drew attention to a notice in 'The American Naturalist' for 1872 (vol. vi. p. 369), wherein the author, Mr. Ruthven Deane, stated that he had been informed by Mr. A. Lechevallier, of Montreal, that a specimen of *Alca impennis* had been found dead in the vicinity of St. Augustin, on the coast of Labrador, in November, 1870; that this specimen, although in a bad state, had been preserved by Mr. Lechevallier, and sold by him to a naturalist in France, and realised two hundred dollars. Thinking it of much interest to substantiate, if possible, the alleged existence of *Alca impennis* at so recent a date as 1870, I have since made inquiries concerning it, with the following result:—Through the kindness of Dr. Elliott Coues, I have received two letters addressed by Mr. Lechevallier to Mr. Ruthven Deane, dated respectively the 4th and 17th March, 1872. These letters, although signed "A. Lechévallier," appear to have been written for him by an amanuensis who translated them from French into very bad English. I quote from them so much as relates to the bird in question:—"4th March, 1872. There was a mistake in the price of my Great Auk. I have said to Mr. Brewster that the skin was of 200 dols., and the egg 150 dols. I sent it in Europe to M. Fairmaire, naturalist to Paris, whom have sold it I think in Austria. It has been found dead on the coast of Labrador, and in bad state." "17th March, 1872. According to your desire I address you in full the instructions which I obtained myself on the *Alca impennis* which has been found dead in November, 1870, on the coast of Labrador. I cannot exactly give the date, but I know that it is in November. It was found on the northern coast by some Indians in the vicinities of St.

Augustin or of Macatina, which are not far the one from the other. I cannot tell you how was the weather, but I can tell you that the storms are pretty rare in Labrador, above all in November. But the bad weather, I mean the tempests produced by the wind, are hard and violent in these countries, in autumn are frequent, and this bird, fight [tossed] by the waves, will have found the death on the rocks, and will have been drawn by the currents, which are terrible in these places, far from countries in which he ordinarily lives. I could not know [ascertain] if he had some wounds; they only told me that he was very lean. It was a male, but the skin badly prepared was in a bad state. I never had his egg. You know that he nestle in Greenland in the crevices of rocks. He probably lay his eggs in June." On receipt of these letters, I wrote to M. Fairmaire, of Paris, whom I happen to know personally, and asked him to be good enough to give me the history of the specimen referred to from the date of its reaching his hands. His reply was as follows:—"St. Mandé (Seine), 25 Février, 1884. Je regrette beaucoup d'avoir à vous dire que je ne sais rien du tout relativement à un *Alca impennis* capturé en 1870 par M. Lechevallier qui à ma connaissance n'a jamais capturé ce rare volatile [doubtless a slip of the pen for *volaille*.] L'information du Dr. Elliott Coues repose donc sur une complète erreur, et des informations inexactes." Should this meet the eye of M. Lechevallier perhaps he will be good enough to explain, for the satisfaction of ornithologists, the discrepancy which appears to exist between the statements in his own letters and in that of M. Fairmaire above quoted.—  
J. E. HARTING.

'The Auk: a Quarterly Journal of Ornithology.'—We cannot dismiss the name 'Auk' from our minds without recalling the fact that, under this title, the members of the American Ornithologists' Union have elected to carry on the journal which has hitherto been known as the 'Bulletin of the Nuttall Ornithological Club.' The first number with this new name appeared in January last, and, the editors having well-nigh exacted a promise from critics (p 105) that no jokes should be made at their expense in regard to the awkwardness of the name, we will do no more than offer our hearty congratulations on the satisfactory establishment of the above-named American Union, and wish continued success to the old journal under the new *régime*. In regard to the contents of the current number, we may especially direct the attention of our readers to the pages on Recent Ornithological Literature, and to the editorial remarks (pp. 102—104) on Trinomial Nomenclature.

Ornithology of Riding Mill on Tyne.—To my article under this heading (p. 92), originally intended for a local Society, I ought to have prefixed some account of the neighbourhood to which the notes refer. Riding Mill is in South Northumberland, fifteen miles west of Newcastle-

on-Tyne, and about 100 feet above sea-level. From the river Tyne the hills rise on both sides to an additional height of about 300 feet. A little further to the south greater altitudes are reached, some parts of Healey township being about 600 feet, and Minster Acres about 1000 feet above the sea. The country is well wooded, there being some woods of 500 acres, and more in extent. It is also well watered; several burns run into the Tyne near Riding Mill, which pass through deep and in some places rocky gills. Towards Blanchland and Stanhope the country consists of moorland. The prevailing geological formation is the millstone grit. The "woodlands" mentioned is a large estate near Lanchester, and in the county of Durham, formerly, and, possibly still, a very rich neighbourhood in uncommon birds. Stanhope is also in the county of Durham. The following misprints in my former notes may be corrected:—Page 96, line 28, for "Stockfield" read "Stocksfield," as elsewhere; p. 99, line 10, "have perceptibly decreased" read "have *not*," &c.; same page, line 16, for "Sealey" read "Healey"; p. 101, line 9, for "Sealey" read "Slaley."—HENRY H. SLATER.

[These misprints show how very desirable it is that correspondents should write proper names clearly and distinctly. Names which may be found on any good map may be generally deciphered, but names of unimportant localities, or of woods, shaws, gills, and so forth cannot always be guessed rightly by the best of printers.—ED.]

**Spotted Redshank and Long-tailed Duck in the Moy Estuary.**—On the 14th June last, when going to Bartragh in my punt, I heard the call of a Spotted Redshank, and shortly after saw it on the Scurmoreshore, along with some Greenshanks; a boat passing it at the time scared it off the shore, and although I took a long shot as it flew past, it escaped uninjured. When down the Moyne channel in my punt, on the 31st December, I observed a fine male Long-tailed Duck, in company with some Mergansers, whose wildness prevented my taking a shot at it. On the 9th January, on the river near Belleck, also associating with Mergansers, I saw a male Long-tailed Duck, probably the same bird seen near Moyne in December.—ROBERT WARREN (Moyview, Ballina, Co. Mayo).

**Velvet Scoter near Manchester.**—Dr. Kershaw, of Middleton, near Manchester, wrote to me on November 22nd, "I had a little excitement here yesterday: I had for the past three or four days noticed four black-looking birds swimming on Rhodes Reservoir, so yesterday I thought I would go down with the big gun and see if I could get a shot. On my arrival I found they had all disappeared save one. At first sight it looked like a Cormorant, but as there was a perfect gale blowing at the time, and the bird kept bobbing up and down, it was difficult to say what it was. However, I killed it, and, behold! it proved to be a Velvet Scoter, and a very good one, too."—T. H. NELSON (Redcar).

**Ornithological Notes from Breconshire.**—During the past winter Siskins, *Fringilla spinus*, were extremely abundant here, moving about in large flocks. A Great Northern Diver, *Colymbus glacialis*, was seen at Llangorse Lake, and was pursued in a boat for some hours, but I rejoice to say escaped. In January I observed a Great Spotted Woodpecker, *Picus major*, near Talybout, the only one seen during the winter. A female Scaup, *Fuligula marila*, was shot on the Usk, near this town, and a drake, presumably its partner, was until quite recently on the Gludy Lake. A curious specimen of the Rook was killed near Aberystwith last autumn, being of a light ash-colour over the entire body, with white eyes; and, near the same place, a white Starling, with dark reddish brown eyes. I think this worth noticing, as no bird breeds truer to colour than the Starling, and albinos amongst them are certainly rare—at least, such is my experience. [Scarcely a year elapses in which two or three are not reported to us.—ED.] It may interest Mr. Norgate to know that late in September, 1882, about the 28th, I killed an adult Nightjar, *Caprimulgus europæus*, near Highworth, Wilts. This bird is common here, and may at any time be seen on a fine summer's evening. I think they leave us early in August, for I have only once seen one after the middle of that month, when Grouse shooting some years since. I have had one occasionally brought to me early in August, and always as a great rarity, but never after that date. Those who brought them would hardly believe that the bird is a common summer visitant.—E. CAMBRIDGE PHILLIPS (Brecon, S. Wales).

**Provincial Name for the Black Tern.**—In his "Ornithological Notes from Norfolk and Suffolk" (p. 8) Mr. Gunn states that the Black Tern is locally called the "Blue Daw." This I think is an error; the Terns were formerly all known as "Dars," but, so far as I can learn, never "Daws." The Common Tern was "the Dar," "Sea Swallow," "Great Pearl," or "Strader"; the Lesser Tern the "Little Dar," "Small Pearl," "Reek," or "Dip-ear"; and the Black Tern the "Blue Dar."—THOMAS SOUTHWELL (Norwich).

**Hybrid Canary and Serin Finch.**—Mr. Macpherson may be interested to know that a gentleman in this city has bred four mules from this cross, one of which is now in his possession. There were also some similar hybrids offered for sale in 'The Bazaar' a short time ago.—J. F. MASHAM (South Park, Lincoln).

**Breeding of the Lesser Redpoll in Northamptonshire.**—Looking over a collection of eggs the other day, I was shown a pair of Lesser Redpolls, taken near Rushden, two miles from here. I send this notice in the belief—possibly incorrect—that the breeding of this bird is hitherto unrecorded from this county.—H. H. SLATER (Irchester Vicarage, Wellingborough).

**Habits of Parrots.**—Will any of your readers be kind enough to say whether they have observed Parrots to have the habit, when given a piece of lump sugar, of dipping it, while still held in the bill, into the water-tin of their cage to moisten the sugar before they begin to eat it? A Parrot of the Amazons group, as I believe, which has been under my observation for four or five years past, has hardly ever omitted this practice with his daily lump when he has been seen in the act of eating it. He dips it completely into the water, moistening it effectually.—CLERMONT.

**Fulmar Petrel in Somersetshire.**—I have to record the occurrence of the Fulmar Petrel near Taunton on December 29th, 1883. It was in full moult, and probably just assuming fully adult plumage, as many pale brownish feathers were left on the upper parts, these being much worn. The first three primaries were also much worn; the outer webs, or what was left of them, were dusky, slightly marked with pale brown; the rest were clean-moulted, and were those of the fully adult plumage.—CECIL SMITH (Bishop's Lydeard, Taunton).

**Leach's Petrel in Somersetshire.**—I have lately examined a specimen of Leach's Petrel, which was shot early in October last while flying up the Avon below the Clifton Suspension Bridge. I thought at first it might be Wilson's Petrel, as the tail is not so much forked as is usual in Leach's Petrel; but the measurements correspond more nearly with those of the latter species, and are as follows:—Bill, 0·6 in.; wing, 6·2 in.; bare tibia, 0·4 in.; tarsus, 1 in.; the interdigital membrane black.—ROGER FORD (Wraxall Court, Nailsea).

[It may be useful if we give here the comparative measurements of the three species of small petrel which are most likely to be met with not only on the coast, but occasionally blown inland during a gale. They are as follows:—

	Bill.	Wing.	Bare tibia.	Tarsus.
Storm Petrel . . .	0·4 in.	4·9 in.	0·4 in.	0·9 in.
Leach's . . . . .	0·6 „	6·6 „	0·4 „	0·9 „
Wilson's . . . . .	0·5 „	5·9 „	0·6 „	1·3 „

The general colour of all is sooty black, with white upper tail-coverts. The first and third have the tail square; in Leach's it is forked. Wilson's Petrel may be at once distinguished from Leach's by its square tail, greater length of leg, and by the interdigital membrane being yellow instead of black.—ED.]

**Occurrence of the Swallow-tailed Kite in Europe.**—In the collection of local birds in the Valletta University Museum is a specimen of the Swallow-tailed Kite, *Elanoides furcatus*. This being a New World bird I made special inquiries concerning it from Dr. Julia, the Professor of Natural History at the University, who informed me that several years back this

bird was taken on board a ship between the Island of Pantellaria (about 200 miles from Malta) and Malta, and that it was ascertained that the day previously an American vessel had been wrecked on Pantellaria, and all hands drowned. This did not occur in his own experience, but he had it in his notes given him by his predecessor. The bird is in very good plumage, and the points of its wings are not worn, as would be the case if it had been kept in close confinement. If the above is the case, and I see no reason to doubt it, it is interesting as an example of how birds occasionally come to be included in the European list,—E. F. BECHER (Malta).

**Hybrids between Blackbird and Thrush.**—In a paper lately read before the Norfolk and Norwich Naturalists' Society, Mr. R. M. Christy commented upon such instances of hybridisation between these two species as had been recorded, or had come under his own observation. Among the cases quoted, one was given on the authority of a writer in 'Loudon's Magazine of Natural History,' August, 1834, who says:—"In the garden of a nurseryman at Ormskirk a Throstle and a Blackbird had paired; this was well known to a number of individuals, myself amongst them. During two successive years the birds reared their broods, which were permitted to fly, and evinced in all respects the features of strongly marked hybrids." In August, 1863, Count Salvadori communicated the following to 'The Ibis':—"In November, 1861, I purchased in Florence a living bird, which had the appearance of a Thrush, and in size, colour of the bill, legs, feet, and upper parts, was quite like a Song Thrush. The lower parts were almost entirely black, except the edge of each feather, which was of a light colour; round the neck it had a narrow ring of feathers of a yellowish white; on the belly were two or three white feathers, spotted with black. I believe it to be a cross of the Song Thrush and Blackbird." Mr. Christy referred to another instance mentioned by Macgillivray. About the conclusion of the winter of 1836 a male Blackbird and female Thrush fed occasionally together near the house of Mr. Russell, of Moss-side. At the commencement of spring their attachment increased, and they carried on a regular course of flirtation, which eventually ended in matrimony. The pair built their nest in a bush, where it was so cunningly concealed that the young ones were hatched before it was discovered. In concluding, Mr. Christy said that though some of the birds described as hybrids might be melanisms of the Song Thrush or cock Blackbirds which had retained in the spring following their birth large patches of the brown of immaturity, yet he considered that there was sufficient evidence to justify the conclusion that cases of hybridisation did sometimes occur in nature.

**Tufted Duck in Co. Kildare.**—Two days after Christmas I observed a pair of Tufted Ducks on the lake in Lyons demesne, County Kildare. The gamekeeper says he first saw them only a short time before then.

I believe they were not shot at while here, but were very shy and wild. They always rose from the water very soon after one came within sight of them, and flew with a strong and rapid flight, high in the air, to a more distant part of the lake. They did not associate with the Wigeon, Wild Duck, Coots, or Waterhens, and, unlike the Wigeon, which spend the day until evening, when they commence feeding, with their bills buried in the plumage of the back, they were always on the alert when on the water, with neck and head erect. They disappeared about the middle of January, and have not been seen since. I am not aware that the Tufted Duck has been recorded as met with in this county before; it does not appear to have been observed here of late years, although, as naturalists are scarce here, and perhaps those who record their observations still more so, it may be that this species is not in reality a very rare visitor. In the market in Dublin I saw three Tufted Ducks during the winter, which were said to have been obtained in the neighbourhood, probably on the Dublin coast.—J. E. PALMER (Lyons Mills, Straffan, Co. Kildare).

**Great Grey Shrike in Devonshire.**—Seeing two specimens of this winter visitant recorded (pp. 68, 69) has reminded me to send you the record of a male specimen shot on the Kingsbridge Estuary by Mr. W. C. Mackie. I visited the spot on the following day, and found the remains of a Chaffinch, "spitted" by the Butcher-bird on a thorn-bush, which, from its position, must have been impaled alive. Is *Lanius excubitor* considered graminivorous as well as carnivorous? for I found a number of seeds in its stomach and gizzard. The bird is in the possession of Mr. Henry Nicholls, and is the only specimen that has occurred here during the long course of his observation in South Devon. Referring to another subject, that of method in recording observations suggested by Mr. Harvie Brown, I give his plan my unqualified approval, believing that many men who have little time to write out a sheet of foolscap would gladly jot down on the form described the information desired, and a stimulus would be given to recording facts bearing on Ornithology.—EDMUND A. S. ELLIOT (Kingsbridge, Devon).

**Sooty Shearwater at Redcar.**—On Sept. 17th last, while Mr. E. B. Emerson and I were out shooting about two miles off Redcar, I secured an example of the Sooty Shearwater, *Puffinus griseus*, a bird new to the Yorkshire fauna. The sea was perfectly calm, and when we first observed it, it was resting on the water in company with two Razorbills, and allowed us to row up within easy range. I disabled it and got it into the boat, and proceeded to kill it by pressing it across the breast; it was possessed of great strength, and fought and scratched with its claws in the same way as a Pomatorhine Skua (see 'The Field,' Dec. 20, 1879). Messrs. H. Stevenson and Howard Saunders have kindly assisted me in identifying this bird, which Mr. Stevenson exhibited at a meeting of the Norfolk and Norwich

Naturalists' Society in January last, and Mr. Saunders exhibited at a meeting of the Zoological Society of London on the 4th March last. The dimensions taken while the bird was fresh are:—Total length, 18 in.; breadth across wings, 38 in.; wing, from carpal joint, 13 in.; bill, 2 in.; tarsus,  $2\frac{1}{2}$  in.; middle toe and claw,  $2\frac{1}{2}$  in.—T. H. NELSON (North Bondgate, Bishop Auckland).

**Kestrel nesting in Holes in Trees.**—On May 15th last a gamekeeper volunteered to show us the nest of a Kestrel in a hole at the top of an elm, where, he said, a pair of these birds had nested for the last three years. When we arrived at the spot a beautiful Kestrel flew out of the hole, and afforded us a good view of her. My brother then climbed the tree, which was a very stiff one, and found five eggs in a hole which was about a foot and a half down in the elm. This was a few miles out of Oxford. In May, 1881, near Sherborne, Dorset, we found a nest of the Kestrel in a hole in an elm containing two eggs, which are brick-red in colour, with some dark blotches on them.—J. ROLLESTON EARLE (15, Norham Road, Oxford).

[Other instances have been recorded of Kestrels nesting in holes of trees. In the summer of 1876 a pair nested in the hollow of an old pollard at Bromley, Kent, and during the summer of 1881 Mr. J. H. Gurney saw two Kestrels' nests in Surrey, both of which were in holes of trees. One was about two feet down in an elm, the other about a foot down in an ash.—ED.]

**Habits of Woodcock and Snipe.**—In the 4th edition of Yarrell's 'British Birds,' part xix. p. 332, the Woodcock, *Scolopax rusticula*, is described as regularly visiting India between October and February. This statement probably requires qualification, and I should imagine that the bird is only met with at a considerable elevation in the hills, and then but occasionally. Woodcocks have been found, I believe, near Shillong, in the Khasi Hills, about 5000 or 6000 feet above the sea-level, these hills forming part of a range bounding the Brahmaputra Valley on the south as a part of the Himalayas does on the north. I have met with men of considerable shooting experience in the Outer Himalayas, near Mussoorie, and do not remember to have heard the Woodcock mentioned among the birds they had come across. Towards the conclusion of the account of the Woodcock Yarrell records Sir F. Chantrey's feat of killing two Woodcocks at a shot. A neighbour of mine matched this exploit, for some years ago he also killed two Woodcocks at a shot near a wood within a couple of miles of Myross. The birds were flying out to feed in the dusk when he got the chance. Have any of your readers seen Snipe feeding in the early morning along the margins of shallow pieces of water? In Northern India, when a juvenile sportsman not yet up to hitting a flying bird, I have often succeeded in shooting a good many by starting them from the edge of "jhils" (ponds or small lakes), and then carefully approaching the spots



where I had marked them down. Out of the holes left in the mud by the hoofs of cattle and buffaloes I would often, after some patient scrutiny of the surface, note the head and eye of a Snipe, and knock it over before it thought of taking to its wings. This, of course, I would not do now, but allowance must be made for a boy at his first handling of a gun. I have seen at times as many as twenty or thirty together in two or three inches of water, busily feeding as late as 9 a.m. In fact, at a distance, I have imagined that they were a flock of Teal. Some of the shallow pools (called "tanks" by Anglo-Indians), in which I have observed Snipe feeding, were close to large villages, and the surroundings of the water in places were not in an over cleanly state. Few of the natives had firearms, and those who had preferred game giving a heavier result in food and an easier mark than Snipe. Indeed the birds did not show much fear of the villagers.—C. DONOVAN, JUN. (Myross Wood, Leap, Co. Cork).

**Birds hovering over dead Companions.**—The Rev. W. Becher relates (p. 70) that when he shot at some Starlings and killed several, the flock returned and hovered over their dead companions, and he asks an explanation. I can only say I have myself seen the following birds do the same thing:—Wood Pigeons, House Pigeons (often), Starlings, Larks, Teal, Golden and Green Plover. Last year I saw a lot of Green Plover on one of my fields, and crawling down the hedge got within shot. I fired both barrels and killed three. The rest flew about one hundred yards and then returned over their dead companions. I shot another, and they again returned, when I killed a fifth, after which they left. I fancy the report frightened them, but on seeing some of their fellows left behind, they returned, supposing there was no cause for alarm until finally convinced of their mistake.—J. WHITAKER (Rainworth Lodge, Notts).

**Siskin and Great Snipe in Co. Cork.**—On January 3rd I shot a solitary Siskin, *Chrysomitris spinus*, Linn., near this place, and I gather from a friend that he has frequently seen the bird in a wood in this neighbourhood. The same friend shot a Great Snipe, *Gallinago major*, Gmelin, towards the end of last month; and in the course of thirty years' shooting experience has shot five or six in this part of the county. He describes them as nearly equal in size to the Golden Plover. From this and other peculiarities mentioned by him I conclude that these few (specially remarked among thousands that have fallen to his gun) must have been the Great Snipe. Dr. Harvey includes the Siskin in the avifauna of Cork, but as very rarely met with: the Great Snipe finds no place in his list.—C. DONOVAN, JUN. (Myross Wood, Leap, Co. Cork).

**Great Grey Shrike and Snow Bunting in Somersetshire.**—In the February number of 'The Zoologist' (pp. 69, 73) I see notices of the occurrence of these birds in this county, and in your editorial note you

remark that when I published my 'Birds of Somersetshire,' in 1869, I only knew of two specimens of the former. I have not been able to add many more as having come under my notice since then. One killed near Stolford, on the Bristol Channel, in November, 1874, and another near Ilchester in December, 1882, were both duly recorded by me in 'The Zoologist,' and in December last I had a letter from Mr. Sargent, of Clevedon, mentioning the occurrence of another at that place, which I suppose is the bird recorded by Mr. Ford. The Snow Bunting occurs more or less numerously along our coast in most years, but not so regularly or in such numbers as in the neighbouring county of Devon.—CECIL SMITH (Bishops Lydeard, Taunton).

**Woodcock in Captivity.**—On January 28th a man caught a Woodcock, which on examination appeared as if it had flown against the telegraph-wires. Not seeming much the worse, I determined to keep it in confinement, and put it in a large cage with plenty of water and sods of earth. I fed it twice every day on worms, which I put in a box of mud. I should think it devoured its own weight of worms in twenty-four hours. It did not feed by sight, but if it touched a worm with its beak it devoured it immediately. It became very tame, and I allowed it to run and fly about the room; it always ran to the darkest place that could be found. It took suddenly ill and died on February 16th.—V. H. COATES (Rathmore, Dunmurry, Co. Antrim).

#### FISHES.

**Spinous Shark on the Coast of Cornwall.**—A Spinous Shark, *Squalus spinosus*, was brought in here on March 8th, which had been taken on a "boulter," or long line near the Wolf. It measured five feet six inches over all. This species is evidently a ground Shark, and having now seen several specimens I am prepared to say with certainty that the figure given by Yarrell is not correct, and must have been taken from a specimen badly set up, and that I am more than ever inclined to doubt the existence of a Spinous Shark of the figure given by Couch, which is that of a swimming fish, as contrasted with a ground fish. Couch colours his figure of a roseate hue, whilst all the specimens that I have seen—one alive, and all the others within a few hours of their capture—were of a dull leaden hue above, and dusky white, as usual in Sharks, below. Especially noticeable was the large perpendicularly-oblong pea-green pupil of the eye, a feature which Couch has omitted to depict.—THOMAS CORNISH (Penzance).

**Greater Weaver in Devon.**—On visiting the Exeter Market on March 7th to see what kinds of fish were for sale, I was surprised to see, on one of the stalls, between twenty and thirty Greater Weavers, *Trachinus draco*, L., from ten to twelve inches in length, which the fishwoman said came from Beer, Devon, and that they were the first she had ever had sent to her.

She called them "Devon-fish," and seemed to think they must be valuable as food, as she asked three shillings for seven of them. The dorsal fins had not been removed, and they were in very good condition. Some had the blue stripes still visible, so they could not have been long out of the water. This fish is said to be taken singly when fishing for Mackerel and Gurnards on the south coast of Devon in summer. It is also supposed to be found on sandy shores only, but there is no sand near Beer. It is remarkable that so many should have been taken together, and at this time of the year. There was nothing in the stomachs of two I opened. The abdominal cavity is remarkably small, being only two and a half inches long in a fish a foot in length.—W. S. M. D'URBAN (Albert Memorial Museum, Exeter).

**Occurrence of the Argentine near Penzance.**—By the kindness of my friend Mr. Fortescue W. Millett, of Marazion, I have received a specimen of the Argentine, *Scopelus Humboldtii*, Cuvier. It was picked up on the beach between Marazion and Penzance, and precisely agrees with the descriptions given by Yarrell and Couch, except that I failed to detect the bright dots in the gill-covers noted by Couch. As it is the first specimen noted as taken in Cornwall, I subjoin the following measurements:—Length over all, two inches and four-sixteenths; eye to fork, one inch and ten-sixteenths; greatest depth, seven-tenths of an inch. The bright dots along the belly are of a pale green colour.—THOMAS CORNISH (Penzance).

#### CRUSTACEA.

**Crustacea on the South Coast of Devon.**—During the past autumn and beginning of the present winter, in conjunction with Mr. C. W. Parker, of Warren Cottage, Starcross, I have been investigating the marine fauna of the coast between Sidmouth on the east and Teignmouth on the west, and we have found it much more productive than we were led to anticipate. Mr. Parker combines a marvellous facility in detecting minute forms with much skill in handling a boat and dredge, and has thoroughly ransacked the rocks and beach near where he lives, as well as the bottom of the sea for several miles out. Amongst a vast quantity of specimens of all classes and orders we have obtained there were, besides many common forms, the following rarer Crustacea:—*Inachus dorsettensis*, not very numerous; dredged off Dawlish in fifteen fathoms on shelly ground. *Pisa tetraodon*, one on Langstone Rocks in August. *P. gibbsii*, one dredged off Dawlish. *Hyas araneus*, one very small specimen apparently of this species in a mass of corallines thrown up on the beach at Exmouth. *H. coarctatus*, two dredged off Dawlish. *Eurynome aspera*, not very uncommon off Dawlish in August, the females being laden with ova. *Xantho florida*, in crevices of rocks at Langstone Point, rather small in size, and not very numerous.

*X. rivulosa*, one only. *Pilumnus hirtellus*, common under stones on the shore between tide-marks, and also dredged in fifteen to twenty fathoms. *Pirimela denticulata* occurs in one spot only near Dawlish. *Portumnus latipes*, common in shore-seines in August. *Polybius henslowii*, in pilehard-seines at Teignmouth. *Portunus puber*, abundant in holes in rocks. *P. pusillus*, common by dredging off Dawlish in about fifteen fathoms. *Pinnotheres pisum*; with patience in opening large quantities of mussels this species can be obtained in tolerable numbers. *Gonoplax angulatus*, a few specimens by dredging. *Atelecyclus septemdentatus*, by dredging in twelve fathoms off Exmouth, but scarce. *Corystes cassivelaunus*, common in shore-seines. *Pagurus prideauxii*, *P. cuanensis*, and *P. hyndmanni*, all taken abundantly by dredging, the latter in shells of *Turritella*. *P. dilwynii* is numerous in one part of the coast, about a mile and a half from shore on sand in shallow water, and inhabiting common shore shells, such as *Purpura*, *Littorina*, and *Natica*. *Galathea squamifera*, common under stones on the shore and by dredging. *G. strigosa*, on rocks at Dawlish and sometimes in herring-nets, but not common. *Nika edulis*, one at Salcombe Regis. *Crangon fasciatus*, a few specimens at Langstone Point and Dawlish. *Athanas nitescens*, a few at Salcombe Regis. *Hippolyte cranchii*, common. *Mysis vulgaris* and *M. flexuosa*, not common. *Dexamine spinosa*, dredged off Exmouth. *Melita palmata*, Langstone Point. *Mara grossimana*, *Eurystheus erythrophthalmus*, and *Cerapus abditus*, dredged off Dawlish. *Caprella tuberculata* and *Apeudes talpa*, dredged off Exmouth and Dawlish. *Anceus maxillaris*, males and females, and specimens in all stages of development, on rocks, and adhering to small shore fishes such as Father-lasher, and also on Gattorugine and Paganellus, at Straight Point, near Exmouth and Langstone Point. The greenish blue larva is quite transparent, and looks like an atom of green glass. This was Montagu's "Oniscus cæruleatus." *Bopyrus squillarum*, not uncommon on *Palæmon serratus*. *Phryxus hyndmanni* under the carapace, and *P. paguri* on the tail of, *Pagurus bernhardus*. *Pleurocryptes galathea*, under carapace of *Galathea squamifera*. *Cryptothiria pygmaea*, on *Pagurus*. *Idotea parallela*, abundant in broken tubes of *Serpula*, &c., on the shore at Langstone Point. *I. linearis*, adults very abundant off Exmouth, and young on *Zostera marina* in the lake on Dawlish Warren. *Cymodocea emarginata*, *Næra bidentata*, *Sphæroma serratum*, *S. prideauxianum*, *Dynamene rubra*, *D. viridis*, and *Campecopea cranchii* in empty shells of *Balani* on rocks. *Peltogaster paguri*, on tail of *Pagurus bernhardus*. *P. sulcatus*, on *Pagurus cuanensis*. *Sacculina carcini*, on tails of *Carcinas manas* and *Portunus pusillus*. *Lernentoma lophii*, on gills of Angler or Fishing Frog. *Lepeophthirus Thompsoni*, on skin of Lumpsucker; and *Anchorella uncinata* on gills of Wolf-fish. A number of species of *Nymphonida* and some crustaceans, one or more of which are new to the British lists, and others

of rare occurrence, have been identified by Rev. A. M. Norman, and I leave it to that gentleman to make them known. We hope to obtain many good things during the coming season.—W. S. M. D'URBAN (Albert Memorial Museum, Exeter).

## ANNELES.

**Subcutaneous Worms in Short-eared Owl.**—I send you herewith a portion of the neck of a Short-eared Owl, which Mr. Bartlett, taxidermist, Banbury, has handed to me. You will observe that the surface is infested with what appear to be subcutaneous worms. When extracted they are nearly white in colour, and Mr. Bartlett found that one measured three inches in length. As I do not know anything about these curious animals I have forwarded the neck to you as it is, in order that you may, if you think it worth while, make some mention of the circumstance in 'The Zoologist.'—OLIVER V. APLIN (Great Bourton, near Banbury).

[These parasitical worms (*Filaria*) appear to be not uncommon in the neck muscles of birds (see 'Zoologist,' 1881, p. 309; 1883, pp. 382, 383), and in some cases attain a considerable size. *Filaria attenuata*, from the lung of the Peregrine Falcon, is as much as a foot long; *F. horrida*, from the thoracic cavity of the American Rhea, more than four feet long! The specimens sent had unfortunately been kept too long dry. It would have been better to have placed the neck which contained them in a small phial of spirit.—ED.]

## ARCHÆOLOGY.

**Origin of the name "Lobster" applied to the Stoat.**—I have heard it suggested that the above name is a corruption of "leapster," and has reference to the leaps or bounds by which the Stoat frequently progresses. As this is the only explanation which I have met with, I communicate it for what it may be worth, in reply to the inquiry on the subject at p. 112.—J. H. GURNEY (Northrepps, Norwich).

**Origin of the name "Lobster" applied to the Stoat.**—In 'The Zoologist' for March the Editor asks the origin of the word "Lobster" as applied to the Stoat. The subject received some attention last year in 'Science Gossip,' from which I have taken the following notes. They were in reply to a query by Mr. John Hawell, Ingleby, Northallerton, in the April (1883) number. He says:—"The Stoat is in this neighbourhood called the 'Clubster.' Is this a mere local name? And why has this name been given to the Stoat?" (By a printer's error the word was spelt Clubstei. This was corrected in a subsequent number). The May number contains the following reply from Mr. T. Southwell, of Norwich;—"In Norfolk the Stoat is known amongst the country people as the 'lobster' or lobstert, which is said to be derived from old Norse *lopi*, a lump or swelling, and *stertr* (Danish *stært*, a tail. Probably Mr. Ingleby's 'clubster' [the

error, clubstei, is continued] is a corruption of the same." In 'Science Gossip' for June, 1883, W. T. Lynn, B.A., Blackheath, writes:—"In Halliwell's 'Dictionary of Archaic and Provincial Words' it is stated that 'Clubster' or 'Clubtail' is a north-country dialectic word for a Stoat or Summer Ermine (*hermine d'été*, as the French call the animal). The last syllable 'ster' is evidently the old word 'start' (in Anglo-Saxon *steort*), which still exists as part of the compound word red-start, but, as in 'clubster,' has been denuded, by a not uncommon process, of its final letter." In 'Science Gossip' for July, 1883, J. A. Wheldon states that "Stoats are still called 'clubstarts' amongst the country people about Scarborough and in other parts of Yorkshire." Mr. Hawell, in the same number, after thanking the above-quoted correspondents, says:—"The origin of the local word is now clear. The early dwellers in the north, wishing to give this animal a name to distinguish it from the Weasel, would see in the black-tipped, comparatively short, tail its most distinguishing feature, and would not unnaturally term it 'clubtail.' Halliwell is somewhat indefinite in calling 'clubster' a north-country word. I never heard it spoken of by this name in Cumberland. This name cannot, I think, be a corruption of lobster, but is it not just possible that the latter might be a corruption of Clubster? . . . . Something as to the Stoat's becoming white would be interesting. Some authors write as though the Stoat were never white in England, but only farther north." I do not consider Mr. Hawell is correct in speaking of the tail of the Stoat as "comparatively short"; on the contrary, it is very long compared with a Weasel's tail. The name club-tail was no doubt suggested by the long and *bushy* appearance of the Stoat's tail. I particularly noticed this in June, 1881, when a fine Stoat ran across an open field from a rabbit which it had just killed. Most Stoats are stuffed with the black tip of the tail smoothed down. This is entirely wrong; the hairs should be set on end, as much like a fox's brush as possible. In Bailey's 'Dictionarium Britannicum,' printed in 1730 ("not only for the Information of the Ignorant, but the Entertainment of the Curious"), I find under *Lob*: "A large North Sea Fish, whence perhaps Lob, Lobcock (q. d. *Lap-cock*), a great, heavy, sluggish fellow." By "North" being in italics I conclude he connects the derivation of Lob with that word. May not this be a possible source from which *Lob-tail* (or *Lobstart*, or *Lobster*) has sprung? As the Stoat was found most abundantly in the *North*, and its *tail* was its most noticeable feature whilst running, the two ideas may have been blended together in the compound name as we now have it. What is the derivation of *Lapland*? The first part of the word may be the same as the above. If I am right in tracing *lob* back to *North*, it will have no connection with *club*; I however regard the words "Clubster" and "Lobster" as being practically identical with the derivation as given in 'Science Gossip.'—EDWARD J. GIBBINS (Neath, Glamorgan).

## SCIENTIFIC SOCIETIES.

## LINNEAN SOCIETY OF LONDON.

March 6, 1884.—SIR JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Dr. Augustus B. Shepherd and Mr. James Dallas were elected Fellows, and Mr. William Hodgson, of Cumberland, an Associate of the Society.

The President read a memorandum from the Foreign Office (received through the Science and Art Department), announcing that an International Ornithological Congress would be held in Vienna in the beginning of April next.

There was exhibited, for Mr. T. E. Gunn, of Norwich, a variety of the common Moorhen, *Gallinula chloropus*, which had been shot last spring near Norwich (see Zool. 1884, p. 8).

Prof. St. G. Mivart read a paper "On the relations between the Instinct and other Vital Processes." He contended that instinct cannot be divided by any hard-and-fast line from such vital processes as reflex action, processes of repair after injuries, and the process of development of the individual; and that these latter were more readily explained as activities especially instinctive, than that instinct could be explained by reflex action or by lapsed intelligence. The vital processes referred to were also shown to have an important bearing on the question of the origin of the species.

Prof. T. S. Cobbold gave a verbal account of a paper received from Dr. P. Manson, of Hong Kong, in which the author furnished fresh evidence as to the rôle of the Mosquito, considered as the intermediary host of *Filaria sanguinis-hominis*. Dr. Manson has verified his previous observations in the most complete manner, and he now recognises and describes six well-marked stages in the growth of the *Filaria* whilst they are dwelling within the body of the insect. The memoir was illustrated by drawings, photographs and specimens sent by Dr. Manson.

At the close of the paper, Dr. T. R. Lewis spoke at considerable length, confirming Dr. Manson's statements in many particulars.

March 20, 1884.—HENRY T. STAINTON, Esq., F.R.S., Vice-President, in the chair.

The Rev. Canon James Baker, Mr. W. Brockbank, Mr. Robert Mason, and Mr. Edward A. Heath were elected Fellows of the Society.

In illustration of his paper, "A Contribution to the Knowledge of the Genus *Anaphe*, Walker," Lord Walsingham exhibited a large and remarkable nest of a congregating moth, a species of the genus from Natal. It contained a packed mass of cocoons, specimens of the larvæ and of the mature insect; there likewise was shown a living example of a dipterous

parasite which had emerged from the moth-eggs on hatching. His lordship stated that the nest and contents had been forwarded to him by Col. J. H. Bowker, of Durban, and that the larvæ were found alive on its receipt in England in August last. The nest was placed in the insectarium of the Zoological Gardens, Regent's Park, under the care of Mr. Thompson, who was so fortunate as to be able to rear some of the insects. Many of the larvæ remained within the nest, but others, in companies of twenty to forty, occasionally marched out, moving in closely serried rank, much after the manner of the larvæ of the procession moth (*Cnethocampa*). From December to February about 250 moths emerged, but, from the difficulty of obtaining their natural food, all died, though a pair bred and the eggs were hatched. The mature insect closely resembles the *Anaphe panda*, Boisd., though of the latter it would seem there are several well-marked local races. The genus is found in West Africa as well as Natal; but it appears that in the several species the colour, size, shape, and material of the common nest as well as the individual silky cocoons, markedly differ. Doubtless the habits of these moths, when still more fully known in their native haunts, will yet form a most interesting chapter to the traveller. Of *Anaphe* four species have hitherto been described, viz., *A. venata*, from Old Calabar; *A. ambigua*, from Angola; *A. reticulata* and *A. panda*, from Natal. To these Lord Walsingham adds *A. Carteri*, from the Gold Coast, and *A. infracta*, from the Cameroons.

The Secretary read a paper "On the Closure of the Cyclostomatous Bryozoa," by Arthur W. Waters. While admitting that the group possesses few characters available for purposes of scientific determination, he nevertheless points out that the ovicells have greater importance than has hitherto been accorded them; also that the connecting pores are comparable with the rosette plates of the Chilostomata, and that stress must be laid on the size of the zoecial tube, and more particularly to the position and variation of its closure. The author states that in the Cyclostomata, which are the simplest of the Bryozoa, he has now found a calcareous partition which closes the tubular zoecium, and thus protects the colony. Whereas in the Chilostomata (which are more highly differentiated, and not being tubular could more easily be closed up), there is the horny speculum, which is not a sign of death, but is movable, and protects the living polypide, and through it the colony.—J. MURIE.

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ZOOLOGICAL SOCIETY OF LONDON.

February 19, 1884.—OSBERT SALVIN, Esq., F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions which had been made to the Society's Menagerie during the month of January, and called special



attention to a young female Babirusa, *Babirusa alfurus*, born January 16th, of one of the females presented by Dr. F. H. Bauer, in July, 1883; and to a young example of a small species of Cormorant, apparently the Pygmy Cormorant, *Phalacrocorax pygmaeus*, purchased January 31st, and said to have been received from Sierra Leone.

Mr. Selater laid on the table and made some remarks on a copy of the lately issued "Guide to the Calcutta Zoological Gardens."

Mr. W. T. Blanford made some observations on the collection of drawings of Himalayan Birds lately presented to the Society's Library by Mr. Brian H. Hodgson.

Prof. F. Jeffrey Bell read the second part of his contribution to the systematic arrangement of the *Asteroidea*. In the present communication the author treated of the species of the genus *Oreaster*.

A communication was read from M. Fernand Lataste, containing the description of a new species of Gerbille from Arabia. This new species was founded on specimens living in the Society's Gardens, which had been hitherto referred to *Gerbillus erythrurus*, Gray. M. Lataste considered the species to be undescribed, and proposed to call it *Meriones longifrons*.

A communication was read from Mr. J. Wood-Mason, in which he gave the description of a new species of the Neuropterous genus *Corydalis*. The first example of this insect (a female) was captured by Lieut.-Col. H. H. Godwin-Austen, on the Naga Hills, N.E. frontier of India; but male specimens had since been obtained. The author proposed to call this species *Corydalis asiatica*.

A communication was read from Dr. J. Gwyn Jeffreys, on the Mollusca procured during the 'Lightning' and 'Porcupine' Expeditions 1868-70, forming the seventh part of his series of papers on this subject. The present part comprised the genera from *Rissoa* to *Acirsa*, with seventy-four species, of which fourteen were new to science, as was also one new genus.

March 4, 1884.—E. W. H. HOLDSWORTH, Esq., F.Z.S., in the chair.

Mr. Howard Saunders exhibited and made remarks on specimens of two Gulls, *Xema Sabini* and *Larus philadelphia*, in the breeding-plumage, both killed in Scotland. Mr. Saunders also made some observations upon the specimen of *Larus atricilla* in the British Museum, said to be the one killed by Montagu at Winchelsea; and came to the conclusion that the bird in question was not Montagu's specimen. Mr. Saunders likewise exhibited a specimen of *Puffinus griseus*, killed off the Yorkshire coast.

A letter was read from Dr. Ch. W. Lütken, calling attention to a specimen of an Echidna in the Zoological Museum of Copenhagen, which seemed to be different from the ordinary *Tachyglossus aculeatus*, and which Dr. Lütken was of opinion might possibly be referable to the lately described *T. Lawesi* of New Guinea.

Mr. J. E. Harting exhibited and made observations on some antlers of Roe Deer from Dorsetshire and Scotland.

Mr. W. R. Ogilvie Grant read a paper on the Fishes of the genera *Sicydium* and *Lentipes* (belonging to the family *Gobiidæ*), in which an attempt was made to arrange the species of *Sicydium* into smaller groups, the members of which were found to be allied together by convenient and distinctive characters. Five new species of *Sicydium* were described.

A communication was read from Mr. F. Moore on some new Asiatic Diurnal Lepidoptera, chiefly from specimens in the Calcutta Museum.

A communication was read from the Count T. Salvadori, containing some critical remarks on an African duck, *Anas capensis*, Gmelin.—P. L. SCLATER, *Secretary*.

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

February 6, 1884.—J. W. DUNNING, Esq., M.A., F.L.S., &c., President, in the chair.

The President appointed Sir Sidney S. Saunders, Mr. F. P. Pascoe, and Mr. R. Meldola as Vice-Presidents for the year.

Mr. P. Crowley exhibited eggs, larval galleries, pupæ and imagos of *Castnia eudesmia*, Gray. The specimens had been lately received from Valparaiso by Mr. Watkins. The eggs greatly resembled grains of white wheat in size and colour; the larval galleries (so-called cocoons) appeared to consist of silk and sawdust, and were exceedingly tough and hard; they were from one foot to sixteen inches long and about four inches in circumference; in some instances they were very closely adherent to the spiny leaf of the food-plant (*Pourretia coarctata*); the empty pupa-case protruded from the side of these galleries, after the manner of a *Cossus* pupa, which it much resembled.

Mr. H. T. Stainton called attention to the life-history of *Aglossa pinguinalis*, Linn., as lately worked out by the late Mr. Buckler (*Ent. Mo. Mag.*, xx., 193), showing that the lard- and butter-eating capabilities of the larva, with its special adaptation for such a mode of life, were merely a fable, which had been fully accepted as a fact from the days of De Geer and Réaumur to the present time. In answer to a question from Mr. Fitch, Mr. Stainton said that Mr. Buckler was likewise acquainted with the larva of *Aglossa cuprealis*, Hübn., but how far its history had been written he did not know.

The Secretary exhibited photographs of the upper- and under-side of the female *Hypocephalus armatus*, Desm., on behalf of Dr. D. Sharp, and read a note.

Mr. F. P. Pascoe exhibited selections from a collection of *Curculionida* from New Guinea, consisting of specimens collected by D'Albertis and others, comprising upwards of three hundred species, of which probably one half were undescribed.

The President observed that, with a view to the fertilization of clover, the agriculturists of New Zealand have for some time been anxious to import humble-bees into their colony; previous experiments having failed, Mr. Nottidge, of Ashford, had been endeavouring to supply the want. Impregnated humble-bees are often found in a state of torpor, hiding in holes in banks and hedgerows when the process of hedging and ditching was carried on in November and December. Mr. Nottidge advertised for specimens, offering a small sum for every living queen; and the result was that he was able to dispatch to Christchurch, N. Z., a parcel of twenty impregnated queens on the 13th December, 1883, and a lot of sixty on the 10th January, 1884. Each queen was packed in dry moss, and placed in a separate box, with a cake of candy in case of the temperature on the voyage rising to such a height as to revivify them, but with instructions to keep them at about 40°. The humble-bees were sent in ships fitted with refrigerators for the carriage of meat, and it was hoped that by maintaining a temperature not exceeding 40° they would remain in a semi-torpid state until their arrival in the colony. The success of the experiment remains to be seen; but it will be tried on a larger scale at the end of the present year.

The President said that he had just received the first part of the Transactions of the Huddersfield Naturalists' Society, which contains "A Catalogue of the Lepidoptera found in the Huddersfield District," by Messrs. Mosley and Porritt. The list includes 666 species. He made some remarks on the alleged scarcity or disappearance of species formerly common. A discussion ensued in which it was generally agreed that butterflies were everywhere in Britain considerably scarcer than was the case thirty years ago, and this quite irrespective of the influence of bad seasons.

The Secretary read a report from the Committee re-appointed on the subject of the supposed presence of *Phylloxera vastatrix* on vines in the colony of Victoria. The Committee had carefully examined roots, and regretted to be obliged to report that the *Phylloxera* is undoubtedly present upon them, and in some numbers. They made various suggestions as to destruction of vines and roots, and treatment of ground in which infected vines have been grown.

Mr. J. W. Douglas communicated a paper "On a new species of the genus *Orthezia*" (*O. manariensis*), received from M. J. Lichtenstein, who obtained it from Montecristo, where it was found on *Erica arborea*. Drawings of the insects were exhibited.

Sir Sidney S. Saunders communicated some "Further notes on the Caprification of domestic Figs, with reference to Dr. Paul Mayer's comments thereon."

Part V. of the 'Transactions' for 1883 (Index, &c.) was on the table.

March 5, 1884.—*Special General Meeting.*—J. W. DUNNING, Esq., M.A., F.L.S., &c., President, in the chair.

Pursuant to a requisition presented to the President and Council, and in accordance with chapter xix. of the Bye-Laws, a Special Meeting was convened for this day, to consider the desirability of obtaining a charter incorporating the Society.

Prof. Westwood, Hon. Life-President, proposed:—

"That it is desirable to obtain for the Society a Royal Charter of Incorporation."

Mr. Stainton seconded the proposition.

The meeting was addressed by Mr. Verrall, Mr. M'Lachlan, Mr. Slater, and the President.

On being put to the vote, the proposition was carried *nem. con.*

*Ordinary Meeting.*—Prof. J. O. WESTWOOD, M.A., F.L.S., &c., Hon. Life-President, in the chair.

Mr. J. W. Dunning called attention to a paper entitled "Description of a *Pieris* new to science—*Pieris Spilleri*, mihi," by A. J. Spiller, published in 'The Entomologist,' vol. xvii., p. 62, and spoke discouraging the hasty imposition of personal names. If the attempt of one entomologist by this means to confer honour (often undeserved) upon another might be excused, what could be said for the man who is not content to wait till the compliment is paid him by another, but insists upon crowning himself? The President believed the case to be without precedent, and, as it was certainly a departure from good taste, he trusted Mr. Spiller would not find an imitator.

Whilst on the subject of paronymic nomenclature, the President desired to enter a protest against such grotesque barbarisms as *Huxelhydrus*, *Tyndalhydrus*, *Darwinhydrus*, and *Spencerhydrus*, which met his eye on perusing the pages of the 'Zoological Record' for 1882. Such hideous and unmeaning forms only tend to bring scientific nomenclature into contempt.

Prof. Westwood recommended a study of the principles laid down in Linné's 'Philosophia Botanica' and in Fabricius' 'Philosophia Entomologica' to all nomenclators.

Mr. E. Saunders read the concluding part of his "Synopsis of the British Hymenoptera Aculeata—Part III. *Apidæ*." Also "Further Notes on the terminal segments of Aculeate Hymenoptera."—E. A. FITCH, *Hon. Secretary*.

# THE ZOOLOGIST.

THIRD SERIES.

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[No. 89.]

## THE PROPOSED ESTABLISHMENT OF AN ENGLISH MARINE BIOLOGICAL STATION.

On the eve of the appearance of our last number, namely, on March 31st, an important meeting of naturalists was held in the Rooms of the Royal Society, Burlington House, with the object of forming a Society for the biological investigation of the English coast, and for the erection in a suitable locality of a marine laboratory and dredging station.

The chair was taken by Professor Huxley, President of the Royal Society. Amongst those present were the Duke of Argyll, the Earl of Dalhousie, Lord Arthur Russell, Sir Lyon Playfair, M.P., Sir John Lubbock, M.P. (President of the Linnæan Society), Sir Joseph Fayrer, Sir Joseph Hooker, Sir George Nares, the Hon. E. Marjoribanks, M.P., Professor Flower (President of the Zoological Society), Prof. Ewart, Prof. Bonney, Prof. Mivart, Prof. Moseley, Dr. Spencer Cobbold, Dr. Günther, Dr. W. B. Carpenter, Prof. Crofton, Mr. H. C. Sorby, Dr. J. Murie, Dr. John Rae, Dr. J. Evans, Dr. J. Gwyn Jeffreys, Dr. P. L. Sclater, Dr. Dobson, Dr. A. Geikie, Dr. Herbert Carpenter, Mr. G. J. Romanes, Prof. Jeffrey Bell, Mr. Francis Galton, Mr. S. O. Ridley, Mr. J. Quelch, Mr. Edgar Smith, Mr. Frank Crisp, Mr. Busk, Mr. Henry Lee, Mr. Dawson Williams, Mr. J. A. Blake, M.P., Mr. T. F. Braby, Mr. Thistleton Dyer, Mr. Henry Ffennell, Mr. H. Dallinger, Mr. Saville Kent, Mr. H. C. Burdett, Captain Verney, R.N., and Mr. John Murray.

Professor Huxley, after reading letters approving of the project from Lord Derby, the Marquis of Hamilton, Sir Thomas

Dakin, M.P., Mr. Chamberlain, M.P., Mr. R. W. Duff, M.P., and Dr. Dohrn, said that the object of the proposal before the meeting was not in his hands, but in those of Professor Lankester; he expressed the desire of the Royal Society to foster an undertaking which promised well for the advancement of science. The establishment of laboratories for the study of the fauna and flora of the sea had taken place in most civilized countries in the last few years, and was, in fact, a necessary consequence of the great change which had come about in the aims of physiological science. The study of the development of animal life commenced in a serious way about half a century ago, and the ramifications of that inquiry, which had been extended to the mode of becoming of all live things by Mr. Darwin, had caused a complete change of the methods of biological science and of the way in which investigations were carried on. In order to understand the living being it was no longer considered enough, as in the days of our forefathers, to observe its outside or even to acquire a knowledge of its anatomy. They had now to understand its affinities, to trace its growth from the egg, and they were able to do this with a thoroughness and accuracy of which in his young days no one had the slightest anticipation. This was one good reason for the establishment of an institution of this kind from a purely scientific point of view. There was another, which was practical. We had great fisheries and great fishery interests, which were more or less regulated by legislation, and which were undoubtedly of very great importance to very large masses of the population. Hitherto, certainly up to within the last thirty years, such regulations had been made almost entirely haphazard, owing to a want of knowledge of the habits, mode of life, and mode of production of animals which were economically useful. At this present time it was within his knowledge that a great deal of vehement opposition to particular modes of fishing arose from ignorance of some of the primary facts concerning the mode of life of our food-fishes, and if they were to have better legislation than at present their arguments and reasonings must rest on exact and sound observation of the mode of life, mode of development, and metamorphoses of the inhabitants of the waters of our coasts. He wished to say with particular emphasis, lest there should be any misunderstanding with regard to their objects, that there was no

possibility of any rivalry or conflict of aims between the society to which he had referred and another Society of which His Royal Highness the Prince of Wales had announced the formation at the Fisheries Exhibition a few days ago. That Society was in the ordinary sense of the word practical. It would have to do with the condition of fishermen, the collection of statistics and of facts concerning food-fishes, and so forth. He sincerely trusted that when established, as he hoped they would be, so far from one being a hindrance to the other, both Societies would work in concurrence to one common end.

The Duke of Argyll then moved the following resolution:—  
“That in the opinion of this meeting there is an urgent want of one or more laboratories on the British coast, similar to those existing in France, Austria, Italy, and America, where accurate researches may be carried on, leading to the improvement of zoological and botanical science, and to an increase in our knowledge as regards the food, life, conditions, and habits of British food-fishes and molluscs in particular, and the animal and vegetable resources of the sea in general.” The fact of their being called together to form a voluntary Society to carry out these objects implied a discovery on the part of those who had taken a leading part in this matter that the work was not likely to be taken up by the Government. He was afraid that in this respect the British Government had always stood rather behind those of other countries, whether Monarchical or Republican. There were other agencies by which facts about food fishes would be obtained, and he instanced the researches of the President of the Royal Society and a valuable paper recently contributed by Professor Ewart upon one of the most important questions connected with food-fishes—the spawning of the Herring. Information so obtained showed the groundless character of the opposition raised by the fishermen of Loch Fyne to a mode of fishing which they called “trawling,” which was really the use of the seine net. Believing that there were agencies which would obtain and spread information for economic purposes, he thought that in the main they should in promoting this Society look to the interest of biology as a science.

This Resolution was seconded by Sir Lyon Playfair, who in the course of his remarks suggested that it was remarkable that a country so greatly dependent upon the sea as ours should be

the last to establish such an institution. The need of such a Society as it was proposed to found had been long felt, and an attempt had been made to establish one in Scotland. Much as he should like to see a laboratory here like that of Mr. Agassiz, at Newport, in the United States, they must recollect that in order to carry out their object they had to apply to a larger public, who would look for certain direct benefits from such a laboratory as it was proposed to institute. All there knew well that beneficial applications of science came with the overflowing of the full measure of science. Speaking from observation of what had been done to promote the study of biology by the establishment of marine laboratories in the United States, where the Government made liberal contributions to their maintenance, he related some remarkable practical applications of the knowledge of food fishes obtained in the course of scientific research in that country. Thus, the Gray Cod, which had been accustomed to leave the United States coast for the Newfoundland banks in summer, were, owing to the operations of the United States Fish Commission, now gradually accumulating through the summer on the United States coast, where they were called "commission cod." Again, the periodical American Shad famines had been prevented of late by the careful observation of the temperature of the water in the bays at the spawning season, and a timely intervention to effect artificial hatching. While some might be induced to assist scientific investigation with a view to the practical application of research, those who would support this Society for the sake of science alone might be certain that discoveries which would be made, perhaps in the most unexpected way, would redound to the benefit of the human race.

The motion was supported by Lord Dalhousie and Professor Flower. Lord Dalhousie explained that, as chairman of a commission appointed to inquire into certain difficulties which have arisen between fishermen who use lines and others who fish with trawls, he felt a lively interest in the practical questions connected with the habits of fish, and he was sorry to say that ignorance on this subject was not confined to the poor fishermen on our coasts.

Dr. W. B. Carpenter then moved the following resolution:—  
"That it is desirable to found a Society, having for its object the



establishment and maintenance of at least one such laboratory at a suitable point on the coast, the resources of the laboratory, its boats, fishermen, working-rooms, etc., being open to the use of all naturalists under regulations hereafter to be determined."

Sir John Lubbock, in seconding the motion, said he thought they owed their thanks to Professor Lankester for the efforts he had made to found the proposed Society. The resolution, which was supported by Dr. Günther, was passed.

Sir Joseph Hooker then moved:—"That this meeting does hereby agree to constitute itself such a Society under the title of 'The Society for the Biological Investigation of the Coasts of the United Kingdom.'"

Professor Moseley having seconded and Mr. H. C. Sorby supported this resolution, it was unanimously adopted.

On the motion of Sir William Bowman, F.R.S., it was resolved that gentlemen whose names follow be requested to act as a provisional council and report to an adjourned meeting to be held on Friday, May 30, as to the constitution and organisation of the Society and other matters, and in the meantime have power to admit suitable persons to the membership of the Society; further, that Professor Lankester be asked to act as Secretary, and Mr. Frank Crisp as Treasurer *ad interim*. Those named were the Duke of Argyll, the Earl of Dalhousie, Lord Arthur Russell, the Lord Mayor, the Prime Warden of the Fishmongers Company, the President of the Royal Society, the Presidents of the Linnæan, Zoological, and Royal Microscopical Societies, Dr. W. B. Carpenter, F.R.S., Mr. W. S. Caine, M.P., Mr. John Evans (Treasurer of the Royal Society), Dr. Albert Günther, F.R.S., Sir Joseph Hooker, F.R.S., Prof. Michael Foster (Secretary of the Royal Society), Prof. Ray Lankester, F.R.S., Prof. M. Marshall, F.R.S., Prof. Moseley, F.R.S., Mr. John Murray, F.R.S.E., the Rev. Dr. Norman, Mr. George J. Romanes, F.R.S., Prof. Burdon Sanderson, F.R.S., Dr. P. L. Sclater, F.R.S., Mr. Adam Sedgwick, F.R.S., Mr. F. Crisp, F.L.S., Mr. Thomas Christy, F.L.S., Mr. Thiselton Dyer, F.L.S., Mr. Percy Sladen, F.L.S., Mr. H. C. Sorby, F.R.S., and Mr. Charles Stewart, F.L.S.

Mr. G. J. Romanes, in seconding the motion, took occasion to observe that in his opinion one of the most important functions of the Society when formed would be that of conducting

researches upon invertebrate physiology. He was sure he would be but carrying with him the assent of all physiologists when he said that it is to the invertebrate forms of life that we must now look for the elucidation of many of the most fundamental problems connected with life-processes. It is in the Invertebrata that we meet with life in its least compounded state, and therefore in the state best suited to observation and experiment directed towards the solution of these fundamental problems. The sea is the great magazine of invertebrate life, and if the rich stores of material therein presented have been hitherto almost entirely neglected by physiologists, the explanation may be found in the fact that physiological research can only be conducted in well-equipped laboratories, which have been of but comparatively recent institution upon the sea-coasts of Europe and America.

Professor Ray Lankester then moved a vote of thanks to the President of the Royal Society for taking the chair, and said it had been estimated that from £6,000 to £10,000 would be required to start the project. He invited immediate subscriptions, payable *ad interim* to the Treasurer, Mr. Frank Crisp, 6, Old Jewry, E.C. Sir Joseph Fayrer seconded the motion, and the President having briefly replied, the meeting adjourned to May 30th.

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#### THE ASIATIC ELEPHANT IN FREEDOM AND CAPTIVITY.

AN interesting paper on this subject was lately read by Mr. G. P. Sanderson before the Society of Arts, Sir Joseph Fayrer, M.D., K.C.I.S., F.R.S., in the chair.

As superintendent of Government elephant catching operations in Bengal for the last fifteen years,] Mr. Sanderson has acquired an experience which enables him to speak authoritatively on many moot points in the natural history of the elephant, and his remarks were accordingly listened to with great attention.

He commenced by referring to the popular estimate of the elephant's intelligence, which he believed to be exaggerated; for, instead of being an exceptionally wise animal, its sagacity is of a very mediocre description. Its reasoning faculties he considered to be far below those of the dog, and in matters beyond the range of its daily experience it evinces no special discernment.

One of the strongest features in the domesticated elephant's character is its obedience, but, whilst fairly quick at comprehending anything sought to be taught it, it is decidedly wanting in originality. In support of these views, Mr. Sanderson related several cases which had come under his observation in which a want of intelligence had been displayed. He thought, however, that all who had had to deal with elephants would agree that their good qualities could not be exaggerated, that their vices are few, and only occur in exceptional animals; that they are neither treacherous nor retentive of any injury (the story of our youth of the tailor and the elephant he wholly disbelieved), and that they are obedient, gentle, and patient beyond all other domestic animals.

On the subject of height, Mr. Sanderson stated that much misapprehension exists. He had heard and read of Indian elephants 12 ft., 15 ft., and even 20 ft. high! As a matter of fact, he had found that 10 ft. in males and 8 ft. 6 in. in females (vertical height at the shoulders measured in a horse) is very rarely attained, and is not exceeded by one animal in five hundred. Five years ago he had inserted a request for information on this subject in all the chief newspapers of India. Accounts of 11 ft. and 12 ft. elephants poured in, but none stood the test of inquiry. To make it worth anyone's while to establish such dimensions, he offered to give an order upon any gunmaker for the best double-barrelled rifle and all accessories to any gentleman who could produce evidence of an elephant even 11 ft. high. This was never done, and out of many thousands he had only found one elephant above 10 ft. This animal, belonging to the Maharajah of Nakim-Sirmoor in the Punjaub, measures 10 ft. 7½ in. in vertical height at the withers, and he made a journey of one hundred miles in a palanquin to measure him with his own hands.

In connection with this part of his subject, Mr. Sanderson remarked that twice round an elephant's forefoot is his height, within an inch or two; more frequently it is exactly so. Out of many hundreds of elephants which he had measured, he had only once found the variation to be as much as five inches. In June, 1878, he measured the since famous African elephant Jumbo, which was then 10 ft. 5 in. at the withers. According to Sir Samuel Baker, who had seen large numbers of both Asiatic and African elephants in their native wilds, the Africans, male and female, average about one foot higher than the Asiatic.

Regarding the use and power of the elephant's trunk, Mr. Sanderson thought that much misapprehension also prevailed, this organ being chiefly used to procure food and to warn it of danger by the senses of smell and touch. It is a delicate and sensitive organ, never used for rough work, and in any dangerous situation the elephant at once guards it by curling it up. When engaged in such work as dragging timber, the rope is invariably taken between the teeth; they never attempt to pull a heavy weight with the trunk. An elephant is powerful enough to extricate a cannon from a difficult situation; but does so by pushing with the head or feet, or in harness, never by lifting or drawing with the trunk.

The age to which an elephant lives is, as must ever be the case with denizens of the forest, uncertain. The general native opinion is that they attain one hundred and twenty years in exceptional cases (they have been known to attain that age in captivity), but more usually to eighty years. Mr. Sanderson thought it by no means improbable that in a state of nature they might live to one hundred and fifty, or even two hundred years.

A remarkable fact in connection with wild elephants is the extreme rarity of any remains of dead ones being found in the jungles. In his own wanderings for several years through elephant jungles, he had only seen the remains of one female elephant, that died in giving birth to a young one, and of one other drowned in a mountain torrent.

If elephants live for two hundred years the annual deaths from natural causes would only amount to five per thousand. This figure would no doubt be exceeded in reality, as elephants are liable to be killed by each other. Though the number that die annually is thus probably much less than might be supposed, the mystery of what becomes of the remains of those that do die is still entirely unexplained.

A herd of elephants usually consists of from thirty to fifty individuals; but much larger numbers, even upwards of one hundred, are by no means uncommon. The herd is always led by a female, never by a male, and the necessity for this is evident, as the females must accommodate the length and time of their marches, and the localities in which they rest and feed, to the requirements of their young. As a rule, only one young one is produced at a birth; but Mr. Sanderson had known three cases

of elephants having two. Though a few are born at other seasons, the largest number make their appearance in September, October, and November. The elephant is full grown, but not fully matured, at twenty-five years of age. It does not attain full strength and vigour until about thirty-five years old.

Only the male Indian elephant has tusks; the female has short tushes or downward prongs in the upper jaw, seldom more than 4 in. in length. Notwithstanding the opinion of Jerdon and other authorities, Mr. Sanderson is confident that elephants never shed their tusks.\* The skull of foetal elephants disclose milk tusks, but these never make their appearance; they are absorbed, and the tusk that cuts the gum is the permanent one. Nor are tusks lost by accident ever renewed. The finest pair of tusks he ever saw came from the Garo Hills. They measured 8 ft. 9 in. in length, and weighed 168lb. Sir Victor Brooke had shot an elephant in Mysore whose longest tusk measured 8 ft., and weighed 90 lbs.

Mr. Sanderson considered it as satisfactorily settled that there is no such creature as a really white elephant, the so-called albinos of the Kings of Burmah and Siam being merely elephants of a dirty cream colour, and, in some cases, merely elephants with an unusual amount of the flesh-coloured blotchings on the face, ears, and neck common, in some degree, to all elephants. He would not advert to Mr. Barnum's so-called "white elephant" further than to say that he regarded it as the commonest of common elephants, not possessing a single peculiarity (compared with the everyday elephants of India) to justify the statements regarding his colour and special character which preceded, and even followed, his arrival in England.

Mr. Sanderson then proceeded to explain the various native modes of capturing and training elephants, and gave a graphic description (assisted by diagrams) of the method of capture employed by himself for the Indian Government, namely, by

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\* This statement is at variance with the opinion expressed by Mr. Corse, who, occupying in Tipperah a similar position to Mr. Sanderson, published so long ago as 1799, a valuable memoir on the Asiatic Elephant, in the 'Philosophical Transactions' for that year, founded on personal observations. In this memoir it is stated that although a great portion of the root of the milk tusk is absorbed, the remainder is shed as a dark-coloured stump. The process of growth is described and figured.—ED.

surrounding a herd (wherever found in the forest) by a large circle of men (370 is the usual number), and building a stockade, into which the herd are driven. This is known as the Government Kheddah plan, and is the most certain and economical method of taking wild elephants. By this means, as many as 118 have been secured at one drive.

When a sufficient number have been taken, the hunters are dismissed, and all elephants under 7 ft. in height are sold to merchants, who follow the Kheddah parties for the purpose of purchasing such animals. Those above 7 ft. are retained for the Government service, except some males and old females, which are also disposed of. Not more than 30 per cent. of the elephants captured are young and strong females thoroughly suitable for Government service. Those selected are divided into gangs of twenties, with a proportion of tame ones in charge. These escort the wild ones, bring their fodder, and lead them to water daily. The march from the jungle commences about the end of February, and the elephants reach the Government depôt at Dacca in May. They are then put into training, and by November are quite steady, and are drafted for military service.

During the past five years the annual average number of elephants captured during the short working season from December to February has been 154. The greatest number in any single year was 252 in seven weeks in 1882, and 199 in a similar period in 1883. Between 1878 and 1883 no less than 1866 wild elephants had been captured by the Dacca hunting establishment in a tract of country about fifty miles long by twenty miles broad in the Garo Hills in Assam, whilst fully as many more were met with *en route*. Mr. Sanderson concluded by stating that, notwithstanding these hunting operations, he considered the elephant as in no danger of becoming extinct in India, for, although small portions of its haunts had been cleared for tea and coffee cultivation, he thought the present forest area of the country would practically never be reduced, for reasons connected with the timber supply and climate; and, so long as its haunts remain, the elephant would flourish under due regulations for its protection.

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## NOTES ON THE VERTEBRATE FAUNA OF YORKSHIRE.

By W. EAGLE CLARKE, F.L.S., AND W. DENISON ROEBUCK.

It is our intention to prepare from time to time—annually if possible—a report upon the vertebrate fauna of Yorkshire, in which we propose to embody not only notices of the rarer and more interesting occurrences in the county during the period covered by the scope of the report, but also such records of older date as may have escaped our attention during the compilation of our ‘Handbook of the Vertebrate Fauna of Yorkshire,’ together with such emendations and corrections of the statements contained therein as may seem to be called for.

The present report covers the period of time which has elapsed since the publication of our Handbook in the autumn of 1881 down to the end of 1883, and includes notices concerning eighty-seven species, of which the following nine appear to be additions to the Yorkshire list:—*Rhinolophus hipposideros*, *Emberiza rustica*, *Torpedo hebetans*, *Raja maculata*, *Auxis rochei*, *Trachypterus arcticus*, *Regalecus grillii*, *Engraulis encrasicolus*, and *Orthogoriscus truncatus*.

In addition to these there are various occurrences to record which are of special interest, such as those of *Vespertilio Nattereri*, *V. mystacinus*, and *Delphinus tursio* among the Mammalia; of *Turdus varius*, *Cyanecula* sp.?, *Cypselus melba*, *Botaurus lentiginosus*, *Ardea garzetta*, and the breeding in the county of *Querquedula circia* and *Spatula clypeata* among the Birds; and the occurrence of *Brama Raii*, *Mugil septentrionalis*, *Regalecus Banksii*, *Ctenolabrus rupestris*, *Nerophis æquoreus*, and *Atherina presbyter* among the Fishes.

The numerical summary of species now stands as follows, the British forms being also given for comparison:—

	Yorkshire.	Britain.
MAMMALIA.—Terrestrial . . . . .	32	45
„ Marine . . . . .	13	26
BIRDS . . . . .	307	380
REPTILES.—Terrestrial . . . . .	4	7
„ Marine . . . . .	2	2
AMPHIBIA . . . . .	6	7
FISHES.—Freshwater . . . . .	32	53
„ Marine . . . . .	123	196
	519	716

A few preliminary remarks on the chief features of the following report will not be without interest.

The MAMMALIA of Yorkshire were for the most part so well known at the time of publication of the Handbook that but little is required by way of addition or correction, except so far as regards the two groups—the Bats and the Cetaceans—which appear to be always the most imperfectly-studied groups of mammals in any district. With respect to the Bats, the result of Roebuck's investigations has been that, with the assistance of correspondents, the geographical range of some of the forms in Yorkshire has been studied to some purpose. One species is added to the list, and two others—hitherto only recorded for the county on the strength of isolated occurrences—have been fully confirmed as inhabiting it, one of the latter indeed proving to be a common and widely-distributed form. There is yet good work to be done in this group, for Daubenton's Bat—which will probably be found sooner or later—has not yet been detected. Yorkshire appears still to remain the northern limit of the range of the Noctule, for Mr. R. Morton Middleton informs us that its reported occurrence in South Durham was not confirmed.

The study of the Cetaceans is much more difficult, from their habitat and large size; and our only hope is that a competent naturalist may be at hand in the event of the capture of animals of this order.

BIRDS.—Numerically the Yorkshire avifauna remains at 307, the addition of the Rustic Bunting being counterbalanced by the subtraction of the Barbary Partridge. Should, however, specific rank be accorded to Pallas's Great Grey Shrike, as is done by Mr. Seebohm, this form would have to rank as an addition.

Here it will be advisable to call the pointed attention of our readers to the two paragraphs at the head of p. xxxvii. of the Introduction to our Handbook, which appear to have been overlooked by some of our critics, who might there have learned that we never allowed or recognised the claims of such dubious records as those of Richard's Pipit, the Purple Martin, the Great Black Woodpecker, the Hairy Woodpecker, the Little Owl, the Acadian Owl, the Harlequin Duck, the Passenger Pigeon, the Virginian Colin, the Sooty Tern, and the Laughing Gull. None of these are included in our numerical summaries, although in the body of our work we felt it quite within our duty to give the



evidence of their occurrence for what our readers might consider it worth.

As to REPTILES and AMPHIBIANS, there is nothing to remark, except that it is very desirable that naturalists should keep a look-out for further occurrences of the Natterjack Toad in the county. As to the so-called Sand Lizard, we have not yet been satisfied that the animal occurs so far north, the Northumbrian occurrence hinted at on p. xli. being a myth.

As to the FISHES,—the least-investigated class in our fauna,—we are pleased to be able not only to add seven species to the list, but to give a variety of further particulars and additional occurrences of interesting forms; and it may be as well to remark that to the severe storms which prevailed early in April, 1882, we owe several records of pelagic and abyssal forms, such as the Torpedo and the Deal-fish, and other rare species. No doubt, had naturalists been more numerous in our sea-board towns and villages, others would have been detected.

The numbers which are prefixed to the names correspond to those used in the Handbook.

#### MAMMALIA.

1. *Rhinolophus hipposideros* (Bechst.); Lesser Horse-shoe Bat. — This species—an important addition to the Yorkshire fauna—is not uncommon at Eavestone, near Ripon, where it is taken by Messrs. James Ingleby and William Storey, from both of whom Roebuck has received specimens in the flesh, and one or two alive (Zool. 1882, p. 186; Nat. 1882, p. 166).

12. *Vespertilio Nattereri*, Kuhl.; Reddish-grey Bat. — Two specimens were sent in the flesh to Roebuck by Mr. W. Storey, of Pateley Bridge, who captured one of them on the 24th of May, 1883, in Harefield Wood, near that place, and the other in the same habitat a few days later.

15. *Vespertilio mystacinus*, Leisl.; Whiskered Bat. — This species, which our work was the means of introducing to the Yorkshire fauna, may now be considered as a widely-distributed and fairly numerous form in the county. Roebuck has had specimens from Harrogate (Grange), Eavestone (Ingleby), Pateley Bridge (Storey), Ben Rhydding (Smethurst), &c.

23. *Martes sylvestris*, Nils.; Marten.—Specimens are recorded

as having been killed in Raydale, and in Kexby Woods, near York (Field, Oct. 1, 1881, p. 504).

28. *Meles taxus* (Schreb.); Badger. — Stragglers continue to be reported from time to time, as at Yarm, Sleningford, &c.

{42. *Hyperoodon rostratum* (Chem.); Common Beaked Whale.

{43. *H. latifrons*, Gray; Broad-fronted Beaked Whale.—Mr. Southwell informs us that *H. latifrons* has been proved to be the male of *H. rostratum*, thus diminishing the Yorkshire list by one species.

50. *Globicephalus melas* (Trail); Pilot Whale.—One was captured off Flamborough in February, 1865, and recorded as the “Ca’ing Whale, *Globicephalus deductor*” (J. Freeland Young, Field, Feb. 25, 1865).

53. *Delphinus tursio*, Fab.; Bottle-nosed Dolphin. — One stranded near Goole, Oct. 4, 1881, the identification of which was confirmed by Mr. Thomas Southwell (Naturalist, 1881, p. 66).

#### BIRDS.

5. *Turdus varius*, Pall.; White’s Thrush.—Two additional occurrences. Rimswell, near Withernsea, one shot during the first week in November, 1881, and now in the collection of Mr. R. T. Burnham, of Rimswell, where Clarke has seen it. Waplington Manor, near Pocklington, one shot in early January, 1882 (Backhouse, Zool. 1882, p. 74; Inchbald, Field, 1882, p. 201).

8. *Turdus torquatus*, L.; Ring Ouzel.—The solitary instance of this species nesting near Beverley must now be considered doubtful.

11. *Cinclus melanogaster*, C. L. Brehm.; Black-breasted Dipper. Mr. Seebohm having expressed a doubt as to the occurrence of this species or race in Britain, Clarke forwarded him the Welwick specimen for examination, with the result that it was considered an undoubted example of this form.

17. *Ruticilla titys* (Scop.); Blackstart.—Mr. Bailey’s note that he had observed this species at Flamborough in October and November having been doubted in high quarters, it is interesting to know that Clarke shot one at Spurn in the last week of October, 1882, and saw another there about the same date in 1883. It is probably a regular autumn visitant.

18 or 19. *Cyanecula* ? species; Bluethroat.—Spurn Head, one shot in Clarke’s presence on the 11th of September, 1882, and

another seen the same day. The specimen procured was an immature bird, in which state of plumage the two species, *C. leucocyana* and *C. suecica*, are indistinguishable.

21. *Daulias luscinia* (L.); Nightingale. — The northern range of this bird has been extended as far north as Scarborough, where it undoubtedly bred in 1882 (W. Robinson). At Staveley, near Boroughbridge, two pairs nested in 1881 (Knubley), and a pair nested near Harrogate in 1883 (Inchbald).

37. *Acrocephalus streperus* (Vieill.); Reed Warbler. Mr. Seebohm in his 'British Birds' remarks that "it seems very doubtful whether the Reed Warbler breeds in Great Britain north of the Humber." This statement is of course quite erroneous, for the species is known to breed commonly in various localities which are not only north of the Humber, but some of them actually in the northern half of the county—as, for instance, Staveley, near Boroughbridge, and Knaresborough, in both of which localities it nests annually. It is also a regular nesting species near Leeds; and at Hornsea Mere, in the East Riding, it breeds in great abundance. This is not the only instance in which we have to regret the vague and sketchy manner in which such an important subject as the distribution of birds in Great Britain is treated in so valuable a work.

71 a. *Lanius major*, Pallas; Pallas's Great Grey Shrike.—This form is allowed specific rank by Mr. Seebohm in his work on British Birds. From the number of Yorkshire specimens that have come under Clarke's notice it is in all probability not only an annual winter visitant, but perhaps of much more frequent occurrence than is suspected.

93. *Linota linaria* (L.); Mealy Redpoll.—The year 1881 may be added to the list of seasons in which this species occurred in large flocks in the county.

96. *Linota flavirostris* (L.); Twite. — Mr. Allis's statement that this bird had bred on Thorne Waste is paralleled by the observations of the Rev. H. H. Slater (Nat. 1882, p. 179), who found it nesting on Pilmoor, near Thirsk, a similar low-lying locality.

107. *Emberiza cirrus*, L.; Cirl Bunting. — Additional occurrence. Fen Bog, near Whitby, a female shot on the 28th of February, 1882, now in the Whitby Museum. Two others were seen at the same time and place (Stephenson).

108. *Emberiza hortulana*, L.; Oortolan Bunting. — The specimen captured off the Yorkshire coast, which served for Bewick's figure, is now, according to Seebohm's 'British Birds' (vol. ii. p. 153), in the Newcastle Museum.

109. *Emberiza rustica*, Pall.; Rustic Bunting. — An addition to the avifauna; an accidental visitant from North-Eastern Europe and Northern Asia. Easington, a female (?) shot September 17th, 1881 (Clarke, Zool. 1881, p. 465; Nat. 1881, p. 57; Ibis, 1882, p. 181).

133. *Cypselus melba* (L.); Alpine Swift. — Additional occurrence. Huddersfield, a female brought in the flesh to Mr. S. L. Mosley on the 2nd of June, 1881, which had been found in an exhausted condition a day or two before (Mosley, MS.).

139. *Picus minor*, L.; Lesser Spotted Woodpecker. — Mr. Thomas Carter, of Masham, informs us that this species occurs about Aysgarth, in Wensleydale, and around Masham.

141. *Jynx torquilla*, L.; Wryneck. — Is an annual summer visitant to Walton Park, near Wakefield (H. B. Hewetson).

143. *Coracias garrulus*, L.; Roller. — One was seen by Mr. H. T. Archer on the banks of the Wharfe, near Ilkley, about the end of July, 1881 (Archer, Field, Aug. 6, 1881, p. 193; and MS.)

152. *Asio accipitrinus* (Pall.); Short-eared Owl.—A specimen shot at Spurn by Clarke in October, 1879, is in the arctic form of plumage described by Mr. Seebohm (British Birds, i. 172).

*Falco sparverius*, L.; American Kestrel.—In 'The Zoologist' for 1883, p. 126, Mr. James Backhouse, jun., records an occurrence of this species near Helmsley in May, 1882. We have very carefully investigated the evidence, and regret that we are unable to accept the bird as a member of the Yorkshire fauna, as certain features in the case are, in our opinion, fatal to its claim to be considered British.

186. *Pandion haliaetus* (L.); Osprey.—During the autumns of 1882 and 1883 this species appears to have been much more frequently observed than it has of late years, when indeed it was comparatively almost unknown.

187. *Phalacrocorax carbo* (L.); Cormorant.—This bird ceased to breed at Huntcliffe (*not* Arncliffe, as stated in the Handbook) near Saltburn some years ago; but now breeds in the cliffs near and at Kettleless (T. H. Nelson, MS.).

190. *Ardea cinerea*, L.; Heron.—Mr. H. B. Hewetson informs

us that there is a heronry at Nostell Priory, the seat of Mr. Rowland Winn; and Mr. Backhouse, jun., of one numbering about fifty nests at Moreby Park, near York.

193. *Ardea garzetta*, L.; Little Egret.—Additional occurrence. Aikē [incorrectly spelt Ake] Carr, near Beverley, one obtained about 1840 (Ruskin, 'The Eagle's Nest,' p. 170).

196. *Ardetta minuta* (L.); Little Bittern.—Additional occurrence. Goole, a young male obtained September 23rd, 1881, now in the possession of W. E. Clarke (Bunker, Nat. 1881, p. 66).

199. *Botaurus lentiginosus* (Mont.); American Bittern.—Additional occurrence. Harsley Castle, Welbury, near Northallerton, one shot by the Hon. W. Dawnay, October 27th, 1882, which was examined by Mr. John Harrison.

206. *Anser segetum* (Gm.); Bean Goose.—Mr. Boyes is of opinion that the immense flocks noted as formerly visiting the Wolds were not of this species, but were composed of Pink-footed Geese. Our authority for the statement was Mr. Arthur Strickland, as quoted by Allis in his 'Report on Yorkshire Birds,' read before the British Association in 1844.

219. *Anas boschas*, L.; Mallard.—Mr. Boyes informs us that the decoy at Meaux, in Holderness, the site of which is still to be seen, was about a quarter or half an acre in extent, with four pipes.

220. *Chaulelasmus streperus*, L.; Gadwall.—A pair, male and female, were shot on the River Hull, near Beverley, in the middle of May, 1882 (Dobrée, Nat. 1882, vii. 185).

221. *Spatula clypeata* (L.); Shoveller.—This species bred in 1880 on Thorne Waste, a nest with four eggs being taken by the late Mr. Wm. Talbot, of Wakefield, and others. About the year 1866 it bred near Masham; and in 1882 a pair again appeared at the same place, but, being disturbed, did not remain (T. Carter).

222. *Querquedula crecca* (L.); Teal.—Breeds not uncommonly on Thorne Waste (Clarke); and in the season of 1883 a pair bred on the moors near Masham (T. Carter).

223. *Querquedula circia* (L.); Garganey.—Beverley, a nest with nine eggs found by Mr. J. C. Swailes, who almost trod on the sitting female on the 21st of May, 1882 (Boyes, MS.); the first instance of its being known to breed in the county.

224. *Dafila acuta* (L.); Pintail.—Two pairs remained on a small pond on a warren at Kilnsea, in Holderness, until late in April, 1881 (P. W. Lawton).

229. *Fuligula cristata* (Leach); Tufted Duck. — Seen at Hornsea Mere on the 12th of June, 1883, by Mr. J. C. Swailes. Sir Wm. Milner (Zool. 1854, p. 4441) also observed it there in summer, and it doubtless breeds there.

246. *Columba livia*, Bonnat.; Rock Dove.—The statement in the 'Yorkshire Vertebrata' that this species is *reported* to breed in inland localities has been criticised by some correspondents; but Clarke's request for specimens has never been complied with.

247. *Columba ænas*, L.; Stock Dove. — Regarding the spread of this species, Clarke contributed some Yorkshire notes to Mr. Harvie Brown's valuable paper, read before the Royal Physical Society of Edinburgh on the 21st of February, 1883, "On the Stock Dove (*Columba ænas*), with Remarks upon its Extension of Range in Great Britain." From this we quote Clarke's concluding remarks, which appear as a footnote:—"Since the above was penned I have instituted further inquiries into the range and spread of the Stock Dove in Yorkshire, with the chief result that I am informed, on the reliable authority of Mr. Boyes, that warreners now alive remember this bird being numerous on the Wolds *sixty years ago*, when it was their perquisite. Thus it is a most interesting fact that at a period when the Stock Dove was almost, if not quite, unknown elsewhere in the county, it was common on the vast Wolds of the East Riding. I am inclined to think that Yorkshire and other neighbouring counties have been peopled with Stock Doves from this source; for with the gradual enclosure and cultivation of these great warrens we find a simultaneous and equally gradual spread of this species has taken place."

252. *Caccabis rufa* (L.); Red-legged Partridge.—Mr. C. Fullerton Smith ('Field,' Feb. 10, 1883, p. 184) gives notes on the introduction of this species into Yorkshire. At Hornby Castle they were turned down in 1846-7, but afterwards shot off. The same thing took place at Swinton, near Masham. At Ingleby, in the North Riding, some twenty years ago, about fifty brace were turned down by Lord de L'Isle, and now, on the neighbouring manors of Ormsby and Deighton, a few brace are shot every season. This information is interesting, and supplies material upon the introduction of this species into the county which we were unable to obtain in 1881.

253. *Caccabis petrosa* (Gm.); Barbary Partridge.—Mr. Boyes

informs us that the Beverley specimen was an escape; he had an opportunity of examining the bird, and found it was *pinioned*. This species must therefore be eliminated from the county list.

264. *Porzana bailloni* (Vieill.); Baillon's Crake.—The Goole specimen proved on examination to be an immature example of *C. maruetta*, the Spotted Crake (Clarke). Additional occurrence: Holmpton, in Holderness, one shot in 1880, now in the collection of the Rev. H. H. Slater (Slater, MS.).

272. *Otis tarda*, L.; Great Bustard.—Additional information has been obtained on the former occurrence of this fine bird, which it is proposed to reserve for a future article on this species in Yorkshire. We may remark that, in his continuation of Yarrell's 'British Birds,' Mr. Saunders has reproduced the old mis-statement as to Hawold being in Lincolnshire, whereas, as we have already indicated, it is in Yorkshire.

275. *Ædicnemus crepitans*, Gm.; Stone Curlew.—A pair of this species, which is now becoming very rare on the southern Wolds, bred near Market Weighton in 1881.

299. *Tringa minuta*, Leisler; Little Stint.—

302. *Tringa subarquata* (Güld.); Curlew Sandpiper.—Both species were particularly numerous on the coast in late August and early September, 1881; and in the early autumn of 1880 the Little Stint was again numerous (Clarke).

310. *Totanus macularius* (L.); Spotted Sandpiper.—The specimen recorded from the Tees proved to be a Green Sandpiper (J. H. Gurney, jun., 'Rambles of a Naturalist,' p. 255).

311. *Totanus glareola* (L.); Wood Sandpiper.—Additional occurrences: Coatham Marsh, adult shot, August 6th, 1881 (T. H. Nelson, Zool. 1882, p. 91). Beverley, one shot in the spring of 1882, in the collection of Mr. F. Boyes (Boyes, MS.). Bridlington Quay, one shot, mid-August, 1883 (Clarke). Easington, Holderness, one shot, early autumn, 1883 (Clarke).

314. *Totanus calidris* (L.); Redshank.—Bred on Skipwith Riccall Common in 1882, and at Masham in 1883.

316. *Totanus fuscus* (L.); Spotted Redshank.—Additional occurrence: Teesmouth, an adult shot on September 15th, 1881 (Nelson, Zool. 1882, p. 93).

323. *Numenius arquata* (L.); Curlew.—Breeds commonly on Thorne Waste, a vast tract of heather-land on the Lincolnshire border of the county, and very little above sea-level.

326. *Sterna dougalli*, Mont.; Roseate Tern.—Mr. T. H. Nelson informs us that the five recorded for Tees Bay by “Argus” were Common Terns, and not this species.

332. *Sterna fuliginosa*, Gm.; Sooty Tern. — As suspected (Handbook, p. xxxvii), this specimen has proved to be a Black Tern.

342. *Larus ridibundus*, L.; Brown-headed Gull.—A few pairs bred in 1881 and 1882 in a marshy field by the River Aire, just outside the Leeds borough boundary, and in 1883 they bred in some numbers on Strensall Common, but their eggs, about forty in number, were taken. The discussion in various numbers of ‘The Field’ for February and March, 1884, has added nothing to the information concerning Yorkshire which was in our possession at the time of framing our original account.

352. *Larus leucopterus*, Faber; Iceland Gull. — Additional occurrences: Spurn, a mature female and a bird of the year shot December, 1882, now in Clarke’s possession.

359. *Procellaria leucorrhoa*, Vieill.; Leach’s Petrel.—Additional occurrences: Riplingham, near Beverley, one in December, 1881 (Dobrée, Nat. 1882, p. 100). One obtained near Whitby, in the possession of Mr. C. Eagnall (Stephenson).

362. *Puffinus griseus* (Gm.); Sooty Shearwater.—At the time of publishing the ‘Handbook’ we were unable to discriminate between the recorded occurrences of *P. griseus* and *P. major*. We can now record the following occurrences of this species: one shot at Whitby in September, 1870, now in the Museum (Stephenson). One shot in Bridlington Bay, 1872, by Mr. Elton, is referred to this species (Macpherson, Zool. 1883, p. 121). Clarke examined a fine pair in September last, which had been shot at Flamborough. One shot at Redcar, Sept. 17, 1883 (T. H. Nelson, Zool. 1884, p. 147), but not, as the recorder supposes, an addition to the fauna of the county.

#### FISHES.

5. *Lamna cornubica* (Gm.); Porbeagle. — In August, 1883, four were captured alive in Bridlington Bay, one of which, examined by Clarke, was eight feet long.

6. *Alopias vulpes* (Gm.); Fox Shark, Thresher. — One captured on September 19th, 1883, at Hornsea, eleven feet in length (Dobrée, Naturalist, 1883, ix. 69).



13. *Læmargus borealis* (Scoresby); Greenland Shark.—Whitby, one caught by Thomas Langley, and brought into the port, Feb. 7th, 1882 (T. Stephenson, MS.).

16. *Torpedo hebetans*, Lowe; Cramp-ray, Torpedo.—Additional to the Yorkshire fauna. Easington, one captured on the 14th of April, 1882 (Clarke, Zool. 1882, p. 193). Bridlington, one washed ashore and captured alive in the spring of 1883 (Thomas Boynton MS.).

18. *Raja maculata*, L.; Homelyn Ray.—Additional to the fauna. Mr. Winson, the coxswain of the Spurn lifeboat, who is a practical fisherman and a careful observer, on being shown the plate of this species in Couch's 'British Fishes,' recognised it as one which he has caught commonly at "California," a fishing-ground ten miles off the coast between Flamborough and Withernsea.

20. *Raja circularis*, Couch; Sandy Ray.—The Cuckoo Ray (*Raja miraletus*) of Couch, which is a variety of this species, has been observed by Mr. Winson as taken in "California."

32. *Labrax lupus* (Lacép.); Basse.—A specimen of this fish, weighing eleven pounds, which was caught at Whitby on the 22nd November, 1883, is noteworthy on account of the date. It contained a quantity of spawn (T. Stephenson, MS.).

58. *Zeus faber*, L.; Doree, John Doree.—At Bridlington this appears to be a not uncommon fish, occurring regularly every summer.

61. *Brama Raii*, Bl.; Ray's Sea-bream.—On Whitby Sands a very fine specimen was found alive on November 2nd, 1882. It measured 24 in. in length, 19½ in. in girth, and weighed six pounds. It is now in the Whitby Museum (Thomas Stephenson, MS.).

62. *Lampris luna* (Gm.); Opah, King-fish. — Spurn; one occurred a few years ago (Clarke, MS.).

70. *Auxis Rochei* (Risso); Plain Bonito.—An addition to the fauna. Off Whitby, two occurrences in 1882. The first specimen was captured on September 9th; it measured 2 ft. 4 in. in length, and is now in the Museum. The second, which was 2 ft. in length and 6¾ lbs. in weight, was captured on the 18th of the same month (Thomas Stephenson, MS.).

85. *Agonus cataphractus* (L.); Pogge, Armed Bullhead.—When we wrote in the Handbook of these being taken in lobster-pots

at Spurn we were under a misapprehension; they are taken within the Humber estuary by means of the seine-net, which is used for the purpose of obtaining bait for the lobster-pots.

106. *Atherina presbyter*, Cuv.; Atherine, or Sand-smelt.—Additional evidence of the occurrence of this fish is to be found in a note in 'Science Gossip' for 1866, p. 254, wherein Commander Knocker, R.N., states that he had obtained many specimens, especially out of a dam erected for the new pier-works, at Bridlington.

111. *Mugil septentrionalis*, Günth.; Lesser Grey Mullet.—We are able to confirm, on unexceptionable authority, the occurrence of this fish. Specimens taken by Clarke at Spurn Point, just within the estuary of the Humber, on May 31st, 1882, submitted to Dr. Günther, were pronounced by him to be unquestionably of this species.

115. *Gasterosteus pungitius*, L.; Ten-spined Stickleback.—Occurs at Hobmoor and Bootham Stray, near York (E. J. Gibbins, MS.).

121. *Trachypterus arcticus* (Brünn.); Deal-fish, Vaagmaer.—An addition to the list. Flamborough, one was captured alive in perfect condition on the rocks near the Head, on the 17th April, 1882 (Boynton, Field, April 22nd, 1882, p. 535; Naturalist, 1882, vii. 185).

122. *Regalecus banksii* (C. & V.); Banks' Oar-fish.—Bridlington Quay, one washed ashore on the 7th of April, 1882. It measured 19 ft. in length, and 21 in. in depth, and thus appears to be the largest specimen on record (Boynton MS.; Dobrée, Naturalist, 1882, vii. 185).

125. *Regalecus grillii* (Linds.); Sild-Kung.—The specimen, which in our Handbook is recorded under *R. banksii* as taken at Staithes in January, 1880, is considered by Dr. Day, in his 'Fishes of Great Britain and Ireland,' as being probably—from the dimensions given—referable to this form, which, however, he regards as merely a variety of *R. banksii*.

127. *Ctenolabrus rupestris* (L.); Jago's Goldsinny.—Whitby, March 8th, 1883, a large number, variously estimated at from 40 to 100 in number, were washed ashore. One brought alive to Mr. Thomas Stephenson was compared by him with Dr. Day's plate, and the description of it, which he communicated to us, affords no reason to doubt the accuracy of his diagnosis.

184. *Leuciscus erythrophthalmus* (L.); Rudd.—Mr. Clifton R. Garwood, of Acomb, near York (writing in 'The Field,' June 9th, 1883, p. 765) noted having seen the Azurine or Blue Roach (a variety of the Rudd) in the River Ouse, amongst a shoal of Roach, Bleak, and Dace.

201. *Salmo fario*, L.; "var. *g*, Swaledale Trout" of Dr. Day.—Under this name Dr. Day (Fishes of Great Britain and Ireland, ii. 100) describes and figures a variety which is comparatively rather broad, and in colour the most beautifully tinted form he has seen. The specimens were sent to him by Mr. George Brook, jun., by whom they were taken in the Oxnop Beck, Upper Swaledale.

223. *Engraulis encrasicolus* (L.); Anchovy.—An addition to the list; previously overlooked by us. Bridlington, two specimens caught on the 17th October, 1866 (H. H. Knocker, Science Gossip, November, 1866, p. 254).

236. *Nerophis æquoreus* (L.); Æquoreal Pipe-fish.—Whitby, one washed up in March, 1883, which had forty-four rays in the dorsal fin, and measured  $15\frac{1}{4}$  in. in length (Stephenson, MS.).

241. *Balistes capriscus*, Gm.; File-fish.—Dr. Day, at p. 269 of his work, cites, from The Zoologist for 1868, p. 1027, a record of the occurrence of this species at Flamborough. Of this record we were fully cognisant at the time of writing the Handbook, the result of our enquiries being that—as Mr. Bailey assured us—the specimen was an Opah or King-fish.

243. *Orthogoriscus mola* (L.); Short Sun-fish.—Bridlington, five in August, 1866, mostly of small size (H. H. Knocker, Science Gossip, 1866, p. 254). Bridlington, one which weighed nearly 250 lbs. was shot on the 16th of August, 1882 (Bridlington Quay Gazette, August 19th, 1882).

244. *Orthogoriscus truncatus* (Retz.); Oblong Sun-fish.—Additional to the fauna. Mr. Stephenson has sent us an extract from the 'Whitby Repository' for December, 1867, recording the capture of an "*Orthogoriscus oblongus*, Oblong Sunfish," at Whitby in the November of that year, which measured 5 ft. across the fins and 5 ft. from head to tail. It was sold to Mr. Grier for the Museum at Huddersfield.

In conclusion we have to acknowledge our indebtedness to numerous correspondents whose notes are acknowledged in the text, and it is our duty to record our special obligation to Mr.

Thomas Stephenson, of Whitby, for the number and value of the notes he has sent us from time to time; we have also to thank Mr. George Roberts for drawing our attention to a few published records which had escaped our attention, and Messrs. George Brook, jun., Thomas Carter, and E. J. Gibbins for their response to our note inviting co-operation.

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ORNITHOLOGICAL NOTES FROM NORTH LINCOLNSHIRE  
IN THE AUTUMN AND WINTER OF 1883.

BY JOHN CORDEAUX.

FROM an ornithological point the autumn and winter of 1883 has been the least eventful and interesting of any I have experienced during a residence of thirty years on the east coast. There has been an almost entire absence of such species as may be designated rare and occasional visitants, and even our more common and regular visitors, both land and shore birds, have been singularly scarce. To an unprecedentedly mild winter, without any prolonged frosts or snow storms, we may probably look for an explanation of this deficiency.

To the wildfowl shooters along the coast the season has also been a most unproductive one, the absence of Ducks, Plover, and Snipe affording them but little opportunity of exercising their vocation, the result being also all along apparent in the scanty show in the game shops, almost conclusively supplied from foreign sources.

On September 14th a Honey Buzzard was captured at 1 a.m. against the lantern of the Spurn lighthouse, and another was shot on the 17th near Kilnsea. There appears to have been a considerable immigration of the larger *Falconidæ*, with many other species, on September 21st; and the same rush of birds was observed at Heligoland.

On October 21st I shot a female Long-tailed Duck from a flooded meadow near Kilnsea. I got a long shot at the bird as it drove in overhead, just at sundown, and evidently wounded it, as it did not rise again after pitching. I had a long cold walk to recover my spoil, the duck diving with extraordinary rapidity; notwithstanding a wounded wing its course in the clear water could be very clearly seen, and I was reluctant to fire again for

fear of injuring the specimen. The gizzard was quite crammed with small red worms and many minute stones. This, excepting a Black Redstart, seen by Mr. Wm. Eagle Clarke, was the only rarity we obtained at Spurn in the autumn. On the 24th I found the remains of a young Cuckoo, killed some time previously, against the telegram wire which extends for several miles along the sand-hills to the Point, against which fatal thread many a rare immigrant has dashed in the night migration.

An interesting capture for Lincolnshire was that of the Roller, shot on October 27th, at Muckton, near Louth. I saw this bird shortly after at Mr. Kew's, the birdstuffer's, and conjecture from the generally dingy appearance of the plumage that it was a bird of the year.

The first flight of Woodcocks arrived at Spurn on the night of October 21st; the great flight on the night of the 28th. Both these flights correlate with their passage across Heligoland. On the east coast sportsmen hold that it is a south-east wind which brings *large grey* or light coloured cocks, a north wind bringing *small red-coloured* birds. All our Woodcock shooters on the east coast—I mean those who have any experience in this matter—recognise the difference between the two, the former doubtless coming from more southern localities than the little red Scandinavian bird.

The past autumn was singularly deficient in rare and interesting visitants. Mr. Philip Lawton, of Easington, had three Wood Sandpipers brought to him about the middle of September, and Mr. Clarke received one, shot on the south-sand Bridlington, about the middle of August. These were immature birds.

During the first week in December great flights of Snow Buntings arrived in the east coast marshes with north winds and snow-squalls, and for some days the accumulated flocks quite crowded the stubbles. Hundreds and thousands rose on being disturbed, and with much twittering flitted heedlessly past the intruder, settling again immediately. I found it almost impossible to keep them on the wing. The proportion of old to young was about one in forty.

Pied Wagtails and Stonechats have remained with us all through the winter, and I have seldom visited my sheep folded on turnips without seeing either one or the other. The Stone-

chat almost invariably perched on the top of a net stake, looking not unlike a young Redbreast.

On March 1st Yellowhammers were migrating northward, and for some hours I noticed them swarming on the shrubs in the garden and neighbouring hedgerows.

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## REMARKS ON THE FUNDAMENTAL DISTRIBUTION OF COLOUR IN A LIVING ECHENEIS.

BY LEON VAILLANT.\*

THE fishes of the genus *Echeneis*, the best known of which, *E. remora*, has long attracted the attention of naturalists, and even of unscientific persons, by the singular modification of its first dorsal fin transformed into a sucking disc upon the head, do not seem to have given rise to any observations regarding their coloration.

If we refer to descriptions in different treatises on ichthyology we find that the species are generally described as being of a sombre tint, more or less brown, uniform; some have paler longitudinal lines which may be regarded as being connected with a particular pattern, but not depending upon what may be termed the fundamental distribution of colour. These are facts which may be verified by an examination of specimens preserved in collections.

Guichenot, who seems to have observed one species in a fresh state on the coast of Algeria, says, "Its colour is of a deep bluish, shading towards black on the back."

Having had an opportunity this year, during the cruise of the 'Talisman' on the West Coast of Africa, of examining one of these fishes which was captured with a Shark of the genus *Carcharias* to which it was adhering, I was struck with the disposition of its colour, the more interesting on account of its connection with its peculiar habits.

Whilst with fishes the dorsal surface is always more brightly coloured than the ventral, which is white, with the *Echeneis*,

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\* Translated from the "Bulletin de la Société Philomathique de Paris," 1884, pp. 5, 6.

which forms the subject of this note, it was precisely the reverse, the belly and sides being of a bluish black, iridescent, whilst the back, especially between the cephalic disc and the dorsal fin, was silvery white.

Moreover, on examining the fish, one was at first sight tempted to assume just the contrary of what was the fact, mistaking the upper for the under surface and *vice versa*.

The illusion was all the greater when, on being placed in a bowl of sea-water, it at once attached itself to the bottom, thus presenting to the observer its dark ventral surface. Moreover the eyes are directed towards the latter surface, being flanked by the upper portion of the head; and the mouth, the upper part of which projects beyond the lower, reminds one that in a great many fishes, on the contrary, the upper jaw is the shorter of the two.

This disposition of colour, the reverse of which is usually the case, evidently results from the fact that the *Echeneis* being attached by its cephalic disc either to another fish or to some submerged object, its dorsal surface is in contact with this support, and consequently protected from the light which on the other hand strikes the ventral and lateral surfaces.

It is, in fact, comparable with the distribution of colour in the *Pleuronectidæ* which have the upper side variously coloured, while the under side is pale.

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## NOTES AND QUERIES.

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Proposed Supplement to Thompson's 'Natural History of Ireland.'  
—A want has long been felt of some compendium of Irish Natural History more recent than the well-known work of Thompson, now about thirty years old. This want has been strongly expressed by many modern writers on Irish Zoology, who complain that no work is now available which contains the additions which have accumulated since the time of Thompson. During late years the fauna of Great Britain has been laboriously investigated, while that of Ireland has been comparatively neglected. It is now our object to collect and publish as much new information as can be obtained, especially that relating to the Mammalia, Birds, and Fishes of Ireland; and Mr. A. G. More, Curator of the Natural History Museum, Kildare Street, Dublin, has consented to act as Editor. The students of Natural History throughout Ireland are invited to join in supplying to

Mr. More such notes as they can, both from their own personal observations, or from any other reliable sources. It is proposed to commence with the Birds, and to note, under the head of each species, whether it is numerous or rare, increasing or decreasing, local or generally distributed; whether it breeds in the country, or formerly did so; whether it is a regular summer or winter visitant, or straggler of rare occurrence. In the case of a rare bird, the date and all particulars of its capture are requested. The skin, however roughly preserved, should be retained as a means of identification, and the name of the collector or collection where the specimen is to be seen should be given; for, above all, it will be necessary that every species should be identified beyond a doubt. In drawing up a local list, no species should if possible be omitted, as the range in Ireland of some birds is not yet well ascertained, but contributors not prepared to enumerate every species may still supply useful information concerning some. The names of all those who contribute information will in every case be acknowledged. It is requested that all communications be addressed to A. G. More, Esq., F.L.S., Museum of Science and Art, Kildare Street, Dublin.—Signed, R. M. BARRINGTON (Fassaroe, Bray, Co. Wicklow), A. G. MORE, J. D. OGILBY (Altnachree, Strabane, Co. Tyrone), R. J. USSHER (Cappagh, Lismore, Co. Waterford), ROBERT WARREN (Moyview, Ballina, Co. Mayo).

**The Ornithological Congress at Vienna.**—This International Congress, to which we referred in our last number (p. 139), was duly inaugurated by the Crown Prince, Rudolph, who made an opening speech, in which he dwelt upon the great importance of those studies in Natural History which characterise the present century, an observation doubtless intended as a reply to the attack on modern science recently made in the Austrian Parliament by the clerical Deputy Greuter. The Congress was attended by ornithologists from Austria, Germany, Switzerland, France, Italy, Holland, Sweden, and Russia, and even from Siam and Japan; but, strange to say, there were no delegates from England. Considering the leading part taken by our countrymen in ornithological science, by whom, it may be said, all the best monographs of the day have been written, and the leading ornithological journal founded, it is a little remarkable that no steps were taken to ensure the attendance of some representative or representatives from this country. It seems to us that the occasion demanded it, and delegates from the British Museum, the Zoological Society of London, and the British Ornithologists' Union might easily have been nominated to represent these several institutions, and to take part in the deliberations of the Congress on matters of interest to ornithologists all the world over. We have yet to receive a report of the proceedings.

**British Animals at the British Museum.**—The arrangement of the British collection at the new Natural History Museum has been com-



menced, and a large number of time-honoured specimens are being either dismantled or removed from the galleries. Many of the most important specimens are from the old Montagu collection, and are therefore nearly 100 years old. Never having been properly preserved, and having been mounted with all the bones in them, these historical specimens have for some time been gradually decaying, and very few of them are now fit for exhibition. It is needless to add that, under the care of the officer in charge of the ornithological department at South Kensington, every reverence will be shown for these ancient and valuable relics, and an effort will now be made to replace them in the exhibition rooms by a more complete series of British Birds than the Museum has yet shown to the public. Especial pains is being taken to illustrate the various plumages of each species, the seasonal changes, &c. All this will, of course, be a work of time, and our object in mentioning the fact is to ask the assistance of naturalists all over England to help in the formation of the new zoological collection. It is only by the co-operation of his brother ornithologists that Mr. Bowdler Sharpe can hope to succeed in his aim, which is to render the collection of British Birds in the Natural History Museum the best in the land, and worthy of the nation to which it belongs.

#### MAMMALIA.

**Polecat in Devonshire.**—Under this heading you were good enough to insert (*Zool.* 1883, p. 25) a note which I sent you. Since then I have received information on the subject from several readers of 'The Zoologist' and others, and it may be worth while to put on record their evidence, as showing the gradual extinction of the Polecat in this county. Mr. Gatcombe very kindly allowed me to search through the lists of animals stuffed by the late Mr. Bolitho, a well-known birdstuffer of Plymouth, of which he had become possessed. I found ten instances in which Bolitho had received Polecats, or "Fitches," as he generally termed them, between 1843 and 1859, the last being on September 17th of the latter year. Mr. Gatcombe tells me he has seen one at a birdstuffer's since Bolitho's death, which occurred in 1883, and he has just informed me that one was caught in a trap set for rabbits near Plymouth at the end of last March. He thinks it a female, as it is rather small in size. It seems hardly likely that it was an escaped brown Ferret, though it is somewhat light in colour, but it is impossible to distinguish between the two animals. Mr. Daniel Radford, of Lydford Bridge, tells me that one was killed there about seven years ago, and when I was at that beautiful locality in July last, I saw one nailed up on the wall of the gamekeeper's dog-kennel, which had been killed in the previous April. Of course I secured the head, and it has been well macerated and made into a good skull. These recent occurrences satisfactorily prove that the Polecat is hardly yet extinct in the western portion

of Devon. Mr. R. P. Nicholls says he has not had one sent to him during the eighteen years he has been at Kingsbridge. Mr. Henry Balfour kindly wrote to inform me that a man who had been master gunner at Dartmouth Castle, had more than once seen Polecats in the neighbourhood west of the Dart Estuary—I suppose within the last few years. Mr. T. Jacobs, of Newton Abbot, says that the last specimen he received to mount was from the neighbourhood of Moreton, on the borders of Dartmoor, but he had not had any for the last ten years. Coming nearer Exeter, I find that the last date at which I saw one alive was on August 30th, 1852, near Topsham. J. Truscott says the last he knows of was killed on Lady Rolle's property near Woodbury, and I saw the skull of one nailed to a tree near the gamekeeper's cottage at Woodbury Castle, in the spring of 1882. The animal must have been dead a good many years, as the skull was quite clean and white. I offered a reward for a specimen, but as none has been sent me I suppose this animal is extinct in that part of the county. Mr. C. D. Heathcote, of Raleigh, near Bideford, tells me that one was killed at Northam, in that parish, about 1853, but he has not heard of any occurrence since then. It seems only too probable that in North and East, and perhaps in South Devon, the Polecat is now extinct, but that a very few still linger in the extreme western portion of the county.—W. S. M. D'URBAN (Albert Memorial Museum, Exeter).

**Nest of the Harvest Mouse.**—During the autumn of 1883, especially harvest time, several nests of the Harvest Mouse, *Mus messorius*, were taken by myself, mostly from barley-fields, being placed upon the laid barley. Almost all contained young ones, numbering from six to eight, and it was surprising to see how eight fair-sized mice could possibly live in a nest hardly as large as an orange. I took them the first time last year, and was surprised to find them in such numbers.—E. CHARLES MOOR (Great Bealings, Woodbridge, Suffolk).

#### BIRDS.

**Migratory Birds on the Yorkshire Moors.**—The Chiffchaff was first heard last year on April 2nd, and left us about Sept. 1st. The Wheatear was very abundant on the edges of the moors, and was reported to me on April 1st. At the same time the Stonechat, *Saxicola rubicola*, appeared on the lower parts of the moors, where the furze and brambles abound. These signs of awakening spring induced me to take a walk across the moors to "Bill's-o'-Jacks," so well known to all lovers of nature in this part of Yorkshire, and I was well repaid. On April 14th I set out on my stroll, and in a garden close to the moors I noticed the Common Whitethroat performing its peculiar undulating flight to and from a small currant tree in search of insects. The Blackcap is rather scarce hereabouts, and the only one I saw last summer flew out of a cottager's garden as I passed along

the road. During a severe storm, and whilst shooting Grouse on the Marsden Moors last August, I observed an Oystercatcher. I imitated its call until it came within shot, when I fired at and killed it. I have never before noticed an Oystercatcher so far inland. I saw a pair of Ring Ouzels on the 25th September last, feeding on mountain ash berries, on the skirts of Clues Moor, near Huddersfield. I suspect they breed in the neighbourhood occasionally, as they do on the Malvern Hills. I shot a hen-bird near the same spot last April, and found that the crop was well filled with ivy-berries, and the ovary contained eggs in an early stage of development. Crossbills appeared about the 10th October. On the 20th of that month I observed several in some fir trees adjacent to Blackmoor Foot Reservoir, feeding on the fir-cones. Their appearance here is rarely noted. About the same time several Hawfinches were observed feeding on hawthorn berries in the orchard at the back of my house. The Brambling, or Mountain Finch (*Fringilla montifringilla*, Linn.), is one of the latest migratory visitors to the moors; I noticed them on November 20th in beech trees surrounding the beautifully situated residence of Mr. Joseph Crowther, Marsden; and on the same day I flushed a Water Rail, *Rallus aquaticus*, which I shot. On October 10th I flushed and shot at a Great Snipe on the Blackmoor Foot Moors. It has been observed several times in the neighbourhood.—ISAAC HARDING (Lenthwaite, near Huddersfield).

**Great Grey Shrike in Suffolk.**—On February 29th, while walking home from Woodbridge, about 4 p.m., I noticed a peculiar looking bird fly with something in its bill, and perch upon the tallest bough of an oak. Carefully walking up to the bird, which allowed me to get close to it, I saw it was a female Great Grey Shrike, *Lanius excubitor*, a rare bird in this locality, and was delighted to get such a good view of it. It took no notice of me, and, wishing to see it on the wing, I was actually compelled to throw stones at it.—E. C. MOOR (Great Bealings, Woodbridge, Suffolk).

**Early nesting of the Common Heron.**—Last year I paid a visit to a heronry on the 23rd March, and although it was bitterly cold just then, the winter had been very open and mild. Most of the nests contained young ones, but I succeeded in getting a clutch of four eggs, considerably incubated. This year I again visited the heronry, but a month earlier, *viz.*, on the 23rd February. Five nests were examined, with the following results:—one contained four eggs; another four fresh eggs, slightly incubated; whilst three contained young ones apparently only a day or two old, whose eyes were, however, partially open, showing the lemon-yellow irides. In this case the eggs must have been laid in January; but I can hardly suppose that when, as often happens at this time of year, the streams and ponds are frozen over, they would breed so early. The popular belief was current in the neighbourhood that the old birds hang their legs over the sides of the nests—an uncomfortable proceeding, I should imagine, as the nests

are over two feet in diameter. One man, who had every opportunity of seeing for himself, gravely assured me that the birds made holes in the bottoms of the nests through which they put their legs!—J. YOUNG (64, Hereford Road, Bayswater).

**Lesser Spotted Woodpecker near Stockbridge.**—On April 2nd I had brought to me, by a keeper, a male Lesser Spotted Woodpecker, which he had shot. I have not heard of one in this neighbourhood before, though some eggs were obtained about three years ago about five miles from here.—JOHN H. WILLMORE (Stockbridge, Hants).

**Red-throated Pipit at Brighton.**—On the 13th March a Red-throated Pipit, *Anthus cervinus*, was brought to Mr. Swaysland, the well-known naturalist, with a Stonechat and a Meadow Pipit, by a Brighton bird-netter. I saw it the following morning in the flesh; its tail and wings were perfectly uninjured, and it evidently had not been dead many hours. The whole of the breast in this interesting Pipit is richly suffused with bright rufous, and some of this colour extends to the belly, and even to the eyebrows. Mr. Swaysland pointed out that its legs, compared with the Meadow Pipit's (also in the flesh) were darker. This is a character that would be sure to disappear very rapidly, and I fear the beautiful tints on the breast, if not kept from the light, will fade also. As some doubt may well be expressed about what has long been one of the most doubtful birds in the British list, I am glad to be able to add that its identity has been confirmed by Mr. R. B. Sharpe, by whom it was exhibited at the last meeting of the Zoological Society.—J. H. GURNEY, JUN. (Nutwood, Reigate).

**Notes on the Ornithology of Northamptonshire.**—The Buzzard, *Buteo vulgaris*, hinted at in my last communication to 'The Zoologist,' bearing date November 15th, 1883, was seen during the subsequent fortnight by several persons, and, as far as I know, escaped slaughter in this neighbourhood. The Hon. Thomas W. Fitzwilliam informed me by letter that whilst out with his hounds near Barnwell, Nov. 16th, he sprang two birds from a piece of new-sown wheat which he felt convinced were Solitary Snipes, *Scolopax major*. Mr. Fitzwilliam writes, "I never saw any Snipe half as big before, and as I have done a good deal of Snipe-shooting I am sure that I am not mistaken." This is a late appearance of this species, which is very uncommon with us. A Short-eared Owl, *Strix brachyotus*, was shot near Thrapston, Dec. 1st. I only record this as the first reported to me this autumn, and very unusually late, as we generally meet with this Owl in the third or fourth week of October. A Green Sandpiper, *Totanus ochropus*, was shot at a pond near Clapton, Dec. 6th. We have met with this species in this neighbourhood in every month of the year except June, but never in any numbers, except occasionally in August and September. A Common Gull, *Larus canus*, in immature plumage, was shot on the

river near Thrapston, Dec. 7th, and a Dunlin, *Tringa alpina*, in the same neighbourhood, on the following day. It may seem absurd to record the occurrence of such common birds as these, but we would beg those who are of that opinion to bear in mind that we are treating of the Ornithology of an inland and comparatively small district, and the two last-mentioned species, though neither of them very rare therein, are of some *local* interest. On Dec. 12th, George Trowbridge, gamekeeper to Mr. Freeman, of Clapton, heard strange cries proceeding from high in air overhead, and on looking up saw a large "hawk" (probably a Peregrine) with a large bird shrieking and struggling in its talons; the said hawk was out of shot, but on shouts and demonstrations from the person above named let go its quarry, which was pursued and eventually shot by Trowbridge, and proved to be a very fine specimen of the Oystercatcher, *Hæmatopus ostralegus*, an exceedingly uncommon bird in this neighbourhood in our experience. The above particulars were communicated to me by the Rev. E. P. Williams Freeman, Rector of Clapton, who was also kind enough to present this Oystercatcher to the writer. From the last-mentioned date till now I have been kept entirely to the house by an attack of illness, so that my subsequent notes are mainly from the observations of friends and neighbours. Dr. Tomlinson, of Oundle, reported to me in December that on one of his journeys from that town to visit me, he had seen on the roadside, not far from Barnwell, a Blackbird, *Turdus merula*, "of the colour of a sandy cat." He has often since noticed it about the same spot; its existence seems to be well known to some of our gamekeepers, one of whom, on being asked about the bird by my son, took him to the place and found it at once by the roadside. My son, who had a close view of the bird, describes it as being of the colour of an Australian sovereign; his sight of it took place on Saturday, April 5th, 1884. I received for identification, Jan. 29th, 1884, a young specimen of the Common Puffin, *Fratercula arctica*, from the Rev. G. Nicholson, of Northampton, who informed me that it was brought to him alive on the morning of Dec. 17th, 1883, having been caught by a cottager at Thornby, near Naseby, struggling at his door during a severe storm on the evening of Dec. 12th. This bird was erroneously recorded in the 'Journal of the Northamptonshire Natural History Society,' and (we believe) in one or more of our county newspapers, as a Little Auk, *Mergulus alle*. A good specimen of the Bittern, *Botaurus stellaris*, was shot on our river near Ashton on Jan. 26th, and presented to me in the flesh, by Mr. Samuel Deacon, of Polebrook, on the 30th. Heard of nest of Wood Pigeon, *Columba palumbus*, containing eggs, for the first time this year, March 18th. A Tawny Owl, *Strix aluco*, sitting upon four eggs, allowed the tree in which her nest was situated, unknown to the woodmen, to be felled to the ground without moving; she was taken uninjured, and brought to me, with the only unbroken egg, March 26th. First Wheatear, *Saxicola ænanthe*, of season,

reported by Mr. Hunt, March 22nd. Chiffchaff, *Phyllopneuste minor*, March 27th. Fieldfares, *Turdus pilaris*, and Redwings, *T. iliacus*, travelling northwards in considerable numbers, April 2nd. First Redstart, *Ruticilla phænicura*, of season, reported April 2nd. A nest of Wild Duck, *Anas boschas*, was found by my son on a broken-topped elm tree at about sixteen feet from the ground, April 5th. First Wryneck, *Jynx torquilla*, of season, reported April 7th. A few Woodcocks, *Scolopax rusticula*, still linger about our woods, and are to be seen "glading" at dusk, April 10th. First Ring Ouzel, *Turdus torquatus*, of season, reported by Mr. Hunt, April 11th. First Cuckoo, *Cuculus canorus*, of season, reported April 11th. First Swallows, *Hirundo rustica*, of season, reported April 12th. First reports of Blackcap, *Sylvia atricapilla*, and Willow Wren, *Phyllopneuste trochilus*, this season, April 13th. First report of Sand Martin, *Cotyle riparia*, this season, April 16th. Another nest of Wild Duck, *Anas boschas*, found yesterday in our park in an elm tree, about fourteen feet from the ground.—LILFORD (Lilford Hall, Oundle, April 25, 1884).

**Uncommon Birds in Hertfordshire.**—During the past year (1883) the following uncommon birds have come under my notice as having occurred in this county, a more extended notice of which I have prepared for 'The Transactions of the Hertfordshire Natural History Society':—A pair of Twites, *Linota flavirostris*, were caught in bird-nets, during the month of December, near the village of Albury, at the foot of the Chilterns, and were exhibited for some time at Mr. Banfield's, bird dealer, Hemel Hempstead. A Hoopoe, *Upupa epops*, in fine plumage, was shot near Digswell, in the parish of Welwyn, in May, by Samuel Gooch, one of the keepers on the Brocket Hall estate, and is still in his possession. The Hoopoe is an irregular spring and autumn migrant. Several specimens have at different times been taken in Hertfordshire, but always at considerable intervals. A "Ringtail," or female Hen Harrier, *Circus cyaneus*, was observed by Mr. Marlborough R. Pryor, at Weston Manor, near Stevenage, on the 28th October, and on one or two subsequent occasions. When only seen upon the wing it is very difficult to distinguish a female Hen Harrier from the female of Montagu's Harrier. Mr. Pryor had a good opportunity of observing the bird in question, and is well acquainted with both species. Both from its general appearance and from the period of the year at which it was seen he believed it was a Hen Harrier, and as such I accept it. A White Stork, *Ciconia alba*, was shot somewhere about the end of July, while resting on the top of a house near Holfield: it was unmistakably identified. On the 28th and 29th of August two large flocks of Dotterel, *Eudromias morinellus*, were reported by Mr. Percy F. Fordham as having been observed at Royston Heath, and on September 24th a single specimen, believed to be a bird of the year, was shot in turnips near Weston Manor, Stevenage, by Mr. Marlborough R. Pryor. The Dotterel is a spring

and autumn migrant. In olden times it was frequently the quarry of falconers, and it is stated that the 10th May was specially devoted to that sport, and was known on the borders of Hertford and Cambridgeshire as "Dotterel's day" (Hone's 'Everyday Book,' 1826, p. 645). It is interesting to notice that Dotterel are still observed in the same district in which they are reported to have been abundant during the reign of James I.—**J. LITTLEBOY** (Hunton Bridge, Herts).

[We have no doubt that the White Stork above referred to was one of a pair which belonged to Mr. H. D. Astley, of Chequers Court, Tring, and which made their escape. The owner advertised his loss in 'The Field,' and through the medium of that journal ascertained that one of the pair had been shot in Kent (Field, Nov. 18, 1882). He has since obtained another pair, concerning which he has just published the following letter in 'The Standard' of April 22nd:—"May I fill up a little of your valuable space in order to make a request—namely, that should any one see a pair of White Storks, *Ciconia alba*, either on private or public land, they will kindly do their best to protect them, and keep them from being shot at or otherwise molested? My reason for writing this is because a pair of these birds owned by me, which I had allowed full liberty in the hopes of their remaining to rear their young, have flown beyond their boundaries, and having lost their way are now wandering at large, if not already destroyed. They are quite tame, and I cannot think that they intended migrating; for not only are they in full moult, but they showed no signs of restlessness, and were seen lingering all day in a field about two miles off." In a later letter the same gentleman says:—"Since writing you about a pair of White Storks, I have heard that one has been shot, and the other wounded." It is quite possible, therefore, that we may hear of their being reported as notable additions to the avifauna of Hertfordshire. *Verbum sap.*—ED.]

**Grey Wagtail nesting in East Devon.**—In May, 1880, we found a nest of the Grey Wagtail, *Motacilla melanope*, at Honiton, Devon. The nest was placed about six feet from the ground, in a hole in the stone-work of an old bridge which crosses the river Otter. It contained two eggs of the Grey Wagtail and one of the Cuckoo. My share of the spoil included the two Grey Wagtail's eggs, which I now possess, and my friend had the egg of the Cuckoo, which I am afraid was shortly afterwards broken.—**J. R. EARLE** (15, Norham Road, Oxford).

**Abnormal Eggs of Blackbird.**—Last year a Blackbird here laid blue eggs, without a single spot, the blue being almost exactly the depth of a Hedgesparrow's egg. This year she has built within a few yards of the same spot; all her eggs are again clear blue, without a spot. When she had laid three eggs I took one to keep as a curiosity. I then found she had the additional peculiarity that she sat on only the remaining two, and

has continued to do so for over a fortnight. Is not the blue colour rare?—  
J. H. BUXTON (Hunsdon Bury, Ware).

**Notes from N.W. Yorkshire.**—When I stated (p. 139) that the Common Gull, *Larus canus*, breeds on Punchard Head, in Arkengarth Dale, I was certainly under the impression that it did so; but on making further enquiries I find that I had entirely misunderstood my informant, who tells me that it is many years since any gulls bred there, owing to their nests being destroyed and the birds shot. He is unable to recollect the colour of their plumage, but most probably they were a small colony of the Black-headed Gull, *Larus ridibundus*. The Common Gull, *L. canus*, is, however, an occasional visitor, and I have myself several times observed it on the moors during the months of May and June.—J. E. TINKLER (Chetham's Hospital, Manchester).

#### FISHES.

**Greater Forkbeard in Devon.**—Passing by a fishmonger's shop in Exeter on the 19th March last, amongst a lot of small Whitings, only seven or eight inches in length, I espied a specimen of the Greater Forkbeard, *Phycis blennioides*, Brünn., 8.75 inches in length. The proprietor of the shop obligingly made me a present of the specimen, and informed me that it was taken near the shore in Torbay, not far from Brixham. Bellamy, in his useful little work called 'The Housekeeper's Guide to the Fish-market,' published at Plymouth in 1843, speaks of this fish as "not uncommon." There is a specimen in the British Museum collected at Plymouth by Lieut. H. F. Spence, R.N. Mr. Gatcombe met with it once at Scaton. It, however, appears to be a rare species on the South Devon coast.—W. S. M. D'URBAN (Albert Memorial Museum, Exeter).

[In 'The Field' of April 5th a correspondent reports the capture of a fish of this species in the Firth of Forth on March 28th, and states that it is almost unknown in Scottish waters.—ED.]

#### ARCHÆOLOGY.

**Origin of the name "Oystercatcher."**—The name "Oystercatcher" seems to have been unknown to English writers on Ornithology till Catesby, in 1731, made use of it (Nat. Hist. Carolina, i. p. 85), and so far as I can make out it was not until 1776, when Pennant brought out the so-called 4th edition of his 'British Zoology,' that this name replaced the customary "Sea-Pie." Yet I do not profess to declare that the name "Oystercatcher" was a colonial invention. It may have been one of the many English phrases that were common enough at home, but yet did not, as it were, come to the surface until after crossing the Atlantic; and one reason for thinking this possible is that it has its equivalents in the Frisian *Oestervisscher*, the German *Austermann*, and so forth. But, on the other hand, I have no evidence to show how old these names really are; and they



might turn out to be renderings from the English. The French *Huîtricr* certainly looks as if it were taken from Catesby, who wrote in French as well as in English.—ALFRED NEWTON (Magdalene College, Cambridge).

[We should be glad if any other correspondent can throw further light on this subject, and explain the derivation of the provincial name "Olive," which is applied to the Oystercatcher by Albin, and is still in use on the coast of Sussex.—ED.]

"The Sea-blue Bird of March."—In Mr. H. T. Wharton's note upon this subject (p. 117) it would appear that the poet or commentator has rather missed the meaning of "halcyon days." It is quite true that the weather, and consequently the sea, is perfectly calm during the early winter in the Grecian Archipelago; I have known it particularly so for several years about Christmas, at which time we have often had brilliant sunshine and blooming roses. I have also noticed at this time that Kingfishers seemed unusually abundant; in fact, I think that this bird is observed more frequently flitting about the shallow seas and lagoons during a continuance of fine weather than at any other period. I have always understood the term "halcyon days" to mean brilliant weather, when the Kingfisher is likely to be more frequently observed on the move. The term alcyon or halcyon—*i. e.* the Kingfisher—has been supposed by most Hellenists to have some reference to ἄλς, the sea. Mr. Wharton, in the lately published 'Ibis List of British Birds,' says (p. 81), "Etymology unknown; often written *halcyon*, because of the *fancied* derivation from ἄλς, the sea." With all deference to Mr. Wharton, I would suggest that what he terms the *fancied* derivation may be the *real* one, and that it *may* be derived from ἄλς, the sea, and κύανος or κυάneos = dark blue, that is to say, something a *dark blue sea colour*, almost synonymous with the "Sea-blue Bird." If this be granted, "halcyon days" will have no reference to the Kingfisher, but will mean simply days when the sea is "deeply, darkly, beautifully blue," which, of course, could not happen, save in sunny weather, when the sea reflects the glowing sky.—MONTAGUE BROWNE (Leicester).

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## SCIENTIFIC SOCIETIES.

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### LINNEAN SOCIETY OF LONDON.

April 3, 1884.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Mr. R. Morton Middleton exhibited a Jackdaw, with so much white on the scapulars and secondaries as to cause a considerable resemblance to a Magpie. This bird had been seen and observed for some time at Castle Eden, Durham, prior to its dying from an injury.

Prof. P. M. Duncan gave an abstract of a revision of the families and genera of the Sclerodermic *Zoantharia* (excepting the *Madreporia Rugosa*). He stated that no systematic work having been written on the *Madreporaria* since that of MM. Milne-Edwards and Jules Haime (1857—60), and a great number of genera having been since described, a necessity had arisen for a revision of the classification. This necessity was the more apparent in consequence of the morphological work of Dana, L. Agassiz, Verrill, and H. N. Moseley. The old sections of the Zooantherian suborder required modifications and additions. The sections *Aporosa* and *Perforata* would remain, shorn of some genera, the old family *Fungidæ* becoming a section with three families, two of which are transitional between those just mentioned. The section *Tabulata* disappears, some genera being placed in the *Aporosa*, and others relegated to the *Hydrozoa*, according to Moseley. The *Tubulosa* cease to be Madreporian. Hence the sections treated are *Madreporaria aporosa*, *M. fungida*, and *M. perforata*. The nature of the hard and soft parts of these forms is considered in relation to classification, and an appeal is made to naturalists to agree to the abolition of many genera, the author having sacrificed many of his own founding. The criticism of the 467 genera permits 336 to be good, and as a moderate number (thirty-six) of subgenera are allowed to continue, the diminution is altogether about 100. The genera are grouped in alliances, and the plan seems to be useful. The object of the classification proposed is to simplify, many old and artificial divisions being dispensed with.

A paper was read by Mr. Francis J. Briant, "On the Anatomy and Functions of the Tongue of the Honey Bee (worker)." The author, after referring to the structure of the more conspicuous parts of the endoskeleton and relations of the tongue thereto, treats specially of the manner in which the bee takes up the honey by its tongue. It appears that upon the nature and function of the organ in question authorities are by no means agreed. Kirby and Spence, supported by Huxley, and partly by Newport, aver that the bee laps up its food, while Hermann Müller and others rather attribute the action as due to the terminal whorl of hairs to which the honey adheres, and therefrom is withdrawn upwards. The author of the paper, from experiment and otherwise, is inclined to the view that the honey is drawn into the mouth through the tongue by means of a complicated pumping action of the organ itself, aided by the closely contiguous parts.

April 17, 1884.—ALFRED W. BENNETT, M.A., in the chair.

Mr. Robert Lloyd Patterson, of Belfast, and Mr. Benjamin Lomax, of Brighton, were elected Fellows.

The only zoological paper read was by Mr. R. Bowdler Sharpe, namely, his ninth contribution to the Ornithology of New Guinea, in which he

described several new birds obtained by Mr. A. Goldie from the Astrolabe Mountains.—J. MURIE.

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ZOOLOGICAL SOCIETY OF LONDON.

March 18, 1884.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of February, and called special attention to a young specimen of the Red-eared Monkey, *Cercopithecus erythrotis*; a fine example of Martin's Monkey, *C. Martini*; and an example of a rare Ichneumon from Ceylon, Maccarthy's Ichneumon, *Herpestes Maccarthia*, all new to the collection.

Mr. Tegetmeier exhibited specimens showing a variation in the colour of the feet of the Pink-footed Goose, *Anser brachyrhynchus*.

A communication was read from Sir Richard Owen on the extinct birds of the genus *Dinornis*, forming the twenty-fifth of his series of memoirs on this subject. The present paper gave a description of the sternum of *Dinornis elephantopus*.

Mr. J. B. Sutton read an account of the results of his investigations of the more important diseases which affect the carnivorous animals living in the Society's Gardens.

Mr. J. W. Clark exhibited and read an account of three skulls of a Sea-Lion from the east coast of Australia. The largest, that of an adult male, had been exhibited, together with the stuffed skin, at the Fisheries Exhibition last year, where it had been named *Arctocephalus cinereus*, Gray. The object of the paper was to trace the history of the species, for which the name *Otaria cinerea* had been suggested by Péron in 1816, and to show, by comparison with the type skull at Paris, that these specimens had been rightly referred to it.

A communication was read from the Rev. O. P. Cambridge, in which he gave descriptions of two new genera of Spiders, proposed to be called *Forbesia* and *Regillus*.

April 1, 1884.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

Prof. Flower exhibited and made remarks on a series of skulls of the Bottle-nosed Whale, *Hyperoodon rostratus*, illustrating the various stages presented by this animal as regards the conformation of its skull in the different ages of both sexes. Prof. Flower also exhibited, on behalf of Messrs. Langton and Bicknell, a specimen of spermaceti obtained from the head of the *Hyperoodon*.

Mr. Scater exhibited and made remarks on specimens of the eggs of

two species of Testudinata, *Testudo elephantopus* and *Chelys matamata*, recently laid by animals living in the Society's Gardens.

Mr. R. Bowdler Sharpe exhibited and made remarks on a Red-throated Pipit, *Anthus cervinus*, caught near Brighton in March last. Mr. Sharpe exhibited at the same time an example of the Water Pipit, *Anthus spinoletta*, captured at Lancing, in Sussex, in March, 1877.

Prof. E. Ray Lankester exhibited and made remarks on a large living Scorpion, *Buphus cyaneus*, from Ceylon.

A communication was read from Prof. T. Jeffrey Parker, being the first of a series of studies in New Zealand Ichthyology. The present paper gave a description of the skeleton of *Regalecus argenteus*. The species was founded on a specimen cast ashore at Moeraki, Otago, in June, 1883.

A communication was read from Viscount Powerscourt, containing an account of the origin and progress of the herd of Japanese Deer at Powerscourt.

A communication was read from Mr. G. A. Boulenger, giving the diagnoses of some new Reptiles and Batrachians from the Solomon Islands, collected and presented to the British Museum by Mr. H. B. Guppy, of H.M.S. 'Lark.'

A communication was read from Mr. C. O. Waterhouse, containing an account of the Coleopterous Insects collected by Mr. H. O. Forbes in the Timor-Laut Islands.

Mr. F. D. Godman read a paper containing an account of the Lepidoptera collected by the late Mr. W. A. Forbes on the banks of the Lower Niger, the Rhopalocera being described by Messrs. F. D. Godman and O. Salvin, and the Heterocera by Mr. H. Druce. The species of Butterflies were fifty in number, and comprised representatives of all the families of Rhopalocera hitherto known from Tropical Africa, except the *Erycinidæ*, a group but feebly developed in this region.

Mr. R. Bowdler Sharpe read the description of three rare species of Flycatchers, viz., *Alseonax minima*, *Lioptilus abyssinicus*, and *L. galinieri*. Mr. Sharpe also described an apparently new species of Nuthatch, discovered by Mr. John Whitehead in the mountains of Corsica, and proposed to be called *Sitta Whiteheadi*.

Mr. G. E. Dobson read a paper on the myology and visceral anatomy of *Capromys melanurus*, of which rare mammal specimens had been lately obtained for him by Mr. F. W. Ramsden, H.M.'s Consul at St. Jago de Cuba. The well-known division of the hepatic lobes into minute lobules in *C. pilorides* from the same island was shown not to exist in *C. melanurus*, which otherwise closely resembled the former species, and this character could therefore no longer be considered a generic one.—P. L. SCLATER, Secretary.

Z.O.

# THE ZOOLOGIST.

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## THREE UNPUBLISHED PAPERS ON ORNITHOLOGY.

BY THE LATE EDWARD BLYTH.

[A CRITIC, who has been a diligent student of Blyth's voluminous contributions to zoological literature, has described him as "one of the greatest zoologists who has lived since the time of Cuvier."

Certainly, if we pass over his knowledge of anatomy, which was not profound, it must be admitted that the fund of general knowledge which he possessed on the habits, classification, and geographical distribution of the Vertebrata (chiefly perhaps the Mammalia and Aves) was very remarkable. It appeared all the more so from his wonderfully retentive memory, which enabled him without hesitation, in reply to enquiries, to give valuable information on the subject under discussion either from his own observation, or from what he had read and remembered. Some idea of the extent and variety of the knowledge which he possessed may be formed by perusing the list of his published papers given by Mr. Grote in the excellent memoir which precedes Blyth's posthumous Catalogue of the Mammals and Birds of Burma (1875).

In this list are not to be found the three papers which we have now the pleasure of bringing to the notice of our readers. It is a little curious that they have not already been made public; for they were separately printed in pamphlet form by the author for private distribution, and to elicit friendly criticism and help in the preparation of a general work on the birds of India.

On a printed slip attached to one of these essays, that on the *Certhiidae* or Creepers, we find the author's views thus expressed:—

“PLAN OF AN INDIAN ORNITHOLOGY: To include descriptions of the species of all India, from the Himalaya southward; also those of Ceylon, Sinde, Assam, and the eastern coast of the Bay of Bengal to the Straits of Malacca; with those inhabiting the islands of the Bay, and the Maldives and Lacadives if practicable.”

Then follows, in brackets and italics, the statement:—  
“Printed for private circulation, and to elicit further information on the groups treated of.”

From the printed colophon we learn that these three papers, which treat of the *Certhiidae*, *Capitonidae*, and *Cypselidae* respectively, were printed in Calcutta in 1848, and they would appear to have been written in continuation of a series under the slightly different heading “Drafts for a Fauna Indica,” of which the first number on the *Columbidae* was published in the ‘Journal of the Asiatic Society of Bengal’ in 1845 (vol. xiv., part ii., p. 845), and has been noticed by Mr. Grote in his list of Blyth’s papers above referred to. It seems most likely that the series was discontinued when Blyth found that his friend Jerdon was engaged upon just such a work as he himself was contemplating, and he generously communicated to Jerdon much valuable information which subsequently appeared in ‘The Birds of India.’

Although the three papers now before us were written so many years ago, it will be no injustice to the author’s fame to publish them now. Blyth’s views as an ornithologist have generally been found, when impartially tested by his fellow workers, to be so sound, that everything which came from his pen seems worth preserving. We are the more disposed to lay them before our readers since the paper on the *Cypselidae* appears to have escaped the notice of Mr. Sclater, who published an excellent monograph of this family of birds in the ‘Proceedings of the Zoological Society’ for 1865 (p. 593), and in the bibliographical introduction to Messrs. Marshall’s ‘Monograph of the *Capitonidae*’ (1870-71) no mention is made of Blyth’s essay on the Barbets now before us. We propose therefore to print these three papers seriatim in successive numbers of “The Zoologist,” and will commence with that on the Creepers.]

#### I. Fam. CERTHIIDÆ.

These are birds which creep upon the bark of trees, or some of them upon rocks, or even rugged ground; having the toes three before and one behind (unlike the Woodpeckers), the outer

toe being connected basally to the middle one as far as the first joint. The bill varies much in shape, according to the mode in which the food is chiefly obtained; but the tongue does not aid in procuring it, being of the common structure, thin, horny, and inextensible; the tip of the upper mandible rarely shows so much as a trace of emargination. They feed both on insects and oleaginous seeds, more or less of one or the other; and the stomach is a tolerably muscular gizzard. All the genera have a well-defined geographical distribution.

The *Certhiidae* may be, first, most conveniently divided into those having a short, even, flexible tail, which is not employed in supporting the body (as the flexible tail of the Wryneck sometimes is); and those having a cuneated tail with stiffened points, as in the Woodpeckers.

A. With short, even, unpointed tails.

Subfam. SITTINÆ (Nuthatches).

A group of small birds, from the size of a Lark downward to that of a Wren; with wings reaching nearly or quite to the end of the short tail; a moderately long, awl-shaped beak of considerable strength; and strong feet, having the hind toe especially much elongated, and the claws of all the toes stout, compressed, and equally curved. They traverse the bark of trees in every direction, up or down a perpendicular bole, or on the lower surface of a horizontal bough; and the bill is either straight or inclines to be a little recurved, being adapted either for striking with much force, or for raising and detaching scales of bark to get at the insects which lurk beneath.

Two genera are recognised—*Sitta*, with stout subcylindrical bill, straight or with but a very slight tendency to recurve, and wings not reaching to the end of the tail, which is peculiar to the temperate regions of the northern hemisphere, being in India confined to the hills,—and *Sittella*, with weaker and much compressed bill, distinctly recurved, and having an emarginated tip to the upper mandible, and the wings reaching quite to the end of the tail, which is peculiar to Australia:\* the former, however, comprises *Dendrophila*, a subgenus of more tropical abode,

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\* With the *Acanthisitta* of New Zealand I am unacquainted; but *Sylvia citrina* and *S. longipes*, Lath., are here placed, which are not described to have stiffened tails, and the name would seem therefore to refer to the form of the beak.

inhabiting the hill regions of India, Burmah, and the Malay countries, which has merely a smaller and less compressed bill than the true *Sitta*.\*

Genus *SITTA*, Linn.

Bill subcylindrical, a little compressed and at base depressed, more or less stout and elongated, generally about the length of the head, straight, pointed, with the lower mandible sometimes tending a little upward towards its extremity; nareal orifices roundish, pierced in the base of the nasal membrane. Wings capable of steady and sustained flight (not unlike that of the *Sturnidæ*), having the first quill short, the third, fourth, fifth, and sometimes sixth, longest and subequal, and the second about equalling the seventh. Feet having the middle and hind toes of equal length, and the inner shorter than the outer; the tarse not equalling in length the hind toe with its claw. Plumage dense and of rather open texture in most species, the plumelets of the feathers unadhering; and the colours are generally grey above, with a black cap or only sincipital streak, and more or less rufous below, with white spots on the tail and its under-coverts.

These are robust little birds, endowed with much energy. The British species commonly alights high upon the bole of a tree, not unfrequently uttering a loud, piercing, and several times repeated chirp. It is seen chiefly in pairs, whereas the *Dendrophilæ* are commonly observed in small parties, and the *Sittellæ* sometimes in more numerous assemblages. Yet I have observed it to be rather social than otherwise, at least during the winter, at which season I have remarked one calling for more than an hour to its companion that had been shot; but in the pairing season they become pugnacious, and I have then seen them fight desperately on the wing. Among the remarkable habits of this bird is that of firmly fixing a nut or beech-mast in some convenient crevice, and then, holding on with its strong feet and swinging its body as upon a pivot, it will pierce the envelope with sharply repeated blows of its bill; and as the common English Thrush (*T. musicus*) is observed to return often to the same pebble in a garden walk, against which to break its snails, whose

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\* There are some S. American birds which nearly approximate the *Sittinæ*, even in colour; but these have lengthened tarsi, a short hind toe, graduated tail, and a curved tip to the upper mandible, seeming altogether to indicate different (and it would appear Myiotherine) affinities.



shells soon accumulate around, so the Nuthatch has been observed to resort habitually to the same suitable crevice in a tree.\* It has also the hoarding instinct, like the *Paridæ*, *Corvidæ*, &c., as has been observed of it both wild and in captivity; and for a nesting-place it selects a hole in a tree, the entrance of which, if too large, it contracts with mason-work of clay. Eggs six or seven, white, rufous-speckled; and the bird, when disturbed sitting, makes a formidable sounding hissing noise at the intruder.† Such are no doubt the habits of most of the other species; but *S. syriaca* is remarkable for frequenting rocks only, and never trees.‡ In climbing, these birds make much use of the real *heel* as a support. They roost with the head downward. Four species have been discovered in N. America, and three in Europe, all different from those of India.

S. FORMOSA, Blyth, J. A. S. xii. 938, 1007.—This species is unique among the Nuthatches for its size and beauty. Colour black above, spotted with ultramarine on the crown and back; the wing-coverts and tertiaries broadly tipped and margined partially with white; fore part of the wing, scapularies, rump, and upper tail-coverts bright lavender-blue; rectrices, great alars and their coverts margined with the same, extending nearly over the middle pair of rectrices; outermost pair of rectrices broadly,

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\* In confinement, according to Bechstein, turned loose in a room, its manner of breaking the husks of the hemp-seed and oats which are given it for food is curious and remarkable. Taking as many as it can in the beak, and ranging them in order along the cracks in the floor, so disposing them that they may be broken with facility, it then proceeds to despatch them one after another with the greatest ease and agility. The common British Nuthatch is a remarkably bold and active bird, in the wild state more fearless than familiar, and even if shot at and missed appears in general not in the least disconcerted, or perhaps merely flies chirruping to the next tree, and resumes its occupation as before. It displays the same fearlessness when captured and placed in a cage, losing no time in fruitless and sullen vexation, but—regardless of being looked at—eats voraciously of whatever food is supplied, and then proceeds deliberately to destroy its prison, piercing the woodwork, and effecting its deliverance from a stout cage of the ordinary make in a wonderfully short space of time. One caught in a common brick trap, such as boys set in England, was found to have fairly ground its bill to about two-thirds of the proper length in its persevering efforts to escape.

† The *Sittellæ*, it is remarkable, nidificate in the fork of a tree.

‡ *Sitta syriaca* (or a species allied in habit) is common in Afghanistan, and thence would extend westward to the S.E. of Europe. Vide J. A. S. xvi. 782.

and the rest narrowly, tipped with white on their inner web; under parts bright ferruginous, paler on the throat and also forehead, whence passing backward as a supercilium. Wing 4 in., bill to gape 1 in. Inhabits Sikim.

*S. CINNAMOVENTRIS*,\* Blyth, J. A. S. xi. 459.—Resembles *S. cæsia*, Michahelles (*i. e.*, the British Nuthatch†), only that the under parts of the male, except the white chin and sides of the throat, are of the same deep maronne colour as are the flanks only of *S. cæsia*, the lower tail-coverts being similarly mottled with white. In the female the under parts are of a much weaker and more dingy maronne. Wing  $2\frac{1}{4}$  in.; bill to gape 1 in. Hab. S. E. Himalaya.

*S. CASTANEOVENTRIS*, Franklin, P. Z. S., 1831, p. 121; J. & S., Ill. Orn., 1st series, pl. 165.—Similar to the last but smaller, the bill much narrower and more slender, and the general colouring more vivid. Wing  $2\frac{7}{8}$  in.; bill to gape  $\frac{7}{8}$  in. Hab. Himalaya, and hilly regions of India generally. Mr. Jerdon has shot it at Goomsoor, in high forest jungle, and has seen specimens shot at the top of the Gazalhatti Pass, in Mysore. Capt. Tickell obtained it at Chyebassa, and I have seen it in collections from Rajmahl in Bengal, and from Darjeeling.

*S. HIMALAYANA*, Jardine and Selby, Ill. Orn., 1st series, pl. 164; *S. nipalensis*, Hodgson, J. A. S. v. 779.—A small species, with remarkably short bill, tapering evenly from the base as viewed from above. Colour nearly as in *S. cæsia*, but the vent and under tail-coverts of the same unspotted rufous as the flanks, which are paler than in *S. cæsia*, and the middle pair of rectrices are white at base, except along the exterior border. Wing  $2\frac{7}{8}$  in.; bill to gape 11-16th in. Hab. S. E. Himalaya.

*S.* ———? Size about that of *S. cæsia*, with long and slender bill, a black cap, white throat and breast, and dark chestnut belly. Hab. Interior of N.W. Himalaya.

#### Subgenus DENDROPHILA, Swainson.

Merely differs in having a shorter and more feeble bill than in

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\* Contracted from *cinnamomeoventris*.

† The Scandinavian *S. europæa*, L., is the species termed *asiatica* by Temminck, and *uralensis* by Lichtenstein. It differs only from *S. cæsia* in having the throat, breast, and abdomen pure white. Some zoologists would, however, consider *S. europæa*, *S. cæsia*, and *S. cinnamoventris* as but local varieties of a single species.

the true *Sittæ*, and delicate silky plumage. It is barely separable. The Indian species is, however, more social in its habits than the typical Nuthatches, frequenting the under surface of boughs in small parties, and raising scales of bark in the same manner as its congeners, to get at the insects beneath, but never (so far as has been observed) striking or tapping with the bill. The more tropical habitat is also worthy of notice, though confined to the hill forests; and the Indian species extending its range to those of the Himalaya.

D. FRONTALIS; *Sitta frontalis*, Horsfield, Linn. Tr. xiii. 162; figured in Swainson's Zool. Ill., 1st series, pl. 2; *S. velata*, Temminck; *S. corallina*, Hodgson, J. A. S. v. 779. Fine blue above, with a broad velvety-black forehead; lower parts delicate lilac-brown, passing to white on the throat; bill coral-orange. Wing  $2\frac{3}{4}$  in.; bill to gape  $\frac{5}{8}$  in. Inhabits the hilly regions of India generally, Burmah, and the Malay countries. According to Capt. Tickell, "it flies and climbs upon the underwood with great rapidity, and is found in the thickest parts of sâl jungle." Mr. Hodgson describes it from the central and northern regions of Nepal; and Mr. Jerdon informs us that "it is found in great abundance in the dense woods of the Nilgiris. I have seen it, though rarely," he adds, "below the ghâts, also in thick forest jungle. It hunts, in general, in small parties of five or six; is very active and restless, creeping round the horizontal branches chiefly, and seeming to prefer the under surface of the boughs, and also running downwards. It feeds on various small insects, which it picks off the bark, but does not tap like the common Nuthatch." Mr. Swainson figures it from Ceylon, where also it is common. It likewise abounds in Assam, Sylhet, Arracan, the Tenasserim provinces, and Malayan Peninsula. Sir St. Raffles observed it in Sumatra; and Dr. Horsfield in Java.

A second species is mentioned by Mr. Swainson by the name *D. flavipes*, probably from the Malayan Archipelago.

#### Subfam. ———?

A mere group of convenience, provisionally adopted until the affinities of the genera have been more critically determined. It consists of species which combine the feebler frame, and bill and feet of the Tree-creepers with the soft tail of the Nuthatches. Such is the Australian genus *Climacteris*, the habits of which are quite those of the northern Tree-creepers, except that they come

much upon the ground among fallen leaves, and upon prostrate trunks; but in climbing they can only *ascend* like the Tree-creepers, except sometimes by a few hops backward and obliquely downward, as is also the case with the *Certhiæ*. The two following genera may be included:—

Genus TICHODROMA, Illiger (Rock-creeper).

Bill longer than the head, slender, nearly straight, but incurved a little at the acute tips; the terminal half compressed, and the basal gradually widening to the gape; culmen distinct throughout. Nareal orifices sublinear, pierced in the fore part of the nasal membrane. Wings long and large, reaching nearly to the tip of the short tail; the first primary half the length of the second, which equals the ninth; and the fourth, fifth, and sixth being subequal and longest. Outer tail-feathers a little shorter than the rest. Tarsi slender, about the length of the middle toe with its claw; the toes also slender and rather long, with compressed tapering claws but slightly curved, that of the hind toe as long as the digit. Plumage dense and puffy; the great alars remarkably broad, whence its mode of flight as below noted.

But one species is known, which has much the aspect of a feeble Nuthatch, with long and slender bill and large wings. It inhabits mountain precipices, creeping about upon rocks and old buildings, in the crevices of which it breeds. Mr. Vigne remarks it to “display the delicate scarlet patch upon its wings, as it flits over the perpendicular rocks, with the movements of a butterfly rather than of a bird.” These rock-frequenting habits are no disproof of its affinity for the forest Creepers, since the *Sitta syriaca* (a typically formed Nuthatch) frequents the same haunts, unlike the rest of its genus.

*T. MURARIA*; *Certhia muraria*, L.; *T. phœnicoptera*, Tem.; *T. europæa*, Stephens.—Delicate pale ash-grey above, the crown often brownish; throat and breast white, or whitish; abdomen dark fuliginous-ashy; anterior two-thirds of the wings crimson, as are also the axillaries; rest of the wing and tail black, the great alars and middle rectrices tipped with ashy; the outermost rectrices broadly tipped with white, successively decreasing on the others; and the outer primaries marked on their inner webs with two white bars, the basal continued over a greater number of feathers in the female, in which these additional spots are

ferruginous; lower tail-coverts white-tipped. Wing 4 in. or less; bill to gape  $1\frac{1}{4}$  in. Inhabits the Himalayan rocks, and those of W. Asia and S. Europe, especially in Sardinia and Spain. It is common in Afghanistan.

Genus SALPORNIS, G. R. Gray.\*

Bill long, curved throughout its length, broad and sub-depressed at base, and much compressed beyond the nostrils; nareal orifices broad, pierced in the fore part of the nasal membrane. Wings reaching to the end of the short tail, pointed, having the first primary very short, and the second nearly as long as the third and fourth, which are equal and longest. Tarsi shorter than the middle toe; the toes long, especially the hinder, and the claws are moderately curved and tapering, that of the hind toe being elongated. The foot is described to resemble that of *Rimator*.

S. SPILONOTUS; *Certhia spilonota*, Franklin, P. Z. S., 1831, p. 121.—“Above fuscous-grey, white-spotted, with narrow white streaks on the head; throat and abdomen whitish, the latter barred with dusky; tail banded white and fuscous. Length  $5\frac{3}{4}$  in.” Inhabits Behar, and probably the hill regions of Central India generally. (*Non vidi*).

B. With cuneated tails, having stiffened points (as in the Woodpeckers).

The *Certhiidae* of this division are numerous in the forests of S. America, where they vary greatly in size and in form of bill, but have generally a short hind toe, and strong curved claws of about equal size on all the toes. The bill is sometimes very strong and recurved, as particularly in *Xenops*,—Nuthatch-like in *Dendrodromus*, Gould,—very long, stout, compressed, and more or less incurved, in forms of *Dendrocolaptes*; and in others again short and resembling that of *Synallaxis*, which genus and its modifications constitute an allied subfamily, near which would appear to range the true *Certhiæ*. Not any of these birds are known to descend a perpendicular surface, in the manner of the Nuthatches. The last three subgroups indicated should perhaps form the

Subfam. CERTHINÆ.

Of feeble structure; the tail cuneated, with pointed feathers,

\* Ann. Mag. N. H. 1847. p. 352.

but weakly if at all spinous at tip; claws but moderately curved, that of the hind toe more or less elongated.

Genus *CERTHIA*, L. (Tree-creeper).

Size small; bill about the length of the head, slender, compressed, moderately incurved, the tip of the upper mandible unemarginated. Toes and claws long; the latter extremely compressed and tapering, that of the hind toe especially elongated. Tail cuneated, not very stiff, with protruding but scarcely spinous tips, and in certain species rather long; wings of mean length, feeble, with the third, fourth, fifth, and sixth primaries subequal, and the first nearly half the length of the second. Plumage of open texture, and speckled brown above, more or less deeply tinged with rufous on the rump, and plain (or at least streakless) below. Sexes alike.

This genus inhabits the temperate and even moderately cold regions of the northern hemisphere, but has nowhere been observed so numerous in species as in the Himalaya, where at least three species occur, though in separate regions. The only others known are *C. familiaris* of Europe and N. Asia, and *C. americana* and *C. albifrons* of N. America—the former of these hardly differing from *C. familiaris*. The bill of these little birds is compressed and sickle-shaped, adapted for insertion into chinks and crevices; and their wings are suited only for short flights from one forest tree to another—the bird commonly alighting on the trunk near the ground, and then spirally ascending, or generally keeping to the opposite side of the bole to that at which a spectator may be placed. Not unfrequently it will flutter down to re-align upon and again ascend the same tree; but if attempting to descend otherwise than by flight, it never does so in the manner of the Nuthatches, head foremost, but by a few hops obliquely backward (as before stated of the Australian genus *Climacteris*). The British species builds a warm feather-lined nest in some convenient niche outside the trunk or large branch of a tree, or against an old mossy paling; laying numerous translucent white eggs with rufous specks; and it often repeats a faint chirp, like that of a *Regulus*, and in spring utters a short weak song. Its retiring habits, however, cause it to be much less observed than from its commonness would otherwise be the case.

*C. HIMALAYANA*, Vigors, P. Z. S., 1831, p. 174; *C. asiatica*,

Swainson, 2½ Cent. B.—Size of the European *C. familiaris*, with the bill rather longer. Upper parts less rufescent, and more tinged with dusky on the crown and back than in that species; the rump less tinged with ferruginous; and the tail throughout strongly and conspicuously barred with numerous dusky cross lines. Under parts subdued white, purer on the throat. Wing 1½ in.; bill to gape ¾ in. Common in the Deyra Doon.

*C. NIPALENSIS*, Hodgson, MS.; *C. himalayana* apud nos, J. A. S. xiv. 581; *C. spilonota*, &c., of Gray's Catalogue of Mr. Hodgson's specimens presented to the British Museum.—Larger than *C. familiaris*, with a much longer tail; the upper parts more rufescent, having the colours also more defined; lower back, rump, and upper tail-coverts deep reddish ferruginous; tail not banded; under parts white, a little tinged with ferruginous; the flanks and lower tail-coverts ferruginous, less deep than that of the rump. Wing 2¾ in., tail 3½, bill to gape ¾ in. Common in Nepal.

*C. DISCOLOR*, Blyth, J. A. S. xiv. 580.—Nearly allied to *C. nipalensis*, but the entire under parts dingy brown, paler on the abdomen; and no ferruginous on the flanks, but only on the lower tail-coverts; rump and upper tail-coverts ferruginous, but this colour does not pass on the back as in *C. nipalensis*. Both have sometimes a strongly rufescent tinge on the tail. Admeasurements the same. Common in Sikim.

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## THE BIRDS OF PEMBROKESHIRE.\*

BY THE REV. MURRAY A. MATHEW, M.A., F.L.S.

PEMBROKESHIRE, with its extended littoral and its numerous bays and tidal inlets, all facing the W. and S.W., would appear to offer an attractive resting-place to the crowds of migrating birds which, at the autumn and spring migrations, must be passing its coasts. In this respect its situation is very similar to that of Devonshire and Cornwall—two counties which are singularly rich in their lists of rare birds, especially North American species. And, no doubt, careful observation would detect equally rare stragglers on these coasts. Ever since the commencement of the present century the Devon and Cornish shores have been

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\* A paper read at a meeting of the Pembrokeshire Naturalists' Field Club, 13th March, 1884.

closely watched. Col. Montagu, at Kingsbridge; Mr. Gatcombe, at Plymouth; Mr. E. H. Rodd, at Penzance, and other ornithologists, might be named who have recorded every rare bird which has been obtained in their respective counties. Pembrokeshire, probably, has not possessed such devoted students of bird-life; and its towns may also have been without a resident bird-stuffer to whom any singular bird might be brought for preservation. It must be said that these local bird-stuffers' shops are very useful in helping towards a knowledge of the birds which occur in a district. Where they do not exist many a scarce bird is obtained and thrown away, and no record of it is kept.

The scanty list of Pembrokeshire birds must be attributed to the absence of observers at the favourable situations, and of bird-stuffers' shops in the county towns. My own observations have been entirely confined to the northern portions of the county, and, compared with other parts of the United Kingdom, the Pembrokeshire avifauna appears to me to be deficient in several resident and many migrating species. The bare and bleak character of that part of the district which stretches for miles to the W. and S. of St. David's, and the absence of trees, may account for many birds being missing from the list of residents; and its being out of the track of migration may be the cause why so many of the summer migrants fail to reach us. The Nuthatch, and the Greater and Lesser-spotted Woodpeckers, may naturally be absentees from a sparsely-timbered country, and to the same cause may perhaps be assigned the non-appearance of the Wryneck, the Long-eared Owl, and the Stock Dove.

Of the smaller summer visitants there are many for which I have searched in vain, which might have been well expected here. I may instance the Wood Wren, so common in the summer in the woodland districts which skirt the Forest of Exmoor in Somersetshire; and the Black Redstart, a regular autumnal visitant to the seaboard of Devon and Cornwall.

The British Association for the Advancement of Science, at its meeting at York in 1881, appointed a committee of ornithologists of repute to obtain from the keepers of the various light-houses and light-ships around the coast some record of the migrations of birds as observed by them. Lists were accordingly issued to all the stations, and particular attention was requested to the state of the weather and to the direction of the flight of the



passing birds. Many lists have, in consequence, been received each season since then from the east and west coasts of England and Scotland, and from the coasts of Wales and Ireland, and these, although not so numerous or so perfect as they might be made, have afforded very interesting details respecting the wonderful passage of migratory birds across this kingdom. It is easy to understand the difficulties there must be in the way of rendering these valuable sources of observation yield their full amount of information. One of them has been referred to by the keeper of the lighthouse at Milford, who states that he cannot put down all the birds he sees through ignorance of their names, and suggests that pictures of the birds should be supplied. Some of the lighthouses are rarely visited by birds, being apparently out of the path of passing migrants, or else situated at some little distance from the coast. The phenomenon of migration is witnessed to the fullest extent along the eastern shores of England and Scotland, against which the great wave of migratory birds is chiefly launched when the migratory impulse at the end of summer and beginning of autumn affects the millions of birds which have nested in the north of Europe, and impels them to make their great annual movement towards their winter abodes. Their course then is from E. to W., or from S.E. to N.W., and the second week of October is the period when the greatest multitudes are passing over. The extraordinary concourse of birds which on dark and foggy nights at that season in the autumn besets the lighthouses on the E. coast cannot fail to arrest the wonder of the least observant, and for this reason the lists from the E. coast are fuller and are sent in from more stations than on the W. coast. The great migratory flocks expend themselves to a large extent in the woods and fields of the English counties, and those which still continue their flight on their way to their quarters in Ireland or Brittany, or still further south, are only portions of the great army which invaded our eastern shores. The lesser numbers rob from the phenomenon something of its wonder, and thus many of the keepers of lighthouses on the W. coasts do not think it worth their while to report the comparatively few birds which throng their lanterns, while some declare (which is, no doubt, the fact) that their lights are altogether unvisited, being out of the course of the birds. But this last cannot be the reason for the absence of reports

from such stations as the South Bishop, the Smalls, and Caldy—lists from which would be of deep interest in ascertaining the distribution of migratory birds in this county. The Tuskar rock, on the coast of Wexford, seven miles from the shore, is the nearest point on the Irish coast to Pembrokeshire from which there are any returns, and the birds there observed must, we presume, have made their flight either directly over this county or along its coasts. Numbers of birds are reported as striking against the lantern at the Tuskar, and eighteen species are named. It would seem that there is hardly a bird that can be mentioned which does not migrate. The smallest and the feeblest, such as Goldcrests, Wrens, and Chiffchaffs, are those which trust themselves to the dangers of a passage across the stormy seas in the greatest numbers. The passage of birds over great distances of water is supposed to indicate a period of time when the seas which they now cross over did not exist. A very slight elevation of the surface of the ground would cause the shallow German Ocean and the English Channel to disappear, and the British Isles would again be what they were once—the western edge of the continent of Europe. It is well known that birds inhabiting islands surrounded by very deep water do not leave them, although the mainland may be comparatively near. The present migrations of birds to and across this country date from a time when, in search of a warmer temperature, they made their flight entirely over land. The tiny gold-crest leaves the fir-woods of the North of Europe in the autumn in millions, and about the same time as the Short-eared Owl and the Woodcock, its invariable and strange *compagnons de voyage*, is found arriving on our eastern coast. The unparalleled numbers which came to this country in the autumn of 1882 was the most noticeable feature in the migrations of birds during that year. On a fine and clear night the flocks of birds keep wide of the lighthouses, but if it is rough and foggy they dash themselves against the light, and their dead bodies are to be gathered next morning in the lantern gallery or on the ground at the base of the lighthouse. Thus we read of small birds being picked up at one lighthouse in wheelbarrows, and being distributed over the land as manure; of 200 Chiffchaffs, one of the very smallest of our summer birds, striking against the lantern at another place, and of 196 being picked up dead; of over 1000 birds of various kinds being found dead

after a single night at another place; of Blackbirds, Thrushes, and Larks striking all night against the Tuskar, "many of each killed;" on another night of "Starlings and Larks striking for one hour, fifteen Larks and twelve Starlings killed;" on another night forty Starlings were killed; and there are many such entries. The birds pass over all day and all night. Some species prefer to make their journeys by night, others only by day. The Swallow chooses the daytime. One warm and genial morning in mid April I was standing on my vicarage lawn in Somersetshire, when a little flock of Swallows suddenly appeared overhead. They descended with joyful twitterings, and, after swooping round me as if to give me a greeting, they settled on the housetop, and at once commenced in an eager bustling way to inspect the familiar chimneys. I have no doubt that I then witnessed the arrival of the contingent which belonged to my own premises.

The destruction of birds at the migration time must be very great. Besides those which beat themselves to death against the lanterns of the lighthouses—treacherous decoys in the darkness of stormy nights—thousands must often drop into the sea and perish when they become exhausted through meeting with adverse winds and rough weather at the period of their passage. Captains of ships have reported the sea as covered for miles with their bodies; and I have myself frequently seen thousands of dead Guillemots, Razorbills, and Kittiwakes strewing the shore of the Devonshire coast after a severe autumnal gale. The migratory impulse thus lures myriads of birds to their destruction; and it is a curious fact that the largest and earliest flocks consist entirely of young birds. They have never before made the perilous journey; they know nothing of the country to which their instinct urges them to fly; and yet they are constrained to make the rash venture by an inward overpowering feeling called by naturalists "the hereditary instinct," and without guidance or direction, save that of the Divine Providence without whose ordering a single Sparrow does not strike the ground, they embark and trust themselves to the darkness of the night and the wild October skies. In the report from the E. coast of England for 1881 it is stated that "snow-buntings have been considerably in excess of anything known for many years, the proportion of old birds not more than one in a hundred."

The recently formed Ornithologists Union in America has

taken up the migrations of birds on the American Continent as its first study, has mapped out its vast territories into districts, has invited observations from everyone interested in natural history, and is prepared to most carefully tabulate and compare all results which may be thus obtained.

It may be said that the students of bird-life of the present day are fully awake both to the interest of these vast seasonal bird shiftings and to the unsolved problems which as yet lie behind them. If on a map of the globe lines could be drawn accurately setting down the forward and backward movements of birds, we should not only be astonished at the greatness of the phenomenon, but we should be possessed of clues which might disclose to us important secrets concerned with the physical geography of the earth in past ages.

There can be little doubt that the primary cause of bird migrations is temperature. We well know that the isothermal lines have been over and again deflected; and it is at present a problem whether the movements of birds indicate the lines of ancient temperatures, or have been changed in direction as the temperatures of the countries frequented by them have been modified.

On their return journey in the spring many birds appear to take a different route to the one they had observed in the autumn. The Knot and the Bar-tailed Godwit, which in the autumn may be found in large numbers upon the ooze and sandflats along the coast, are rarely seen on their passage back in the spring; whereas the Whimbrel, so common along the shore in April and May on its way back to the north, is equally rare in the autumn—proving that these birds have one route for their spring migration and another for their autumnal journey. But the avifauna of a district becomes varied through other causes than migration. Pembrokeshire used to be in a special degree the winter abode of the Snipe, the Woodcock, and the Wild Duck. Drainage and improved cultivation; the wanton destruction of the birds at their northern breeding-stations; the efficiency of modern sporting guns and ammunition, with the increased numbers of sportsmen, have all conspired to reduce these birds to a tithe of their former numbers; but while these have decreased, many other species have found the county yearly becoming more adapted to their requirements, and have proportionately multiplied. Of

these I may instance the Partridge, the Pheasant, and the Starling. This last bird now visits us in the autumn in numbers which would be portentous were it in any sense a mischievous species. On the contrary, the benefit it confers upon the pastures must be immense in its destruction of millions of grubs preying upon the roots of the grass. Half a century ago the Starling was almost unknown in the West of England. A few small flocks were occasionally noticed in the autumn, and were looked upon as the precursors of a severe winter; but it was so rare a bird that even Col. Montagu had never seen a young one in its nestling plumage, and actually described the first which was sent to him as an unknown Thrush, calling it "the Solitary Thrush" (*Turdus solitarius*). Since that time the Starling has regularly established itself in Devonshire and Cornwall, and will, no doubt, before long add itself to the birds which are to be found all through the year in this county. Indeed, Mr. Probert informs me that a few nests have already been met with at St. David's.

Besides the regular seasonal migrations of birds, small local shiftings are continually occurring, due to the changes of weather. Snipe-shooters are familiar with the advice given by old sportsmen to go after the birds whenever there is a change in the direction of the wind. For many years in succession I used to wander with my gun over Dartmoor Forest. One day perhaps I would walk for hours without obtaining a shot; while on the next, going over precisely the same beat, the birds would be so numerous that my supply of cartridges would be soon exhausted, the change being due to some sudden alteration in the weather. A severe and continued frost sends numbers of birds to seek for food on the sea-shore. A heavy fall of snow comes upon our feathered friends as a great calamity, and the small birds which feed upon seeds and grain are then in a sorry plight. One severe winter which I spent upon Lundy Island was made memorable by the immense flocks of Sky Larks which arrived there during the snow. All through the day they kept coming over from the mainland in countless hosts, and soon were so thickly dispersed everywhere upon the ground that it was impossible to fire at a Snipe or a Woodcock without killing or wounding some of these unfortunates. In such weather Sky Larks will also collect in gardens to feed upon anything green they may discover, and it is curious then to watch them. Six or eight may be seen at work

upon a single plant, and whatever it may be—winter kale, savoy, broccoli, or what not—in a very short space nothing will be left but the mere skeletons and ribs of the leaves, all the soft green flesh having been entirely eaten off by the starving little marauders.

If on the mainland the avifauna of this county, in comparison with some others, may be somewhat scanty, the difference is more than compensated by the interesting species frequenting the islands studding its coasts. On these the Buzzard, the Peregrine Falcon, the Raven, and the Chough are to be found nesting; and in the summer time countless hosts of sea-fowl, including the Guillemot, Razorbill, Puffin, Kittiwake, Herring, and Lesser Black-backed Gulls, Gannet, and the Green and Common Cormorants. Skomer possesses the distinction of being, perhaps, the island all round the British coasts most frequented by the Manx Shearwater. It also affords a home to the Common Tern and Stormy Petrel. Grasholme alone is occupied by the Gannets. All the islands are tenanted by the Chough, which, together with the Common Buzzard, has also several nesting-stations on the cliffs of the mainland. Such birds as the Chough, Raven, Gannet, and Manx Shearwater are sufficient to give an individuality to the bird records of the county, and to make it as interesting to the naturalist as any other in Great Britain.

I have prepared lists of birds which as yet I have been unable to detect in the northern portion of the county. (1) Among residents I find there are absent: Long-eared Owl, Tree Sparrow, Hawfinch, Cirl Bunting, Dartford Warbler (this species surely ought to be met with in a county so abounding in furze, and so similar in many respects to Cornwall, where, in the neighbourhood of Truro, it is not uncommon), Wood Lark,\* Nuthatch, Greater Spotted Woodpecker, Lesser Spotted Woodpecker, and Stock Dove. (2) Among spring migrants I have not yet seen the Ring Ouzel, Pied Flycatcher, Nightingale, Wood Wren, Garden Warbler, Reed Warbler, Redstart, Ray's Wagtail, White Wagtail, Wryneck, and Turtle Dove. The Blackcap is very rare. Of the small soft-billed birds the Chiffchaff is by far the most

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\* I may observe that the first autumn I was at Stone Hall (1880) Wood Larks were common there, and that I have never seen any since; I thus conclude that these were only birds on passage, and that this district is out of their usual line.

numerous species, being in the proportion of at least twenty to one to the Willow Warbler. And (3) among the autumn migrants I have been unable to detect the Siskin, Brambling, Twite, Black Redstart, Fire-crest, Royston Crow, Solitary Snipe, Norfolk Plover, and Green Sandpiper. It is to be noticed that each of these three lists is somewhat a lengthy one. I have no doubt that several of the birds I have here set down as absent from the northern division of the county have been observed as regularly occurring in the southern division, which is of a softer character, and better wooded than our northern "mountain" country. At the beginning of February last Mr. W. Summers, of Heathfield, sent me a Goosander which he had shot upon one of the ponds there. This was shortly after one of the severe gales which were so frequent this last winter, and stress of weather had evidently driven it so far inland. It was a female, and, in spite of being greatly infested by a large parasite, was in good condition.

Since the foregoing remarks were written, the Editor of the *Zoologist* has directed my attention to "A list of birds observed in Pembrokeshire," by Mr. Thomas Dix, printed in 'The *Zoologist*' for 1866, which I had overlooked. On turning to it I find that he paid but a short visit to the S.E. corner of the county not far from Carmarthen, and his list does not include many species (84). Some of his observations are borne out by my own experience, but he has made one or two mistakes. He was able to include some species which are not found in this mountainous region, such as Wood Wren, Wood Lark, and Wryneck—I am rather doubtful about the last. He states that the Garden Warbler is about as numerous as the Blackcap. I think he is in error here. I have never been able to detect the Garden Warbler in the extreme West of England. I never saw it in Devon or Cornwall, and it was extremely rare even in the neighbourhood of Taunton. In a list of the birds in the Tenby Museum, said to have been obtained in the county, this Warbler is mentioned, but on going to look for it, I could not discover it in the collection, and the bird the Curator pointed out to me as the Garden Warbler was undoubtedly a young Willow Wren! Mr. Dix is wrong in stating that the Black Grouse occurs in Pembrokeshire. It certainly does not, and I have never seen any part of the county which looked as if Black Game might occur there. Mr. Dix's words, however, are, "I

have not seen this bird, but I am told that a few are to be found near Fishguard." Mr. Dix admits (*tom. cit.* p. 140) that his observations were confined to a rather limited district, and that many other species, particularly among sea birds, might be added to his list.

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ON THE EXISTENCE OF TWO SPECIES OF AQUATIC  
FROGS IN NORTH GERMANY.

BY G. A. BOULENGER.

A SPECIES so widely distributed as *Rana esculenta* has naturally given rise to the establishment of many so-called distinct "races" or "species," but they have been founded on vague and trivial characters, such as size, colour, roughness of the skin, &c. Of late years the great variability of this species has caused all these so-called forms to be thrown together, with the exception of the oriental *Rana marmorata*, Hallow., which is regarded by Camerano, Lataste, and myself as a distinctly recognizable form, whether termed "species," "subspecies," or "variety." Quite recently Camerano, in a valuable paper on the variations of *R. esculenta* in the Mediterranean district,\* has shown that distinct forms or varieties, restricted to certain countries, may be grouped under two principal headings:—(1), those distinguished by a much developed inner metatarsal tubercle; (2), those with a very feeble inner metatarsal tubercle. The first group includes three varieties: (1), *viridis*, Rösel, the typical form figured by Rösel, generally distributed in Central and Northern Europe, and found also in Italy; (2), *lessonæ*, Cam., of Italy; (3), *cachinnans*, Pall., of E. Europe and the borders of the Black Sea. The second group comprises two varieties: (1), *bedriagæ*, Cam., from Damascus; (2), *latastii*, Cam., of N. E. Africa and Portugal. I need not enter now into the discussion of these races, as I reserve the subject for a future communication. I will only add that, simultaneously with Camerano, I drew attention† to the variation of that same character of the metatarsal tubercle, remarking that it corresponds pretty nearly with the habitat; but the material then at hand did not permit me to insist upon that subject. My attention has been drawn to

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\* Comptes Rendus de l'Assoc. Franc. x. (Congrès d'Alger.), p.680.

† Cat. Batr. Ecaud. Brit. Mus., pp. 9, 38.



the forms of North Germany by recent remarks of Pflüger.\* He observes that two distinct varieties occur near Berlin, the typical form, and a larger one which he designates as the "Seefrosch," from its inhabiting the lake-like expansions of the River Spree. A fisherman named Noack, who for years has been supplying physiological institutes with these large frogs, considers the two as distinct species, because he can unmistakably distinguish them at first glance, and because they breed at different times of the year. The "Seefrosch" is an earlier breeder, having finished breeding at the end of May, at which time the other kind commences. Pflüger, who has obtained the larger frog from Noack, regards them as distinct races, but does not give any definite distinctive characters. Having myself applied this spring to Noack, I have received from him 126 specimens, which at first sight I separated into two distinguishable forms. On closer examination I find that they are really distinct, and that the new kind belongs to Group 2 of Camerano, whereas the typical form of Rösel has a strong metatarsal tubercle. I find, moreover, other characters, which require careful working out; for the present I will restrict myself to a comparative diagnosis of the two subspecies which, notwithstanding its brevity, will permit easy identification:—

1. *Rana esculenta*, typica.—Inner metatarsal tubercle compressed, large, resembling that of *R. arvalis*; its length is four to five millim., in specimens in which the inner toe, measured from the metatarsal tubercle, averages nine to eleven millim. The black marbling of the flanks, and of the hinder side of the thighs, encloses more or less of bright yellow.

2. *Rana fortis*.—Inner metatarsal tubercle small, elongate, feebly prominent; its length is two to four millim., in specimens in which the inner toe measures nine to twelve millim. No yellow on the flanks or thighs.

I may add that in general coloration specimens of each subspecies vary more from one another than from the allied form; *R. fortis* is more constant in its coloration. The whole physiognomy is different, so that, in spite of the great variation of colour, persons unacquainted with Batrachological studies, and ignorant of the characters on which the distinction of the two

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\* Arch. für Physiol. xxix., p. 48, and xxxii., p. 522.

forms is based, nevertheless identify them with accuracy. I have no doubt that occasionally late breeders of one form may interbreed with early breeders of the other, and thus give rise to hybrids which would show intermediate characters; but this must be quite exceptional, and I may confidently affirm that among the 126 specimens which I have examined (forty-one typical *R. esculenta* and eighty-five *R. fortis*) not one has struck me as constituting a link between the two forms.

So long as the races of *Rana esculenta* were believed to occur in different districts, the importance to be attached to them was lessened, since all species which have a wide geographical range exhibit such differences, which may be ascribed to climate or other causes. But now that two quite distinct races are shown to live in the same locality, prevented from interbreeding by the difference in the time of spawning, the question assumes a very different aspect, and it seems that the subject deserves full attention. I would therefore beg my colleagues in various countries, where numbers of aquatic frogs fall daily under the scalpel of anatomists and physiologists, to observe whether any varieties of the kind here mentioned occur. I myself propose to devote much attention to the subject, and am anxiously collecting material for the elucidation of the geographical range of the races of *Rana esculenta*.

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## NOTES AND QUERIES.

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**Sir Edwin Landseer's Red-deer.**—As a rule, with scarcely an exception, every recognised masterpiece of art has risen rapidly in price until it has finally passed out of the region of traffic and become literally priceless. One such masterpiece has lately changed owners for a sum which may well be termed enormous. Sir Edwin Landseer's famous painting in oil, "The Monarch of the Glen," exhibited at the Royal Academy in 1851, and since made universally known by Thomas Landseer's engraving of it, was bequeathed by Lord Londesborough, father of the present peer, to Lady Otho Fitzgerald, and on the 10th May last was put up for sale by auction, by Messrs. Christie, Manson & Wood. The nation had once a chance of obtaining this fine picture for an almost nominal sum, inasmuch as Sir Edwin offered it to the Commissioner who supervised the artistic decorations of the Houses of Parliament for £300; but the offer was declined, and the picture was subsequently purchased by Lord Londesborough for 800 guineas.

We are given to understand that at the recent sale by auction the Trustees of the National Gallery were prepared to go as high as 3000 guineas to obtain the work. The bidding commenced at £2000, and the picture was eventually knocked down to Mr. Henry Eaton, M.P. for Coventry, for £6510! Inasmuch as this gentleman's Landseer collection is in the very first rank, most people will rejoice to see it thus enriched. A gallery of pictures by Landseer represents a great chapter in English art; for Sir Edwin was perhaps the most typical painter of his period, and one of the least likely to decline in the estimation of his countrymen.

**Bewick's Engravings of Animals.**—By order of the executor of the last surviving daughter of Thomas Bewick, the engraved wood-blocks of his 'History of British Birds,' 'History of Quadrupeds,' 'Æsop's Fables,' &c., were sold on the 6th May last by Messrs. Christie, Manson & Wood, and fetched £2350.

**The Albert Memorial Museum, Exeter.**—At the last meeting of the Committee of this Institution Mr. W. S. M. D'Urban, who has filled the offices of Secretary and Curator from the first foundation of the Museum, felt obliged to tender his resignation. Mr. D'Urban's second son has been advised to proceed to California for the benefit of his health, and his parents have decided to accompany him. It would be impossible to exaggerate the services which have been rendered by Mr. D'Urban to the promotion of science and art in this neighbourhood, or the loss which the city will sustain by his removal. Many of our readers will remember his active and judicious work in the establishment and maintenance of the Exeter Naturalists' Club. To his remarkable ability and untiring energy are mainly due the excellent condition and classification of the collections contained in the Museum. It would be difficult to find any similar institution so well cared for. The Committee are anxious to take some course that may prevent the severance of Mr. D'Urban's connexion with the Museum, and it has been decided to urge him to withdraw his resignation and to take leave of absence for a period of two years, if necessary, allowing his duties to be discharged by a substitute. We are sure that Mr. D'Urban's friends will rejoice if this plan can be adopted.

**The Davis Lectures, 1884.**—The Davis Lectures upon zoological subjects will be given in the Lecture Room in the Zoological Society's Gardens, Regent's Park, on Thursdays at 5 p.m., commencing June 5th, as follows:—June 5th, "Man, zoologically considered," by Prof. Flower, LL.D., F.R.S.; June 12th, "Hands and Feet," by Prof. Mivart, F.R.S.; June 19th, "Instinct," by G. J. Romanes, LL.D., F.R.S.; June 26th, "Hedgehogs, Moles, and Shrews," by Prof. Parker, F.R.S.; July 3rd, "Dogs, Ancient and Modern," by J. E. Harting, F.L.S.; July 10th, "Birds Nests," by Henry Seebohm, F.L.S.; and July 17th, "Reptiles," by P. L. Sclater, F.R.S.

**A Carnivorous Plant preying on Vertebrata.**—An interesting discovery has been made during the last week by Mr. G. E. Simms, son of a well-known tradesman of Oxford. It is that the bladder-traps of *Utricularia vulgaris* are capable of catching newly-hatched fish and killing them. Mr. Simms brought to me for examination a specimen of *Utricularia* in a glass vessel, in which were numerous young Roach newly hatched from a mass of spawn lying at the bottom. Numbers of these young fish were seen dead, held fast in the jaws of the bladder-traps of the plant. I had never seen *Utricularia* before, and am indebted to my colleague Prof. Burdon Sanderson for the identification of the plant and a reference to Cohn's researches on it. Mr. Simms supplied me with a fresh specimen of *Utricularia* in a vessel with fresh young fish and spawn, and in about six hours more than a dozen of the fish were found entrapped. Most are caught by the head, and when this is the case the head is usually pushed as far into the bladder as possible till the snout touches its hinder wall. The two dark black eyes of the fish then show out conspicuously through the wall of the bladder. Rarely a specimen is seen caught by the tip of the snout. By no means a few of the fish are, however, captured by the tail, which is swallowed, so to speak, to a greater or less distance, and I have one specimen in which the fish is caught by the yolk-sac. Three or four instances were observed in which a fish had its head swallowed by one bladder-trap, and its tail by another adjacent one, the body of the fish forming a connecting bar between the two bladders. I have not been able to see a fish in the actual process of being trapped, nor to find one recently caught, and showing by motion of the fore part of its body signs of life. All those trapped were found already dead, but I have had no opportunity of prolonged observation, and it will be remembered that Mr. Darwin, in his account of the trapping of Crustacea, worms, &c., by *Utricularia*, states that he was not able to observe the actual occurrence of the trapping of an animal, although Mrs. Treat, of New Jersey, often did so. I think it probable that the fact described by Mr. Darwin, and which is easily verified, that the longer of the two pairs of projections composing the quadrified processes by which the bladders of *Utricularia* are lined "project obliquely inwards and towards the posterior end of the bladder," has something to do with the mechanism by which the small fish become so deeply swallowed, so to speak. The oblique processes, set all towards the hinder end of the bladder, look as if they must act together with the spring valves of the mouth of the bladder in utilising each fresh struggle of the captive for the purpose of pushing it further and further inwards. On cutting open longitudinally some of the bladders containing the heads and foreparts of the bodies of fish, and examining their contents, I found the tissues of the fish in a more or less slimy deliquescent condition, no doubt from decomposition, for Mr. Darwin failed to detect any digestive process in *Utricularia*. The

quadrifid processes were bathed in the slimy semi-fluid animal substance, and the processes themselves appeared to contain abundance of fine granular matter, possibly the result of absorption, but the large quantity of surrounding animal matter present rendered the observation uncertain. The usual swarms of Infusoria were present in the decomposing matter. Specimens of the *Utricularia* with the little fish fast in the bladder-trap, and their heads or tails hanging out, can be well preserved in spirits, and show the conditions well, notwithstanding that the plant becomes colourless, and there is no longer the marked contrast between the glistening white dead fish and the green bladders, which in the fresh condition renders the combination of the trap and prey conspicuous. Mr. Simms, by whose permission I write this, intends shortly to publish an account of his observations himself. I have advised him to endeavour to prepare spirit specimens of *Utricularia* plants with numerous trapped fish *in situ* for sale to those interested in the matter who may care to apply for them. His address is 37, Broad Street, Oxford.—H. N. MOSELEY.—‘*Nature*,’ May 22nd.

## MAMMALIA.

**Capture of a White Whale on the Coast of Caithness.**—It will be recollected that in June, 1879, a specimen of the Beluga, or White Whale, *Delphinapterus leucas* (Pallas), was captured at Little Ferry, near Dunrobin, Sutherlandshire, where it was found at ebb tide close to the salmon nets, caught in a singular manner by the tail between two short posts to which a stay-rope of the stake-net was fastened. This specimen has been described by Prof. Flower, in the ‘Proceedings of the Zoological Society’ for 1879 (p. 667), where an illustration is given of the animal in the position in which it was found lying. Quite recently, namely, on the 30th April last, another specimen of this cetacean, so rarely observed in the British seas, was taken in the salmon-nets at Dunheath, Caithness, and towed ashore, where it lay for some time exhibiting considerable activity. It was forwarded to Prof. Struthers, Aberdeen University, and deposited for examination in one of the courtyards of the University. It was pure white throughout, and being quite fresh presented a beautiful appearance. It proved to be a female, length about twelve feet six inches, which was the length of the specimen previously captured at Dunrobin. The pectoral fin was very broad and short, length sixteen inches, breadth ten inches. The tail-fin, deeply notched, measured thirty-two inches from tip to tip. There was no fin on the back, but a low ridge two or three feet long about the middle of the back. The teeth were nine in number on each side of the upper and lower jaw. The blow-hole was eighteen inches from the snout, measured round the very projecting forehead. The minute rudimentary ear-passage was found six inches behind the eye. Photographic views of the Whale as it lay in the College-yard have been taken by Mr. Wilson, photographer, Aberdeen, and after Professors

Struthers and Nicholson have concluded their examination the skeleton and other parts will, it is understood, be preserved in Aberdeen University.—  
J. E. HARTING.

**Albino Field Mouse.**—On March 28th I was given an albino Long-tailed Field Mouse, *Mus sylvaticus*, L., which had been found dead that day in the garden of Dropmore Vicarage, near here. It was a true albino, the eyes being pink; there was the slightest possible tinge of colour on part of the back and flanks. It was a female, and its unusual colour had—from the look of the teats—proved no obstacle to its finding a mate, and becoming the mother of a family.—ALFRED H. COCKS (Gt. Marlow, Bucks).

#### BIRDS.

**The British Ornithologists' Union.**—The annual meeting of this Society, so well known throughout the ornithological world by the publication of its quarterly journal, 'The Ibis,' was held in London on May 21st, when the yearly accounts were audited, new members balloted for, and other matters of administration disposed of. In the regretted absence, through illness, of the President, Lord Lilford, the chair was taken by Mr. P. L. Selater. The last published list of Members showed that the Society numbered 131 Ordinary Members, eight Honorary, and twenty Foreign Members. Fifteen new Members were balloted for and elected, amongst whom were the following well-known naturalists:—Major E. A. Butler, Capt. C. T. Bingham, Messrs. W. R. Davison, H. O. Forbes, R. Lloyd Patterson, F. E. Beddard, and Abel Chapman. Mr. Bowdler Sharpe took the opportunity of exhibiting a specimen of a Nuthatch new to Europe, which had been procured in Corsica by Mr. Whitehead, and which it was proposed to name after the discoverer. The unexpected occurrence of this distinct species in an island supposed to have been so well explored created, as might be supposed, some surprise. Its nearest ally appears to be *Sitta Kruepperi* of Asia Minor. After the business part of the proceedings had terminated the Members present dined together at "The Grosvenor" Restaurant, in Bond Street, and passed an agreeable evening in ornithological gossip.

**Wingless Birds.**—On April 19th an interesting lecture on this subject was delivered to the members of the Essex Naturalists' Field Club in the Lecture Room at the new Natural History Museum, South Kensington, by Dr. H. Woodward, F.R.S., Keeper of the Department of Geology and Palæontology. After some introductory remarks on the distinguishing characters of the class *Aves*, and on the modifications of structure which have suggested the primary divisions of the *Saururæ*, *Ratitæ*, and *Carinataæ*, Dr. Woodward, taking each of these divisions in turn, gave an account of some of the more remarkable forms in each, at the same time exhibiting

specimens or diagrams of the most typical. His remarks on the *Archæopteryx* (of which he produced one of the only two specimens known to exist), on the *Hesperornis* (that gigantic wingless diving bird with teeth in grooves in the lower mandible), the *Ichthyornis* (of powerful flight, with well-developed keel to the sternum and teeth in sockets in the mandible), the fish-eating *Argilornis* and *Odontopteryx* (both with serrated bill, from the London Clay), and other equally singular forms, were listened to with great interest. In dealing with the *Ratitæ*, or keel-less birds incapable of flight, he gave a brief description of *Apteryx*, *Casuarius*, *Dromeus*, *Rhea*, and *Struthio*, pointing out their distinguishing characters, and indicating on the map their distribution in different geographical regions. Passing on then to the extinct wingless birds of Mauritius and Rodriguez, he described the Dodo and Solitaire, explained the probable causes of their extinction, and quoted Mr. Whitmee's account of the curious change of habit in the *Didunculus*, or Little Dodo, still existing in Samoa, and which, from being a dweller on the ground, had come to live almost entirely in trees, thus escaping the attacks of ground vermin, and thereby increasing its chances of survival. After pointing out that certain flightless birds had nevertheless a well-developed keel to the sternum for the attachment of the pectoral muscles to move the forearm in swimming, he exhibited specimens of the Great Auk and King Penguin, with an entire skeleton of the former now extinct bird, from Funk Island, Newfoundland. At the conclusion of the lecture the auditors were accompanied through the palæontological and ornithological galleries by Dr. Woodward and Mr. Sharpe, who pointed out to them *en route* various specimens of interest which aptly illustrated the lessons which had been just previously imparted.

**Abnormal Eggs of Blackbird.**—In the May number of 'The Zoologist' (p. 195) you published my account of a Blackbird's nest which contained only light blue spotless eggs both last year and this. Her nest of this year was taken, but she has now built again within a few yards. All her four eggs are again light blue, and without a spot on any one of them.—J. H. BUXTON (Hunsdon Bury, Ware).

**Habits of Parrots.**—An Indian Ring-necked Parrakeet, *Palæornis torquatus*, which I had for some years, used often, like Lord Clermont's Parrot (p. 145) to dip his lumps of sugar into his drinking water to soften them. I have no doubt it is quite a common thing for Parrots to do. The bird to which I refer was a most entertaining one. He used to fly about our grounds all day long, and no weather, however wet or cold, would induce him to remain quietly in his cage. At dusk he would appear at one of the kitchen windows and tap until he was admitted, and would then fly straight to his cage, and always appeared to be very glad to find himself there again. But when the next morning came he would be restless and noisy until the

doors were opened and he could fly forth again in search of his friends. For a long time the postman was chief favourite, and Polly would fly down the avenue to meet him, returning to the house on the postman's cap. Polly next conceived a very warm attachment for one of the farm servants, a milkmaid, and would search the farm until he found her, and would be then happy for the day, accompanying her to the fields for the cows, attending the milking operations, &c., and always returned to his cage before dark. One day when the hounds met here, Polly was greatly pleased and excited by the scene. He flew just in front of the hounds while they were drawing the covers, chattering all the words he knew, and whistling his one tune, "God save the Queen," in a very ridiculous manner. We had a tame Jay about the house, and this bird in a very short time learned all Polly's words and cries, which he pronounced in Polly's own way, much to that bird's astonishment and disgust. It is well known what clever mimics Jays are. They sometimes deceive me by the way they copy the Brown Owls—not their loud hoot, but their soft mating call. Polly was very curious when strangers came, generally alighting on their hats or bonnets, and owing to this we lost him, as one day he descended on some passer by, who appropriated him and carried him off.—MURRAY A. MATHEW (Stone Hall, Pembrokeshire).

**Varieties near Carlisle.**—An old male Chaffinch, of a general canary-yellow colour, was shot at Rickerby Park on October 11th, 1883, and was brought to me in the flesh through the kind offices of Mr. W. Duckworth. The crown is sprinkled with a few black feathers, and one or two of the quill-feathers are also black. The throat is pale pink. The general tint of pale yellow becomes intensified into orange upon the back. I may also mention that a male Blackbird, prettily mottled with white, was shot near Carlisle about the same time; and that a pied Hedge Warbler, two really white Sparrows, and a pied male Chaffinch are all to be found in their haunts near Carlisle at the present time.—H. A. MACPHERSON (Carlisle).

**Scarcity of Fieldfares and Redwings during the past Winter.**—Although during the past winter I was constantly in different parts of Monmouthshire, Gloucestershire, Wilts, Berks, and Kent, I never saw a single specimen of the Fieldfare or Redwing. Starlings, on the contrary, were unusually numerous; I never remember to have met with such large flocks. I took the opportunity of procuring some, and verifying by dissection the fact that the hen birds have a pale orange rim round the outer edge of the iris, whereby it can be readily distinguished at all seasons and in all plumages from the male bird, whose iris is dark hazel.—J. YOUNG (64, Hereford Road, Bayswater).

**Snipe perching.**—Apropos of Mr. Nelson's note (p. 28), I venture to send you the following extract from my note-book:—On June 25th, 1880,



being on the river near Wroxham Church, Norfolk, I saw a Snipe sitting on the top of a dead tree, about fifteen feet from the ground. On my return journey I saw another near the same spot, sitting upon a gate-post. Being in a light canoe, I approached within five or six yards of him before he took flight. Again on March 31st, 1883, I saw two Snipe perching, this time on the top of a live alder tree not far above the railway bridge at Wroxham. When I disturbed them they flew a short distance to another tree and perched again. On being put up a second time, however, they flew round in circles wheeling and "drumming."—HENRY ROGERS Harpenden).

**Great Grey Shrike in Northamptonshire and Oxfordshire.**—Hearing that a strange bird with a grey back and black and white wings had been captured at the village of Middleton-Cheney, Northamptonshire, I walked over one afternoon, and after some search found it. It was, as I expected, an example of the Great Grey Shrike, and an adult bird, the back being of a fine pearl-grey and the lower parts entirely unmarked. Its owner, a boy, caught it in his bat-fowling clap-nets in a thorn-hedge about five weeks before I saw it—*i. e.*, about the end of December or beginning of January. A few days previously I examined a second example, which was shot near Croughton, Northamptonshire, on January 19th. This proved to be a male, and is immature; upper parts dull grey; breast dusky, with numerous crescentic markings. This bird appears to be intermediate between the European *Lanius excubitor* and *L. major*, the secondaries having only a very little white at their bases, and the closed wing showing only one white spot; this is also the case with the other specimen, but as it had been placed by the village stuffer in the usual small box case I was unable to examine it thoroughly. Besides these, a birdstuffer, who knows the bird well, tells me he saw one by the canal near Bodicote about the 10th of February last.—OLIVER V. APLIN (Great Bourton, near Banbury).

**Curious nesting-place of the Great Tit.**—In the beginning of June, 1883, we found a nest of the Great Tit quite a foot below the ground amongst the roots of a huge elm tree in Nuneham Park, Oxon. It contained five fully fledged young birds.—J. R. EARLE (15, Norham Road, Oxford).

**Wild Duck laying in a Rook's Nest.**—Six Wild Ducks' eggs, perfectly fresh, were taken, on March 26th, out of a Rooks' nest, between three and four miles from here. The nest was surrounded by other Rooks' nests, one being within a yard of it. The rookery was not far from the river Test, the tree (a horse-chesnut, in which the nest chosen by the Wild Duck was) being about twenty-five yards from the river, and the nest about thirty feet from the ground. The bird was on the nest. The trees in which the rookery was built were chiefly elms, there being only two or three horse-

chesnuts. I am aware that Wild Ducks occasionally nest in trees; but I do not recollect to have read of an instance where the nest chosen was in the midst of a rookery, and I thought you would probably consider it of sufficient interest to chronicle. Stanley mentions an instance of a Wild Duck using a Rooks' nest, at Madeley, in Staffordshire, but does not note the position of the nest.—JOHN H. WILLMORE (Queenwood College, near Stockbridge, Hants).

**Wild Duck laying in Rook's Nest.**—With reference to Mr. Willmore's note, I have met with several instances in Lincolnshire of Wild Ducks nesting at a considerable height above the ground. Once in an oak in a plantation in the old nest of a Carrion Crow; in ivy on a ruined wall; and on the top of a straw-sack. Once also on the roof of an old bean-stack in the marshes. I have known a Wild Duck to nest on the ground amongst brambles and rough grass in the centre of a plantation a mile or more from pond or running stream.—JOHN CORDEAUX (Great Cotes, Ulceby).

**Variety of the Sky Lark.**—My neighbour's keeper brought me a variety of this bird in which the first seven flight-feathers on the right wing and the coverts above them are pure white, and on the left there are five white flight-feathers, with a few above them the same colour; the rest of the plumage normal.—J. WHITAKER (Rainworth Lodge, Mansfield).

**Abnormally coloured Sky Lark.**—On the 31st March last, on visiting the Valletta market, I noticed in one of the stalls, amongst a number of Larks, one (*Alauda arvensis*) the under parts of which were a brilliant yellow, with the usual markings. I made a skin of it. Twelve hours after I had put it up as a skin, this yellow colour had faded very much, and when I looked at it again, about a month after, it appeared quite gone, leaving the usual yellowish white coloration. I have noticed this plumage before. The bird was a male.—E. F. BECHER (Malta).

**The American Kestrel in Yorkshire.**—In your last issue Mr. W. E. Clarke, in his supplementary notes on the Yorkshire Fauna, says (p. 176), that he cannot accept this bird as a member of the Yorkshire Fauna. In justice therefore to myself and to those who have so kindly aided me in investigating the matter, I must state that I have gained additional strong evidence in its favour, which is wholly disinterested and independent of either the person by whom the bird was skinned or the stuffer who eventually sold it to me.—J. BACKHOUSE, JUN.

**Early nesting of the Goldcrest.**—On the 22nd March last we found a nest of the Goldcrest near Oxford. It was just finished, and I think would have had eggs in two days time. The nest was only four feet nine inches from the ground, while I have found them at an elevation of twenty-five feet.—J. R. EARLE (15, Norham Road, Oxford).

**Wood Pigeon cooing at Night.**—On April 9th I heard a Wood Pigeon cooing in our wood between 10 and 11 o'clock at night. It was calm and mild, and the moon was almost full. The note was loud and unmistakable. The cooing was continued at intervals when I was in the wood, and had not ceased when I left it. Has anyone yet attempted a list of such British birds as are occasionally heard at night?—RICHARD M. BARRINGTON (Fassaroe, Bray).

[Numerous notices of birds which sing at night might be referred to. See White's 'Selborne,' to begin with (Letter I. to Danes Barrington), and footnote to the passage in my edition of that work, p. 139; 'Our Summer Migrants,' p. 37; and various notes on the subject scattered throughout former volumes of 'The Zoologist.'—ED.]

**Siskin and Snow Bunting in North Devon.**—On March 6th I saw a Siskin in beautiful plumage. This is the first time I have seen or heard of this bird in this district, my acquaintance with which dates from 1879. On the 7th a Snow Bunting was picked up on Northam Burrows and brought to me. Its plumage tallied exactly with Yarrell's description of the bird as it appears on its first arrival at the beginning of winter. We have one other specimen in our Museum, which we procured from Mr. Rowe, the birdstuffer of Barnstaple.—HERBERT A. EVANS (United Service College, Westward Ho).

**Variety of the Yellowhammer.**—At p. 114 I noted a very singular variety of the Yellowhammer, with whisker-like marks of rufous, and a tinge of the same colour over the eye. Mr. F. Bond's collection of varieties contains one exactly like it, taken at Brighton in the spring of 1869. There is not the slightest deviation from the usual colouring in any other part of the plumage in either of these birds. Both are males.—J. H. GURNEY, JUN. (Hill House, Northrepps, Norwich).

**The Avi-Fauna of Spitzbergen.**—Looking through the back volumes of 'The Zoologist,' a few weeks ago, for something else, I met with a paper on the Fauna of Spitzbergen, by the Rev. A. E. Eaton, M.A., &c., in the volumes for 1873 and 1874, which I had overlooked when writing my notes on Spitzbergen, published in 'The Zoologist' for 1882 and 1883, and it may perhaps be worth calling attention to his observations on the following species of birds:—

“Lesser Redpoll, *Linota linaria*” (S.S. 3805).—This should be doubtless the Mealy Redpoll, *L. linaria*, Linn., as a specimen brought home has been so identified by Prof. Newton (Yarrell, 4th edit. ii. 144), besides the fact of this species having a more northerly range than the Lesser Redpoll, *L. rufescens*, Vieillot. On May 27th a male Redpoll alighted on the ship, in lat. 75° 13' N., long. 2° 30' W. (S.S. 3763 and 3806). A Redpoll was seen in Wüde Bay on the “6th Sunday after Trinity”; later one was heard

singing, which was shot, and placed in Mr. Eaton's hands (p. 3807). "Apparently Redpolls are not uncommon in that part of Wüde Bay. Our men saw five or six on the uplands in the same neighbourhood. They also found a nest," which was probably of this species.

Ringed Plover, *Ægialitis hiaticula*, L.—"Lieut. Chermside saw a Ringed Plover in Wüde Bay, which attempted to entice him away by shamming lameness, as if its nest was close at hand" (3809).

Pomatorhine Skua, *Stercorarius pomatorhinus*, Temm.—Six obtained in Hinlopen Straits in August. Numerous off Low Land (south coast of North-East Land). A few seen at Hope Island in September.

Buffon's Skua, *S. longicaudus*, Vieillot.—Seen at Wüde Bay; Diana Island, entrance to East Fjord; and in various localities between the mainland of Spitzbergen and North-East Land. Several examples were shot.

Bernicle Goose, *Anser leucopsis*, Bechst.—A party seen, out of which seven were obtained, on the hills opposite Diana Island, on July 22nd (p. 3815).—ALFRED HENEAGE COCKS (Great Marlow, Bucks).

**Song of the Tree Sparrow.**—The other day, when standing by the pond-side here, I heard a song which I never remember to have heard before; it came from a small bird on the top of a tall larch. I could not quite make out the bird amongst the thick branches, so I shot it, and was surprised to find it was a Tree Sparrow. The notes were very sweet, and six or seven in number, which when gone through were repeated, something like a Bullfinch, but softer and much more sweet—a song of some pretensions, and exceedingly pleasant to the ear.—J. WHITAKER (Rainworth Lodge, Mansfield).

**Blue-headed Yellow Wagtail in Confinement.**—The following account of forty-eight hours' acquaintance with *Motacilla flava* may perhaps be interesting as showing an extraordinary degree of tameness. At this time of the year (end of April and beginning of May) *M. flava* is caught at Malta in considerable numbers and sold alive to act as fly-catchers. Their wings are clipped, and they are allowed to run about in the kitchens and houses in order to keep down the supply of flies; they are never fed, but live by their own exertions. One morning I noticed one in our mess-kitchen which had only been obtained four days back from the bird-catcher. This bird I took to my own room (this was at 9 a.m. on the 19th April). To catch it we chased it up and down the kitchen sufficient to frighten any ordinary bird almost to death, but when I released it from my hand in my room it simply ruffled its feathers and ran about as if nothing had happened. I caught a few flies and tried to induce it to eat from my fingers, but it would not do so, but took them readily from the ground about an inch from my hand. I will now quote from my notes:—"Now, 2 p.m., it will eat out of my hand. When I come into the room, after a short absence, it runs to meet me, apparently expecting ready-caught flies. During the

afternoon I had to skin some birds; the Wagtail flew (its wings were so cut that it could fly a little) on to my table whilst I was at work. Steeple-chasing over the varied and numerous impediments in hot pursuit of flies, attracted by the carcasses of the birds I was operating on, it got a little tow entangled in its claws, so I had to hunt it down in order to catch it. After an operation of about two minutes' duration I released it. It simply preened its feathers, and then chirped about me as usual. Wherever I move the bird follows close at my heels. This is not a mark of any particular attachment, as it is a peculiarity of Wagtails to follow persons in this way. When I went into my bed-room it refused to be driven back; I think this was because it had there seen me catch the flies I had given it. I offered it some small bits of raw liver, but it would not look at them; shortly afterwards, however, I found it pulling away at a piece which had stuck to an envelope and dropped on the floor. I saw it could not very well manage it, so went to get it from him to cut into small pieces, but it had evidently tasted, and had taken to it so kindly that I could not get it away from him, and in the end he swallowed it. I was very much struck that he did not attempt to use one of his feet as an aid—had he done so it would have been of great assistance. This I remarked on several occasions. My servant tells me that when he was on detachment at an outlying fort they got twelve of these birds, which quite rid them, comparatively speaking, of those pests, mosquitoes. 20th.—I thought I had lost my Wagtail yesterday evening, as it had disappeared, and in spite of a hunt I could find it nowhere. When I got up, at about half-past five, and moved about, making considerable noise over the manufacture of a cup of tea, he did not appear; but about half-past six, as I was reading in bed, I was pleasantly surprised by seeing him hop on to my bed. He took considerable interest in my tubbing operations, perching himself on the edge of my bath. He drank at some small pools on the stone floor which had splashed from my bath. He seemed to prefer this to some water I poured out for him in a saucer; he took a sip or two and stood in it, but returned to his splashes, nor did he seem inclined to bathe. I gave him some ants, which he seemed to enjoy very much, but small pieces of raw liver seem to delight him most; after getting a bit he bothers me to give him more; he is on my hands, book, and everywhere, as I write—quite irrepressible—I can hardly drive him away. I took him into the ante-room, about thirty yards off, to reach which one must pass out of doors. He followed me like a dog, but occasionally some flies tried his allegiance. I was supplied, however, with some small pieces of raw liver to offer him when he lagged behind too much. The Wagtails in the kitchen, which were only brought in yesterday, are running about to-day quite tame. 21st.—I and the Wagtail both got up this morning at our usual hour—I at 5.30, he at 6.30 a.m. As I was reading in bed I heard him in the next room, so I called to him, when he at once came on to my bed, hopping about my head, arms, and books. When he left my bed to wander elsewhere

I could always call him to me again. At breakfast he was all about my breakfast things, catching flies. He had a heavy fall, missing his footing on one occasion as he flew from a chest of drawers to my table. This I think caused his death, as immediately afterwards I left the room, and when I returned, in about ten minutes, I found him huddled up in a corner, and one leg almost useless. He shortly afterwards died—the end of most pets—an untimely death.” The above, as I have said, is from my notes, and may appear to enter rather too much into minutiae, but I wish to show that a bird within six days of being in a wild state, without any special endeavours to tame it, arrived at an almost perfect state of confidence in man. I do not regard it as showing any particular affection for myself individually, for it was just as confiding to any friend who came to see me. I do not know whether all wagtails have this tendency to domesticity, as my experience is limited to *M. flava* and *M. alba*. It was a pretty sight to note his several attitudes when crouching watching a fly in his neighbourhood. He never would even look at a fly on the wall which was out of his reach. I think this was because he knew that his clipped wings prevented him being successful, and it was no use troubling about it. In a wild state these birds will allow anyone to approach very near to them. They thus fall very easy victims to the birdcatcher.—E. F. BECHER (Malta).

#### FISHES.

**Cyclopterus lumpus at Penzance.**—For the first time within my experience, which now covers thirty-four years of actual observation, I have obtained a male specimen of the Lump-sucker, or Lump-fish, *Cyclopterus lumpus*. I have had many specimens of the female or “Blue” Lump-sucker, but this is the first male or “Red” Lump-sucker which I have ever seen. It was captured at the Scilly Islands on April 27th, and kindly sent to me by the Lord Proprietor, Mr. J. A. Dorrien Smith. I need not describe it, because it quite agrees with the descriptions given by Yarrell and Couch, except that the brilliant scarlet colour which suggested the name of the Red Lump-fish is in this specimen confined to the region below the lateral line. Above that line it is blue, as in the female.—THOMAS CORNISH (Penzance).

**Large Surmullet in Mount's Bay.**—On May 6th I received from William Allen, a fisherman, of Prussia Cove, in Mount's Bay, the largest Surmullet, *Mullus surmuletus*, yet recorded. It measured seventeen inches in length over all, and from eye to fork one foot and half an inch, and turned the scale at forty-two ounces. I recorded a Surmullet of thirty-six ounces and a half in ‘The Zoologist’ for October, 1875, and another of sixteen inches and seven-eighths in length, weighing thirty-eight ounces and a half, in November of the same year. I then mentioned that this latter specimen was the largest for size recorded, but not the heaviest, Couch having weighed one at forty ounces. It will be seen that my present specimen tops my largest in size and Couch's in weight.—T. CORNISH.

## SCIENTIFIC SOCIETIES.

## LINNEAN SOCIETY OF LONDON.

May 1, 1884.—Prof. P. MARTIN DUNCAN, F.R.S., V-P., in the chair.

Messrs. William Denison Roebuck and Fred. Newton Williams were elected ordinary Fellows of the Society. Prof. Ernst Haeckel, of Jena, Prof. Alex. Kowalevsky, of Odessa, and Prof. O. Schwendener, of Berlin, were likewise balloted for and elected Foreign Members of the Society.

Mr. S. O. Ridley exhibited drawings of the spiculation of some Sponges collected and forwarded by Dr. Wm. Chas. Ondaatje, of Ceylon, sections of which had been shown and commented upon at a previous meeting of the Society. Mr. Ridley also exhibited coloured sketches from nature of Ceylonese *Actiniida*, made under the superintendence of Dr. Ondaatje. Prof. Jeffrey Bell afterwards pointed out the chief characteristics of a set of drawings of Comatulids, taken from the living objects as obtained by Dr. Ondaatje from the seas of Ceylon, the entire series giving promise of useful scientific work in progress on the Ceylonese coasts.

Mr. R. Bowdler Sharpe read a paper "On a Collection of Birds from the Bahr el Ghazal province and the Nyam-Nyam country in Equatorial Africa." For the opportunity of examining and describing this interesting collection he expressed his indebtedness to Herr Bohndorff, who had just returned from a long residence in these regions. The author noted, with expressions of surprise, the presence of many species in Bohndorff's collection of birds hitherto believed by ornithologists to be peculiar to West Africa, referring in the case in question to those species which had been shot in the Nyam-Nyam country. On the other hand, he adverted to those species from the Bahr-Gazelle tributaries and adjoining nilotic district as well-known inhabitants of North-Eastern Africa and the Senegambian area. From this he inferred that Herr Bohndorff had crossed the boundary line of two faunas, and that the animals of the Nyam-Nyam region assimilate to those of the Gaboon territory and Congo, rather than to those of the Lado district or of Kordofan. This change in the fauna is attributed by Herr Bohndorff to the difference in the nature of the country; swamp and low-lying grassy plains on the east being replaced by forest-land on the west. Mr. Sharpe, following the classification adopted by Hartlaub in his record of Emir Bey's collections from Equatorial Africa, gave descriptions of new species and remarks on little-known birds. Amongst new forms are *Crateropus Bohndorffi*, *Sigmodus mentalis*, *Ceuthnochoares intermedius*, *Pionias crassus*, *Syrnium Bohndorffi*, and others of considerable significance in relation to faunal distribution.

The interest of this communication was heightened by remarks from Herr Bohndorff himself, and the presence of his servant Yuma, a veritable Nyam-Nyam boy, whom he had brought with him. An interesting discussion followed.

Mr. R. A. Rolfe communicated a paper "On the Flora of the Philippines, with reference to its probable derivation." In this he criticised Mr. Wallace's opinion on the fauna, differing from him in the belief that the recent flora of the islands indicate that they are truly insular in the essentials of their present Natural History, and have been largely dependent on volcanic origin, rather than that their flora and fauna are alone the result of an early separation from the Asiatic continent with total submergence for an indefinite period.

Mr. George Brook read a "Preliminary account of the development of the Weever Fish, *Trachinus vipera*." After mentioning that the eggs had been laid in his aquarium at Huddersfield, where this fish had been kept alive for more than two years, he drew attention to the fact of there being a vitelline membrane present in the eggs of this fish as well as in those of the Herring; in contradistinction, therefore, to what is stated to be the case in osseous fishes generally. He also particularly referred to the persistent nature of the segmentation cavity, which is pushed round the yolk-sac concurrent with the development of the embryo from the blastoderm, and that it does not entirely disappear until the yolk is absorbed. The circulatory system, according to Mr. Brook's researches, is very late in developing, no blood-vessels appearing until several days after hatching. In illustration of his paper, he exhibited under the microscope preparations showing the segmentation stage, the embryonic shield and commencement of keel, the early embryo third day before closure of the blastopore, and fourth-day blastopore, with Kupffer's vesicle, also at the eighth day, and the newly-hatched embryo.

The Chairman having put to the meeting the election of Auditors, the following were appointed:—for the Fellows, Dr. J. Millar and Mr. J. Jenner Weir, and for the Council, Mr. T. Christy and Mr. H. T. Stainton.—  
J. MURIE.

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#### ZOOLOGICAL SOCIETY OF LONDON.

Mag 6, 1884.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of April, and called special attention to two Nepalese Hornbills, *Aceros nipalensis*; a Gigantic Salamander, *Megalobatrachus maximus*; three examples of the Lesser Bird of Paradise; a fine Mediterranean Seal; and other rare acquisitions.

Prof. Bell exhibited some specimens of *Estheria melitensis*, sent from Malta by Capt. Becher, R.A., and stated that, in answer to his inquiries, that gentleman had confirmed the fact of the males appearing to equal in number the females, as had been stated by previous observers of the members of the genus.

Mr. G. A. Boulenger read a paper on the Reptiles and Batrachians of



the Solomon Islands, principally based upon two collections forwarded to the British Museum from that locality by Mr. H. B. Guppy, R.N.

Lieut.-Col. Godwin-Austen exhibited an old Indian drawing representing a Tiger-hunt; and called attention to the colour of one of the Elephants engaged, which was of a creamy white.

Prof. Flower described the state of dentition of a young Capybara, *Hydrochaerus capybara*, born in the Society's Gardens, which had died when eight days old. All the teeth of the permanent series were present and in use.

Prof. F. Jeffrey Bell read a paper on *Amphicyclus*, a new genus of Dendroclinotous Holothurians, and on its bearing on the classification of the suborder.

A communication was read from Mr. Edgar A. Smith, containing a report on the Land and Freshwater Mollusca which had been collected during the voyage of H.M.S. 'Challenger' from December, 1872, to May 1876. The collection contained examples of 152 species, some of which were of interest and several new to science.

A communication was read from Count Berlepsch and M. Taczanowski, containing an account of a second collection of birds made in Western Ecuador by Messrs. Stolzmann and Siemiradzki. There were stated to be examples of 177 species in this collection, which had been made at various localities on the western slope of the Cordilleras above Guayaquil. The following species were described as new:—*Henicorhina hilaris*, *Chlorospingus ochraceus*, and *Spermophila pauper*. A new genus, *Pacilotriccus*, was proposed for *Todirostrum ruficeps* of Kaup.

A paper by Messrs. Godman and Salvin was read, which contained a list of the Rhopalocera obtained by Mr. G. French Angas during a recent visit to the island of Dominica. The number of species in this collection was twenty-seven, among them being a species of *Nymphalinae* apparently new; this the authors proposed to describe as *Cymatogramma dominicana*.

Mr. Herbert Druce read a paper describing the Heterocera collected by Mr. Angas on the same island.

May 20, 1884.—Sir JOSEPH FAYREB, F.R.S., Vice-President, in the chair.

Mr. W. T. Blanford exhibited and made remarks on a series of horns of the Wild Sheep of the Pamir, *Ovis polii*, Blyth, which had been obtained by the Hon. Charles A. Ellis from the Pamir district during his recent journey to Yarkand.

Mr. R. Bowdler Sharpe exhibited and made remarks on a second specimen of the new European Nuthatch, *Sitta Whiteheadi*, recently discovered by Mr. Whitehead in Corsica.

Dr. J. G. Garson exhibited and made remarks upon a specimen of the Northern Stone Crab, *Lithodes maia*.

Mr. Frank E. Beddard read the first of a series of papers on the Isopoda collected during the voyage of H.M.S. 'Challenger.' The present communication treated of the genus *Serolis*, sixteen species of which were represented in the specimens obtained during the Expedition. Of these nine were described as new. The author also gave a short account of the geographical distribution of the genus, and pointed out some of its peculiar structural points.

Mr. Gwyn Jeffreys read the eighth part of his papers on the Mollusca of the 'Lightning' and 'Porcupine' Expeditions. It included the families *Actida*, *Pyramidellida* and *Eulimida*, with seventy-five species. Two genera and twenty-three species were described by the author as new to science.

Prof. F. Jeffrey Bell read the fourth of his series of papers on the Holothurians. The present communication gave an account of the structural characters of the Cotton-Spinner, *Holothuria nigra*, and especially of its Cuvierian organs.

Mr. F. Day read a paper on races and hybrids among the *Salmonida*, in continuation of a former communication made to the Society, and continuing an account of the experiments made by Sir James Gibson-Maitland in the hybridization of *Salmonida* in the ponds of Howietown.

A communication was read from Mr. R. Collett, containing the description of some apparently new Marsupials obtained by Dr. Limholtz in Northern Queensland. These were described as *Phalangista Archeri*, *P. herbertensis*, *P. lemuroides*, and *Dendrolagus Limholtzi*.—P. L. SCLATER, Secretary.

#### ENTOMOLOGICAL SOCIETY OF LONDON.

April 2, 1884.—J. W. DUNNING, Esq., M.A., F.L.S., &c., President, in the chair.

Edward Pyemont Collet, Esq. (76, Islip Road, Kentish Town, N.W.), Stanley Edwards, Esq. (Kidbrook Lodge, Blackheath, S.E.), F. Lovell Keays, Esq., F.L.S. (Fairmile Court, Cobham, Surrey), Edmund Shuttleworth, Esq. (8, Winckley Square, Preston), and John A. Finzi, Esq., formerly a Subscriber, were balloted for and elected Members of the Society.

The President read a letter received from Mr. A. J. Spiller.

Mr. T. R. Billups exhibited specimens of *Sigalphus obscurellus*, Ns., and *Diospilus oleraceus*, Hal., bred from the cabbage-stem galls of *Ceuthorrhynchus sulcicollis*. Mr. Billups believed that the former species emerged from the galls, whilst the latter species emerged from the earth-cocoons made by the weevil larvæ. Specimens of *C. sulcicollis*, Gyll., its cocoons, and gall were also exhibited.

Mr. J. Jenner Weir remarked that he had found it impossible to grow any of the cabbage-tribe in his garden, owing to the amount of "club" resulting from the attacks of this weevil; the only remedy he had found to be at all efficient was the free use of gas-lime.

Mr. Billups also exhibited three specimens of *Dimeris mira*, Ruthe, captured at Headley Lane last January; and two specimens of *Ceroptres arator*, Hart., bred from the galls of *Cynips Kollari*. Also a long series of the very local *Philonthus thermarum*, Aubé, taken from a cucumber-frame on the West Ham marshes.

Mr. H. Bedford Pim remarked that he had captured twenty specimens of *P. thermarum* in a hotbed at Dulwich last year.

Sir Sidney S. Saunders read a paper, "On the *Pediculus melittæ* of Kirby, and its affinities with reference to the larva of *Meloë*." This was illustrated by the exhibition of many microscopic preparations of the specimens referred to in the memoir, and by an exhibition of many thousand specimens of the yellow larvæ of *Meloë*.

Mr. H. J. Elwes read a paper, "On the Genus *Parnassius*," especially referring to the remarkable form and development of the anal pouch in the females as a specific character, to the geographical distribution of the species of the genus; and made some remarks on their life-history. Edwards' and Burmeister's writings on the genus were referred to, and Mr. Elwes commented on the remarkable fact that almost every systematic writer except Boisduval had entirely overlooked the presence of the anal pouch. Mr. Elwes illustrated his remarks by numerous diagrams, and by the exhibition of specimens of every known species and form occurring in the genus. A discussion followed, in which Messrs. Dunning, Fitch, Weir, Kirby, Pascoe, and Slater took part.

Mr. E. Meyrick read a further paper on the classification of the Australian Pylalidina, treating of the families *Musotimidæ*, *Botydidæ*, and *Scopariidæ*. He remarked that only forty per cent. of the *Botydidæ* were endemic, whereas the general average in all other groups, except the Butterflies, was about ninety per cent.

Lord Walsingham communicated a paper on "North American Tortricidæ."

May 7, 1884.—J. W. DUNNING, Esq., M.A., F.L.S., &c., President, in the chair.

The President feelingly alluded to the loss the Society had sustained since their last meeting through the death of their Vice-President, Sir Sidney Saunders, who was then present and read a paper to the Society. He made some remarks on Sir Sidney's life and works, and said it was the second time it had fallen to his lot to announce the death of a Vice-President in harness; now it was "one of the oldest and worthiest of our colleagues, and one who with a genuine love of Science combined with it the courtesy and kindness of a gentleman."

W. H. Patton, Esq. (Waterbury, Connecticut, U.S.A.), and William White, Esq. (Morden House, 55, Highbury Hill, N.) were balloted for and elected Members of the Society.

Mr. W. F. Kirby exhibited a remarkably small and dark variety of *Samia Cecropia*, Linn., bred by M. Alfred Wailly.

Mr. C. O. Waterhouse exhibited an *Aphis* from apple, and a large *Aphidius* bred therefrom, the cocoon of the parasite being formed underneath the body of the *Aphis*. Also, on behalf of the Rev. F. A. Walker, three dragonflies, captured in the island of Rhoda, opposite Cairo. Mr. M'Lachlan identified these as a male *Crocothemis erythraea*, Brullé, and a pair of *Trithemis rubrinervis*, Selys.

Mr. T. R. Billups exhibited upwards of sixty specimens of Hemiptera, captured at Headley Lane on January 14th last. The collection included the following species:—*Metacanthus punctipes*, Germ., *Tropistethus holosericeus*, Hahn, *Peritrochus puncticeps*, Thoms., *Drymus sylvaticus*, Fabr., *Stygnocoris sabulosus*, Schill., *Cymus clavicularis*, Fall., *C. glandicolor*, Hahn, *Monanthia costata*, Fabr., *M. cardui*, Linn., *Acalypta parvula*, Fall., *Piezostethus cursitans*, Fall., and *Anthocoris sarothamni*, D. & S.

The Secretary, on behalf of Mr. Samuel Stevens, exhibited specimens of *Andrena fulva*, Schr., and read a note referring to their destructive habits to a garden-lawn at Upper Norwood, "by burrowing in the grass and throwing up small mounds of mould all over the lawn." Mr. M'Lachlan and Mr. Waterhouse said they had been consulted as to means of remedying similar evils caused by this bee, and Mr. Waterhouse further remarked that it was particularly abundant this spring in his own garden at Wandsworth.

Mr. A. S. Olliff exhibited a new species of *Helota*, an Eastern Asian genus, collected in Angola by Dr. Welwitsch; he proposed to describe it under the name *Helota africana*. Mr. Olliff said that Lord Walsingham had pointed out to him a similar and equally unexpected case of geographical distribution in the genus *Deuterocopus* of Zeller, belonging to the *Pterophoridae*, which up to this time had only been known from Java, and of which he has lately received an undescribed species from Bathurst, West Africa.

Mr. E. A. Fitch exhibited specimens of *Isosoma orchidearum*, Westw., bred from insect-affected shoots of *Cattleya Trianae*, sent to him by Mr. R. P. Percival, of Southport. The affected shoots were exhibited, also specimens of swollen rootlets which bore evidence of insect attack, but from which at present nothing had been bred. Mr. Fitch remarked that he still believed the *Isosoma* to be parasitic on some other insect, which was the destructive species—probably some dipteran, because the seven specimens of the *Isosoma* bred had emerged from one small hole in a shoot (exhibited).

Mr. A. G. Butler communicated a note, by Mr. A. R. Grote, on the North American genus *Hemileuca*.

Mr. A. G. Butler communicated a paper, "On the Lepidopterous genus *Cocytia*," remarking on the two already known species (*C. Durvillei*, Boisd., and *C. chlorosoma*, Butl.), and describing a new species (*C. Veitchii*) somewhat intermediate in character between them.—E. A. FITCH, *Hon. Sec.*

# THE ZOOLOGIST.

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ON THE APPLICATION OF TRINOMIAL NOMENCLATURE  
TO ZOOLOGY.\*

BY DR. ELLIOT COUES.

I HAVE no formal paper to present on the subject of the Application of Trinomial Nomenclature to Zoology; but speaking off-hand, I wish to offer a few remarks upon a subject at the present time attracting much attention—upon a matter which has come up within the last few years, and which bids fair to effect a very decided change in our system of naming objects in biology. In former years I have not thought it necessary to bring the matter to the notice of the National Academy of Sciences, because it had not then assumed a status or position which appeared to warrant such a course. Now, however, it seems probable that a decided innovation upon a system of nomenclature which has been in vogue for a century and a quarter is likely to be made, at least in one department of zoology. The question is, therefore, whether that innovation is desirable or not—whether the change is to be accepted or rejected; and, if accepted, how far it is likely to be applicable to other departments of zoology, as well as to ornithology.

As is well known to you all, since Linnæus established a binomial system of nomenclature in which each organism should be known by two terms, generic and specific—since 1758, when that system was first consistently and systematically applied to zoology, there has been until the last few years no formal or

\* Address to the National Academy of Sciences, Washington, April, 1884.

decided change in that Linnæan method ; it has become ingrained in the study of biology, and is, in a sense, supposed to be essential to a methodic system of zoology. But it will be remembered that in the long period which has ensued since the time of which I speak, the idea of what constitutes a species in zoology, and, I may add, in botany, has radically and entirely changed. It seems probable, therefore, that a system of nomenclature perfectly adequate and applicable to a former status of zoological thought, may become, in the course of time, inapplicable to the later stage of science. And such appears to be the case. In former years a species was supposed to be a more or less a distinct creation. It was, moreover, supposed to be possible to say of a given organism whether it was or was not specifically distinct from another given organism. At the present day, largely through the influence of the Darwinian Theory of Evolution, which has become established within the last quarter of a century, we know that one animal may not be specifically distinct from another, and yet be sufficiently different to require recognition in some manner, which a system of nomenclature, to be valid and adequate, must provide for. The question is, therefore, how shall we recognize it? That is a subject which has long occupied the attention of zoologists, and they have been working up to the present state of trinomialism by virtue of what may be termed subterfuges. That is to say, a given organism not sufficiently distinct from another to receive a specific name, has been called a "variety," a "sub-species," a "con-species," a "geographical race," or a "climatic variation." Various terms of this sort have gradually crept into the nomenclature of zoology to indicate the still imperfectly differentiated, still incompletely segregated forms, but always with the intervention of some sign or other, as the sign "var.," or with the letters of the alphabet, "a," "b," "c," or with the abbreviation "subsp.," etc., intervening between the binomial name of the creature and the varietal designation which follows ; as *Turdus migratorius* for the Robin, *Turdus migratorius* var. *propinquus* for its Western variety, and so on, whatever the given case may be.

This has long seemed to me an entirely unnecessary, superfluous, somewhat awkward and cumbersome method of dealing with the nomenclatural technique of our science, and it has recently come to pass that this needlessly intervening term or

sign has been entirely done away with by the leading ornithologists of this country. The latest lists of our birds discard it altogether, and present a decided and radical innovation upon any binomial nomenclature, by employing the three terms consecutively without the intervention of any sign whatever, as, *Turdus migratorius propinquus*. This method, moreover, as used by competent ornithologists, has a meaning and significance of its own. It is not simply a question of recognizing any variation, any abnormality, any sport, as I may call it, any variety in the old sense of the word; for we proceed upon a perfectly definite, well-understood and recognized principle of variation, viz., variation according to conditions of physical environment, using this term in the largest sense, to cover all those exterior influences which exert a modifying influence upon animal organisms.

From our study of North American birds, which are perhaps better known than the same number of birds of any other portion of the world, we have so exactly traced their geographical variations that we are enabled in some cases to positively foretell what will be the characteristics of a given bird in a given geographical area. In one case at least, within my knowledge, before any specimens were received, a given set of sub-specific characters were hypothetically assigned to a bird (*Junco connecteus* Coues) from a particular region; and, upon receipt of specimens, the hypothetical characters of the presumed sub-species were confirmed.

Here is the definite principle and rule of action in the application of such trinomials. That the third term of the technical name is given to climatic or geographical races varying according to known conditions, as latitude, elevation, temperature, moisture and conditions of all sorts. The practice, therefore, has a logical basis, a consistent possibility of strict scientific application. It appears to me to be a simple, natural and easy way of disposing of a large number of intermediate forms which have not become specifically distinct from their respective nearest allies. It is quite true that the recognition of this result of climatic conditions is largely a matter of tact and judgment, and that it is not always possible to say whether a given organism is or is not "specifically" distinct from another.

There is in this use of trinomials, as you perceive, a principle of practical application entirely different from the more

arbitrary naming of varieties, such as sports and abnormalities. And the question is, what status is this principle likely to obtain in biology? The status that trinomialism has already acquired in ornithology is this: that it is likely in the near future to receive the sanction of the entire body of the American Ornithologists' Union, and is already in use by ornithologists almost without exception in this country. Likewise, in Europe, the trinomial system is beginning to be employed in the very stronghold of British conservatism in the British Ornithologists' Union—one of the leading ornithologists in that country having recently published some monographs of birds, in which that system is applied. Trinomialism is known as the "American school" of ornithology, and the central idea is the "American idea" of ornithology. It is in general use in this country.

Under these circumstances, speaking as one who is largely responsible for the growth and spread of trinomial nomenclature, I have no hesitation in laying the matter before the Academy, for an expression of the views of members present, as to its applicability to other branches of biology, and to inquire whether it seems likely to become a permanent feature of biological science.

In the discussion which followed upon this communication, Dr. Theo. Gill said that the question so well discussed by Dr. Coues was one of terminology, but not only one of terminology. It was well known to all how much these terminological appliances had accelerated and facilitated research. The views expressed were almost a necessary result of profound study of our bird fauna, and the logical application of the doctrine of evolution.

In a time when belief in the creation of animals was practically universal, the name given to any species indicated the condition of things under which an animal was supposed to have come into existence. Had the animals of this country alone been studied, we would ultimately have been led to believe in the doctrine of evolution. No one could take up the study of the birds or other animals of this country without seeing that between certain extremes, the differences are so radical that differentiation into species would be necessary. Such had been the history of ornithology. In early times we knew simply the birds of the Eastern slope. Then we named them as species with limited range of variation. Later, numbers of forms were obtained in



the West, and these forms, although somewhat alike, were also differentiated as species, distinct from those found in the East, and were so named. But still later, large collections were gradually amassed from the intervening regions of the great interior, and these were elaborately studied (in collections sometimes of hundreds), and many were the 'Eastern and Western so-called species thereby connected. But then it became evident that something more should be done than merely lock together into one heterogeneous fold forms so different. Then it was that this trinomial system came into use as a very convenient tool for the distinction of the various intermediate forms. Ultimately a philosophy became the result of study and practice, so that now we can at once, by the inspection of a catalogue, approximately ascertain whether the forms are radically distinct, what variation exists between the extremes of form, and by the trinomial names, whether a given species is variable and whether it is manifest under a number of modifications.

In this trinomial system we have an example of a scheme by which we can become cognizant of the amount, to a certain extent, of variation in a given group. By this convenient means we are also enabled to differentiate the characters, and to give at once to the mind of the reader or student some idea of the range of characters that may be deemed to prevail in a certain group.

Turning to Dr. Coues's request for information with regard to other groups, Dr. Gill said that it was true that we have in other groups a similar applicability of these principles. A number of examples are afforded in the case of the fishes, insects, and mollusks, where the naturalist is compelled to degrade some forms and admit them as simple variations and sub-species. This scheme would also come in as a convenient tool for the differentiation of recent from fossil forms, there being a number of extinct forms very much like those now existing, which are regarded by some as conspecific and by others as different, receiving different names.

Prof. Wm. H. Brewer remarked that, as a matter of convenience, this was about the only way that we could scientifically describe many varieties of cultivated plants and breeds of domesticated animals, which differ from one another much as species do, the differences, however, being less constant. Already some agricultural writers, who have knowledge of natural history

are beginning to adopt this method in the description of cultivated plants, both useful and ornamental.

Dr. Gill said in regard to this question: "We have had a condition of things which must appeal to the sense of the ludicrous. In former times there was an undivided belief in creation, and yet we had before us our domesticated animals and cultivated vegetables, exhibiting these excessive variations—so great, that if seen in nature, they would be differentiated not only into species, but different genera. Take the dog. We were told the dog was a species—by some said to be created for the use of man. What is the dog? It is not a species in any sense of the word; it is simply a conjugation of forms, derivatives from a number of wild species. The dog is not a species; it is the result under cultivation and domestication of the off-spring of half a dozen different species. It is a composite which itself shows the processes of development in a marked degree, so that we have in what is popularly known as the dog, a combination of species and even genera."

Dr. Coues said it gave him great pleasure to note the extent of the indorsement given to this system; but that he had expected that some one would have put forward the objections which might be raised. As none appeared to be forthcoming, he would venture to state some of them himself. The purpose of the trinomial system, he remarked, is an obvious one, yet that system is so sharp a tool that without great care in handling, one is apt to cut his fingers with it. It is of such pliability and elasticity, and lends itself so readily to little things, that in naming forms one is tempted to push discriminations beyond reasonable and due bounds. It gives one an opportunity—even a temptation—to enter into faunal catalogues and lists of animals an almost indefinite number of very slightly differentiated forms in any department of zoology—forms which perhaps only the eye trained in that special line is able to satisfactorily discriminate. We therefore have in our lists a number of so-called geographic and climatic races which no one but their discoverer or describer is able to recognize or appreciate. This is the real difficulty—the real objection to the system—its abuse in the hands of immature specialists. Dr. Coues said, with some emphasis, that since he had ventured to bring the matter to the attention of the Academy, he would not conclude without adding the word of caution, that

the trinomial system must not be pushed too far; otherwise, almost immediately, our catalogues would be insufferably overburdened with nominal sub-species, too slightly differentiated to require any formal recognition by name.

*Note.*—In the business meeting of the Academy, which ensued after the public session, Dr. Coues introduced a resolution, which was referred to the Council, that a committee of five be appointed to investigate the subject of zoological nomenclature, with reference to the establishment of a more uniform system.

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### THREE UNPUBLISHED PAPERS ON ORNITHOLOGY.

BY THE LATE EDWARD BLYTH.

#### No. 2.—Fam. CAPITONIDÆ. The Barbets.

THE second group of Zygodactyli without cæca consists of true perching birds which never climb, and have ten tail-feathers only. They are frugivorous, and especially baccivorous, and the American Toucans alone manifest a considerable predatory propensity; while some at least of the *Musophagidæ* subsist partly on insects.\* Like the *Picidæ*, they deposit their eggs in the holes of trees, but not of their own forming; and normally produce four (the larger Toucans but two) white eggs, which seems to be the full complement laid by any of the group. The very peculiar African genus *Colius* alone differs in nidificating in dense thorny bushes, where several nests are built together, to the number of five or six. All are peculiar to warm climates, and foreign to Europe and N. America, as also (like the *Picidæ*) to Australia; but a few species occur in the temperate sub-Himalayan region, and others (chiefly *Colies*) in the Cape colony. With again the exception of the remarkable genus *Colius*, all the species would appear to be essentially (and even exclusively) of arboreal habit. Few are unadorned with bright colours, and these exceptions are comprised in the African genera *Chizhæris* and *Colius* among the

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\* Vide Dr. A. Smith's account of *Chizhæris concolor* (Zoology of S. Africa). Col. Sykes also states of *Bucco indicus*, "Fruit and insects found in the stomach." Judging from our own experience, however, the Asiatic Barbets would appear to subsist exclusively on fruit; but of a Cape species, we have been assured by Dr. A. Smith, "that it feeds upon insects, and seems partial to ants."

*Musophagidæ*, and the Malayan genus *Calorhamphus* among the *Buconidæ*.

The anatomy of all is very similar. Like the Woodpeckers, they have a very low sternal ridge, and the breast-bone is doubly emarginated posteriorly; the coracoids are unusually long; the furcula feeble, and commonly imperfect; its lateral halves (or the two clavicles) not being completely joined in the *Musophagidæ* (at least in *Turacus*), and in the Toucans (*Rhamphastos*) and Barbets (*Bucco*) being more or less short and separated by a considerable interval.\* Altogether, the sternal apparatus with its appendages much resembles that of the *Picidæ*, but in the Touracos deviates somewhat from the rest, and is remarkably small in proportion to the general size of the bird. The bill, of enormous dimensions in the larger Toucans among the *Rhamphastidæ*, is moderately large in most of the *Buconidæ*, and preserves the tendency to inflation in the genus *Musophaga* among the *Musophagidæ*. The tongue, which in the Toucans is long and slender, and barbed laterally like a feather, exhibits a similar structure less developed in the larger Barbets,† and shows a trace of the same conformation in certain Touracos.‡ The gullet is wide and even; the muscular coat of the stomach little developed; the intestine short and wide, about the length of the bird from tip of bill to vent in *Rhamphastos*,  $1\frac{1}{2}$  that length in *Bucco*, and about twice in *Turacus*. The *Buconidæ* and *Rhamphastidæ* have no gall-bladder; and the liver consists of two unequal lobes—the left, on which side the stomach lies, but half covering it, while the right lobe reaches as far as the stomach does; the *Musophagidæ*, on the contrary, have a well developed gall-bladder. Of the three distinct families here indicated, the *Musophagidæ* are wholly peculiar to Africa, and the *Rhamphastidæ* to S. America; the *Buconidæ* (which are most closely allied to the *Rhamphastidæ* in internal structure) inhabit, in different genera, S. E. Asia, Africa, and S. America. With these alone we have now to deal.

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\* M. L'Hérminier figures the sternum of *Pteroglossus*, however, with an entire furcula, or probably the clavicles were incompletely joined as in *Turacus*.

† This structure is well shown in *B. asiaticus*, while scarcely a trace of it is observable in the small *B. indicus*. I find that individuals vary in this respect.

‡ Vide P. Z. S. 1834, p. 3, 1830, p. 33.

## Fam. BUCCONIDÆ (Barbets).

These derive their common name from the conspicuous tufts of bristles surrounding the beak in most of the species, consisting of a series above each nostril, a tuft at each angle of the gape, and another growing from the chin. In certain of the Asiatic Barbets (as especially *Bucco trimaculatus*) these vibrissæ are much longer than the bill itself, but terminate in fine hair-like extremities; others want them altogether (as *Calorhamphus*); while in the American and some African forms they are little developed, but in typical *Lamodon*—the most characteristic African genus—they are of moderate length, much flattened, and form quite a dense beard under the chin and at the lateral base of the lower mandible, reflected so as to cover half of the under surface of the beak. The bill is usually as long as or longer than the head, robust, conical, more or less compressed, moderately arcuate in some, with one or more strong lateral teeth in certain African genera; in the Asiatic smooth, the tomia of the upper mandible overlapping more or less, so as to produce a scissor-like cutting instrument, to a greater or less extent. In these, too, the corneous portion of the upper mandible is continued backward to the gape, and thickened towards the gape. The gape or swallow of all is very wide. Nostrils basal and exposed, forming roundish or oval apertures, placed in a groove at the side of the ridge of the upper mandible.\* The feet are truly zygodactyle, and resemble those of the Toucans, being used for perching only, and for hopping from twig to twig; these birds never climbing, like the Woodpeckers. The wings have commonly the first, second, and sometimes third quills short, and the next three or four subequal, being of moderate length; and the flight is sufficiently facile and rapid, though only for short distances from tree to tree.

The Indian Barbets appear to be exclusively baccivorous; and when sated with food they commonly ascend to the higher branches of a tree, and repeat their monotonous call-notes, sometimes two or three answering to each other.

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\* In the *Rhamphastidæ* the nostrils open backward, high upon the forehead, and posteriorly to the corneous sheath of the bill; while in the *Muscophagidæ*, except in the singular genus *Colius*, they are placed remarkably forward.

They are by no means the dull, stupid, gluttonous birds they have been represented, but are as lively and active as most others, though little seen on the wing, while their green colour occasions them to be not much observed among the foliage. When feeding they are silent; but may be observed in numbers on a spreading bar tree (*Ficus indicus*) when the diminutive figs are ripe, together with Coëls (*Eudynamys orientalis*), Hurrials (*Treron*), Orioles, and other kinds of birds which resort to the same diet. In no respect, however, are they gregarious in the least degree.\* The size of the *Bucconidæ* varies from that of a Jay down to that of a Sparrow; and that they nestle in holes of trees, as commonly described, we have at least this evidence, that we have seen three unfledged young of *B. asiaticus* taken out of a hole in a mango tree;† but we have not been able to obtain the eggs. In confinement we have kept them (*Bucco asiaticus* and *B. indicus*) long on plaintains, but they much prefer berries which they can swallow entire, and smear the plumage of the head much when obliged to feed on plaintains; nevertheless they continued in health, and would often utter their loud notes. They never descended to the ground except to drink, or when food was lying there and none elsewhere. The sexes of all appear to be similar.

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\* Of one or more Cape species, Dr. A. Smith informed us:—"Flight straight; the wings moved rather rapidly and to a considerable extent. Some of them whistle when perched, and utter a hoarse scream when surprised. Generally several individuals are found in the same locality, but not associated; when disturbed they never fly together, but each takes a different course." This is pretty much as in the Asiatic species.

† We are therefore satisfied that Capt. Tickell described the nest and eggs of some other bird as those of *B. asiaticus*, in J. A. S. xvii. 298. Dr. A. Smith, in his obliging communication (1837), remarks of the Cape species before referred to, "They nestle in holes of decayed trees and ascend (?) to them; but I have never seen them feeding in holes." Does he mean that they run up the trunk? The word ascend is not legible with certainty in his MS.; but in Mr. Swainson's 'Classification of Birds,' ii. 136, we read that "Mr. Burchell was the first naturalist who discovered the affinity" (N.B. Similarity of habit does not, of necessity, imply affinity) "of these birds to the Woodpeckers, having repeatedly heard their loud tapping in the forests of S. Africa, and witnessed their dexterity in climbing trees." We doubt that the Asiatic Barbets either climb or tap. Mr. Jerdon remarks of *B. asiaticus*, "This bird does not climb like a Woodpecker, and I never heard any tapping from the trees it frequents;" and of *B. indicus*, "Though I never detected this Barbet tapping like the Woodpeckers, I have once or twice had good reason for supposing that it does so occasionally." Query.

Genus *Bucco*, L.\*

Bill large, conical, wide at base, more or less compressed for about the terminal half, the tomia smooth, and base of the upper mandible continued backward to the gape; culmen obtusely rounded; and the tips of both mandibles generally of equal length, the vibrissæ surrounding the bill well developed. These birds are peculiar to S. E. Asia and its islands, where very numerous species exist, from the size of a Jay downward, all of which are bright green, varied chiefly about the head and neck with every brilliant colour, though a few have these parts dull whitish, more or less lineated with dusky. Their other characters have been already stated.

B. GRANDIS, Gmelin; Gould's 'Century,' pl. 46.—Length about 1 ft.; of wing  $5\frac{1}{2}$  in., and tail 4 in.; bill to forehead  $1\frac{3}{4}$  in., or nearly so. Colour of the back, scapularies, secondary wing-coverts, and breast, brown; head and neck dusky indigo-blue, divided from the brown of the back by a narrow yellowish white half-collar; hinder half of the wings, rump, and tail, green; the primaries and their coverts bluish externally; and the lower tail-coverts crimson; flanks brown, the feathers margined laterally with yellowish white, imparting a streaked appearance; the middle of the belly dull bluish. Bill yellowish white, with dusky tip, in the dry specimen. Young very similar, but the colours less defined apart, and the nuchal half-collar and lateral margins of the feathers of the flanks are more of a golden hue; the size also is smaller, the bill less developed, and the feathers are of more open texture (as usual in young birds). The name was founded on Buffon's description of *le Grand Barbu* (Ois. vii. 106), which, though received from China, appears to be identical with the common Himalayan bird described above; although the play of colours on the head and back which he notices is not very perceptible. Eastward, we have seen it from Cherra Punji (N. of Sylhet), but not hitherto from Assam, though doubtless inhabiting the mountain ranges of that province; and it does not appear to

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\* Mr. G. R. Gray has changed this name to *Megalaima*, reserving the name *Bucco* for a genus of *Tamatiidæ*, a species of which he considers to be the first or typical *Bucco* of Linnæus; but the name is so well established for the present group, that we consider the alteration unadvisable. Indeed, the name *Bucco* would seem rather to indicate the Asiatic Barbets.

exist in those of Arracan and thence southward. Capt. Hutton, writing from Masuri, informs us that—"It is found both in the Doon and in the hills; it is common here all the year through, but very numerous in winter. They feed," he adds, "on fruits and berries, and will sit for hours together on some tall tree, uttering a monotonous *hoo-hoo* without intermission. In flying they make great exertions, as if they were fearful of falling to the ground." The American Toucans are said to fly with much exertion; but we have not remarked this of the species of *Bucco* which have fallen under our observation.

*B. LINEATUS*, Vieillot (apud Diet. Class.); *B. corvinus*, Temminck, p. c. 522 (apud Horsfield, P. Z. S. 1839, p. 165). *Pho-goung*, Arracan.—Length about  $10\frac{1}{2}$  in.;\* of wing about 5 in.; and tail  $3\frac{1}{2}$  in.; bill to forehead  $1\frac{1}{4}$  in. Colour vivid green above; the head, neck, and under parts whitish, with brown lateral borders to the feathers more or less developed on different parts; on the crown the brown predominates towards the forehead, becoming more distinctly lineated with whitish on the occiput and nape, these whitish streaks continuing more or less on the green of the back; throat streakless, whitish, and the feathers of the lower parts but narrowly margined laterally with brown; belly, flanks, and lower tail-coverts green, the tail more tinged with yellow, and the green more or less extended forward in different specimens. Bill reddish-white (in preserved skins), and the legs pale. This bird is exceedingly common in Nepal, Assam, Sylhet, Tipperah, Arracan, and the Tenasserim Provinces; and is reported by M. Vieillot from Sumatra, though it was not met with in that island by Sir Stamford Raffles. Of many dozens of skins examined, we have seen none that could be confounded with the next species; and make no doubt that this, rather than *B. caniceps*, was the bird we formerly received from Mymunseng in Upper Bengal, where likewise it is abundant.

*B. CANICEPS*, Franklin, P. Z. S. 1831, p. 121; *B. lineatus*, apud Tickell, J. A. S. ii. 579; *P. zeylanicus* (?), Linn.†—Size and pro-

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\* Capt. Hutton gives  $11\frac{1}{2}$  in. as the total length of a Doon specimen, we presume when recent.

† *Bura Bussunta* of India, apud Franklin, which simply means 'Great Barbet.' Col. Sykes remarks—"Scarcely distinguishable from *Bucco corvinus* and *B. javanicus*." It is undoubtedly allied to the former; but if the latter mean *B. javansis*, Horsfield (v. *katoreas*, Tem.), the close affinity, according to the description of *B. javansis*, is not apparent.



portions of the last, or a trifle smaller. Length of a fine recent specimen  $10\frac{1}{2}$  in., by 16 in. in expanse; wing  $4\frac{3}{4}$  in.; tail  $3\frac{1}{2}$  in. Colour of bill reddish; the iris brown; feet light yellowish brown; bare skin around the eye dull orange. General colour of *B. lineatus*, but the brown much predominating over the whitish on the head, neck, and under parts; the throat, more especially, being always dusky-brown instead of whitish; the pale streaks to the feathers of those parts are much more reduced and narrow than in *B. lineatus*; and they are commonly more continued, though gradually diminishing, upon the green of the back; while each wing-covert and tertiary (in the unworn plumage) has a whitish speck at tip, which is never seen in *B. lineatus*; the fore neck and breast are almost uniform brown, instead of whitish, lineated with narrow brown lateral streaks to each feather. Such is the common species of Central India, found northward in the Deyra Doon, where it occurs together with *B. lineatus*. In Lower Bengal, properly so called, it is not met with; but immediately to the westward of the alluvial soil of the Ganges, it abounds (as in the Mednapur jungles). Its voice is a loud rolling or thrilling note, continued for some time, when it breaks into the abrupt *kuruwák, kuruwák, kuruwák*, also repeated for a long while together, of *B. asiaticus*, the note of which species differs only in not being preceded by the introductory roll. Specimens from Ceylon are invariably smaller, having the wing commonly  $4\frac{1}{4}$  in., and the throat and under parts are generally of a darker colour. A Nilgiri specimen, the only one we have seen from S. India, is of intermediate size, the wing measuring  $4\frac{1}{2}$  in.; the brown of the nape passes on to the back and even the scapularies; and there do not appear to have been any pale specks tipping the wing-coverts; but the skin is not in good order, and its feathers are old and worn.\* Whether the Ceylon bird here noticed is really that figured and described in Brown's 'Zoology,' as the 'Yellow-cheeked Barbet,' remains to be ascertained. M. Drapiez, describing, we presume, from Levaillant's figure (Ois. Par., pl. 38, gives 7 in. 3 l. (French) as the length, with beak and naked skin surrounding the eyes red, from Ceylon. This is both too small for the bird before us, the length of which is about  $9\frac{1}{2}$  in.

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\* Of those of the Dukhun, Col. Sykes gives the total length as 8 7-10ths in., inclusive of tail of 2 7-10ths in. "The bird," he remarks, "is consequently smaller than Major Franklin's, who gives 10 in. as the length."

(English), and too large for Brown's description, where the figure is stated to be somewhat more than two-thirds of the size of the living bird, which accordingly should be under 6 in. in length, or still smaller than the next species. The colouring (as described, not as figured) agrees sufficiently with that of *B. caniceps*, even to the whitish specks tipping the wing-coverts.

Mr. Jerdon, in his original catalogue, confounding this species with the next, describes it as "found throughout" (the peninsula of) "India, only in the higher jungles, being therefore of course most abundant on the west coast, where it is found from the level of the sea to the top of the Nilgiris, where it is more abundant than in any other locality I have visited. There is a very remarkable variation in the size of this species, the largest specimens" (*B. caniceps*) "being found on the Nilgiris, and degenerating in size" (i.e., *B. viridis* making its appearance) "as you approach the coast. From Mr. Elliot's notes," he continues, "I extract the following interesting observations:—'Seldom seen on the wing, but single birds heard on almost every tree, uttering their peculiar note, which resembles the native (Canarese) name, being a continued *kóoturr*, *kóturr*, or *k'turr*. They continue to call for some minutes at a time, and are heard throughout the day. On each side of the throat is a naked spot with skin wrinkled, which is probably contracted and expanded when the bird is calling.' One was shot picking at the flowers of a small tree." The length of wing of the large specimens Mr. Jerdon gives as  $4\frac{1}{2}$  in. only; and, as native names, he mentions *Kootoomra*, Hind., of some shikaris, *Kootoorga*, Mahr., and *Kootur Kakee*, Can.,—all derived from the call.\*

More recently, in distinguishing the two species, Mr. Jerdon writes, "This large *Bucco* is found in all the jungles of" (peninsular) "India, as well on the east as on the west coast. I have specimens from Malabar, and the eastern ghâts, and have seen others from Goomsoor, and Bengal" (Mednapur district).† The wing he here describes as 5 in. long, perhaps from a northern specimen. It measures so much in a Deyra Doon example before us, but rarely (we suspect) exceeds  $4\frac{3}{4}$  in.; while in the Ceylon bird (as we have said) it is generally but  $4\frac{1}{4}$  in. Capt. Hutton gives 11 in. as the total length of a Doon specimen; and of this

\* Madr. Journ. xi. 217. † Ibid. xii. 140.

and the preceding species he remarks, "The iris is white. Neither of them inhabits the hills."

*B. VIRIDIS*, Linn.—Again similar, but much smaller, not exceeding  $7\frac{1}{2}$  or  $7\frac{3}{4}$  in. long, the wing 4 in., and tail  $2\frac{3}{4}$  in.; bill to forehead  $\frac{7}{8}$  in. Colour similar, but the brown of the head and nape scarcely lineated; that of the under parts pale, becoming whitish on the throat. There are no pale specks on the wing-coverts, nor traces of pale streaks on the green of the back. "The true *B. viridis*," remarks Mr. Jerdon, "as I find on reference to the figure in Temminck's pl. col. pl. 870, is the bird found on the Nilgiris, and occasionally in other parts of the Malabar coast." It is peculiar to the Indian peninsula.

*B. CHRYSOPOGON*, Tem. (p. c. 285).—Length 11 in. and upwards; the wing 5 in., and tail  $3\frac{1}{4}$  in.; bill to forehead 2 in. Colour green, more yellowish beneath, and the nuchal and dorsal feathers margined with brighter green; forehead, supercilia, ear-coverts, and throat, greyish-brown; a large vivid yellow moustache; feathers immediately above the nostrils crimson; crown and occiput dusky, with crimson tips to the feathers, margined with bright blue; the crimson predominating in the middle, and the blue on the sides of the occiput; a slight blue gorget, margining the greyish-brown of the throat; tail bluish underneath (as usual in the genus); the terminal half of the primaries edged with pale buff. Bill black, and the feet appear to have been plumbeous. Young similar, with feathers of much looser texture, and the colours, excepting the green, much less brilliant. Inhabits the Malayan peninsula and Sumatra.

*B. VERSICOLOR*, Raffles (Tem. p. c. 309). *Takoos*, Mal.; *Takoo*, Sumatran (generic).—Length about 10 in.; the wing  $4\frac{1}{2}$  to  $4\frac{3}{4}$  in.; and tail 3 in.; bill to forehead  $1\frac{1}{2}$  in. Colour green, more yellowish beneath, the nuchal and dorsal feathers margined with brighter green; forehead, crown, and occiput, crimson; also a spot below the eye, and another on each side of the base of the fore-neck; supercilia, chin and throat, and base of the moustache, brilliant blue; the remaining larger portion of the moustache bright orange-yellow; the lores and ear-coverts black; beak black, the vibrissæ reaching beyond its tip. Young similar, but with the colours much less bright, and the forehead greenish. Inhabits the Malayan peninsula and Sumatra, being particularly abundant.

*B. QUADRICOLOR*, Eyton, P. Z. S. 1839, p. 105.—Length about  $8\frac{1}{2}$  in.; of wing  $3\frac{3}{4}$  to 4 in.; and tail  $2\frac{1}{4}$  in.; bill to forehead  $1\frac{3}{8}$  in. Colour green, yellower beneath, the nuchal and dorsal feathers margined with brighter green; forehead bright orange-yellow, and a tinge of this colour at the base of the moustaches; crown, chin and throat, and a spot on each side of the base of the fore-neck, also another at the base of each nostril, crimson; a spot below the eye, and gorget margining the crimson throat, verditer-blue; terminal portion of the primaries margined with pale buff; the bill black. Inhabits the Malayan peninsula.

*B. ARMILLARIS*, Temminck (p. c. 89, f. 1).—Length about  $7\frac{1}{4}$  in.; the wing  $3\frac{3}{4}$  in.; and tail  $2\frac{1}{2}$  in.; bill to forehead 1 in. Colour green, yellower below; the forehead and supercilia bright orange-yellow; crown, chin and throat, verditer-blue; a spot on each side of the base of the fore-neck, and a half-collar on the nape, crimson. Bill and loreal feathers black. The young, as described by Stephens, have all the plumage green or greenish, shaded with bluish, and marked on the tip of the feathers of the upper parts with bright green lunules; the yellow on the head and collar expands as the individual advances in age.\* Inhabits the Malayan peninsula, and Java (?). Specimens of this and of the three preceding species, also of *B. trimaculatus*, are common in the Malacca collections; those of *B. versicolor* and *B. trimaculatus*, however, being much more numerous.

*B. ASIATICUS*; *Trogon asiaticus*, Shaw; *Capito cyanocollis*, Vieillot; *B. cyanops*, Cuv.; *B. cæruleus*, Dumeril. *Burra Bussunt-bairi*, Bengal; *Koop-kha-loung*, Arracan.—Length about  $9\frac{1}{2}$  in., by  $13\frac{1}{2}$  in. in expanse; wing 4 to  $4\frac{1}{4}$  in.; tail 3 in.; bill to forehead 1 in. Colour green above, with a slight ruddy tinge on the back; yellower below; forehead, occiput, and a spot on either side of the base of the fore-neck, crimson; band across the crown, continued backward as an upper supercilium, black; cheeks, ear-coverts, moustache, throat and front of the neck, including a narrow lower supercilium, verditer-blue. Bill black above, the sides of the basal half (and often the whole base) of the upper mandible, and the lower mandible except at tip, pale

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\* Stephens, probably describing from Temminck's plate cited above, mentions a golden-yellow half-collar on the breast, which we have never seen among numerous Malacca specimens examined. He gives Java as the habitat; and erroneously refers to this species the *B. flavifrons*, Cuv.

greenish yellow. Irides reddish hazel ; nude orbital skin tinged with orange ; the lids with a circlet of orange wart-like papillæ, forming the orbits ; legs greenish ashy. Young similar, but the colours of the head and neck less vivid, the red being mixed with green, and the dusky transverse coronal band with blue. Exceedingly common in Lower Bengal, and northward to the sub-Himalayan region ; likewise abundant in Assam, Sylhet, Tipperah ; becoming rare in Arracan. Capt. Hutton notices this species and *B. indicus* as being common in the Deyra Doon, neither of them occurring ever in the hills. Its voice has been mentioned under the notice of *B. caniceps*.

*B. FRANKLINII*, Blyth, J. A. S. xi. 167.—Length about 8 in. ; of wing  $3\frac{3}{4}$  to 4 in. ; and tail  $2\frac{1}{2}$  in. ; bill to forehead  $\frac{7}{8}$  to 1 inch. Colour green, much yellower below ; the shoulders of the wings, and margins of the primaries, blue ; forehead and occiput crimson ; the crown and throat orange-yellow, often tinged with crimson on the crown and at the corners of the gape, lores and sincipita black ; ear-coverts, and continued round in a half circle below the orange throat, a sort of whity-brown. Bill black. Young similar, but the colours of the head and throat are less brilliant. Common in the S.E. Himalaya, as in Nepal and Sikim ; also at Cherra Punji, and doubtless therefore inhabiting the mountain ranges of Assam.

*B. INDICUS*, L. ; *B. philippensis*, Gm. ; *B. flavicollis*, Vieillot ; *B. rubricollis*, Cuv. ; *B. luteus*, Lesson, albino variety (Jerdon). *Chota Bussunt-bairi*, Beng. ; *Kut-Khora*, H., also *Tambayut*, i.e. 'Coppersmith,' which name it receives also from some European residents (Jerdon) ; *Chanda*, Sumatra ; *Engku*, Java.—Length  $6\frac{5}{8}$  in., by 11 in. ; wing 3 to  $3\frac{1}{4}$  in. ; tail  $1\frac{1}{2}$  in. ; bill to forehead  $\frac{3}{4}$  in. Colour green above, with a slight ruddy tinge, the feathers more or less margined with yellowish ; below yellowish white, streaked with green ; the whitish predominating on the middle of the belly ; broad frontal space, and a wide gorget, crimson ; throat, and above and below the eye, sulphur-yellow ; below the crimson gorget is a narrow crescent of golden-yellow ; band across the crown, continued round to the yellow throat, and including the moustaches, black ; a bluish tinge on the occiput and sides of the neck, and on the margins of the great alars and tail. Bill black. Irides dark hazel ; nude orbital skin dull crimson. Feet pale crimson, or coral-red, with contrasting black

claws. Young much duller in colour, with no trace of crimson or black on the plumage, but yellow above and below the eye and on the throat. This small Barbet is the commonest of the Indian species, and appears to have a more extensive distribution than any other of the genus. We have seen it from Tipperah, Chittagong, from Ramree (Arracan), and it abounds in the Tenasserim provinces, occurring likewise in the Malayan peninsula, about the latitude of Penang, but we have not seen it from Malacca. It inhabits Sumatra and Java, and the description of *B. philippensis*, from the Phillipine Islands, accords, except that the black band on the crown and sides of the neck is not mentioned. We have not remarked it from Assam; nor in Himalayan collections. In Lower Bengal it is extremely common, and appears to be equally so in the Indian peninsula. Mr. Jerdon writes of it:—"The Copper-smith is extremely common in all parts of the country, wherever there is a sufficiency of trees, inhabiting open spaces in the jungles (never in the denser portions), groves, avenues, and gardens; being very familiar, approaching close to houses and sometimes perching on the house-top. When not employed in feeding, it generally perches itself on the very top of a tree, and gives utterance to its monotonous call of 'took, took, took' (as represented by Sykes), nodding its head at each call, first to one side and then to the other." Such are its habits, as familiarly observed in Bengal: but its sonorous and repeated "hugh" is often uttered as it hops from twig to twig, regardless of observation, its throat puffing out at each repetition of the sound.

*B. MALABARICUS*, nobis, J. A. S. xvi. 465; described and erroneously referred to *B. barbiculus*, Cuv., *ibid.* xv. 13.—"Length 5 in." (probably more in the recent specimen); "of wing  $3\frac{1}{8}$  in., and tail  $1\frac{3}{8}$  in.; bill to forehead  $\frac{5}{8}$  in. General colour deep green; the forehead, around the eyes, and the throat, crimson, the last margined with yellow; occiput and cheeks pale blue." From the Malabar jungles.

*B. RUBRICAPILLUS*, Gmelin, founded on pl. xiv. of Brown's 'Zoology.'—Length about 6 in.; of wing 3 in., and tail  $1\frac{1}{2}$  in.; bill to forehead  $\frac{3}{4}$  in. Colour green above, much paler, with a slight bluish tinge below, and a more conspicuous tinge of blue on the sides of the neck; broad frontal space, and also a slight gorget, crimson; throat, and above and below the eye, deep

orange-yellow; and a crescent of the same below the little more than indicated crimson gorget. The under parts of this and of the last species are streakless. Common in Ceylon, where it appears to replace *B. indicus*. Though Brown's figure, from which the descriptions of this bird have been taken, is very faulty, and the said descriptions of it are therefore erroneous, it is clear upon comparison of that figure with specimens that the Cinghalese species here described was intended to be represented.

*B. FLAVIFRONS*, Cuv. (Levaillant, Ois. Par. pl. 55).—"Length 6 in. (French).—Upper parts green, with the edges of the feathers yellowish; lower parts pale green; breast scale-like (*maillée*); forehead of a beautiful golden yellow; a spot of this colour at the base of the beak; around the eye, and the chin, blue, as are also the tail-feathers underneath." Inhabits Ceylon, and is stated to be nearly allied to *B. australis*, Horsfield (v. *gularis*, Temminck). *Non vidi*.

*B. TRIMACULATUS*, Gray; *B. australis* apud Raffles (nec Horsfield); *B. cyanotis*, Blyth, J. A. S. xvi. 465 (Arracan variety). *Toupak*, Malacca; *Uget-pa-din*, Arracan.—Length about  $6\frac{1}{4}$  in., of wing 3 in. to  $3\frac{1}{8}$  in., and tail  $2\frac{5}{8}$  to  $2\frac{3}{4}$  in.; bill to forehead  $\frac{3}{4}$  in.; the rictal bristles reaching  $\frac{1}{2}$  in. beyond its tip. Colour deep green above, more yellowish below, tinged with blue on the tail and edges of the wings; throat bright light verditer; the sides of the forehead, and posterior half of the crown, verditer blue-grey; anterior half of the crown, ear-coverts, feathers at base of lower mandible, and slight gorget (more or less defined), black; three large crimson spots on the sides of the face, one behind the eye and above the ear-coverts, a second below the lores and in front of the ear-coverts, and a third below the ear-coverts. Bill black. Young wholly green, paler below, with merely a bluish tinge on the throat; the base of the lower mandible white in dry specimens. Extremely common in the Malayan peninsula, and in Sumatra; from the Tenasserim provinces we have not seen it; but in Arracan it is abundantly represented by a race (*B. cyanotis*, Bl.), having the crimson spots much weaker, and the ear-coverts and feathers anterior to the sincipital crimson spot (which are black in the Malayan race) of the same verditer hue as the throat. We have seen but one Malacca specimen in which the ear-coverts were not black; and in this they were green, with but a slight admixture of

verditer, while the crimson spots were as deep-coloured as usual.

Genus CALORHAMPHUS, Lesson.

Differs from *Bucco* in having no vivid colours, nor vibrissæ surrounding the bill; the upper mandible of which is somewhat acutely carinated above, having the ridge continued backward to the forehead, and of an arcuated form, its extremity curving over that of the lower mandible; sides of the bill smooth and flat, continued backward to the angles of the gape. Wings having the third, fourth, and fifth primaries subequal, the second shorter, and the first but half the length of the third. Rest as in *Bucco* (so far at least as external characters are concerned). But one species is known.

*C. LATHAMI*; *Bucco Lathami*, Gmelin; *C. sanguinolentus*, Lesson; *Micropogon fuliginosus*, Temminck; *Megalorhynchus spinosus*, Eyton. *Unkat Besea*, Penang; *Ampis*, Sumatra. Length about 7 in., of wing  $3\frac{2}{3}$  in., and tail 2 in.; bill to forehead 1 in.—Colour deep brown above, with slight greenish margins to the feathers of the back and the upper tail-coverts; stems of the coronal feathers thickened and prolonged into soft spines; below somewhat glistening yellowish white, passing to ruddy-brown on the throat. Bill blackish in the presumed males, carneous in the presumed females; legs coral-red. Young similar, but with a smaller bill, and the greenish edges to the feathers more developed and showing on the under parts. Common in the Malayan peninsula and in Sumatra. We know nothing of its habits.

*Note*.—Besides the six species of *Bucco* here noticed as inhabiting the Malayan peninsula, there are several others in the neighbouring islands of Sumatra and Java, certain of which may yet be discovered in the peninsula, especially in the more elevated forests of the interior. Such are *B. javensis*, Horsf. (v. *kotoreas*, Tem.); *B. mystacophanes*, Tem.; *B. fuscicapillus*, Drapiez; *B. tristis*, Drapiez; *B. Rafflesii*, Lesson; *B. oorti*, Tem.; *B. roseus*, Cuv. (v. *roseicollis*, Horsf.); *B. australis*, Horsf. (v. *gularis*, Tem.), and probably others with whose names we are unacquainted, if some of those mentioned be not *doubles emplois*. In the Tenasserim Provinces, Dr. Helfer states the existence of five species,\*

\* J. A. S. vii. 862.



of which we have seen two only, *B. lineatus* and *B. indicus*, both of which are common. In Arracan, the latter seems to be confined to the vicinity of the coast; but the former abounds, also the *cyanotis* variety of *B. trimaculatus*, and *B. asiaticus* first makes its appearance in that direction. *B. lineatus* continues abundant in Sylhet, Assam, Nepal, and, we believe, Upper Bengal; this and *B. asiaticus* being the only Barbets we have hitherto seen from Assam. In the Himalaya, *B. grandis* and *B. Franklinii* are true hill species, both of which occur at Cherra Punji N. of Sylhet, whence there can be little doubt of their also inhabiting the hill ranges of Assam. In Nepal the assemblage consists of *B. grandis*, *lineatus*, *asiaticus*, and *Franklinii*, with probably *indicus* accompanying *asiaticus* in the valley and parts of the Terai region. In the delta of the Ganges we have only *asiaticus* and *indicus*; but immediately to the westward *caniceps* replaces *asiaticus*, as it does *lineatus* more to the north; and this last species inhabits the whole peninsula of India, being represented by a rather smaller race in Ceylon, and perhaps another in the Nilgiris. A still smaller race, but otherwise nearly similar, the *B. viridis*, is peculiar to S. and W. (?) India; while *B. caniceps* inhabits so high as the Deyra Doon; and perhaps the true *B. zeylanicus* will be found to constitute another allied species in Ceylon. In that island we find that *B. indicus* (so generally spread over India) is replaced by *B. rubricapillus*; and in the Malabar jungles there is *B. malabaricus*, which chiefly (or only?) differs from *B. rubricapillus* in having the throat and above and below the eyes crimson like the forehead, instead of orange-yellow. Another small species, the *B. flavifrons* assigned to Ceylon, which we have not seen, completes the series as at present known; and we have information of a handsomely coloured Barbet in the interior of Ceylon (which is perhaps the *flavifrons*, additional to *B. caniceps*, var., and *B. rubricapillus*). That island contains therefore at least three species of the genus; and perhaps a fourth in *B. zeylanicus*, unless this name be ascertained to refer of necessity to *B. caniceps*, var.; and excepting the latter it will be remarked that the Ceylon species differ decidedly from those of the mainland of India. Of the Barbets of the N.W. provinces, we have no satisfactory information; but expect no additional species in that direction, where the genus attains the N.W. limits of its geographical range.

PS.—We have been assured, on good authority, that *B. asiaticus* has been seen to climb, in the manner of a Woodpecker, to its nest hole; and this is probably the amount of its scansorial propensity.

*Note.*—Since the accompanying sketch of the Indian Barbets was printed off, Capt. Tickell has obligingly favoured us with a transcription of Mr. G. R. Gray's article on the group, published in his 'Illustrated Genera of Birds.' He includes it (like most of his predecessors) among the *Picidæ*, as a distinct subfamily; whereas it has a much better claim to be thus included as a subordinate division of *Rhamphastidæ*; and of his genus *Megalaima* (our *Bucco*), he enumerates twenty-nine species, to which *B. malabaricus* has to be added. We may subtract, however, his *M. lutea*, referred by Mr. Jerdon to *B. indicus* as an albino variety; and *M. maculata* (*Trogon maculatus*, Gm.), founded on Brown's figure of "the Spotted Curucui," which is decidedly intended to represent a variety of our *Chrysococcyus smaragdinus* (J. A. S. xv. 53). *B. Lathamii*, Gm., is likewise included, and with propriety; while our *Caloramphus Lathamii* he gives as *Megalorhynchus Hayii* (Gray), with the synonyms we have cited excepting *Bucco Lathamii*. There are also certain African species included, which we hesitate to adopt as members of this generic division. The following reductions and rectifications of synonyms of species described or referred to in the accompanying paper may be accepted on his authority.

*B. VIRENS*, Boddaërt; *B. grandis*, Gmelin.

*B. VERSICOLOR*, Raffles; *B. Rajflesii*, Lesson. (There can be little doubt of this identification, though the forehead of *B. Rajflesii* is said to be black, meaning probably the extreme base only of the forehead).

*B. PHILIPPENSIS*, Brisson; *B. flavigula*, Boddaërt; *B. indicus*, Latham, &c.

*B. FLAVIFRONS*, Cuv.; *B. aurifrons*, Temminck.

*B. TRIMACULATUS*, Gray; *B. frontalis*, Tem.; *B. Duvaucelii*, Lesson.

*B. OORTI*, Muller; *B. Henrici*, Temminck.

*B. ROSEUS*, Cuv.; *Capito rosaceicollis*, Vieillot; *B. barbiculus*, Cuv.; *B. roseicollis*, Vigors.

And a *B. MALACCENSIS*, Hartlaub (Rev. Zool., &c., 1842, p.

337), is given, which has probably to be added to the species inhabiting the Malayan peninsula; while *B. fuscicapillus* and *B. tristis*, Drapiez (Dict. Class. d'Hist. Nat.), are omitted. Mr. Gray brings all the toothed species of Africa under his genus *Læmodon* (*Pogonias*, Illiger), even such as *L. leucomelas* (Boddaërt, v. *B. niger*, Gmelin, *Pogonias Stephensii*, Leach, and *B. rubrifrons*, Stephens), which has the beak comparatively small and the vibrissæ but slight, although among the generic characters of *Læmodon* he states—"the base of both mandibles furnished with long bristles." Other African species are referred by him to the American genus *Capito*, Vieillot. Altogether he gives ten species of *Læmodon*, twenty-nine of *Megalæma* (*Bucco*), fifteen of *Capito*, and one respectively of *Psilopogon* and *Megalorhynchus*, making a total of fifty-six as the approximate estimate of the number of species of *Bucconidæ* at present known.

Of the habits of *Læmodon*, Mr. Gray writes:—"These species inhabit the forests of Africa, where they are usually observed in pairs, living on insects and fruits. They select a hole of a rotten tree, in which the female deposits her eggs on the bare wood. On quitting the nest the young form a small band with the parents, and all live together in perfect harmony until they in their turn separate into couples. These birds are so devoid of fear that it is easy to find their nest, it being only necessary to follow the little band towards the evening to the hole where they reside, and to which they always retire to pass the night." This is quoted to invite a closer observation of the habits of the Indian species, which, though not gregarious, very probably retire to their holes to roost. Mr. Gray adds, "They sometimes take possession of one of the cells of the large" (compound) "nests of certain Weaver-birds," in a compartment of which M. Levaillant states that he once found an aged Barbet in a helpless condition, which must long have received its food from others.

Further, Mr. Gray remarks, of the species of *Megalaima* (our *Bucco*):—"They have been observed climbing round and picking holes in a horizontal rotten branch, precisely in the manner of the Woodpeckers, though they do not employ their tail for support while thus occupied. In the interior of the hole is built their nest" (or are the eggs laid on the bare fragments of rotten wood?). Attention is invited to these particulars.

According to Capt. Tickell, *B. virens* (v. *grandis*) "swarms at

Darjiling, and its monotonous *péo-péo-péo*—from morning to night is heard until the rains are over (early in October), and the young birds are seen wandering about on the roadside. A Bengalee name for *B. asiaticus* is *Suttúra*, imitative of its loud note."

For "the *Rhamphastidæ*," in note [p. 249], read "*Rhamphastos*." In the allied genus *Pteroglossus* the nostrils are placed more as in the Barbets, but not in a groove; except in the sub-group *Aulacorhynchus*, wherein this groove extends very far along the upper mandible.

Just as the above was going to press, we have been fortunate in procuring a living specimen of *Bucco philippensis*, caged and sufficiently reconciled to confinement, which has afforded the means of the following observations:—

1. Having tied together a few of the primaries of each wing to prevent its flying, the bird was placed on the trunk of a tree, and at its base where the principal root-branches begin to spread; but it manifested no disposition whatever to climb or ascend (as a Wryneck does under similar circumstances). On the ground it hops with facility enough, though not with the easy successive hops of a Sparrow, being essentially a percher.

2. When it was tolerably hungry, we tried it with various kinds of insects, but the first which attracted its attention were some small soft maggots, some of which it picked up and scattered, but did not swallow one. Afterwards it seized some grasshoppers and large spiders, which it held and squeezed or munched for an inordinately long time within the particularly firm grip of its mandibles, and then rejected, taking up another which it had perhaps thus squeezed and mashed before. Mr. Broderip's Toucan, it will be remembered, treated an unfortunate Goldfinch in the same manner; but at sight of fruit, the Barbet at once left his insect victims, none of which he swallowed, though certainly in want of food when these were supplied him.

## ON THE ORIGIN OF THE EDIBLE FROG IN ENGLAND.

BY G. A. BOULENGER.

WE need go no farther back than 1844 for the first certain record of the occurrence of this frog in England. Mr. F. Bond, in 'The Zoologist' for 1844 (p. 293), mentions the discovery of *Rana esculenta* by Mr. C. Thurnall, of Duxford, in Foulmire Fen, Cambridgeshire, in September, 1843. At the meeting of July 9th, 1844, Yarrell exhibited specimens on behalf of Mr. Bond, which were presented to the British Museum; others were presented by Mr. Bond to the Zoological Society, subsequently transferred to the British Museum; others again were deposited at the same time in the Museum of the University of Cambridge. It is fortunate that several specimens of the Edible Frog as originally discovered in Foulmire should have been preserved, for a few years later the fen was drained, and these frogs appear to have entirely disappeared from Cambridgeshire.

Although, as just stated, the first *certain* reference to the Edible Frog in England is dated 1844, two old authors give the animal as British—Pennant ('British Zoology,' iii. p. 13, 1776), without reference to any locality, and Shaw ('General Zoology,' iii. p. 103, 1802) as "rare in England." And Pennant has a note on the Common Frog (p. 11), which, it would seem, applies only to the Edible Frog:—"The croaking of frogs is well known, and from that in fenny countries they are distinguished by ludicrous titles; thus they are styled 'Dutch Nightingales' and 'Boston Waits.'"

It is also important to learn from Bell, in the second edition of his 'British Reptiles,' and in a letter published in 'The Zoologist' for 1859 (p. 6565), that his father, who was a native of Cambridgeshire, had described to him, as long as he could recollect, the peculiarly loud and somewhat musical sound uttered by the frogs of Whaddon and Foulmire, which procured for them the name of "Whaddon Organs." These references, however, to voice only appear to me to be quite insufficient to prove the ancient existence of the Edible Frog in England, for it must be borne in mind that the Natterjack Toad, *Bufo calamita*, which no doubt inhabited the same fens, produces a very loud croak from the holes and fissures in the clay in which it remains concealed

in the daytime, and may equally have merited the appellation of "Dutch Nightingale," or "Whaddon Organ."

Returning to the subject, we next have in 'The Zoologist' for 1844 a tolerably good figure (p. 467), an additional note by Mr. F. Bond (p. 677), in which he states that the frog is very abundant in Foulmire Fen, and a note by Bell (p. 727) giving some of the characters distinguishing the new frog from the common species.

In 1847 (Zool. p. 1821) we have a communication by J. Wolley, questioning whether the Edible Frog is a true native of Britain, and learn that Foulmire Fen is drained, and the frogs have dispersed (or become extinct). Remarking on the occurrence at the same place of the Edible Snail, *Helix pomatia*, he adds:—"They are, if I mistake not, believed by conchologists to have been originally introduced from the Continent, perhaps by Roman monks; may not the frogs have been introduced to eat with them by the same Italians?"

The second edition of Bell's 'British Reptiles' (1849) adds nothing to our knowledge, except that he published the above-mentioned remarks of his father on the "Whaddon Organs"; and a figure taken from British specimens is given.

The question remained undealt with till 1859, when Prof. A. Newton wrote an article in 'The Zoologist' (p. 6538), relating his discovery in 1853 of the Edible Frog in Norfolk, between Thetford and Scoulton, and published the following important letter from Mr. George Berney:—"I went to Paris in 1837; some letters which I wrote from that place, and which now lie before me, fix the date with certainty: I brought home 200 Edible Frogs and a great quantity of spawn. These were deposited in the ditches in the meadows at Morton, in some ponds at Hockering, and some were placed in the fens at Foulden, near Stoke Ferry. They did not like the meadows, and left them for ponds. I found some in a pond at the top of Honingham Heights, near the old telegraph. I have measured the distance on a map, three chains to an inch, this morning, and find it to be, in a straight line,  $1\frac{3}{4}$  mile and 40 yards. . . . In 1841 I imported another lot from Brussels. In 1842 I brought over from St. Omer 1300 in large hampers. . . . These were dispersed about in the above-mentioned places, and many hundreds were put into the fens at Foulden and in the neighbourhood."

Prof. Newton adds (*l. c.*) that he regards the specimens found by him in 1853, and which were deposited in the Norwich Museum, as the descendants of Mr. Berney's importations.

In the succeeding number of 'The Zoologist' (p. 6565) we find a reply from Bell that the fact of the Esculent Frog being indigenous to this country appears to him to rest on irrefragable testimony. And, in favour of this view, he adduces the opinion of his father, "formed nearly a century ago," regarding the "Whaddon Organs," to which we have already referred.

In the same volume of 'The Zoologist' (p. 6606) John Wolley contributes an interesting article, entitled "Is the Edible Frog a true Native of Britain?" in which, after discussing the information which up to that date had been obtained, he inclines to the opinion that the species has been introduced, considering the reasons given by Bell inadequate to prove that it is indigenous.

The last important note is by Prof. Newton, who relates ('Zoologist,' 1877, p. 61) that, being in company with Lord Walsingham at a small station on the Thetford and Walton Railway, he found a colony of Edible Frogs, one specimen from which was captured and presented to the Norwich Museum. He adds:—"On reference to my former note it will be seen that this species has thus made good its existence in Norfolk for at least thirty-four years, and I cannot doubt that the last colony I found is one of the results of Mr. Berney's original importations, as that gentleman has informed me that he has not introduced any more in the meanwhile, and I know of no one who is likely to have done so. From Lord Walsingham I have since learnt that he has ascertained that the species is pretty generally diffused in a south-westerly direction from the place where we found it, and therefore its naturalisation in the country seems to be accomplished."

Thus it appears that three opinions have been expressed regarding the British *Rana esculenta*:—(1) That it is indigenous. (2) That it was perhaps introduced by Italians. (3) That the Norfolk specimens, and perhaps also the Cambridge ones, were introduced by Mr. Berney from Belgium and the North of France.

The first-named opinion has no evidence to support it: the references of Fleming as well as of Bell's father, even if really applying to this frog (which must always remain doubtful), would

only prove that it has existed in England for the last 150 years ; nothing more.

Wolley's opinion that it may have been introduced by Italians as a delicacy (as is said to have been the case with the Edible Snail) was a mere suggestion ; still, as we shall see further on, it is one which agrees with the facts I have now to bring to light.

As to the third opinion, I may observe in the first place that, as regards the colony at Foulmire Fen, it is hardly admissible that a few hundred specimens having been turned out in widely separated spots in Norfolk in 1837, and 1840, so many should have migrated to a fen on the southern border of Cambridgeshire to such an extent as to be found there in great abundance in 1843. But there is another much more important argument against this view, which brings me to the object of this communication.

The Edible Frog is a widely distributed form, and like all such forms shows a great amount of variation, so that it is possible to define several local races, or subspecies. One of the safest characters for the division of *R. esculenta* into minor groups is afforded by the relative development of the inner metatarsal tubercle. As I have observed in a previous communication in this Journal (p. 220), the typical *R. esculenta* as commonly occurring in Central Europe has this tubercle compressed, large, measuring 4 to 5 mm. in specimens in which the inner toe, measured from the tubercle, averages 9 to 11 mm. On examining the six specimens from Foulmire Fen in the British Museum, I was much surprised to find that they do not agree with the typical *R. esculenta*, but differ in having the metatarsal tubercle much larger still, shovel-shaped, with almost cutting edge ; in the largest specimens the inner toe measures only 7 or  $7\frac{1}{2}$  mm., and the tubercle gives 4 or  $4\frac{1}{2}$  mm. They therefore cannot be ranked with the true *R. esculenta*, but belong to the Italian form named by Camerano *Rana esculenta lessonæ*. Having received, through the kindness of my friend Dr. Camerano, type-specimens of the latter form from Piedmont, I have convinced myself that there cannot be the slightest doubt that the British Edible Frog belongs to the Italian form. Having informed Prof. Newton of my discovery, he courteously enabled me to examine two specimens from Foulmire, preserved in the Museum of the University of Cambridge, and these also proved to be *R. lessonæ*.



Although convinced that the Cambridgeshire specimens are of Italian, and probably relatively ancient origin, still I had no doubt that the specimens found in Norfolk by Prof. Newton in 1853 and 1877 would prove to be referable to the true *Rana esculenta*, in consequence of the importations by Mr. Berney. Wishing to verify this supposition, I applied to Mr. Gurney, who was kind enough to obtain from the authorities of the Norwich Museum the loan of specimens for my examination. I received two adult specimens, presented by Prof. Newton (the ones alluded to in his communication in 1859), which I was rather disappointed to find had been stuffed, and a young one in spirits, presented by Lord Walsingham (Zool. 1877). My astonishment was great to find that these, also, are of the form *lessonæ*.

It is clear to me, therefore, that all the specimens the capture of which has hitherto been recorded, whether from Cambridgeshire or Norfolk, are not the descendants of those introduced by Mr. Berney, but are of Italian origin. By whom and when they were introduced in this country I cannot venture to suggest.

I append the following measurements, in millimetres, of all the British specimens which I have examined, and of Italian, French, and Belgian specimens.

<i>Rana esculenta</i> , var. <i>lessonæ</i> .				From snout	Inner meta-	Inner
				to vent.	tarsal tubcle.	toe.
♂.	Foulmire Fen.	F. Bond.	Brit. Mus.	. 53	4	7
♂.	"	"	"	. 51	3.5	6
♀.	"	"	"	. 67	4.5	7.5
♀.	"	"	"	. 60	4	7
juv.	"	"	"	. 31	2	3.5
juv.	"	"	"	. 32	2	3.5
♂.	"	"	Cambridge Mus.	56	4.5	7
♀.	"	"	"	. 61	4.5	7.5
♂.	Between Stow } Bedon & Rockland. }	A. Newton.	Norwich Mus.	65	4	7
♀.	"	"	"	. 70	4.5	7.5
juv.	Stow Bedon.	Walsingham.	"	. 31	2	3.5
♂.	Novara, Piedmont.	Camerano.	Brit. Mus.	. 48	3.5	6
♀.	"	"	"	. 72	5	9
<i>Rana esculenta</i> , <i>typica</i> .						
♂.	Paris.		Brit. Mus.	. 68	4	9.5
♀.	"		"	. 82	4	10
♀.	Brussels.		Brussels Mus.	82	4	10

If the French and Belgian imported frogs have survived there will be no difficulty in distinguishing them from their relatives, and I hope that we may hear of the capture of specimens for comparison.

## NOTES AND QUERIES.

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**The proposed new Biological Station.**—A meeting of the Marine Biological Association of the United Kingdom was held at Burlington House on June 17th, to elect a President and Officers, and frame Bye-Laws. This Society has been founded “for the purpose of establishing and maintaining laboratories on the coast of the United Kingdom, where accurate researches may be carried on leading to the improvement of zoological and botanical science, and to an increase of our knowledge as regards the food, life-conditions, and habits of British food-fishes and mollusks.” Subscriptions and donations have at present been received amounting to about £1500; the sum required by the Association for the purpose of building and equipping its first laboratory is estimated at £10,000. At the meeting lately held a code of Bye-Laws was drawn up, and the following noblemen and gentlemen were elected to serve as President, Vice-Presidents, Council, Hon. Treasurer, and Hon. Secretary, namely:—*President*, Prof. Huxley; *Vice-Presidents*, the Duke of Argyll, K.G., the Duke of Sutherland, K.T., the Earl of Dalhousie, K.T., Lord Walsingham, Sir John Lubbock, Bart., M.P., Mr. Edward Birkbeck, M.P., Mr. George Busk, F.R.S., Dr. W. B. Carpenter, F.R.S., Prof. W. H. Flower, F.R.S., Dr. J. Gwyn Jeffreys, F.R.S.; *Council*, Prof. Moseley, F.R.S., Mr. W. S. Caine, M.P., Mr. W. T. Thiselton Dyer, F.R.S., Prof. Jeffrey Bell, F.Z.S., Dr. John Evans, Treasurer R.S., Prof. Herdman, Mr. E. W. H. Holdsworth, Dr. A. Günther, F.R.S., Prof. McIntosh, Prof. Milnes Marshall, Sir Phillip C. Owen, K.C.M.G., C.B., Mr. G. J. Romanes, F.R.S., Mr. P. L. Selater, F.R.S., Mr. Adam Sedgwick; *Hon. Treasurer*, Mr. Frank Crisp, V.-P. Linn. Soc., 6, Old Jewry, E.C.; *Hon. Secretary*, Prof. E. Ray Lankester, F.R.S., 11, Wellington Mansions, North Bank, N.W., to whom all communications may be addressed.

**An Austrian Game Bag.**—An official report, published by the Administration of Woods and Forests, states that there were killed last season in Austria proper, as distinguished from Hungary, 6550 Stags, 2244 Hinds, 44,485 Roebuck, 6116 Chamois, 2372 Wild Boar, 1,025,808 Hares, 9103 Woodhens (Black Grouse), 4075 Bartavelles (Red-legged Partridges), 89,209 Pheasants, 789,883 Partridges, 80,032 Quails, 23,683 Woodcock, 17,065 Snipe, 760 Wild Geese, and 43,908 Wild Duck. The return also includes 26 Bears (fifteen killed in Galicia, six in the Tyrol, three in Bukovina, and two in Carniola), 123 Wolves, 52 Lynxes, 21,462 Foxes, 702 Martens, 15,577 Polecats, 764 Otters, 2447 Badgers, 486 Eagles, and 91,132 Hawks and other birds of prey.

## MAMMALIA.

**Badger and Polecat in Leicestershire.**—A few days ago (June 14th), as a farm servant was going to his work early in the morning, he saw a Badger lying asleep in the bottom of a dry ditch, and having cleverly placed the prongs of a pitchfork, which he was carrying in his hand, across the Badger's neck, he pinned him to the ground; he then tied his legs together with a piece of cord, and carried him home in triumph. The mere capture of a Badger in Leicestershire is by no means an unusual occurrence, for they are very abundant in this neighbourhood. The present case is only worth recording from the peculiar manner in which it was effected. I have seen many which have either been shot or taken alive, some of them very large specimens; one which was shot a few years ago by a person in this village weighed 24 lbs. With reference to the distribution of the Mammalia in England this note may be of some use; and, for the same reason, I may also mention that the Polecat is far from uncommon, though perhaps not so plentiful as the Badger.—A. MATTHEWS (Gumley, Market Harborough).

**An amber-coloured Mole.**—During the first week of June I received from a mole-catcher in an adjoining parish an amber-coloured variety of the Common Mole. He has met with several of this variety in the course of his trapping.—A. MATTHEWS (Gumley, Market Harborough).

## BIRDS.

**Note on a Gyr Falcon obtained in Sussex in 1851.**—In 'The Zoologist' for 1851 (p. 3233) Mr. Ellman recorded the occurrence, in January of that year, of a Gyr Falcon at Mayfield, in Sussex. This specimen subsequently passed into the fine collection of Mr. Borrer, of Cowfold, where I had recently the pleasure of examining it, and of identifying it as a genuine example of *Hierofalco gyrfalco*, not "immature," as stated by Mr. Ellman, but in fully adult plumage, and in excellent preservation. The very great rarity of British specimens of this falcon induces me to record my opinion that this example is referable to *H. gyrfalco*, and not, as catalogued in Mr. Harting's 'Handbook of British Birds,' to *H. islandicus*. Mr. Borrer informs me that this falcon was shot in the act of devouring a Pigeon on the top of a wheat-stack.—J. H. GURNEY (Northrepps, Norwich).

[This same specimen is noticed in Yarrell's 'British Birds' (4th ed., vol i., p. 49) as an Iceland Falcon, doubtless on the authority of Mr. Borrer himself, who furnished the information to the other work quoted.—ED.]

**Falco or Hierofalco.**—The Committee of the B. O. U., appointed to draw up the 'Ibis List of British Birds' separate the great northern Falcons from the true Falcons, considering them generically distinct. I have been somewhat puzzled to distinguish characters sufficiently well

defined to justify the separation, and take advantage of the suggestions offered in paragraphs 4 and 5 of Preface to the vol. for 1882, hoping that some correspondent will enlighten me.—ASTUR.

**Stock Dove in Perthshire.**—A male Stock Dove, *Columba ænas*, was shot in this neighbourhood (Stanley) on 17th May last, and forwarded to me. This species is very rare in Perthshire, only half-a-dozen other examples having been seen or obtained. Mr. Brooke found a pair breeding in the vicinity of Dunkeld in the summer of 1878. Col. Drummond-Hay saw a pair in the Carse of Gowrie some few years ago, and two examples were obtained in the south-eastern part of the county, as recorded in 'The Ibis' (July, 1878).—THOMAS MARSHALL (Stanley, Perthshire).

**Red-throated Pipit in Kent.**—Having read Mr. J. H. Gurney's note (p. 192), on the occurrence of the Red-throated Pipit, *Anthus cervinus*, at Brighton, I have pleasure in sending you word of another specimen answering the description, which I obtained here in the month of April, 1880. I shot the bird myself, one fine day, while feeding and singing along the fresh turned-up furrows behind my plough, and not identifying it, sent it to Dover to be preserved for a bright example of the Meadow Pipit.—WALTER PRENTIS (Rainham).

[At our request, Mr. Prentis very kindly forwarded the bird for inspection. Mr. Sharpe has examined it and compared it with specimens in the British Museum, and pronounces it to be undoubtedly an example of *Anthus cervinus*.—ED.]

**Yellow Wagtail in Confinement.**—*Apropos* of Capt. Beecher's remarks on this subject (p. 232), I may state that a beautiful cock Yellow Wagtail, *Budytes Raii*, tended with great care by a lady residing near Norwich, and fed on flies, has lived in good health through the winter, in spite of many prophecies that the attempt would be a failure.—J. H. GURNEY, jun. (Northrepps, Norwich).

**Sabine's Snipe near Waterford.**—Through the kindness of Col. Sturt, I have recently had an opportunity of examining a specimen of the so-called Sabine's Snipe, which was shot near Waterford, on Nov. 25th, 1883. This specimen presents a somewhat unusual appearance, and is remarkable for its pale tone of coloration, intermediate between that of the Common Snipe and the examples of Sabine's Snipe usually obtained, which strengthens the opinion now generally held by ornithologists, that the latter form is merely a melanism of the former.—J. E. HARTING.

**Birds of South Wales.**—In reference to Mr. Mathew's paper on the birds of Pembrokeshire (p. 211), the following notes, taken during a short stay I made in Gower, on the Glamorganshire coast, may perhaps be

interesting. The Peregrine Falcon nests in the cliffs; the Chough and Raven were nesting on Worm's Head. Amongst more common birds the Herring and Lesser Black-backed Gulls, Skua, Cormorant, Puffin, Razor-bill, Guillemot and Kittiwake were observed; Oystercatchers were extremely numerous. Several species of Plovers, Sandpipers, and other wading birds were noted, besides the Spotted Crake and the Whimbrel; Gannets occasionally seen. Inland have been shot the Long-eared Owl, and some few years ago a Bittern, on Sir H. Vivian's estate. There is a man who lives by the Head, a great bird-lover; but unfortunately he lacks sufficient book-learning to be able to take valuable observations.—T. N. POSTLETHWAITE (Hallthwaite, Millom, Cumberland.)

**Abnormal Eggs of Ring Ouzel.**—Observing Mr. Buxton's note (p. 227) on abnormal eggs of the Blackbird, I may state that I have a clutch of Ring Ouzel's eggs (*Turdus torquatus*), which have an uniform blue colour, with dark spots, closely assimilating to normal eggs of the Song Thrush.—J. A. HARVIE-BROWN (Dunipace, Larbert, N.B.).

**Correction of Error.**—Please make the following corrections in my note, "Abnormally coloured Sky Lark" (p. 230):—For *Sky Lark* read *Wood Lark*, *Alauda arborea*, and for "I have seen this plumage before," read "I have *not* seen this plumage before."—E. F. BECHER (Southwell, Notts).

#### FISHES.

**Basking Shark on the Cornish Coast.**—I have to record the capture of a Basking Shark, *Selachus maximus*. I have seen many at sea whilst on boating excursions, and have passed close to them without alarming them, but these have always been much too large for me to have attempted their capture. This is the first specimen which I have seen on shore; it is a small one, measuring only 9 ft. 4 in. over all, from the tip of the snout to the extreme end of the upper lobe of the caudal fin, measured in a straight line; from the eye to the fork of the caudal fin it measured 6 ft. 9 in. Comparing it with the illustrations given by Yarrell and Couch, it is quite certain that Yarrell's figure misrepresents the fish, and that Couch does not give a sufficiently rapid slope in the rear of the dorsal fin, and does give a very exaggerated figure of the circular punctures around the snout. They are more numerous and much smaller than his illustration shows them to be; and when I first saw the specimen—about twenty-four hours after its capture—there ran through them from the snout, radiating backwards, five thin white lines, which had disappeared before I saw the specimen again, about twenty-four hours afterwards. This specimen was a female. It was captured in a very peculiar way: the S. S. 'Lady of the Isles' was on her voyage from St. Mary's (Islands of Scilly) to Penzance, on June 12th, and when about midchannel she ran down something which proved to be this fish.

It was apparently stunned by the collision. A boat was lowered, and the fish was secured. It turned out to be gorged to repletion with Hake and Mackerel, and it naturally occurs to me that this species of fish may have a habit of gorging itself, which induces its habit of lazily floating on the surface of the sea until its digestive organs have done their work and restored its energies. The descriptions of the fish given by Yarrell and Couch are in the main correct. I may add that the teeth of this specimen were conical and recurved, about half an inch long in the longest, separated from each other, having no serration on their edges, and being in a double row throughout the jaws, except that in the immediate front of the lower jaw they lay in three rows: but as this was a small specimen, and therefore probably immature, I attribute nothing distinctive to this note of the dentition. I could not find that the teeth were (as is usual in the other members of the Shark family) in any degree retractile. This fish is clearly distinguishable from the Basking Shark of Pennant, of which I have a specimen, and which I have already described in these pages.—THOMAS CORNISH (Penzance).

**Greater Forked-beard on the Banffshire Coast.**—A very good and entire specimen of this fish, *Phycis furcatus*, was taken at Banff by a trawler during the last week in May. It is said to be a scarce species generally in Britain, and would seem to be remarkably so with us, to judge from the fact that this is only the third specimen, so far as I am aware, which has been captured in the Moray Firth during the last sixty years or thereabouts. The fishermen did not know what it was, and had it not been for the long slender filaments depending from the breast—erroneously called fins—which attracted their attention, it would in all probability have been passed over as a Common Hake.—THOMAS EDWARD (Banff).

#### MOLLUSCA.

**Lutraria oblonga in Jersey.**—During a recent visit to Jersey I was favoured with an extra good spring tide, which enabled me to walk over part of the sea-bed three miles from high-water mark. Amongst many rare Mollusca I obtained a number of living specimens of *Lutraria oblonga* and *L. elyptica*; their burrows were revealed by a small key-hole-like hole in the sand banks, from which was ejected, on alarm, a small jet of water. By rapidly probing up the wet sand, the animal was invariably found from six to nine inches below the surface.—EDWARD LOVETT (Addiscombe, Croydon).

#### CRUSTACEA.

**Large Crayfish.**—During a recent visit to Jersey I made a journey to Sark, and saw there the finest specimen of *Palinurus quadricornis* I have ever seen. The dimensions were as follows:—Total length, from tip of antennæ to tip of tail, 4 ft. 1 in.; greatest girth, 1 ft. 4 in.; spread of tail,

11½ in. The weight I could not obtain. I was anxious to procure it as a specimen, but it was in the hands of a Frenchman, whose sole idea was to cook it. It was absolutely perfect, and of a rich deep colour.—EDWARD LOVETT (Addiscombe, Croydon).

## ARCHÆOLOGY.

**Mementoes of Hawking and Hunting in the Last Century.**—On the 11th June last, Messrs. Christie, Manson, and Woods sold, at their auction rooms, King Street, St. James's, several pieces of silver plate presented to Col. Thornton, of Falconer's Hall and Thornville Royal, Yorkshire, a noted sportsman, who flourished at the end of the last and beginning of the present century. This plate, the property of Major Thornton Wodehouse, R.A., was sold by auction, at so much per ounce, as follows:—A silver-gilt tea urn, formed as a globe, surmounted by a group of a hawk and dead hare, with this inscription—"Col. Thornton, proposer and manager of the Confederate Hawks, is requested to receive this piece of plate from George, Earl of Orford, together with the united thanks of the members of the Falconer's Club, as a testimony of their esteem and just sense of his assiduity, and of the unparalleled excellence to which in the course of nine years' management he has brought them. When unable to attend them any longer, he made them a present to the Earl of Orford.—Barton Mills, June 23, 1781." Then follow the names of the members of the Falconers' Club; 136 oz. at 15s., £112. A silver-gilt épergne, with oval open-work basket on chased stand, with four fluted dishes, inscribed, "Col. Thornton received this piece of plate of Sir Harry Featherstone and Sir John Ramsden, Baronets, as a compromise to a bet made in honour of a Hambleton fox. Col. Thornton, by his original bet, engaged for 300 gs. P.P. (play or pay) to find a fox at Hunts Whint, or in the Easingwold country, that after Christmas, 1779, should run twenty miles. The day to be fixed and the morning approved by Col. Thornton, and to be determined by Sir J. Ramsden and Sir H. Featherstone or the company up." On the bottom was this certificate:—"We, the undermentioned, do declare that on a day appointed for the decision of the bet made by Col. Thornton with Sir J. Ramsden and Sir H. Featherstone, that a fox broke off in view of the hounds and company, which fox was killed after a continued burst, there not being one check, by the different watches, for two hours and thirty-eight minutes, and we, being the only gentlemen up, do believe that the said fox ran at least twenty-eight miles. Col. T., being a party concerned, gave no vote.—Lascelles Lascelles, Henry Hutchinson, Val. Kitchinman, W. Dawson, Randolph Marriott. N.B.—There were only eight horsemen out of seventy up." 108 oz. at 29s. per ounce, £156 12s. A two-handled cup and cover, won by Mrs. Thornton, inscribed, "Col. Thornton's Louisa, by Pegasus and Nell (dam of Kill Devil), rode by Mrs.

A. Thornton, 9st, beat Mr. Bloomfield's Sister to Allegrante, rode by the noted F. Buckle, 12st., two miles over York [Race-course], for 1000 gs. This gold [silver-gilt] cup and two hogsheads of Côte Rotie, August, 1804, 96 oz. at 17s. 6d., £81." In addition to these trophies were a two-handled cup and cover, presented to Col. Thornton by the York Regiment, 1795, which fetched £96: and two Louis XVI. soup tureens, part of the same presentation, £900., the prices realised being regarded as very good.

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## SCIENTIFIC SOCIETIES.

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### LINNEAN SOCIETY OF LONDON.

June 5, 1884.—WILLIAM CARRUTHERS, Esq., F.R.S., Vice-President, in the chair.

Messrs. J. Starkie Gardner, F.G.S., and John H. Leech were duly elected Fellows of the Society.

Prof. J. Martin Duncan read a paper on a new genus of recent Fungida, allied to the fossil form *Micrabacia*, the genus being based on a specimen of coral obtained from shallow water in the Korean Sea.

A communication was made by Mr. Arthur R. Hunt, "On the influence of Wave Currents on the Fauna inhabiting Shallow Seas." The author refers to various physical data, among others quoting Prof. Stokes and Mr. J. Stevenson; the latter stating that a current of 0.6819 of a mile per hour will carry forwards fine gravel, and that 1.3638 roll along pebbles an inch in diameter. From this and other facts Mr. Hunt argues that wave-currents do materially influence the marine fauna inhabiting shallow water, not only those of the tidal strand but likewise those inhabiting the deeper sea-bottom. He adduces instances of animals living among or on rocks, and of those frequenting sand or other deposit, enumerating species of Starfish, Mollusks, Shrimps, Crabs, and Fish. He says that even the Flat-fishes (*Pleuronectida*) seem to have changed their original forms and habits for the purpose of being able to live in shallow waters agitated by waves. Referring more particularly to species of *Cardium*, he endeavours to show how under the influence of wave-currents the variation of species may be promoted, and even their local extinction brought about.

A paper was read "On the Longicorn Beetles of Japan," by Mr. H. W. Bates. In a former paper (in 1873) on the same subject the author treated of 107 species, but now adds many new genera and 129 more species, or a total of 236 specific forms as at present known to belong to the Japanese fauna. This great accession is due to the later collections of Mr. George Lewis, who made a second visit to the islands in 1880-81. Mr. Bates,



reasoning from his fresh material, is inclined to modify his previously stated views as to the predominance of a supposed tropical element in the Longicorn group in question, the relative number of absolutely new genera now turning the scale in favour of Palæartic or Nearctic affinities.

The last zoological communication taken was "On three new species of *Metacrinus*," by P. Herbert Carpenter, with a note on a new *Myzostoma* by Prof. von Graff. Mr. Carpenter describes *Metacrinus rotundus* from Japan, dredged there by Dr. Doderlein, of Strasburg, and *M. superbus* and *M. Stewarti*, two remarkable forms obtained by the Telegraph Company on picking up a cable near Singapore. The *Myzostoma cirripedium* was formed on the Japan Crinoid.—J. MURIE.

#### ZOOLOGICAL SOCIETY OF LONDON.

June 3, 1884.—Prof. A. NEWTON, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of May, and called special attention to a Tree Porcupine, purchased May 1st, probably referable to *Sphingurus spinosus*, which was new to the Society's collection; to four Soft-billed Ducks, *Hymenolæmus malacorhynchus*, received May 17th from the Acclimatization Society of Canterbury, New Zealand; and to two pairs of Francolins of different species, obtained by Mr. E. Lort Phillips on the Somali coast, and presented by him May 23rd.

A letter was read from Mr. Albert A. C. Le Souéf, of the Zoological Gardens, Melbourne, giving an account of the unusual occurrence of two young ones being produced from one egg laid by a Black-necked Swan. The writer described the appearance of these cygnets, which were much smaller than a companion bird of the same age.

Mr. F. E. Beddard read a paper upon the visceral anatomy of *Hapalemur griseus*, and called attention to the various points of difference between this species and *Hapalemur simus*.

Mr. A. D. Bartlett read a paper on some singular hybrids of Bovine animals bred in the Society's Gardens.

Mr. G. E. Dobson read a paper on the unimportance of the presence or absence of the hallux as a generic character in Mammalia, as evidenced by the gradual disappearance of this digit within the limits of a single genus (*Talpa*).

A communication was read from Mr. H. W. Bates, containing a list of the Coleoptera of the families *Carabidæ* and *Scarabaidæ* collected by the late Mr. W. A. Forbes on the Lower Niger. Of these three appeared to be previously undescribed.

Dr. Carl Lumholtz read a paper containing notes upon some mammals which he had recently discovered in Queensland.—P. L. SCLATER, *Secretary*.

## NOTICES OF NEW BOOKS.

*The Birds of South Africa.* By E. L. LAYARD, F.Z.S., &c.  
A New Edition, thoroughly revised and augmented, by  
R. B. SHARPE, F.L.S., F.Z.S. Royal 8vo, Part VI.  
London: Quarritch. 1884.

WITH the issue of his sixth and last part, Mr. Sharpe has at length completed this important work, the former parts of which have already been noticed (*Zool.* 1877, p. 350).

So "thoroughly" has Mr. Layard's book been "revised and augmented," that in lieu of the post-octavo volume of 382 pages, which appeared (without illustrations) in 1867, we have now a handsome royal octavo of 855 pages, embellished with twelve coloured plates of some of the rarer or more remarkable species.

This notable expansion of the original work is due, partly to the fact that during the past fifteen years considerable collections have been formed in South Africa, and many important papers published on the ornithology of this subregion, and partly to Mr. Sharpe's enlargement of the area, beyond the geographical limits originally assigned by Mr. Layard, to the Zambesi on the east coast, and to the Quanza on the west coast, which has of course resulted in a large increase in the number of birds to be described.

The geographical distribution of South African birds appears to have been made a feature of the present edition; and in some instances, as with the Woodpeckers, Grass Warblers, Wheatears, and Larks, Mr. Sharpe has given a complete revision of the families and supplied new descriptions. In most cases, however, as he tells us in his Preface, he has retained Mr. Layard's original descriptions, "inasmuch as they were compiled by a first-rate field-ornithologist for the benefit of field-ornithologists, and because they proved eminently successful in the first edition."

Mr. Sharpe is certainly to be congratulated upon having now brought to completion a work which at once takes rank as the text-book for the region, or rather subregion, of which it treats.

The total number of species now included as occurring within the limits of South Africa, as defined by Mr. Sharpe, is 812, and the following synopsis will give an idea of the families which are characteristic of this subregion:—

## Order ACCIPITRES.

Diurnes — Eagles, Hawks, &c.	66
Nocturnes—Owls ... ..	14

## Order PICARIÆ.

Caprimulgidæ — Goatsuckers ...	10
Cypselidæ—Swifts ... ..	12
Coraciidæ—Rollers ... ..	5
Trogonidæ—Trogons ... ..	1
Alcedinidæ — Kingfishers ...	13
Bucerotidæ—Hornbills ... ..	8
Upupidæ—Hoopoes ... ..	4
Musophagidæ — Plantain-eaters	5
Coliidæ—Colies ... ..	4
Cuculidæ—Cuckoos ... ..	16
Indicatoridæ—Honey Guides ...	5
Capitonidæ—Barbets ... ..	19
Jyngidæ—Wrynecks ... ..	1

## Order PSITTACI.

Psittacidæ—Parrots ... ..	7
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## Order PASSERES.

Turdidæ—Thrushes and Chats	55
Pycnonotidæ—Bulbuls ... ..	11
Timeliidæ ... ..	46
Nectariniidæ—Sunbirds ... ..	24
Meliphagidæ—Honey-eaters ...	5
Paridæ— Tits ... ..	6
Certhiidæ—Creepers ... ..	1
Muscicapidæ—Flycatchers ...	31
Hirundinidæ—Swallows ... ..	21
Laniidæ—Shrikes ... ..	28
Campephagidæ—Caterpillar- catchers ... ..	4
Prinopidæ ... ..	11
Dicruridæ—Drongo Shrikes ...	2
Oriolidæ—Orioles ... ..	3
Corvidæ—Crows ... ..	3
Sturnidæ—Starlings ... ..	15
Ploceidæ—Weaver-birds ... ..	61
Fringillidæ—Finches ... ..	17
Emberizidæ—Buntings ... ..	5
Alaudidæ—Larks ... ..	25
Motacillidæ—Wagtails & Pipits	20

## Order COLUMBÆ.

Columbidæ—Pigeons and Doves	19
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## Order GALLINÆ.

Phasianidæ—Guinea-fowl ...	4
Perdicidæ—Francolin and Quail	19
Turnicidæ, Hemipodes ... ..	2

## Order GERANOMORPHÆ.

Rallidæ—Rails ... ..	17
Heliornithidæ ... ..	1
Gruidæ—Cranes ... ..	3
Otididæ—Bustards ... ..	11

## Order LIMICOLÆ.

Œdionemidæ—Thick-knees ...	3
Parridæ—Jacanas ... ..	2
Glareolidæ—Pratincoles ... ..	2
Charadriidæ—Plovers ... ..	24
Scolopaciidæ—Snipes and Sand- pipers ... ..	21
Dromadidæ—Dromas ... ..	1

## Order GAVIÆ.

Laridæ—Gulls and Terns ...	18
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## Order HERODIONES.

Ardeidæ—Hérons & Bitterns ...	18
Balænicépidæ—Boatbill ...	1
Ciconiidæ—Storks ... ..	8
Plataleidæ—Spoonbills and Ibis	5
Phœnicopteridæ—Flamingoes ...	2

## Order ANSERES.

Anatidæ—Ducks and Geese ...	16
Procellariidæ—Petrels & Shear- waters ... ..	19

## Order STEGANOPODES.

Phætonidæ—Frigate-bird ...	1
Pelecanidæ—Gannets ... ..	3
Phalacrocoracidæ — Cormorants	5
Plotidæ—Darters ... ..	1

## Order PYGOPODES.

Podicipitidæ—Grebes ... ..	3
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## Order IMPENNES.

Speniscidæ—Penguins ... ..	2
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## Subclass RATITÆ.

Struthionidæ—Ostrich ... ..	1
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*A List of the Diurnal Birds of Prey, with references and annotations; also a Record of Specimens preserved in the Norfolk and Norwich Museum.* By JOHN HENRY GURNEY. 8vo. London: Van Voorst. 1884.

Mr. J. H. GURNEY has just published a list of the Diurnal Birds of Prey, which will form a most useful work of reference for the student of this group, on which Mr. Gurney is so great an authority. For several years past he has been publishing in the pages of 'The Ibis,' an elaborate critique of Mr. Bowdler Sharpe's Accipitrine volume of the British Museum Catalogue of Birds, to which series the present list was intended as an index. Mr. Gurney has, however, given his work a wider scope, to the great benefit of Science; for besides supplying an index to 'The Ibis' papers, he has added useful references to standard works, and has noted the number of examples in the Norwich Museum. Knowing how much the splendid series of Accipitres in this museum is indebted for its formation to the individual energy and liberality of Mr. Gurney himself, who has rendered this collection celebrated throughout the world, one only regrets that an exact list, with localities and dates of the specimens, has not been given, for it is well known that the utmost care has been bestowed on their selection. Possibly, with the groundwork supplied by the present list, Mr. Gurney may feel enabled to complete his 'Catalogue of Raptores in the Norwich Museum,' an undertaking which we can assure him will be well appreciated by ornithologists.

We cannot attempt to follow Mr. Gurney in his classification of the Accipitres, nor are we able to recognize all the genera which he admits, since many of them appear to be founded on peculiarities of coloration and not of structure. These are matters of opinion, however, and do not affect the value of Mr. Gurney's work. In a series of Appendices will be found some short essays on certain vexed questions, and every one who studies this volume as it deserves to be studied will find it a most useful handbook to the Accipitres, containing the latest information on the order in a desirably small compass.

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## HANDS AND FEET\*.

BY PROFESSOR ST. GEORGE MIVART, F.R.S.

A MAN is proverbially wanting in wit who cannot tell "a hand from a foot." Yet I would wager that not a few persons would be very much puzzled if they were suddenly called upon to say why they distinguish between "hands" and "feet," and what they really mean by those two monosyllables.

Each of the two words is used in more than one sense. We have most of us heard the expressions "a hand of pork;" "a hand at cards"; "the foot of a wine-glass"; "the foot of a mountain." The words are used in various analytical meanings, but the foundation of the analogy lies in the human hand and the human foot. With these, then, we must begin.

But every object whatever may be considered in a variety of different ways, according as we direct our minds along one or another line of thought. As, for example, a photograph of the Queen may be regarded as to its degree of likeness to Her Majesty, as a good or bad photograph technically, as a sign of royalty, as a material substance, as an object of a certain price, and in fifty other ways.

Every such object, however, as a man's hand or foot, has to be regarded from two special points of view, and such is the case with every organ of every living creature, whether animal or plant. Every such object has to be considered (1) as to its form

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\* An abstract of one of the "Davis Lectures," delivered at the Zoological Gardens, June 12th, 1884.

and structure, and (2) as to what it does; that is to say, it has to be regarded (1) anatomically and (2) physiologically. Anatomy concerns form and structure only, and has nothing to do with the uses or abuses to which organs or their parts may be put; it has nothing to do with activity, and its objects are by it regarded statically. Physiology concerns the action of objects only, though to know this presupposes a certain knowledge of their structure; it has in itself, however, nothing to do with form and structure, and its objects are by it regarded dynamically.

The word "hand" and the word "foot" as ordinarily used have each a certain compound reference both to form and employment—*i. e.*, both to Anatomy and Physiology. It will be necessary then to try and disentangle this involution of meanings in order to comprehend what the two words "hand" and "foot" really mean.

We will first consider some of the main characters of, and differences between, the human hand and foot considered anatomically, *i. e.*, according to their form and structure; in other words, their morphology. The hand consists (1) of the wrist, (2) of the fleshy or middle part of the hand, and (3) of the thumb and four fingers, spoken of anatomically as "digits." At the end of each digit is a nail, which covers the outer or dorsal surface of the digit. Of the digits the third is the longest, and then comes either the second or the fourth.

When we examine the bones, which constitute the firm support of the softer structures which are wrapped round them, and with them form the hand, we see that the first two constituent parts of the hand are much more distinct than they seem to be when the hand is viewed externally. For the wrist is formed of a small number (eight) of irregularly shaped short bones grouped together in two series or rows, one row of four being towards the arm, the second row being next the bones of the middle part of the hand. These small bones, which together form the wrist, are called "carpal bones," and the whole skeleton of the wrist is called the "carpus." The bones of the fleshy or middle part of the hand are five long bones, each attached to the carpus and one end, and destined to support a digit at the other. Each of these five bones is called a "metacarpal bone," and the five metacarpal bones are spoken of together as the "metacarpus." The metacarpal bone which supports the thumb, or, as it is technically termed, the "pollex," is fitted on to its

supporting carpal bone as a man rides on a saddle, each of the three adjoining surfaces being inversely concave in one direction and convex in the other. This metacarpal bone is so placed as to stand out and diverge at a marked angle from the other four metacarpals. The bones which support the digits are called phalanges, and there are three such to each digit, except the thumb (pollex), which has but two. These bones are coated with membranes, and wrapped round more or less by muscles and tendons. The muscles are the organs which move the bones as so many levers over one another, and they do so by means of tough cords or tendons which pass from the muscles to be inserted into the bones which are to be thus moved.

The human foot, like the human hand, consists of three parts:—(1) the ankle (corresponding with the wrist); (2) the fleshy or middle part of the foot (corresponding with that of the hand); and (3) the toes or five digits of the foot. At the end of each digit is a nail, which covers the upper or dorsal surface of the digit. Of the toes, the first or second is the longest, whence they decrease in length to the little toe.

When we examine the bones of the foot, we find (just as in the hand) that the first two constituent parts of the foot are more distinct than they seem to be when the foot is viewed externally. For the ankle (like the wrist) is formed of a small number (seven) of irregularly shaped small bones grouped together, interposed between the bones of the leg and those of the middle part of the foot. Of these seven bones, one (the astragalus) directly articulates with the leg bone; another, "the heel bone," is called the "os calcis"; and a third, to which for a reason (hereafter apparent) I would direct attention, is named the "naviculare." It is quite a short bone (broader than long), and none of the bones of the ankle are long bones. Each is called a "tarsal bone," and the whole skeleton of the ankle is called the "tarsus."

The bones of the fleshy or middle part of the hand are five long bones, each attached to the tarsus at one end, and destined to support a digit at the other. Each of these five bones is called a "metatarsal bone," and the five metatarsal bones are spoken of together as the "metatarsus."

The metatarsal bone which supports the great toe, or, as it is technically termed, the "hallux," is fitted on to its supporting

metatarsal bone very differently from what we find to be the case with the metacarpal of the pollex. Here there are *not* two saddle-shaped surfaces applied one to the other. The first and four succeeding metatarsals do not diverge, as do the first and four succeeding metacarpals. The bones of the digits or "phalanges" of the foot are three to each digit, except the great toe (or hallux), which, like the thumb (or pollex) has but two.

The muscles which bend or flex the toes are not only such as those which bend or flex the fingers, but there is in addition a long muscle placed on the outer side of the leg, the strong tendon of which crosses the sole (or plantar surface) of the foot obliquely to be implanted into the metatarsal of the hallux. There is nothing corresponding with this in the hand. This long muscle is called the "peroneus longus."

Let us now glance at the physiology of the hand and foot. The hand is essentially a grasping organ, and the idea of "prehension" is connected by the term "hand"—as we may see by considering such words as "handling" and "manipulation"; and therewith is associated the idea of a certain amount of skill, as evidenced by the epithet "handy."

The perfection of the human hand as an instrument is a trite subject for remark, and its powers are mainly due to the perfection with which the thumb, or pollex, can be opposed to all and to each one of the other manual digits. Were the thumb shorter than it is, the perfection of the hand as an instrument would be thereby very greatly diminished. Nevertheless the hand does occasionally serve in locomotion, as in climbing and swimming, but such employment for it is altogether exceptional and secondary.

The foot is, on the contrary, essentially an organ of locomotion and support, as we may see by such terms as "footing" and the "feet" of a stool. In the use of the foot the great toe, or hallux, is not opposed to the other digits, nor can it grasp at all, as does the thumb. Nevertheless it is of the greatest utility, serving, as the great toe does, as the fulcrum in walking. It is made so to serve by the action of the "peroneus longus" muscle, which (owing to the disposition of its strong tendon before described) tends to pull up the foot upon the great toe, and so pressing the great toe upon the ground. Nevertheless the foot does occasionally and exceptionally serve as a grasping organ, as



in some deformed people and certain savage tribes. In these, however, the great toe is not opposed to the other digits as the thumb is, though it has greater mobility and power of divariation—a thing which may be remarked in infants generally.

When we glance at the actions of other animals, we see that very different parts may be used for prehension, locomotion, and support from those which are applied to these purposes in ourselves. Thus all birds grasp with their beaks and feet, and not with the parts which correspond with our arms and hands, such parts in them being exclusively devoted to aërial locomotion. Again, Spider Monkeys not only can support themselves by their tails,—which grasp strongly enough to bear the weight of the whole body,—but will take hold of some desired object with the tail and then carry it to the hand or mouth. Mr. Bartlett has observed them to succeed in thus obtaining an object otherwise out of their reach; he has also observed the Flying Fox (*Pteropus*) take hold of food with its lower extremity, or foot, and eat from it.

The lips of the Horse and the tongue of the Giraffe are prehensile organs, but especially prehensile is that curious enormous prolongation of nose and upper lip together which constitutes the “trunk” of the Elephant. This wonderful organ has in the Indian Elephant a little finger-like process at its extremity, and it is an amazingly delicate organ for what may by analogy be well called manipulation. With these various hand-like uses for parts which are altogether different anatomically from our hands, we may contrast the assignment in other animals of parts which do anatomically answer to our hands, to the functions of locomotion and support exclusively. Such is the case as regards the anterior extremities (anatomically hands) of horses, oxen, sheep, pigs, hippopotami, rhinoceroses, elephants, &c. It is owing in fact to this exclusively locomotive use of them that such parts are commonly spoken of by us as the “fore feet” of horses, oxen, &c.

Thus disputes are inevitable (and great disputes have in fact arisen) as to what parts in non-human animals should be called “hands” and what “feet.” For example:—Seeing that the lower extremities of apes, lemurs, and opossums have a great toe which is almost or quite as opposable to the other pedal digits as is our thumb to our fingers, their extremities have very

often been called hands, and apes and lemurs have been placed in an order named *Quadrumana*, or four-handed. But, as we shall shortly see, there are apes the anterior extremities of which (anatomically answering to our hands) have no opposable thumbs, and cannot with physiological propriety be called hands. The only satisfactory way out of the difficulty is to take anatomy exclusively as our guide, and to consider every extremity scientifically a "hand" which takes the place in the body of our hand, and to call every inferior or posterior (according to the posture of the body) extremity a "foot." It is the more reasonable so to do in Zoology as zoological classification is a morphological classification, and reposes on the number and form of parts of the body, and not at all on their use and employment. When for any reason we wish to refer to such use, there will be no difficulty in occasionally speaking of a "hand devoted to locomotion" or of a "prehensile foot," as the case may be.

It will, I think, be a matter of interest if I briefly refer to some of what seem to me to be the most curious modifications in different animals of those parts which correspond with our own "hands" and "feet." In so doing, however, I shall avoid all reference to animals formed on a radically different type from that of the human body. The so-called "feet" of snails or cockles have no relation to our own any more than have the legs of flies and spiders to our own legs. I shall but refer to animals which have, as we have, a skull and backbone, two pairs—rarely one pair—of limbs, and which breathe in air. Thus I exclude from our consideration even fishes, and I do so because their fins have such a vague and remote resemblance to the extremities of the higher animals. Not but what the fins of fishes and the relations they bear to our limbs are matters full of interest and instruction. So much so, indeed, that they deserve a lecture to themselves, but space will not allow of my treating of that matter now. I have then a few words to say about the hands and feet of certain beasts, birds, and reptiles, and I will begin with those creatures which are naturally the most interesting to us, as being the most like us—I mean the Apes, and their allies the Lemurs.

Apes are divisible into two groups—(1) those of the Old World and (2) those of America. The former more closely resemble us, and their hands are for the most part roughly like ours in

structure and function; though none have so well-developed a thumb, and none can point with the index-finger. In certain Apes of Asia (*Semnopithecii*) the thumb is very small, and in closely allied African forms (*Colobi*) it is wanting altogether, being merely represented by a bony rudiment beneath the skin. The very same defect is found in certain American Monkeys (*Ateles*); but others have a thumb fairly long; in none, however, is it opposable as in man and the monkeys of the Old World, but is rather like a fifth finger, bending round nearly in the same plane as the other fingers, as may any day be seen by anyone who will give a nut to one of them in our Monkey-house. In all Apes the nails are much as in man, except in the Marmozets, where they take the form of long pointed and curved claws. As to their feet, the Apes of both worlds agree in having a great toe (or hallux) set out at an angle with the other toes, and thoroughly opposable. It no longer, as in man, serves as a fulcrum in walking, but is a most powerful grasping organ, being strongly drawn against the other toes by the action of the "peroneus longus" muscle. The hallux is never wanting, as is the pollex, but it may be very small, as in the Marmozets and Orang. It may be nailless, as in the Orang, or support the only flat nail, as in the Marmozets. In Apes, which climb so much, the hands are largely locomotive, and they may act as the lower ends of a pair of crutches, as in the anthropoid Apes which rest their knuckles on the ground in walking. Nevertheless the feet are the main locomotive and the hands the main prehensile organs, and thus physiologically as well as anatomically Apes may be said to have "two hands and a pair of feet."

The Lemurs and their allies (representatives of which groups may be found in the Monkey-house) have a certain superficial resemblance to Apes, but show one or two odd peculiarities in their extremities. Both pollex and hallux are well developed; but the index of the hand tends to be small, and may even, as in the Potto, be represented only by a minute rudiment. It is a three-fingered lemuroid. The Aye-Aye (*Chiromys*) has the middle finger much lengthened and extremely attenuated, the utility of which condition is problematical. The foot, in the Lemur, has always a sharp claw on the second digit, but in certain genera (*Galago* and *Chirogaleus*, and especially *Tarsius*) the foot is formed in a way found in no other beast whatsoever.

Instead of the tarsus consisting as in all other beasts, and in man of short bones only, the tarsal bones—the os calcis and naviculare—are so much elongated as to merit the name of long bones, and to add another segment to the limb.

Passing now to other orders of beasts, we meet with curious modifications of fingers and toes, according to the uses to which they are applied. In the most carnivorous of carnivorous animals—cats, lions, and tigers—not only are the nails in the form of exceedingly strong and curved sharp claws, but their sharpness is maintained by the arrangement of the two last phalanges of each digit. The joint between them is so formed that the last readily rolls back on the last but one, and is habitually retained in that rolled-back condition by an elastic ligament. Claws thus conditioned are said to be retractile.

The hand of the Bat is a very noteworthy organ. A Bat has a thumb and four fingers. The thumb diverges widely from the fingers, and is free, terminating in a strong hooked claw. The four fingers are exceedingly long and slender, and also bound together by a large membrane or web, which passes from the little finger to the sides of the body. It is this extensive membrane thus supported by delicate digits, like the rods of an umbrella, which constitutes the Bat's wing. The Bat's feet, on the contrary, serve little for locomotion, but the curved claws of the five moderate digits act as hooks, by which the body is habitually suspended, head downwards.

In the Mole's hand we find the very opposite condition to that of the hand of the Bat. All its component bones, instead of being long and slender, are extremely short and thick, for the Mole has to dig out the earth with extraordinary force and rapidity, the little animal proceeding on its subterranean course at such a rate, that it may be said almost to fly through the earth, instead of, as the Bat, through the air.

Progression through the water is generally accomplished in another manner, namely, by lateral strokes of the hinder part of the body. Everybody knows that in most fishes the body ends in a fin, which broadens out at the end of the tail from above downwards.

The Seal has but a very short tail, without any terminal expansion. The feet, however, are so conditioned as to act in the same way as would a vertically-expanded tail. The soles of

the feet are applied together, and the digits, which are webbed, more or less divaricated. In order to fit them for their purpose their proportions are very different from those of any foot which I have yet described. It is the first and fifth digits (the great and little toes of our feet) which are the largest and longest, while the middle toe is considerably the shortest. The hand is fitted to act as another kind of fin by a different modification. In it, it is the pollex which is the largest and longest, and thence the digits regularly decrease in size to the fifth, which answers to our little finger.

In Porpoises and Dolphins there are no feet at all, and an expansion of skin and fat only answers the swimming purpose of the feet of the Seal. The hand is made still more completely into a mere fin than is the hand of the Dolphin, its digits being all bound together in a tough and continuous investment; whereas, however, in the Seals the number of the phalanges, so constant hitherto, remains the same as in man; in the Dolphins they are augmented, those of the index finger being as many as ten or even fourteen in number.

A very curious modification of both hands and feet is met with in the Sloths. The digits are reduced in number to three, or even to two, and are singularly rigid, being bound together by membrane and skin down to the enormously long, strong, and hooked claws. The arrangement of the parts is such that when at rest they are bent over, as our hands are when our fingers are flexed. In the Sloths it requires a positive effort to open, and, as it were, unhook them; and this condition is one of the greatest utility to these animals, for Sloths pass their lives suspended from the branches of trees, on the leaves of which they feed. Moreover, they not only range about and feed in this position,—hanging back downwards—but may also sleep in the same posture. There is, however, no fear of their falling; if shot at and killed, they will still hang till they rot without falling, on account of this permanently flexed condition of their hook-like extremities.

In creatures which are not so very remotely allied to the Sloths—I mean the Ant-eaters and Armadillos—very great inequality may be found in the size of the different digits. In the Great Ant-eater, which uses the claws of its powerful fore limbs to tear down the nests of Termites, the creature walks

partly on the sides of its hands and partly on a pad-like cushion in their palms. In the Aye-Aye we find the middle digit to be exceptionally slender; in the Great Ant-eater it is most exceptionally thick and strong.

Australia is the great home of those pouched beasts, called Marsupials, one genus of which, however, inhabits America, and in ancient times was found in Europe.

The American forms (*Didelphus*), and certain Australian forms also (*Dasyurus*, *Phascogale*, and *Myrmecobius*), have the four outer digits of proportions similar to those of the majority of clawed, or unguiculate, beasts. Other Australian forms, as the Phalangiers (*Phalangista*), the native Bear\* (*Phascolarctus*), the Wombat (*Phascolumys*), and others, have the second and third digits very singularly reduced in size.

This disproportion is still more marked in the Kangaroos (*Macropus*). In that animal each foot has but two large and conspicuous toes, the inner one of which is much the larger, and bears a very long and strong claw, a formidable defensive weapon when the creature stands at bay. On the inner side of this is what appears to be one very minute toe, but it is furnished with two small claws. An examination of the bones of the foot shows us, however, that it really consists of two very slender toes united together in a common fold of skin. These very minute toes are the same as the less reduced ones in the marsupials before mentioned, and correspond with our own second and third toes, there being no representative of our great toe.

In a small and very singular kind of Bandicoot (*Chæropus*) the fifth toe is also extremely reduced in size, so that the animal is supported and progresses on one toe only, namely, that which corresponds with our fourth toe. The hand of this animal is also greatly reduced in the number of its parts, though there it is supported not on one but on two digits, which correspond with the second and third digits of the human hand.

The Elephant has extremities each provided with five short digits enclosed in a plump fleshy mass, with the nails apparent,

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\* In the hand of this animal the pollex and index are slightly opposable to the other three digits: in the foot a nailless hallux is opposable to the other four digits.

and surrounding a dense cushion on which the limb and superincumbent weight of the body reposes.

In the Pig we have an animal each extremity of which is furnished with but four digits, both the pollex and the hallux being absent. These four digits are arranged in two pairs both on the hand and on the foot, there being a large strong pair of digits in the middle, on which the animal walks, with a small digit placed external to and behind each of the two large ones. The nails are represented by strong horny structures which encase and enclose the terminal phalanx. Such a massive sheathing nail is called a "hoof." The digits on which a Pig walks correspond with our third and fourth fingers and our third and fourth toes.

In ruminating animals, such as oxen, sheep and deer, the number of digits is reduced to two, which are the same two as as those which support the Pig in locomotion; whereas in the Pig, however, each of the metacarpals and metatarsals remains distinct. In ruminants the third and fourth metacarpals and the third and fourth metatarsals unite together to form one single bone called a "cannon bone."

In a small animal called the Jerboa (*Dipus*), which has no relation to cattle, but is allied to the rats, a still further coalescence of metatarsals takes place. This little animal has three toes (the second, third, and fourth) to each foot, and these three digits are supported by a long single metatarsal bone which really consists of the second, third, and fourth metatarsal bones united into one.

In the Rhinoceros there are also three digits to each extremity, but the metacarpals and metatarsals remain distinct.

In the Horse we meet with the extreme of reduction in regard to the number of digits, but with a great development of them in size. The popular notion is, or at all events was, that the foot of a Horse was an undivided one, that it answered to that of the Ox "uncleft." If so, the metacarpal and metatarsal bones, each of which is manifestly single, must be a "cannon" bone, and made up of more than one such bone forced, as it were, together. Such, however, is not the case; each foot of a Horse consists of but a single digit only, answering respectively to our middle finger and our middle toe, the enormously enlarged nail of such finger, or toe, having become the Horse's hoof. The Horse

therefore walks on the nails of four digits, one to each extremity, and cattle, such as oxen and sheep, walk on the nails of eight digits, two to each extremity. Such animals are said to be *Unguligrade*.

When we pass from Mammals to Birds we meet with a great change of structure. Not only is the structure of both the "hand" and the "foot" very different from anything in beasts, but the difference between the "hand" and the bird's "foot" in all birds is much greater than we find to exist in almost any beast. The "hand" of the bird is in all cases exclusively a locomotive organ, one for flight in the air, except in such a bird as the Penguin, where it is for flight in the water. The hand serves this locomotive purpose exclusively as being a support for certain feathers, and consists at the most of but three rudimentary, very short, fingers (the pollex, second and third), the metacarpals of which have united together to form a single bone. Thus the bony framework of the wing of the bird is widely different from that of the wing of the Bat. The carpus also is very small, and represented only by two small bones, the other part having coalesced with the complex metacarpal structure.

When we proceed to consider the bird's foot, we find it also a locomotive organ, but occasionally, as in the Parrots, serving as a prehensile organ, analogically—*i. e.*, according to functions—something of a hand. The foot of the bird has always as many as three digits, except in the Ostrich, where it has but two. It has never more than four digits, that answering to one's little toe being invariably absent. Generally the hallux is turned backwards and the other three forwards, but occasionally, as in the Swifts, all four may be turned forwards. Sometimes, as in the Parrots and Trogons, they may be arranged in one of two groups, two of the digits being opposed to two others. Thus the hallux and fourth may be opposed to the second and third, as in the Parrots; or the hallux and second to the third and fourth, as in the Trogons. As in mammals, so in birds, the hallux has but two phalanges, and the second digit but three. Except in a few birds (*e. g.*, the Swifts and Goatsuckers), however, the third digit has four phalanges, and the fourth has five. It is by this we know that the two toes of the Ostrich consist of the fourth and fifth digits.



The metatarsals of the foot are yet more consolidated than are the metacarpals of the hand; they form a sort of "cannon bone," like those of the Jerboa before described. Moreover, not only do they unite together, but with part of the tarsus also, the rest of the tarsus being similarly united to the lower end of the leg-bone. Thus in birds the foot does not move on the leg, as in us and in beasts, but one part of the foot moves on another, the joint between the foot and the leg being constructed in the middle of the tarsus.

In Reptiles the hand has generally five long movable digits, but they may be enclosed in a sort of fin, as in the Turtle; or greatly shortened, like those of the thick stumpy hand of the Tortoise. The phalanges of the five digits are generally 2, 3, 4, 4, 3, or 2, 3, 4, 5, 3 in number. In the foot their number is like that of birds, 2, 3, 4, 5, and the fifth digit (always absent in birds) has in Lizards four phalanges. Rarely, as in the Chameleons, the digits of both hand and foot are arranged in two bundles, opposed the one bundle to the other. Thus in the hand, the first, second, and third digits are opposed to the fourth and fifth, and in the foot the first and second digits are opposed to the third, fourth, and fifth.

In certain extinct reptiles—Pterodactyles—the hands were to a certain extent modified, like those of existing Bats, to support a flying membrane or wing. In these reptiles, however, instead of all the digits, except the pollex, being elongated, it was only the outermost one which was so. In other extinct reptiles, namely, *Ichthyosauri* and *Plesiosauri*, we have evidence of certain conditions of limb which are full of interest. The resemblance between our arm and leg and hand and foot are almost as manifest as their differences. The number of primary divisions of each, and the numerical difference of the phalanges of the innermost digits and of the other digits in each case, has been already mentioned. In many animals the difference between the hand and the foot is greater than in ourselves, but in others it is much less. In none is it so little as in *Ichthyosauri* and *Plesiosauri*, where the leg and foot is the perfect repetition behind of the arm and hand in front.

In the *Ichthyosaurus* the number of phalanges is greatly increased, but that we have met with already in Cetaceans, which seem to have been anticipated in the deep by their reptilian

precursors, the huge *Ichthyosauri*. In the latter, however, and in these only of all air-breathing back-boned animals, there are indications that the number of the digits exceeded five.

As to the lowest air-breathers referred to—the Frogs, Toads, and Efts—I will but refer to the foot of the Frog, in which we meet with a condition reminding us in a distant way of those very different animals, the Lemurs. In the Frog two of the tarsal bones are elongated, so as to merit the name of “long bones,” and to form a separate segment of the hind limbs.

To return to the question of the resemblance between “the hands” and “the feet” in the same individual. There are certain very curious facts which point to some deep and hidden cause of this resemblance of a more profound nature than any similarity of use and employment. Thus, birds present us with examples of the greatest divergence between “hands” and “feet,” and yet, at the same time, they sometimes singularly illustrate the hidden affinity between these two parts. Thus certain breeds of fowls and pigeons develop what are technically called “boots” on the feet; that is to say, their feet put forth long feathers resembling those of the wing, and they grow from the very parts of the foot which correspond, serially, with the long-feather bearing parts of the hand.

There are many curious cases of diseased conditions in man which illustrate and display this hidden affinity. Thus Sir James Paget has recorded cases in which psoriasis has similarly affected the palms of the hands and the soles of the feet in one individual, and the backs of the hands and the backs of the feet simultaneously in another individual. Analogous observations have been made by Dr. William Budd and others.

Again, those curious cases of congenital malformations called “monstrosities” also seem to illustrate this curious tendency to develop serial similarity. Professor Burt Wilder, of the United States, has noted many instances in which similar deformities have co-existed in the little fingers and in the little toes, or in the thumbs and the great toes; and M. Isidore Geoffroy St. Hilaire has recorded various cases in which similar defects of development have co-existed in the hands and feet of the same individual.

Such phenomena point to some very recondite and deeply

interesting problems, which have their *philosophical* as well as their *physical* side. Into any consideration of philosophical problems, however, I cannot here enter.

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## NOTES ON THE SEAL AND WHALE FISHERY OF 1883.

BY THOMAS SOUTHWELL, F.Z.S.

THE beautiful models and graphic sketches of the stirring events which characterise the pursuit of the young Seals on the Labrador ice, exhibited last summer at the International Fisheries Exhibition in South Kensington, conveyed a much more accurate impression of the mode of procedure followed in this exciting occupation than any written description, however elaborate; and from the constant interest displayed by the crowds who attentively inspected the models and drawings it is probable that many of the visitors left the building much enlightened with regard to an industry of which previously they had known next to nothing. But, however bad a time of it the poor Seals might seem to be having in the groups depicted, all seemed to be going merrily enough with the sealers, such little events as an immersion in the icy sea, or a fight with some hard-headed old "dog" only lending diversity to the scene.

There is, however, another side to the picture which no pencil could depict nor model adequately convey. Fast in the pitiless ice which tightens round her lies the good ship, her timbers groaning with the strain as though the vessel were instinct with life and feeling, the thick ice—crumpled by the pressure like sheets of paper, and its broken edges rafting one upon the other till there seems no escape from its overwhelming rush—every moment threatening to close over the shivering vessel and add one more to the list of the missing. All this time the crew, in spite of the darkness, cold, and blinding drift, are working steadily at their posts striving to relieve the ship, or preparing for a hasty flight to the ice should the worst happen; yet so capricious is the weather and the motion of the ice that a change may come at any moment, and the vessel be relieved from her perilous position. Or it may be that the majority of the crew are away on the ice; a gale comes on, and the heavy fall of snow

obliterates their tracks and hides all the surroundings by which they could guide their course to the distant vessel; those on board adopt every means to indicate the direction in which the lost ones should bend their steps; but in the snow-laden and foggy atmosphere the fog-horn and beacon-light are alike useless, and when the dawn comes and a search-party is sent out great is the suffering which they are called upon to witness—frost-bite, madness, or even death. Add to this all the privation, hard work, and liability to accident, and the sealer is surely entitled to all his hard-earned gains.

Although not so disastrous a season as that of 1882, the weather during the fishing in 1883 was quite sufficiently severe, and sometimes the vessels were very hard pressed; nevertheless the Dundee ships had a very fair catch, the six vessels averaging 15,392 Seals each, the 'Thetis' taking the lead with 22,144, the smallest number 8235 falling to the 'Arctic,' the total catch of the Dundee vessels being 92,354, against 63,204 last season. Of twenty-five other fine vessels from St. John's six returned clean, the remaining nineteen capturing between them about 194,000 Seals, or an average of 10,210 each. The very large majority of these 286,000 Seals were young "Harps"; there were also a few old and second year Harp Seals, and some Hooded Seals. The 'Aurora' also subsequently shot 2250 old Hooded Seals, and the 'Resolute' 1493 of the same species in the ice between Iceland and Greenland.

Passing to the Greenland Seal-fishery, I cannot do better than give a brief summary of the voyage of the 'Eclipse,' one of the most successful vessels of the British fleet, with the particulars of which Capt. D. Gray, her commander, has been so kind as to supply me. On the evening of the 2nd April, after a very stormy passage out, the 'Eclipse' entered the ice in 73° 55' N. 5° E., and joined a fleet of fifteen other British and Norwegian vessels which had also found the Seals, some of the ships having been watching the pack ever since the 28th March, waiting for the opening of the fishery, which was to take place the following morning. About 8 p.m. all was in readiness for putting the men on the ice soon after daylight the next morning. The evening was fine, and the scene pretty and peaceful in the extreme. The Seals were all Harps, and they lay basking upon the ice in all directions, engaged, with evident demonstrations of affection

and satisfaction, in administering nourishment to their pretty long-coated and large-eyed offspring, or passing to and fro between the open water and the ice, still intent on their labour of love. On this peaceful scene the arctic sun went down.

Hardly had daylight spread over the ice on the morning of the 3rd, when the ships commenced to send their men away, and by 3 o'clock there were something like 800 men on the ice, 150 of whom would be armed with rifles. Until 12 o'clock the cheers of the men, the cries of the Seals, and the crack of the rifles was incessant; after 12, as the Seals grew scarcer and the men became fagged, the noise gradually diminished, and at 8 p.m. all was quiet again.

As may be imagined, when in such large numbers and at such close quarters, quarrels, particularly between the Scotch and Norwegian sailors, were frequent, and the danger from wandering bullets was not slight; happily, however, the casualties from the latter cause were confined to one Norwegian wounded. The 4th was spent in like manner, but the men had farther to go and fewer Seals to get; and on the 5th still fewer Seals rewarded them for greatly increased labour.

The ice was now completely cleared, and on "making off" Capt. Gray found that his share was as follows:—young Harp Seals, 1470; old ditto, 354; young Hooded Seals, 322; old ditto, 2; total, 2148. As Capt. Gray abstained from the injudicious practice known as "binging,"—that is, continuing to kill the Seals so long as any are to be found and piling the pelts where they were killed, instead of bringing them at once to the ship,—he did not make up so large a total as the Norwegians, but from the reports he received from the other vessels he estimates the total number of Seals killed by the sixteen ships at about 42,000.

On the 10th April the 'Eclipse' again fell in with Seals, and worked amongst them till the 13th, when owing to the distance his crew had to travel upon the ice, and the badness of the weather, the men were completely footsore and exhausted. The result of this second breeding-station was 2416 young and 25 old Harp Seals, and 6 young and 1 old Hooded Seals, making with those previously taken a total of 4596 Seals.

I have mentioned the practice of "binging" Seals, which is precisely the same as that known in the Newfoundland fishery as "panning" or "bulking," a system which ought to be strictly

prohibited; it is quite sufficiently destructive for the sealers to kill all the Seals which they can drag to the ship, but to bulk Seals which from various causes, such as fog, drifting ice, or the vessel being compelled by stress of weather or the tightening of the ice, to desert them, so that possibly they may never see them again, is a wasteful mode of proceeding which ought to be discouraged by all means, and it is to be regretted that by mutual arrangement amongst the sealers or otherwise it is not abandoned.

The result of the Greenland Seal-fishery, so far as the British ships are concerned, was a take of 37,922, or an average of 2917 per vessel, against a total of 22,142 for the season of 1882. Formerly, before the close time was enacted, the sealers took only the skins and oil of the old Seals, the pups being too young to yield oil and their skins useless, they were left to perish; now, however, as will be seen by the result of Capt. Gray's voyage, very few old Seals are killed, and the pups being older and in fine condition, not only is the yield of oil very good, but the skins are equally valuable.

Messrs. Stephen & Son, of Dundee, exhibited at the late Fisheries Exhibition a great variety of fancy leather manufactured from the skins of Seals, and of the pelts of the young Harps dressed with the long soft fur of the first coat, either of the natural colour or dyed; thus prepared they are now extensively used by furriers in the manufacture of the fur capes so universally worn. The consequence of this demand is that the value of the skins has greatly increased, and they bring the importers about 6s. to 7s. per skin. The total value of the 1688 tons of seal-oil brought home by the Scotch vessels from Newfoundland and Greenland last season represents a sum of about £52,328, and that of the 130,276 seal-skins, which may be taken at 6s. each, another £39,082, a very fair average for this portion of the voyage.

I fear, however, there are signs of the Greenland Seal-fishery rapidly approaching the stage in which it will not pay to continue it. It is probable that none of the breeding pack escaped detection this season, and that practically all the young brood was killed off. In 1882 the pack took the ice so far north that some of the vessels missed them altogether, and possibly a portion of the brood escaped, but in the past season the main body of the fleet was up before the close time came to an end, and it is not likely many young ones were left; indeed it is doubtful even now,

were it not for the attraction of the Bottle-nosed Whale fishery, whether our large vessels would be tempted to go north to the Greenland sealing, rather than, as is now done by the Dundee vessels, to Newfoundland, where a much greater chance of success at present awaits them.

The S.S. 'Mazinthien' of Dundee went on the rocks off Peterhead on her outward passage on March 13th and became a total wreck, but happily her crew of fifty men was saved.

The success of the Davis Strait whalers in 1883 was very poor indeed. Six Dundee vessels went to Davis Strait, and one Peterhead vessel to Cumberland Gulf; one of these, the 'Arctic,' fished only for White Whales, of which she captured 1220, the remaining six killed eighteen Whales, some of which were very small, the whole yielding only 208 cwt. of bone; the 'Esquimaux' killed three Whales for 21 tons of oil and 13 cwt. of bone. The 'Thetis,' however, was as successful with the Right Whales as she had been earlier in the season with the Seals, having killed six Whales, which averaged 16 cwt. of bone each, in addition to 791 White Whales. The 'Thetis,' by the fouling of a line, lost her carpenter and boatswain, the boat was carried under, and the remainder of the crew were rescued with difficulty by a boat from the ship.

In all 2736 White Whales were killed; these creatures are captured by placing nets across the entrance to inlets and fjords, up which the Whales go in search of salmon. When the tide retires they are left by the water and easily killed, yielding a ton of oil to every six or seven Whales; their skins, however, are valuable, and when dressed constitute the "porpoise hide" so much prized for its strength and imperviousness to water; the hides are worth about 1s. 6d. per lb.

The probable cause of the want of success in the Davis Straits fishery is the over-fishing, by which the Whales have become unapproachable, and decline to show themselves in anything like open water. How far this is due to the injudicious use of steam on the whaling grounds, and to the keen competition of the whalers, I do not venture an opinion.

Only one Whale was brought home by the Greenland vessels; this was killed by the 'Hope,' Capt. J. Gray, and was a very small fish, yielding only 11 tons of oil and 11 cwt. of bone. Capt. David Gray went north, but finding the ice too fast, instead of waiting

to effect a passage through it to the open coast-water, returned to the Bottle-nosed Whale fishery, which he prosecuted successfully. The total catch of Right Whales by the seven vessels was only nineteen, the quantity of bone being 219 cwt.; a most unsuccessful season, but so great is the present scarcity of bone, which is now selling at upwards of £2000 per ton, that the temptation to try again next season will be very great.

The Bottle-nosed Whale fishery has been vigorously prosecuted, no less than 535 of these creatures having been killed, compared with 413 in the season of 1882; the 'Eclipse' headed the list with 157 fish. Capt. Gray tells me he finds a great difference in the behaviour of these animals since they have been hunted with such vigour; they are becoming much more suspicious and difficult of approach than formerly, and whereas when he first commenced to take them the whole of the school would congregate around a wounded animal, rendering it easy to secure eight or ten out of a herd, now on one being harpooned its companions disappear at once, seeking safety in flight. I am informed that two new vessels have been added to the Peterhead fleet, and that several additional steamers will sail next season from Dundee; in addition to which quite a fleet of Norwegians will take part in the Bottle-nosed Whale fishery. It is not hazardous, therefore, to predict that the decline of this profitable industry will be as rapid as its rise, and that should the present race to get rich at their expense continue, the Hyperoodons will soon be as rare as the Right Whales.

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### THREE UNPUBLISHED PAPERS ON ORNITHOLOGY.

BY THE LATE EDWARD BLYTH.

#### No. 3.—Fam. CYPSELIDÆ (Swifts).

A remarkable group of birds, organized, both internally and externally, to produce the maximum power of flight. They have been much confounded with the *Hirundinidæ* or Swallows, which exhibit the true *Passerine* structure to its minutest detail, and which owe their volar power mainly to the development of the wings and tail. The Swifts, in their general conformation, most nearly resemble the *Trochilidæ* or American Humming Birds;



but are solely insectivorous, whereas the *Trochilidæ* subsisting partly on the nectar of flowers (though still chiefly insectivorous, and pursuing minute insects on the wing as well as picking them from flowers), have the bill and tongue modified accordingly.\* Externally, they are readily distinguishable from the Swallows by having ten tail-feathers only (like the *Trochilidæ*, and also the *Caprimulgidæ*): the wings are longer, narrower, and distinctly curved, with very robust stems to the outer primaries, the second of which equals or exceeds the first in length;† the character of the plumage is different, and each clothing feather (as in the two preceding families) is furnished with a distinct supplementary plumelet; the conformation generally is much more robust; and the bill is quite of a different form, more approximating that of *Caprimulgus*: the feet (excepting in *Macropteryx*, and perhaps *Atticora*?) differ remarkably from those of every other bird known, in the circumstance of the four toes consisting each of a single phalanx, additional to the unguinal phalanx which is armed with a very strong, compressed, and acutely pointed claw; the representative of the hind toe is directed inward (as in *Caprimulgus*), but with rotation of the joint forward in *Cypselus* (whence this genus has been commonly described to have all four toes directed forwards), and backward in *Acanthylis* and *Collocalia*, wherein the hind toe can be well opposed to the other toes. In *Macropteryx*, however, the number of joints of the toes successively increases as in other birds,‡ and the hind toe is fixedly opposed to the others. With a wide gape (as in *Caprimulgus*), the cleft extending to beneath the middle of the eye, and always quite smooth or devoid of *vibrissæ*, the bill is minute, and compressed anteriorly to the nostrils, having the upper mandible incurved and the tomia of both inflected; the nareal orifices are exposed and vertical, forming oblique, oblong-oval slits. The

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\* The *Trochilidæ* further differ from the *Cypselidæ* in having complex vocal muscles; though it appears that even in this respect the *Patagona gigas* accords with the Swifts. These two families further differ remarkably in their mode of flight.

† In the more powerful species the first and second primaries are sub-equal; in the weaker the first is shorter. The stems of the outer primaries attain their maximum strength throughout the class in certain *Trochilidæ*, known as the Sabre-wings (*Campylopterus*).

‡ We have seen a slight exception in *Caprimulgus*.

tongue is narrow, somewhat elongated, a little fleshy, and cleft at tip. The muscular coat of the stomach is tolerably developed, though without constituting a true gizzard; the intestinal canal short and wide (not exceeding the length of the body from bill to vent), and without cœca. The sternum is somewhat narrow, widening posteriorly, with an entire hinder margin, and the keel enormously developed and continued forward (less prominently in *Collocalia*) to terminate in an obtuse point; in the young of all, and in the weaker species permanently, the ossification of the sternum is, however, incomplete about the middle—on either side of the ridge, and also in the thin portion of the ridge or keel itself; the coracoids are short; the furcula also short and widely arched, with a small mesial appendage projecting downward; the humeri are singularly short, with their tuberosities prominent in the extreme degree; the radius and ulna are about twice the length of the humerus; and the remaining (or wrist and hand) bones of the wing together exceed in length the humerus added to the radius. The legs (more especially in *Cypselus*) are very muscular, with the tarsi short, and the grasp of the toes with their sharp claws firm and clutching. The eye is tolerably large, and has its sclerotica strengthened by a circlet of about fourteen ossicles. In size the birds of this family vary from the bulk of a Thrush down to that of the generality of the larger Humming-birds; which latter, indeed, the *Collocaliæ* (or edible-nest-producers) not a little resemble in general aspect, excepting of course that of the bill, and in the lack of the resplendent gem-like colours which adorn the *Trochilidæ* generally, but which are wanting in the largest species of that family (*Patagona gigas*).

Unlike the *Caprimulgidæ*, or at least the genus *Caprimulgus* and its immediate affines, the species of which descend much to the ground, the *Cypselidæ* never do so; and if by accident they fall, some at least of them are unable to rise from a plane surface, but must creep or clamber till they get the elevation necessary to permit of the free action of their long wings.\* They are among the most aerial of birds, even copulating on the wing; out early and late, and throughout the day; and all the species would

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\* The Indian *Cypselus affinis* rises on the wing with perfect facility from the smoothest surface; and we once brought down a British Swift (*C. apus*) which lay on the ground till our near approach, when it rose and flew off as if unhurt.

appear to roost and build gregariously, in dark cavernous recesses of rocks, buildings, or the hollows of trees—some few in the fronds of palms; the nest is either formed of light substances collected during flight, and more or less cemented together by a viscid secretion of the œsophageal glands, or it is even wholly composed of this substance, constituting then the “edible birds’ nests” so highly prized by the Chinese and Japanese. They are extremely tenacious of their breeding-places, and, if undisturbed, resort to the same nests season after season; if the nest be removed, another is immediately constructed in the same place, and this several times successively. Occasionally a number of nests in contiguity are agglutinated to one another; and often they are shaped like a cup vertically divided, the perpendicular surface to which they are attached rendering a deposit of material unnecessary on that side. The eggs are from two to four in number, of a lengthened shape, and (as in the *Trochilidæ* pure white in every known instance.\* In general the *Cypselidæ* are highly gregarious, often flying in companies, which are particularly active and noisy when the air is highly charged with electricity; and they generally seek their insect-prey high in fine weather, and near the ground when the weather is damp and gloomy, and towards the dusk of evening—conveying pellets of it to their young, accumulated and held beneath the tongue as in a pouch. Their voice is simple screaming or twittering, according to the species; and the young of *Cypselus apus* has been remarked to emit a singular continuous sound, “like the humming of a tea-kettle.” The flight of all is most vigorous and powerful, smooth and sailing in some species, more or less rapid and impetuous, or in others flickering and irregular, yet with such power of wing it is remarkable that the geographical range of the species is not particularly extensive, but in general rather the reverse. Examples of this family occur in most countries, except the coldest; and at all elevations from the plains to the mountains; where the winter is cold they migrate. In Britain it is remarkable that the Common Swift (*Cypselus apus*) and Nightjar (*Caprimulgus europæus*) are the latest of all the summer visitants to arrive, and

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\* I suspect that the eggs described by Capt. Tickell in J. A. S. xvii. 302, are erroneously ascribed by him to the Palm Swift, even if found in the nest of that bird. Capt. Tickell, however, remarks that the nest was not brought to him.

the earliest, excepting the adult Cuckoo (*Cuculus canorus*) to take their departure.\*

Subfam. CYPSELINÆ.

Distinguished by the very peculiar structure of the digits, each of which consists of but a single phalanx additional to the ungual phalanx, as is the case with the hind toe only of other birds. The majority of the foregoing generalizations refer more especially (so far as yet known) to the present subfamily, and particularly to the genus *Cypselus*. The species present no sexual diversity of plumage, which is commonly sooty-black or brown, with faint-coloured glosses, often relieved with white on the throat, belly, and in several forming a band above the tail.

A. With more robust feet, the representative of the hind toe rotating forwards, and not completely opposable to the other toes.

Genus CYPSELUS, Illiger (Ordinary Swifts).

These have a square or generally a forked tail, with no tendency to be spinous; the toes are short, and the tarsi are always feathered above. About eighteen species are known, some of which occur in most parts of the world; two visiting Europe in summer, but none N. America; one only has been observed in Australia.

*C. MELBA*; *Hirundo melba*, L.; *H. alpina*, Scopoli; *H. gularis*, Stephens; *C. alpinus*, Tem.; *C. gutturalis*, Vieillot.—Length about  $8\frac{1}{2}$  in.; of middle tail-feathers  $2\frac{1}{2}$  in., the outermost  $\frac{3}{4}$  or  $\frac{7}{8}$  in. longer; wing from bend 9 in. General colour brown, with white throat and belly; a reddish-purple gloss on the back.

Inhabits the Nilgiris, and Central India: also Africa; and chiefly the high mountains of S. Europe, visiting rarely the British Islands. Mr. Jerdon "first observed it on the road between Madura and Pallamcottah, when an innumerable flock passed over camp from the range of eastern ghats, travelling towards the east coast. It was almost midday in the month of

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\* Very rare individual exceptions have been known to occur, but, from special causes, as a late brood of young; yet it is stated that they will sometimes leave a brood of unfledged young to perish, so strong is the migrative impulse.

August. They kept a steady easterly direction. I afterwards," he continues, "saw at Travancore single birds flying about at an immense height with great rapidity. I saw them also on the top of the Nilgiris, towards the edges of the hills; and at Madura, flying in small parties every evening, just before sunset, towards the east coast, apparently from the hills in the neighbourhood, as I did not see them during the daytime. Their flight is amazingly rapid."

*C. VITTATUS*, Jardine & Selby, Ill. Orn., 2nd series, pl. 39.—Size and form of the common British Swift (*C. apus*, which species, it may be remarked, is a common summer visitant in Afghanistan); but distinguished from it by its blacker colouring, narrow white band above the tail, widening on each side, and by the duller albescent hue of the throat gradually diminishing much further down, the extreme tips of all the feathers of the lower parts being commonly albescent. Wing 7 in.; span of foot  $\frac{7}{8}$  in. This bird varies, however, somewhat in size. Its claws are of a dusky-brown colour.

It is common about Penang, and extends its range eastward to China. From the Australian *C. pacificus* (Latham), v. *australis*, Gould, it seems to differ little; but, according to Mr. Gould's figure, the latter has the wide throat pure and well defined, and a broader white band on the rump.

*C. LEUCONYX*, Blyth, J. A. S. xii. 212.—Very similar to the last, but smaller, with a much smaller foot and white claws. Tail forked to the depth of  $\frac{5}{8}$  in., its outermost feather  $2\frac{1}{2}$  in.; wing 6 to  $6\frac{1}{4}$  in.; span of foot  $\frac{5}{8}$  in.

A rare species, but extensively diffused over India proper. Mr. Jerdon procured it in the Deccan, and has also obtained it from Malabar. An individual flew into an open room within a few miles of Calcutta, which is the only specimen we have seen from Bengal. In its flight it would be conspicuously distinguished from the next by its distinctly forked tail and much longer wings; but though many times looked for, we have never seen it in the air. Perhaps it ordinarily flies very high, in which case the time to seek for it would be in gloomy weather, or towards evening, when all the tribe hawk nearer the ground.

*C. AFFINIS*, Gray, Hardw. Ill. Ind. Zool.; *C. nipalensis*, Hodgson, J. A. S. v. 780; *C. montanus*, Jerdon, Madr. Journ. xiii. 144; probably *Hirundo fancica*, Gm., apud Griffith's

'Animal Kingdom,' vii. 67 (nec *H. fancica* vera). *Abadil*, Hind.—Remarkable for its shortish, even tail, the feathers of which are not pointed (as in the various preceding species). Length  $5\frac{3}{8}$  in., by 12 in.; wing 5 in.; tail  $1\frac{3}{4}$  in. Colour brown-black, blackest on the back; with a white throat and rump; head brownish, palest on forehead. Irides deep brown.

The common urban and village Swift of India generally, resident throughout the year; and though not generally a mountain bird, the *C. montanus*, Jerdon, inhabiting cliffs in the Nilgiris, appears to us to be perfectly identical; and Mr. Jerdon remarks of *C. affinis* that on the west coast he saw it "upon several occasions, chiefly among rocky hills, but only observed it twice or thrice throughout the whole length of the table-land from the Tapoor Pass to Jaulnah, and then but few in number. At this latter place, however, it is very common." In the Deccan it is so rare that Col. Sykes obtained only two specimens. Yet, observes Mr. Jerdon, "it is found in all districts of India, but in these is often confined to a small tract in the neighbourhood of some few large pagodas, large old choultries, and other similar buildings. In the Carnatic it is common in Madras, at the rocky foot of Trichinopoly, and very numerous at the large pagodas at Madura, among which their nests are thickly crowded. It seldom, I think, takes a very long range from its breeding-place. During the night they roost in their nests, four or five often occupying the same one, as I observed in the celebrated choultry at Ajunta. It builds its nest in company always, often thickly crowded together, placing them in corners or crevices of old buildings." In Bengal they are often placed in a low porch or verandah, even in the most crowded thoroughfares of towns, the birds passing to and fro, twittering loudly, and regardless of the throng beneath. Capt. Tickell correctly describes the nests as "large, flat, irregular, of fine straw, hay, and feathers, closely interwoven and kept together with the glutinous substance supplied from the bird's salivary [proventricular] glands, generally glued against some beam in a verandah or outhouse. Eggs three, of a lengthened shape, spotless white. July." Mr. Hodgson terms this "the common Swift of the central region of Nepal, building under thatched roofs, and against the beams of flat roofs." It very commonly enters rooms through open windows, and flying to and fro near the ceiling finds much difficulty in escaping by the

way it entered. A slight touch with a switch brings it down immediately, when it suffers itself to be handled without making an effort to escape; yet place it on the smoothest table, and it rises with the utmost facility, springing high enough to gain the action of its wings. Let the wings be tied, and it will then be seen to be incapable of progressing by the feet on such a surface, while it endeavours to relieve itself by repeated springs. The flight of this species is very unlike that of the British Swift, being less steady, and performed with much action of the wings, with intervals of sailing, though never smoothly along for any distance. The voice is a sort of shivering scream, rather than a twitter.

We have never seen this bird from the eastern side of the Bay of Bengal; but Mr. Strickland notes it from Malacca—"Rather larger and of a deeper black than Indian specimens, but I do not," he adds, "venture to separate them. Wing  $5\frac{1}{4}$  in.; tail  $2\frac{1}{8}$  in." (P. Z. S. 1848, p. 99).

C. BALASIENSIS, Gray, Griffith's An. Kingd. vii. 60; *C. palmarum*, Gray, Hardw. Ill. Ind. Zool.\*—A small species, with rather deeply forked tail, and with the first primary considerably shorter than the second, and attenuating to the tip. Length to end of middle tail-feathers  $3\frac{1}{2}$  in., the outermost  $1\frac{1}{4}$  in. more; alar expanse  $10\frac{3}{4}$  in.; wing from bend  $4\frac{1}{2}$  in. Colour wholly of an ash-brown, paler (somewhat albescent) below; wings and tail darker, and faintly green-glossed. Irides dark brown.

"This little species," remarks Mr. Jerdon, "is common to all the districts of India, except on the bare table-land, where it is very rare. It frequents groves of palms, especially the *Borassus flabelliformis*, and does not in general fly to any distance from them. It is very abundant in the Carnatic." In Bengal it is also common, but a rural and garden species, which does not come much over towns, being generally found wherever a tall or isolated

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\* Chámchiki is the only native name which we have heard for this species, and for *Hirundo sinensis*; but it properly refers to the Bats (exclusive of *Pteropus*), and is doubtless applied to these birds from their somewhat Bat-like mode of flight, unsteady and flickering. However, a remarkable Bat-like analogy is observable in most *Cypselidæ*, in the roosting places which they resort to, whether in buildings, or the deep rock-caverns of the *Collocaliæ*, or the instance of many thousands of *Acanthylis pelasgia* retiring into a single hollow trunk. As for their time of activity, the Swifts begin to retire to roost when the Bats begin to come forth after sunset.

*Borassus* grows; about a dozen pairs commonly resorting to the same tree, and attaching their nests to the upper surface of the drooping fan-like fronds, protected by overhanging fronds above. Affixed by the glutinous secretion to a plait of the frond, the rest of the nest does not (as in other Swifts) appear to be cemented by this substance, but is a closely-felted mass of silk-cotton (the pappus of the *Bombax heptaphyllum*), forming a neat cup of considerable strength, and lined with feathers. Except in size and mode of attachment, it is indeed remarkably like the nests of the generality of *Trochilidæ*.\* The eggs I have not seen. The palm selected for their abode is conspicuously indicated by the birds perpetually keeping about it, and ever and anon one or more of them entering or leaving the recesses of its dense head of foliage, sharply twittering as they fly, in their rapid, irregular, and vacillating course, sustained by much action of the wings. Not unfrequently the same palm is tenanted by a busy assemblage of Bayas (*Ploceus*), with their pendant retort-like nests waving in the breeze.

Mr. Gosse has lately described a species of very similar habits in Jamaica, which he makes a genus of, and designates *Tachornis phœnicobia*. The chief difference from *Cypselus* seems to be that the ossification of the sternum and its ridge continues permanently incomplete (as in the *Collocaliæ*), denoting a general weaker structure. In the Indian Palm Swift such is not the case. The latter species does not appear to have been observed by Mr. Hodgson in Nepal, but to the eastward we have seen it from Arracan (Ramree).

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\* Indeed the Humming-birds *affix* their nests to a single twig, vertical or horizontal, according to the species; and Mr. Gosse, in his description of the nest of *Trochilus polytmus*, notices "some viscous substance, probably saliva, evidently applied after the web was placed," alluding to a covering of spiders' webs "crossed and recrossed in every direction" over the outside of the fabric. Hence it seems not improbable that species of *Trochilidæ* may yet be discovered to attach the nest to a flat surface, like the *Cypselidæ*, if indeed they do not all use the same glutinous secretion to make the first rudiments of it adhere. These diminutive birds sleep roosting, as do probably the *Macropteryx* genus of the *Cypselidæ*, and do not put the head beneath the wing, like most other birds. Neither probably do the *Cypselidæ*, as also the *Trogonidæ* and *Caprimulgidæ*. The lengthened white eggs of the *Cypselidæ* and *Trochilidæ* present a further similarity between the two families.



B. With less robust feet, the representative of the hind toe rotating backwards, and opposable to the other toes.

Genus ACANTHYLLIS, Boie. (Spiny-tailed Swifts).

Distinguished by robust general conformation (as in *Cypselus*), and by having an even or wedge-shaped tail, with the shafts of the feathers prolonged into rigid spines, more or less developed. The tarsi are covered with a naked skin, and with the toes are less robust than in *Cypselus*, and comparatively somewhat elongated.\* About fifteen species are known, which severally inhabit S.E. Asia and its islands, Australia, Africa, and both Americas.† Two only, of small size, visit N. America, one on either side of the great mountain range; and that of the Atlantic States has been the most studied of the genus. This bird is known as the

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\* In Mr. Gosse's 'Birds of Jamaica,' an extract from the MS. notes of Dr. Anthony Robinson (vide the work cited, p. 20) is given in the notice of a rather large species, supposed to be *A. collaris* (Pr. Max.), in which it is stated—"As this bird seldom alights, it is furnished with two supernumerary bones, which are placed on the superior and exterior part of the leg [tarsus?]; the skin that covers them is of an obscure flesh-colour; they are of an oblong ovated form,  $\frac{1}{4}$  in. long; and as the bird hangs upon a wall, rock, &c., by its claws, these bones are pressed close to it, and the leg thereby secured from harm." The two large Indian species have no trace of such a structure. Of the same species another observer remarks—"The legs are curiously constructed: the tarsus cannot extend further than at an angle of  $28^{\circ}$ , nor can it be straightened; so that it corresponds with the tail-feathers, and keeps the bird in an upright position against vertical rocks and trees. From this formation the bird cannot stand erect on the ground, nor can it apparently walk"; and the same observer was told by fishermen and others that they have taken young ones *clinging* to the vertical honeycomb rocks, against whose base the sea dashes. Dr. Robinson, however, remarked of a living specimen that on the floor "it crept along with its legs bent, leaning on the aforesaid bones, but was not able to raise itself upon its feet. When by any accident this bird falls to the ground, as sometimes happens, it creeps or scrambles to some rock or shrub, when, bending the tail and expanding its wings, it elevates its body, and at the same time throwing its legs forward catches hold of the rock, &c., with its claws, and climbing up to a proper height throws itself back and recovers its wings." This species has been traced to caverns in the mountains of Jamaica, in which they appear to nestle by hundreds. In *Cypselus* and *Collocalia* it may be remarked that the action of both the tibial and tarsal joints is particularly free.

† A single individual of the Himalayan species has been killed in England, at or near Colchester, in Essex, as I am informed by Mr. Bartlett. [A second has since been procured, *cf.* Zool. 1880, p. 81.—ED.]

Chimney Swallow in the United States, from its constant habit of resorting to chimneys wherever it can, while in the depths of the forest it roosts and nestles in hollow trunks of trees, and sometimes in caverns. M. Audubon relates that he counted nine thousand of them roosting in the hollow trunk of a plane tree (*Platanus occidentalis*) in Kentucky. It migrates in multitudinous hosts, circling in their flight at a great altitude. All observers agree respecting the extreme rapidity of wing of the birds of this genus, and the elevation at which they soar in fine weather. Of the great Australian species (which would appear to be identical with that of the Himalaya), Mr. Gould writes—"I have frequently observed in the middle of the hottest days, while lying prostrate on the ground with my eyes directed upwards, the cloudless sky peopled at an immense elevation by hundreds of these birds, performing immense curves and sweeping flights; hence few birds are more difficult to obtain, particularly on the continent of Australia, where long droughts are so prevalent; on the contrary, the flocks that visit the more humid climate of Van Dieman's Land, where they necessarily seek their food near the earth, are often greatly diminished by the gun during their stay." The nidification of none of the three species has been observed.

The first two of them are very large.

A. CAUDACUTA; *Hirundo caudacuta*, Latham;\* *Cypselus giganteus*, Tem.; Spiny-tailed Swift, Jerdon, Madr. Journ. xiii. 173.—Length about 9 in.; of wing from flexure 8 in.; tail  $2\frac{1}{2}$  in.; its form cuneated, but the barbed portion of the rectrices subequal, their prolonged stems much lengthened and very robust, those of the middle rectrices protruding  $\frac{1}{2}$  in. Crown and nape, wings, tail and its upper coverts, and the sides of the rump, glossy black, with steel-blue and green reflections; the last further bordered with white posterior to the thigh, and the inner web of the smallest tertiaries is whitish; under tail-coverts also white; back, scapularies, and medial portion of the rump, hair-brown; paler towards the middle of the back; lower parts dusky-brown, paler towards the chin; a white spot before the lores in some specimens only. Female (?) rather smaller, with the colours less distinctly contrasted; wing 7 in. "Irides deep brown" (Jerdon).

This bird inhabits (or visits?) the Nilgiris, Ceylon, the

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\* "Throat very pale-dusky." Latham.

Malayan peninsula (especially about Penang), and has been obtained so high as at Sandoway, in Arracan, where deemed a rarity. Mr. Jerdon observed it "in vast numbers at the foot of the Nilgiris, both at Metapollium and Goodaloor. It flies with amazing velocity."

*A. FUSCA* (?); *Hirundo fusca* (?), Shaw; *Chætura australis* (?), Stephens; *C. macroptera* (?), Swainson, Zool. Ill., 2nd series, pl. 42; *C. nudipes*, Hodgson, J. A. S. v. 779; *Cypselus leuconotus*, Mag. de Zool. 1840, Ois. pl. 20, and figured also in the Souvenirs, &c., of M. Adolphe Delessert, pt. ii. pl. 20, p. 25.—Similar to *A. caudacuta*, but having the whole chin and throat pure white, and the spinous tips to the rectrices much less developed, the medial scarcely protruding  $\frac{1}{4}$  in. In *A. caudacuta* also the barbed portion of the rectrices narrows off to its termination, as in most Woodpeckers; whereas in *A. fusca* (?) the barbed portion rounds off at tip, so that the spinous ends of the stems protrude abruptly. Mr. Hodgson gives the length of the recent bird as "8 $\frac{1}{2}$  in., and alar expanse 20 in. Weight 4 $\frac{1}{2}$  oz. Irides dark brown. Sexes alike. The young," he adds, "want the blue or green gloss of maturity; the clear whity-brown of the back and pure sooty-brown of the belly are in them blended into an uniform dusky hue; and their throat is of a very sordid white."

Hab. Nepal, Sikim, and Bootan; and, to judge from the figures published by Mr. Swainson and Mr. Gould, it would appear to be perfectly identical in Australia. Mr. G. R. Gray, however, in his illustrated 'Genera of Birds,' enumerates the Himalayan and Australian species as distinct. In Nepal Mr. Hodgson states that—"Its habitat is the northern region, whence it sometimes wanders into the mountains of the central, avoiding, however, the open and plain country. It climbs with great power, aided equally by its talons and its tail."

In an obliging communication from Captain Tickell, received just in time for insertion here, this naturalist remarks:—"After much patience I shot one of these birds at Darjeeling, where they first appear in September. In the plains I have not seen them; and it is probable that they pass from the Himalayas to the high ghâts of Central India without halting intermediately. It is in September that the snow, gathering on the higher Himmalas, drives down hordes of birds to lower ranges, and amongst them immense flocks of *Hirundines*" (i. e., *Hirundinidæ* and *Cypselidæ*).

“Of these I have watched scattered bodies passing over Darjeeling for many days together, journeying to the S. and S.W. They consist chiefly of *Callocalia unicolor (nidifica)*, *Acanthyllis Sabini*?, *Hirundo riparia*, and doubtless all the other species that visit us during the cold season. Amongst these *Acanthyllis nudipes* is at once recognised by his great size and the prodigious swiftness of his movements. There is nothing I have ever witnessed equal to the flight of this bird; it is something bold and vast, and in keeping with the sublime precipices and cloud-capped pinnacles, which are its favourite resort. It breeds among the huge wall-like crags of the Himmala, and under the snow level.”

In the same communication Capt. Tickell writes, of *Cypselus melba*:—“This is a common bird in the high central parts of India, from Mednipoor westward, in the cold weather. It mingles indiscriminately with flocks of *Hirundo europyga* (i. e., *daurica*, v. *erythropygia*), *H. rustica (gutturalis?)*, *Cypselus affinis*, and other common species, but flies so high as often to escape observation. It resorts much to the tops of high rocks or wooded hills, the summits of which it flies round with great velocity. I have shot them both in jungly and in open country. In Colgong, in Mantbhúm, and in Chota Nagpore, flocks sometimes assemble of an evening near large ponds in the jungles, dashing into the water with loud screams, like our Swifts (*C. apus*) at home.”

In Europe, remarks Mr. Yarrell of *C. melba*, “High rocks and the loftiest parts of cathedrals and church spires are the places chosen by this bird, in the fissures of which it forms a nest of straw and moss” (?), “and these are cemented by a glutinous matter, which, when dry, makes the nest very hard.\* M. Vieillot says the nest is small for the size of the bird, and, when fixed against a vertical surface, is in the form of a half-circle. This bird lays four or five elongated white eggs. The *Cypselus africanus*, or *le Martinet à gorge blanche* of Levaillant’s ‘Birds of Africa,’ is considered to be the same as this White-bellied Swift.”

While adding the above, and too late for insertion in its proper place, we have been fortunate in procuring a nest, evidently just built (August), of *C. balasiensis*, containing a broken

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\* This description applies equally to nests of *C. apus* which we have examined, some of which more especially were solidified into a very firm crust or shell.

*pure white egg.* Unlike those built in the cold season of the pappus of the *Bombax*, this is composed almost wholly of feathers, with a little admixture of pappus or vegetable down of some other very different plant, and most firmly agglutinated to the under surface of a *Borassus* frond by what assuredly looks like glistening and inspissated saliva. The structure, as in the nest before described, is remarkably firm and compact.

A. SYLVATICA, Tickell, J. A. S. xv. 284.\* — Much smaller than the two preceding species, having the wing but  $4\frac{1}{2}$  in.; the entire length from tip of bill to end of tail,  $4\frac{1}{3}$  in. Details of structure as in the last species; the wiry tips to the shafts of the rectrices well developed. Colour: above blue-glossed black, with a white rump; belly pure white, the feathers dark-shafted; rest of the under parts iron-grey, with a dash of ashy brown. Bill, iris, and legs brown.

Hab. Central India; and also the S.E. Himalaya. According to Capt. Tickell this species, as observed in Central India, "haunts open cultivated grounds in the midst of forest; also the cleared patches on the sides and summits of the hills. It is common, but local; gregarious and noisy; being often seen in company with *Cypselus melba*." (*Non vidi*).

#### Genus COLLOCALIA, G. R. Gray (Swiftlets).

These are true *Cypseli* in structure, but comparatively feeble, having the first quill shorter than the second, and the wings and tail broad, the tail especially much resembling that of a Humming-bird, with its feathers of even length or nearly so. The feet and naked tarsi resemble those of *Acanthyllis*, having the hind-toe well opposed; but are comparatively slender, though of proportionate strength to the rest of the conformation. The breast-bone and its ridge remain incompletely ossified. Not more than three species appear to be known, though perhaps others require discrimination; they are of small or minute size, and are confined in their geographic distribution to the Indian, Indo-Chinese, and

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\* Capt. Tickell suggests the identity of this species with *Chætura Sabini*, Gray, described in Griffith's edition of the 'Animal Kingdom,' vii. 70, as "Bluish black, belly and rump white; Africa." And with this Mr. G. R. Gray identifies *Chætura bicolor*, Gray, Zool. Misc., p. 7, which description we have not seen.

Austral-Asian countries, as far as N. Guinea. Certain (if not all) of them produce the valued "edible nests" of commerce.

"In Java," remarks Sir Stamford Raffles, "these birds not only abound amongst the cliffs and caverns of the south coast of the island, but inhabit the fissures and caverns of several of the mountains and hills in the interior of the country. From every observation which has been made in Java it has been inferred that the mucilaginous substance of which the nests are formed is not, as has been generally supposed, obtained from the ocean. The birds, it is true, generally inhabit the caverns in the vicinity of the sea, as agreeing best with their habits, and affording them the most convenient resorts for attaching their nests to; but several caverns are found inland, at a distance of forty or fifty miles from the sea, containing nests similar to those on the shore.\* From many of their retreats along the southern coast they have been observed to take their flight in an inland direction, towards the pools, lakes, and extensive marshes, covered with stagnant water, as affording them abundance of their food, which consists of flies, musquitoes, gnats, and small insects of every description. The sea that washes the foot of the cliffs, where they most abound, is almost always in a state of the most violent agitation, and affords none of those substances which have been supposed to constitute the food of the 'Esulent Swallow.' Another species of Swallow [Swift?] on this island forms a nest, in which grass or moss, &c., are merely agglutinated by a substance exactly similar to that of which exclusively the edible nests consist. This substance, from whatever part of these regions the nests be derived, is essentially

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\* See also Hooymann, in the 'Batavian Transactions,' iii. 95; likewise Marsden; and Sir G. Staunton, in his narrative of the Earl of Macartney's Embassy to China; while Mr. G. R. Gray relates (rather as if a novelty), on the authority of Mr. Hugh Cuming, that in the Philippines the nests are found inland to the distance of fifty or sixty miles. One species has, in India, been only observed hitherto in the mountains of the interior, at a distance of many hundred miles from the sea. According to Mynheer Hooymann, however, the nests (even of the same species) vary somewhat in quality in different neighbourhoods. Thus, of those obtained in two inland localities, not very far apart, and but a few hours' journey distant from Batavia, he states that the produce of one of these places is at least a third less valuable than that of the other, which latter is in its turn reckoned very inferior in quality to the nests gathered at Ternate and other islands chiefly to the eastward of Borneo. These last, however, we suspect, are not the produce of the same species.

uniform, differing only in the colour, according to the relative age of the nests. It exhibits none of those diversities which might be expected if it were collected casually (like the mud employed by *Hirundo urbica*, and the materials commonly employed in nest-making), and applied to the rocks. If it consisted of the substances usually supposed it would be putrescent and diversified."

"Dr. Horsfield," continues Sir S. Raffles, "thinks that it is an animal elaboration, perhaps a kind of secretion;"\* and Sir Everard Home, after examining the stomach of one of these birds, pronounced his decided opinion that the edible nests are composed of a substance secreted by the glands of that organ.† M. Poivre, who in his often-quoted communication to Montbeillard (Buffon's Hist. Nat. Ois. vi. 688, *et seq.*), advocated the exploded notion that the substance was collected from the sea, remarks that there have been seen threads of this viscous matter hanging from the bills of these birds; and that it is believed, though without any foundation, they were derived from the stomach during the nesting season. M. Hooymann long ago (1781) was of opinion that the substance of them was nothing to do with sea-foam, but is elaborated from the food of the bird.‡ The Rev. J. Barbe adds, to his account of the nests gathered in the Nicobars, &c., quoted in the sequel, that "The Chinese say that when the nest is taken before it is completed the bird makes another, but of an inferior quality; and it appears that it exhausts itself in building the second, the nest being spotted with blood."§ The prevalent opinion is that the substance is secreted by the salivary glands; but though, on carefully dissecting a specimen of *C. fuciphaga*, killed when there is reason to suppose that it had young (and therefore too late in the season), no remarkable development either of the salivary or of the proventricular glands was apparent, yet we are fully convinced that it is secreted by the latter, from examination of other *Cypselidæ*; even in *Cypselus balasiensis*, which employs so little mucus, which is laid on merely to make its nest adhere, we have detected *in situ* stringy clots of it, while the proventricular glands were

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\* 'History of Java,' i. 51.

† Home, as cited in Griffith's 'Animal Kingdom,' vii. 98.

‡ 'Bataviaasch Genootschap,' iii. 97.

§ J. A. S. xv. 363.

adequately developed for its production. The animal origin of the edible nests is at once detected by simply burning a bit of one; and Mr. Laidlay informed us that, upon analysis, he found the constituent elements to be those of inspissated saliva.\* Looking to a number of them, and more particularly to their under surface, the quantity laid on by the bird at each time, in successive layers to the rim, is in many conspicuously apparent, and this quantity is much more than the salivary glands could well be supposed to elaborate. Each addition consists of a linear collop continued along the whole semicircular rim of the nest, which latter forms generally a shallow saucer, imperfect where affixed to the rock, and when completed having the place of attachment on either side much thickened. It is evidently in a very viscid state when laid on, adhesive at first, ductile and tenacious while drying, so that on the upper surface threads of it are pulled forth by the bird, and more or less crossed into a kind of network, as if to bind together the vertical layers, some of which are often partially unadherent. These threads, however, consist of a little additional matter to that originally laid on in the successive marginal deposits. Mr. G. R. Gray writes:—“The formation of the nest differs with the species. Some appear to be formed of flakes or threads cemented together, making an almost solid nest; others are composed entirely of viscous matter. The exterior exhibits many nearly straight threads, which incline or are attached to each other, strengthened in front by some few short pieces of slender sticks” (this we have never seen). “The interior, which is rather shallow, shows many layers of irregular network, formed of a multitude of threads that cross and recross each other in every direction.”

When newly formed these nests are perfectly clean, of a yellowish white colour, and wholly soluble in water; but when old they become deeply soiled and mixed with feathers, and their value is immensely deteriorated. Hence, as Marsden remarks, “they are distinguished into white and black, of which the first are by far the more scarce and valuable, being found in the proportion of one only to twenty-five. The white sort sells in China

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\* J. A. S. xiv. 543. “Upon this supposition, however,” Mr. Laidlay has since added, “I do not see how it could be deposited in the form of layers, as it is. The mechanical structure of the nest may be very nicely exposed by soaking it for a few hours in rain-water.”



at the rate of 1000 to 1500 dollars the picul\* (according to the Batav. Trans. for nearly its weight in silver); the black is usually disposed of at Batavia at about twenty or thirty dollars for the same weight, where, I understand, it is converted chiefly into glue. . . . . When the natives prepare to take the nests they enter the caves with torches, and forming ladders of bamboos, notched according to the usual mode, they ascend and pull down the nests, which adhere in numbers together from the sides and top of the rock. I was informed that the more regularly the cave is thus stripped the greater proportion of white nests they were sure to find, and that on this experience they often make a practice of beating down and destroying the old nests in larger quantities than they trouble themselves to carry away, in order that they may find white nests the next season in their room." According to M. Hooymann the *C. nidifica* is about two months preparing its nest, and lays two eggs, which are hatched in fifteen or sixteen days; and of a species, which would appear to be *C. fuciphaga*, M. Poivre informs us that each of the nests which he observed contained two or three eggs or young; Sir G. Staunton, of doubtless the same species, asserts that it lays two white eggs.

The nests of the *Callocaliæ* are placed against the sides and roof of deep caverns of chiefly limestone rocks, at distances from the entrance varying from fifty to several hundred feet. Wherever (as we have seen) these caves occur, whether inland or in cliffs overhanging the sea, the birds resort to them alike in prodigious numbers, building commonly in successive layers, many nests together, but always where the cavern is perfectly dry, for obvious reasons. Every fitting site is usually crowded with the nests. The entrance to the cavern may be large, or so small as barely to admit the birds and their Bat-companions; and inland the rocks are sometimes clad externally with dense jungle. At break of day the birds issue forth with a great rush, at which time the Kites (*Haliastur pondicerianus*?) commit much havoc among them (being therefore destroyed by the Javanese and others); and in fine dry weather they fly very high, like the rest of the

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\* 133½ lbs. avoirdupois. The current price in China at this time is 18 dollars and upwards per catty of 1 lb. 5½ oz., or  $\frac{1}{100}$  picul, *i. e.*, £4 10s. 8d. per lb., reckoning the dollar at 4s. 3d.

group, rising till they are out of sight, and low in rainy weather, returning early in the afternoon direct to their cavern, from which they do not again issue till the following morning. Most of these details are gathered from M. Hooyman's paper on *C. nidifica*.

The Rev. J. Barbe remarks, of the nests of *C. fuciphaga*, gathered at the Nicobars, at Mergui, &c., that "They are of six qualities: the first, of a fine whitish colour, is obtained by taking the nest before the Swift has laid its eggs. This quality is sold at Penang from forty to fifty dollars the katee (!) The second quality, of a brownish colour, is obtained by taking the nest when the bird has laid her eggs. This quality is sold at Penang from twenty to thirty dollars the katee. The third quality is of a dark colour, mixed with blood and feathers, being obtained by taking the nests when the young birds have flown; the price of this is very low." The gradual exhaustion of the bird, according to Mr. Barbe's information, has been already cited. "The manner in which the Chinamen prepare the nest," continues the same gentleman, "is to steep it in water during one night; then with great trouble they clean it. This being done, they boil it in water, to which they have added some sugar-candy, till the whole forms a jelly: one nest prepared in this manner is enough for one person."\*

The people who gather the edible nests practise a variety of superstitious ceremonies in relation to them, which belong rather to their history than to that of the birds, and therefore need not be here described. But another point of interest arises respecting the actual species which produce them; and it would seem that all the authorities to whom I have access, who have discriminated different species of these birds, are more or less in error. Firstly, as regards the *Hirundo esculenta* of Linnæus (founded on Brisson's description of one of M. Poivre's inaccurate drawings), there is no reason to suppose that this as described, with yellow

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\* "Birds' nests being very dear," he further continues, "the wealthy Chinamen only can obtain this delicacy. The rich opium smokers take in the morning a cup of it for the purpose of refreshing and strengthening their debilitated frames. Persons attacked by consumption are advised by the Chinese practitioners to take these nests; they prescribe the same to those who are reduced by a protracted illness; and I have seen several persons, who, having made use of this remedy, declared that they found a temporary relief from this refreshing and nourishing food."—Journ. As. Soc. xv. 363.

irides and white-tipped tail, has any prototype in nature; the latter would be an anomaly throughout the *Cypselidæ*, but may refer perhaps to the white tail-markings of some real *Hirundo*, erroneously supposed to be the constructor of the edible nests.\* Dr. Horsfield gives the species termed Lawet by the Javanese as *Hirundo esculenta*, Osbeck, stating that the specimens which he examined in Java, and those which he took to England, differ from Latham's description in being uniformly of a blackish colour, without a white extremity to the rectrices. Another species, the Linchi of the Javanese, he gives as *H. fuciphaga*, Thunberg, stating that "Its nest is constructed of mosses and lichens, connected with the same gelatinous substance which composes the edible nest of the preceding species."† This accords with what has been already cited from Raffles; and in an interesting account of Karang Bolong, on the southern coast of Java, and of the birds' nest rocks there, translated from the 'Tijdschrift voor Neerlands India' in the 'Journal of the Indian Archipelago,' i. 107 (Sept., 1847), the same two species are distinguished by the names Lawet and Lintye, and the nest of the latter is described to be "without the least value. The residence of these Swallows (Swiftlets), termed Lintye in the caves," it is added, "contributes greatly to the injury of the holes, for which reason they are destroyed as much as possible at each gathering. The nests which they make are constructed of grass-stalks; they are, however, of the same form, and are as artfully made as the others."

Mynheer Hooyman likewise states, that besides the Lawet (Waled or Boerong † Daija of the hill Javanese), "other species resort to the same caverns, which are named Momomo, Boerong itam, § Boerong zoekoet, and Lintje. These," he adds, "are very similar to each other, excepting the second, which has the head larger, and the feathers of all are entirely black. The nests which they construct are black and friable, composed of a light

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\* I find, indeed, that M. Montbeillard describes it to have twelve tail-feathers, which bears out the above idea that it may be a true *Hirundo*, and shows that it cannot be a Swift. It was on the drawings by M. Poivre that the *Cuculus sinensis* and *C. paradiseus*, Linn., were founded, the one representing a Corvidous bird (*Psilorhinus*) and the other a Drongo (*Edolius*), each represented with a reversed outer toe!

† Linn. Tr. xiii. 143.

‡ Burong, *i. e.*, bird.

§ Literally, Black-bird.

down" (agglutinated?). "An opinion prevails that the presence of these birds is injurious to the caverns, on which account they are driven away as much as possible." Another writer in the same volume of the 'Bataviaasch Genootschap' (p. 248), mentions the Momos or Boerong itam (thus bringing together M. Hooyman's first two species), as a larger kind with plumed tarsi, indicating thus a true *Cypselus*, which is probably the constructor of the nests assigned by Dr. Horsfield and others to the Linchi. Assuredly, however, the *C. fuciphaga* (Thunberg), Linchi or Lintye of the Javanese, identical upon comparison with Javanese specimens, would appear to be the sole producer of the numerous nests gathered on the rocky coasts of the Bay of Bengal; and the often-quoted notice by Sir G. Staunton, in his account of the Earl of Macartney's Embassy to China, must refer either to *C. fuciphaga*, or to an entirely new species (which is hardly to be supposed in the locality). For he remarks that "The birds which build these nests are small grey Swallows, *with bellies of a dirty white*. They were flying about in considerable numbers; but they were so small and their flight so quick that they escaped the shot fired at them."\* This was at an islet off the southern extremity of Sumatra, close to where M. Poivre also observed them, who remarks that "leur taille étoit à peu-près celles des Colibris."† The birds may have appeared greyish on the wing, but the white belly is characteristic of *C. fuciphaga*; and this particular species occurs abundantly on parts of the coast of the Malayan Peninsula, in the Nicobar Islands, and Mergui Archipelago, and so high as on certain rocky islets off the southern portion of the coast of Arracan, where the nests are annually gathered and exported to China. From all this range of coasts we have seen no other species than *fuciphaga*, nor does it appear that any other has been observed; and we have examined a multitude both of the adults and of young taken from the nests collected in the Nicobars and preserved in spirit, all of which were of the same species. Nevertheless, what appears to be *C. nidifica* inhabits the mountains far in the interior of India, though hitherto unobserved upon the coasts; and it is worthy of notice that *C. fuciphaga* does not appear to have been hitherto

\* Narrative of Macartney's Embassy, i. 287.

† See also Valentyn, as quoted in the 'Bataviaasch Genootschap,' iii. 247.

remarked inland in this country. The species which builds the edible nests collected on the western coast of the Indian Peninsula, as in the group of small islands about eight miles west of Vingorla (which is a little above Goa, and 275 miles from Bombay), commonly known as the Vingorla Rocks, where about 1 cwt. of them are produced annually, remains to be ascertained.

C. NIDIFICA; *Hirundo nidifica*, Latham; *H. fuciphaga*, apud Shaw; *H. esculenta*, apud Horsfield; *H. brevirostris*, McClelland, P. Z. S. 1839, p. 155; *H. unicolor*, Jerdon, Madr. Journ. xi. 238, referred by that naturalist to *Cypselus*, *ibid.*, xiii. 173, and termed *C. concolor*, J. A. S. xi. 886 (there being a previously described *C. unicolor*). Length,  $4\frac{1}{2}$  to  $4\frac{3}{4}$  in., the middle tail-feathers 2 in., and outermost  $\frac{3}{8}$  in. longer; wing,  $4\frac{1}{2}$  in. General colour fuscous-brown, darker on the crown, wings and tail, which latter have a dull gloss of steel-blue or green; below paler. From M. Hooyman's description of this species we feel satisfied of the identity of the Indian and Javanese birds, which some of the translated accounts had rendered doubtful.

This species, in India first observed in Assam, appears to be a regular bird of passage at Darjeeling, where Capt. Tickell observed flights of them commencing in August proceeding to the S.W. Mr. Jerdon remarked it "on the Coonor Pass of the Nilgiris, and about the edges of the hills. It flies in large flocks and with very great speed." Its nests remain to be discovered in this country.

C. FUCIPHAGA; *Hirundo fuciphaga*, Thunberg. A minute species, about  $3\frac{1}{2}$  in. in length by 9 in. in expanse; the tail  $1\frac{1}{2}$  in. and even; wing,  $3\frac{3}{4}$  in. Colour above blackish, green and purple glossed; below fuscous-brown, passing to white on the middle of the belly, with whitish edges to the lower tail-coverts. A single large feather, with a distinct supplementary plumelet, grows on the hind toe, being nearly as long as the toe with its claw: this is always normally present, but is often lost in dry specimens.

This bird is the edible nest-builder of the Bay of Bengal, and may prove to be exclusively a coast species, the nests of which are of superior quality to those of *C. nidifica*? In the extreme east it is perhaps replaced by *C. troglodytes* of Mr. G. R. Gray. The Rev. J. Barbe, from personal observation, notices it as "common in the Archipelago of Mergui, the Nicobars, &c.,

building their nests in the cavities of the rocks, where it is most difficult and perilous to have access. Formerly," he adds, "both Malays and Burmese procured at the Andamans a considerable quantity of these nests, collecting them themselves or receiving them from the islanders in exchange for their tobacco, &c."\* But it appears that both people, "taking advantage of the time in which the natives were on board their vessels, tied them up and carried them off as slaves." Hence the present hostility of the rude Papuan inhabitants of the Andaman Islands to all foreigners whatsoever.

#### Subfam. MACROPTERYGIINÆ.

True Swifts in external structure, but with exceedingly short tarsi, and toes pointed as in the class generally, *i. e.*, the first or hind toe consists of one phalanx besides the unguinal, the second or inner toe of two, the third or middle one of three, and the fourth or outer of four; hence these birds are often seen to perch. Their anatomy does not appear to have been examined, though of especial interest. One genus only is known†:—

#### MACROPTERYX, Swainson (Crested Jungle Swifts).

The species of which are remarkable for their beauty, having delicate silky plumage, elongated on the crown to form an erectile and somewhat pointed crest. The wings are exceedingly long in the two following species, less so in others, and have their first two primaries subequal. Tail deeply forked. The ear-coverts (in probably all the species) are rufous or ferruginous in the males, dark in the females.

Four species have been ascertained, which inhabit India, the

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\* J. A. S. xv. 363.

† Unless *Atticora*, Boie, ranges here? Mr. G. R. Gray refers it to his *Hirundininae*; and assuredly *Hirundo fasciata*, Lath., assigned to this genus by Mr. Gray, appears to be a true Swallow (with twelve tail-feathers, &c.), as figured by Mr. Swainson in his 'Zoological Illustrations.' But *Atticora leucosternon*, Gould, B. A., pt. ix., is a Swift, to judge both from his figure and account of its habits; Mr. Coxen's statement quoted by him, that it chooses for its nest the deserted hole of certain small burrowing Mammalia, "in the side of which it burrows for about seven or nine inches in a horizontal direction, making no nest, but merely laying its eggs on the bare sand," being the only inconsistency with the habits of other *Cypselidæ*, and indeed *Hirundinidæ* also—so far as in not preparing a nest.

Malayan Peninsula, and the Austral-Asian Archipelago generally, as far as N. Guinea. *Cypselus parvus*, Licht., of Africa, is supposed by Mr. Gray to constitute a fifth. They inhabit extensive tracts of high jungle, and the Indian species, remarks Mr. Jerdon, "frequently perches on bare and leafless trees. While on the wing it has a loud Parrot-like cry, very different from that of other Swifts. The elegant frontal crest is frequently raised when the bird is sitting."

The four oriental species might range in two sections,—those which have very long wings (as the two described below),—and those with shorter wings (as *M. comatus* and *M. mystaceus*), which are most elegantly adorned with long white supercilia and moustaches, respectively continued backward from a white forehead and white throat. The colouring of the latter is still richer, with finer contrasts of hues, than in the two following species.

*M. CORONATUS*; *Hirundo coronata*, Tickell, J. A. S. ii. 580; *M. klecho* (v. *longipennis*) of India, auctorum, described J. A. S. xv. 21. Outer tail-feathers reaching  $1\frac{1}{2}$  in. beyond the tips of the wings. Chin and sides of throat of the male, besides the ear-coverts, ferruginous, replaced in the female by black, with a whitish line bordering the throat. Colour bluish grey, infuscated, purer on the back and rump; paler on the belly, and passing to whitish on the middle of belly and lower tail-coverts; fore part of the wings glossed with purple, the rest of the plumage with green. "Irides deep brown; bill black; legs bluish black; soles of feet reddish white" (Jerdon). Length of wing,  $6\frac{1}{4}$  in.; of middle tail-feathers,  $1\frac{3}{4}$  in.; the outermost  $5\frac{1}{4}$  in., and passing the next by about 2 in. (more or less).

Inhabits the high forest jungles of peninsular India in large flocks, "being partially met with," remarks Captain Tickell, "hovering over the marshy spaces in the jungles. They disappear in these regions" (Birbhúm, &c.) "by the end of March, but I could never trace the direction of their flight." In a late communication the same gentleman remarks:—"This species is very common, but local, resorting entirely to tree jungle, and chiefly marshy ponds in the close vicinity of forests. It has a monotonous squeak, resembling the cry 'kya' of a Parrakeet flying along. These birds are very gregarious, and pass the heat of the day in the forest, perching all together on some limb of a lofty

dry tree. The male has at such times a curious sibilous note, imitated by the syllables 'chiffle-chaffle, chiffle-chaffle,' &c., and not very unlike the song of the Chimney Swallow. The Hos, or Surka Coles, call it the Topee Hén or Crowned Swallow, and assure me it lays three or four white eggs in holes in lofty decayed sâl trees; but I have never seen nest or eggs." Further south Mr. Jerdon observed this species "in high forest jungle in the neighbourhood of hills. I have seen it," he adds, "in Goomsoor, at the foot of the Nilgiris, and in various parts of the jungle of the western coast."

M. KLECHO; *Hirundo klecho*, Horsfield; *Cypselus longipennis*, Tem., figured in Swainson's Zool. Ill., 2nd series, pl. 47. Outer tail-feathers not passing beyond the tips of the wings; ear-coverts only of the male deep maroon; crested crown, back and wings, finely glossed with dark green, sometimes bronzed; rump and upper tail-coverts bluish grey, extending less up the back than in *M. coronatus*; under parts ash-gray, passing to white on the middle of belly and lower tail-coverts; tertiaries albescent. In the young the tertiaries are white-tipped; the coronal feathers have rufous tips; and those of at least the middle of the breast are whitish, with subterminal dusky band.\* Wing,  $6\frac{1}{2}$  in.; middle tail-feathers,  $1\frac{3}{4}$  in.; outermost,  $3\frac{3}{4}$  in., passing the next by  $\frac{3}{4}$  in. only.

Inhabits the Malayan Peninsula, Sumatra, and Java. *M. comatus* is said also to inhabit Sumatra, in which case its range would probably extend into the Malayan Peninsula.

*Note.*—As the European *Cypselus apus* (L.) is a common summer visitant in Afghanistan, it should be looked for in the N.W. Provinces of India. Two of the Indian species, *Cypselus affinis* and *C. balasiensis*, do not migrate; perhaps also *Collocalia fuciphaga* in the Bay of Bengal; but all the other Indian *Cypselidæ* appear to be migratory; and the migrations of some of them probably do not extend out of the country—*Macropteryx coronatus*, for instance, which is well distinguished from its Malayan affine, *M. klecho*. Again, we have the little-observed

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\* "In young birds the abdomen is whitish, and the wing-coverts are banded with white at their extremities. The feathers covering the back and the quill-feathers are tipped with brownish grey." (Horsfield) Linn. Tr. xiii. 143.



*Cypselus leuconyx* of India, quite distinct from the nearly-allied *C. vittatus* of the countries lying eastward of the Bay of Bengal; and a similar distinction probably exists between Mr. Strickland's large and blacker Malacca variety of *C. affinis* and the bird so called of India, the more especially as *C. affinis* is a permanently resident species, which does not appear to be subject to any variation, and moreover does not seem to inhabit the intervening Burmese countries. Lastly, we have a remarkable fact in the respective limitation of range of the two large species of *Acanthylis*, neither of which has hitherto been observed in the regions inhabited or visited by the other, though both are known to be migratory. The times of arrival and departure of the various migrant species in different parts of the country, north and south especially, and in mountains or valleys, require to be noticed and recorded.

PS.—Since the foregoing paper was printed we have seen Sir Everard Home's article on the subject of the gastric glands of what he supposed to be the edible nest-building "Swallow," published in the 'Philosophical Transactions,' vol. cvii. (1817), p. 332. He mentions that Sir S. Raffles had given him some of the nests, concerning the composition of which that observer "gave it decidedly as his own opinion that, whatever it is, it is brought up from the stomach, and requires at times so great an effort as to bring up blood, the stain of which is seen on the nest." But it does not appear that Sir S. Raffles supplied the specimen of the bird examined by Home, which could scarcely be of the genus *Collocalia*, if, as Sir E. Home states, "This bird is double the size of our common Swallow," i. e., *Hirundo rustica*, a statement which is confirmed by his fig. 1 of the plate, "magnified twice in diameter, or four times in superficies," and representing accordingly the stomach of a much larger bird than any known species of *Collocalia*. The structure of the proventricular glands figured by Home, as those of the producer of the edible nests, is so very curious and remarkable, and withal so conspicuously different from the structure ordinarily observable in the class, that we imagined we could not well have overlooked it even with the naked eye; and, upon submitting the gastric glands of *Collocalia fuciphaga*, *Cypselus affinis*, and *C. balasiensis* to microscopical inspection, we found in neither of these species a

trace of the peculiar petal-like appendages to the glands which Home has represented.

Moreover, this author remarks:—"The present provision for forming a nest out of its own secretions, in an animal of so high a grade as the class *Aves*, strikes us with astonishment, since birds in all other countries find substances of some kind or other out of which they form their nests, and makes it evident that this particular bird, at the time of its first creation, was intended to inhabit the caverns of Java, in which nothing is to be met with out of which a nest could be constructed," &c. As if the bird never passed out of the cavern! While other *Cypselidæ* inhabiting the same caverns do employ other substances: again, *intended to inhabit caverns* might be advantageously substituted for "the caverns of Java" exclusively, albeit the group may be confined in its range to S.E. Asia and its islands.

*Addendum.*—Edible nests in Ceylon. A most obliging correspondent in Ceylon, Mr. E. L. Layard, informs us that he has learned of a habitat for *Collocalia* in that island, "on the banks of a river, thirty miles from the sea, in some caves of a high mountain. A Chinaman rents them from Government, and pays £40 for a period of seven years. This man says there are two kinds, but does not know much about them; I will, if possible, visit the spot during the 'take,' which comes on four times a year, October being the forthcoming. This quadruple harvest would seem to imply that they do not migrate, as all our other species [of Swift and Swallow] assuredly do."

Our friend, Capt. Lewis, who saw much of these birds in the Nicobars, having opportunely returned to Calcutta after a long absence, we had an opportunity of submitting the accompanying notice of them to his criticism; and he states positively that he observed but one species in those islands, the *C. fuciphaga*, of which he preserved numerous specimens, both adults and young from the nests, and remarks that they laid two or three white eggs, commonly the latter number, but he thinks he once observed as many as four. The number may, in fact, vary according to season (Capt. Lewis observing them in the cold weather). He remarks that the gatherers of the nests are much given to mislead enquirers who interrogate them on the subject, which may account for the published statements that *C. fuciphaga*

does not produce a valuable nest. The notice which we have given, from M. Hooyman, of the manners and building-places of *C. nidifica*, he says applies equally to those of *C. fuciphaga* in every particular; and especially he has often remarked that they retire early in the afternoon to their caverns (*i. e.*, about 4 p.m.); but he states that the edible nests, as we see them, are only the lining which comes out entire, though independently affixed to the rock, being underlaid by a network of some vegetable fibrous substance placed on the ledges, which the gatherers are careful never to remove. Further attention is invited to this subject.

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### ON THE ORIGIN OF THE DOMESTIC COCK.\*

By E. CAMBRIDGE PHILLIPS, F.L.S.

It is universally admitted that the English game fowl has been carefully bred in this country and kept in its purity for many centuries. Introduced here by the Cæsars (a favourite pastime of the Romans being cock-fighting, and copied by them from the Greeks, who most probably obtained their fighting birds originally from the far East), the English game fowl stands alone in its great antiquity, its beauty, and marvellous courage, far above all other breeds of our domestic poultry.

During the past twenty-five years I have kept at various times all the different varieties of game fowl, and more particularly the pure white bird with yellow legs and bill. I purpose therefore recording the following experiences I have had in crossing White game with Black-red game and other poultry, the results in each case being so surprising, and so very different to my expectations, that I venture to hope they may be found of some interest to naturalists and ornithologists in throwing some faint light upon the origin of the domestic cock, the subject of this paper.

As this will probably be read out of England, it may not be

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\* From experiments made in crossing some of the different varieties of pure English game fowls with each other, and also in crossing game fowls with common domestic poultry. A paper read at the Ornithological Congress at Vienna, April, 1884.

out of place to state shortly the various breeds of game fowl alluded to in this paper, with a short description of each.

First is the "Black-red game," the oldest breed of all, and I think the purest. The cock has the head bright orange in colour; comb, single, serrated, and red; eyes, bright red; face, red; hackle, bright orange, without any markings; back, dark rich red; shoulders and shoulder-coverts, red; wing-butts, black; bow, red; greater and lesser coverts, brilliant lustrous black, forming a distinct bar; primaries, black; secondaries, outer web bay, black inner web; saddle, red; tail, black; breast, black; legs, either willow, blue, olive, or yellow; one very old breed, however, which is very scarce, called the Derby red, has, as its distinctive mark, white legs, and occasionally a white feather in its tail, which last feature in all other black-reds is considered a sign of the greatest impurity.

Black-red hen.—Eyes, bright red; neck-hackle, golden, with black stripes; back and shoulder coverts, wing-bow, shoulder, and coverts, partridge-colour; tail, black and brown; breast and thighs, salmon-colour; legs, as in cock.

"White game."—Plumage, entirely white; comb, red; legs, orange-yellow; eye red (this applies to both cock and hen).

"Piles," or "Pied game," are common enough in the British Islands, and were originally obtained by crossing White game with Black-red game.

The cock may be very shortly described as being the same colour as a Black-red cock, but where the Black-red is black the Pile is white.

The Pile hen has comb, face, and eyes, red; neck, golden; breast, salmon-colour; tail, white; rest of plumage white, with yellow or red; legs, yellow or willow.

"Blue game" are now very scarce; they are marked, both cocks and hens, the same as Piles, except that where a Pile is white a Blue is of a dull blue colour; legs dark blue.

"Cuckoo game" are still rarer, and I have seen but very few in this country; they are marked something like the breast of a Cuckoo, *Cuculus canorus*, from whence they take their name, their entire plumage being a light bluish grey, each feather being barred with bands of a darker grey, *no red*; legs, in the few I have seen, yellow.

I need hardly add that the comb in all game fowls should be

single, small and serrated, wattles small, with red deaf ear; their whole plumage very hard and short, and their general appearance elegant, fearless, and defiant.

There are several other varieties of pure game fowl common here, besides those I have mentioned; but as they are only very briefly alluded to in this paper it is hardly worth while describing them. I may, however, add that they are principally Brown-reds, Duck-wings, Blacks, Birchens, Ginger-reds, and Hennies, this last variety having the tails of the cocks exactly the same as in the hens, hence their name. In all these varieties, even in pure Black, the black metallic bar on the wing is distinctly visible or traceable (except perhaps in Whites and Piles); and this may also be said of most of the common farmyard poultry of the country. In many of the Black-red cocks, especially when permitted to have a wide range of ground, and wood-covers to roam over, there is often a tendency to droop the tail, but I think the contrary is the case amongst birds constantly exhibited or much confined.

Being possessed of a very old breed of White game, I determined, about sixteen years ago, to breed some Piles, and for this purpose I procured a very well-bred Black-red game hen with willow legs, to which I put an excellent White game cock, a prize-winner. From these I obtained a hatch of chickens, out of which only one turned out an indifferent Pile hen, whilst the rest were all Blues; these showed such high breeding that I kept the best of them, and, not being able to obtain any other Blues in order to introduce fresh blood, I bred from brother and sister. To my great astonishment they bred true Blues, very good birds, with not the slightest trace of white among them, the only perceptible difference being that the red in both the cocks and hens so bred was more abundant than in the parent Blues, and I have no doubt but that in a few more generations they would have relapsed into common red fowls—that is, red cocks and brown hens, with more or less of the elegance of the game fowl. On the other hand, had fresh blue blood been introduced, a permanent breed of great beauty might have been established. I omitted to say their legs were blue. I was unable to carry on the cross further, a game-fancier having been so struck with them on seeing them that he bought them at a high price.

Having afterwards bred from the White cock above mentioned

and a pure White game hen, some excellent Whites, and having among them a very troublesome young White cock that annoyed everyone with his fighting propensities, I placed him at my stables, some little distance away in the village, where I then resided. Close to this stable lived a farmer, who had a fine breed of Dorkings and other common farm-yard poultry, of which he kept a number. The first thing that happened was my young White cock (in spite of everything) killed all the farmer's cocks that would stand up to him (he was the most determined fighter I ever saw), and he then possessed himself of all the hens, and as he was a fine bird he was allowed to remain with them, some large table-birds being expected from the cross. A great many chickens were the result, but all small, and all Blues, showing no white, and being in colour like Blue game, all with single combs and dark legs, and with some of the elegance of the game fowl in their appearance. I afterwards disposed of this White game cockerel, and his progeny the Blue farmyard cross were allowed to breed with each other. In about three seasons all trace of blue colour had disappeared, and they had relapsed into common Red single-combed cocks, more or less barred on the wing, whilst the hens appeared common Brown single-combed birds, scarcely, if at all, distinguishable from the common Barn-door fowl of the country.

Some years after this, thinking to obtain some more Blues, as their scarcity made them valuable, I again obtained a good Black-red hen, to which I put a pure White game cock of the same strain as the White cock first mentioned, but, alas, " 'Tis not in mortals to command success." The chickens turned out all Cuckoo game of the purest type, both cockerels and pullets, without red, most regularly barred over the entire body and very beautiful. I parted with them to a friend of mine, who is a game fancier, and he bred from them. The result was exactly the same as in the Blues, the birds got smaller, the consequence probably of breeding from brother and sister, whilst over them, especially in the cock, red feathers were sprinkled. They were afterwards sold, and I have never seen any Cuckoo game since, but I have little doubt that if their descendants had been permitted to breed with each other they would have developed ultimately into cocks, more or less red, and hens brown or partridge-coloured; whilst on the other hand, as in the Blues,

the introduction of fresh Cuckoo game blood, and a little care in breeding, would have established a permanent breed of this variety.

From the above it will be seen that although birds of a marked different variety were bred from, namely, Black-reds and Whites, producing birds of two other very pronounced varieties, namely, Blues and Cuckoos; yet directly these were allowed to breed *inter se* (among themselves), or to cross with common poultry, as in the case of the White cock with the farmyard poultry, they all, although retaining their different colours for some length of time, gradually relapsed into Red cocks and Brown hens. In fact there seemed a strong determination, both in the Blues and Cuckoos, to throw back to red cocks and dark brown hens. I find also that in breeding pure Whites, as well as with pure Black game (a very beautiful variety), constant introduction of fresh blood is needed to keep out the red colour, which without it is almost certain to reappear in each successive brood.

In nearly all farmyards in this country where the poultry are not carefully looked after, and are allowed to breed as they like, one invariably sees a common Red cock sometimes with a black breast, but in all cases with a distinct bar more or less strongly marked on the wing, and hens of various shades of brown.

This bar on the wing, like the double wing bar so strongly marked on the Wild Rock Dove, *Columba livia*, and in the numerous varieties of its tame descendants, seems to be the principal and permanent distinguishing mark that has come down, through a long course of years, from the original stock of our domestic poultry; and so strongly does it reassert itself that I have remarked that in instances where a Buff Cochin cock has been turned down in a farmyard with the intention of improving and enlarging the breed of common farmyard poultry, yet directly the descendants of this cross were allowed to breed among themselves what has been the result? First, the bar on the wing made its appearance in a greater or less degree. Next, the cocks became red and the hens brown, and both showed only a slight trace of their Cochin ancestor in their fluffy sterns, and somewhat shorter tails. Gradually even these evidences of Cochin blood disappeared, and in a very few generations the cocks relapsed into the common Red, and the hens into the common Brown, birds of the country.

The result is also precisely the same where a Black Polish cock with a large crest (a breed of some antiquity) has been mated with common poultry, and their progeny allowed to breed together. The colour of the Polish cock is the first to disappear, getting redder and redder, then the crest gets smaller and smaller in each successive generation, until it gradually dies out altogether and no trace of it remains, except a few feathers on the head, almost an apology for a crest, which very occasionally reappear from time to time.

When we consider the enormous care and length of time it must have taken to produce birds of so essentially different types as Cochins and Polish, and when we see how quickly these types disappear altogether when interbred with common poultry, I think this and the results above mentioned may be taken as some evidence of at least the colour of the original stock of our domestic poultry.

With regard to comb, I have never among the numbers of game fowls I have bred during the past twenty-five years ever seen a single instance of anything but a single serrated comb, and even when game is crossed with the Malay the pea comb of the latter bird entirely disappears after the fifth generation. On the other hand, I have often seen the single comb appear among such carefully bred birds as Sebrights and Black Bantams, both of which varieties have exceedingly well defined double combs.

I have also occasionally observed it in the various varieties of the Hamburg fowl, all of which have very large double combs.

Although the origin of the domestic cock is lost in the obscurity of ages, yet it may possibly be gleaned from the above experiences that originally the domestic cock sprang from a bird somewhat resembling the Black-red game cock in colour, although probably with some slight mottling on the breast, and with a greater metallic brilliancy of plumage, with a red eye, small wattles, and single serrated comb, dark or dark blue coloured legs of medium length, with a rather drooping tail, and that its general appearance was a little heavier than in the present highly bred English game fowl; that the hen was brown, marked something like a Black-red game hen, with a very small single serrated comb, resembling the cock in general contour, and colour of leg and eye, but darker than the present Black-red game hen, and probably more inclining to grouse colour than to partridge.



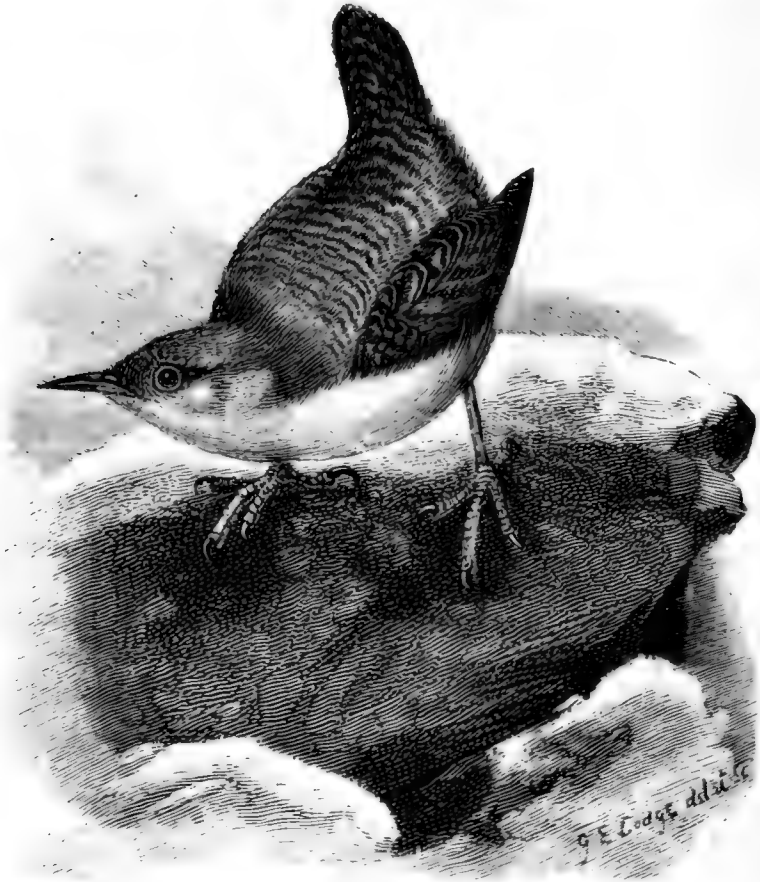
## ON A NEW SPECIES OF BRITISH WREN.

BY HENRY SEEBOHM.

THE readers of my 'History of British Birds' are familiar with the name of Mr. Charles Dixon, the author of 'Rural Bird Life,' and most of them will doubtless have appreciated his field notes, especially those made during his visit to Algeria in 1882. This year I arranged for him to visit St. Kilda, to procure some notes respecting the birds of that interesting island for my forthcoming volume. Amongst other valuable information he has ascertained the existence of a Wren on St. Kilda, and has brought home a skin of one of them, which differs in many important respects from either the European or the Faroe Island forms. Those ornithologists who regard the climatic races of this bird as distinct species, will probably come to the conclusion that the St. Kilda Wren is one of the most distinct, and I propose to name it *Troglodytes hirtensis*, Hirta being the Gaelic name of St. Kilda. If the climatic races of the Common Wren be regarded as not worthy of specific rank, the St. Kilda Wren may be described as *Troglodytes parvulus hirtensis*, which is a contraction of *Troglodytes parvulus*, var. *hirtensis*, or of *Troglodytes parvulus*, subsp. *hirtensis*, and is the style of nomenclature adopted by the best ornithologists of America, and will no doubt, in a very short time, be that adopted by the best ornithologists of England also. The St. Kilda Wren most nearly resembles *Troglodytes parvulus pallescens*, from the Western Aleutian Islands, but is much more distinctly barred on the back and head, and almost free from any traces of spots on the throat and breast. In general colour it is quite as pale and slightly greyer than examples of *Troglodytes parvulus pallidus* from Algeria and Turkestan. The bill resembles that of *Troglodytes parvulus borealis* from the Faroe Islands. The eye-stripe is as distinct as in typical examples from Europe, a character which is least developed in *T. parvulus nipalensis* and *T. parvulus fumigatus*.

These various forms of Wren appear to differ in colour according to climate, and not according to geographical distribution, except so far as it happens to be connected with climate. In Algeria, Turkestan, and Cashmere, where the rain-

fall is only a few inches, the colour is very pale and grey. In Sikkim, where the rainfall is a few yards, the colour is very dark and rufous. The other characters relied upon to diagnose the supposed species appear to intergrade in every direction. The absence of an eye-stripe seems to be correlated with the presence of bars on the throat and breast. These characters



TROGLODYTES HIRTENSIS, Seeböhm.

are strongest in *T. nipalensis*, less developed in *T. fumigatus* and almost or quite lost in the other forms. The bars on the back are most developed in *T. hirtensis*, less so in *T. pallescens*, still less so in *T. bergensis*, but always fairly developed in some examples from every locality, perhaps least so in those from England. The greater the number of examples which may be examined, the more clearly appears the fact that it is impossible to draw a hard-and-fast line between any of the climatic races of the Common Wren, which is an excellent example of a widely-

distributed species in the process of being differentiated into a dozen species. Some ornithologists may exclaim, How is it possible that intermediate forms can exist between a Himalayan species and another isolated in Japan? I can only suggest that the Japanese and Himalayan birds were formerly one species, that the birds in the Himalayas and in the extreme south of Japan are so still, but that further north in Japan a change of climate has produced a change of plumage.

The St. Kilda Wren has been obliged by force of circumstances to change its habits, as well as the colour of its dress. Stranded on an island where there is not a tree or a shrub, not even a bush of heather, it picks up its food on the water and rocks, and has, in fact, become a rock wren. In all probability it has gradually acquired its grey colour and barred back, by the slow process of protective selections, and is now almost invisible to the eyes of the hungry hawks that visit St. Kilda, as it flits about the grey lichen-pitted rocks. It would be interesting to know how many thousand years ago the accident happened which gave St. Kilda a Wren. Doubtless some flock of Norwegian birds, migrating southwards to find a milder winter in Great Britain, were driven out of their course and took refuge on the lonely Atlantic island, where their descendants, modified by time and circumstances, still survive. Let us hope that they will succeed in baffling the skill of all persecutors of rare birds, and for ages yet to come enjoy their barren home.

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## NOTES AND QUERIES.

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**Zoological Nomenclature.**— On July 1st a meeting of naturalists was held in the Lecture Room of the Natural History Museum, South Kensington, to consider the expediency or otherwise of adopting the system of trinomial nomenclature advocated by American zoologists. The chair was taken by Prof. Flower, F.R.S., and, after papers on the subject had been read by Mr. R. B. Sharpe and Mr. H. Seebohm, Dr. Elliot Coues (at present on a visit to this country) gave a lucid explanation of the views now held by American ornithologists with regard to zoological nomenclature, the substance of which will be found in his address to the National Academy of Sciences, Washington, printed in our last number (pp. 241—247). A discussion followed, in which Dr. Günther, Dr. P. L. Sclater,

Mr. Blanford, Prof. F. J. Bell, Mr. W. F. Kirby, Lord Walsingham, Dr. Sharp, Dr. H. B. Woodward, Mr. H. T. Wharton, Mr. Howard Saunders, Dr. Traquair, and Mr. J. E. Harting took part, and after Dr. Coues had replied, Prof. Flower summed up the discussion, and the proceedings terminated with a vote of thanks to the Chairman. No formal resolution was passed; the meeting having been convened merely for the purpose of eliciting the opinions of specialists on the advantages and disadvantages likely to attend the adoption of the system of nomenclature proposed. A full report of the papers read and of the discussion which followed will be found in 'Nature' for July 10th and July 17th.

**Protection of Wild Birds in India.**—Under the auspices of the East India Association a meeting was held on July 11th at the Zoological Society's Rooms in Hanover Square, to hear a paper read by Mr. R. H. Elliott "on the need for a Wild Birds Protection Act for India." The chair was occupied by Prof. Flower, F.R.S., President of the Society, and the meeting was attended by a number of well-known naturalists. On the conclusion of the paper it was criticised by Mr. Grote, Sir Joseph Fayrer, Mr. R. B. Sharpe, Dr. Hyde Clarke, Dr. P. L. Selater, and Mr. J. E. Harting, and at the suggestion of the Chairman, Mr. Elliot moved a formal resolution to the effect that, in the opinion of the meeting, it was desirable that the local governments in India should take such steps to frame and put in force such legislative measures as should appear best calculated to secure a close time for wild birds in India. This resolution having been put to the meeting, was declared to be carried, and the proceedings terminated with a vote of thanks to the Chairman. An epitome of Mr. Elliot's paper and a report of the discussion which ensued upon it will be found in 'The Field' of July 19th (p. 99).

**The Hunterian Museum.**—The vacancy in the conservatorship of the Museum of the Royal College of Surgeons, Lincoln's Inn Fields, caused by the appointment of Prof. Flower to be Director of the Natural History Museum, South Kensington, has only recently been filled. The new Conservator is Mr. Charles Stewart, M.R.C.S.L., F.L.S., whose experience as Lecturer on Comparative Anatomy and Pathology at St. Thomas's Hospital and Conservator of the Museum there, well qualifies him for the post, and who is moreover well known for his scientific attainments.

#### MAMMALIA.

**Deer killed by Lightning.**—A keeper of the Duke of Portland, writing to a contemporary, states that during the severe thunderstorm on the night of July 9th, the lightning struck an oak tree in Welbeck Park, killing three deer: two of them were close to the tree, but one was about ten or twelve yards off. All the deaths seemed to be instantaneous. He adds:—

“This may not seem to be anything extraordinary, but when I say that an occurrence of this sort has not taken place in my lifetime in this park, it makes it remarkable to me. I may also say that my father and grandfather never knew lightning to kill deer in this park, and that time extends to a period of 120 years. Now, as our park is well wooded with oak, and very rarely a year passes without several trees being struck with lightning, it makes this occurrence more remarkable. The bark of this tree was thrown a distance of sixty yards. Other trees were struck the same night, but I have not found any more dead deer.”

**Weasel swimming.**—Walking along the river “wall” near here on the 24th June last, I saw a short distance ahead a strange-looking object swimming across the river to the opposite side, which on landing proved to be a Weasel, carrying in its mouth a young one, to all appearance more than half the size of its parent. On landing she found herself suddenly face to face with two colts, upon which she dropped the youngster and ran into a clump of brambles and nettles close at hand, but almost immediately returned; and again taking up the young one she went “looping” along through the long grass at a pace which, considering the weight of her burden and the shortness of her legs, was really wonderful. I could not see what ultimately became of her, but at the time I lost sight of her she was apparently making for a tall thick hedge bordering a ditch, where perhaps she had already fixed upon some safe retreat for her family. I have more than once seen a Stoat swimming,—probably a matter of common occurrence with that species, which is very partial to the banks of rivers, watercourses, ditches, &c., where it preys upon the rats, water rats, meadow mice (*A. agrestis*), young waterhens, &c., to be found in such places. Only last spring I saw one cross a small stream carrying some object which I took to be a large meadow mouse, but was not near enough to be quite certain. The Weasel in this district is much scarcer than the Stoat, but neither can by any means be called common, being everywhere persecuted with the utmost rigour by gamekeepers; besides which the objectionable practice of destroying rats and mice by means of poison, which has become so prevalent of late years, must be very fatal to both species, not to mention the Hedgehog, the poisoned rats and mice being in all probability devoured by all three. It is a great pity that the pretty and very useful little “Mouse-hunt” should be so dealt with.—G. T. ROPE (Blaxhall, Suffolk).

**Grey Seal in the Channel Islands.**—On the 26th June last a Seal was captured by some soldiers of the 36th Regiment near the barracks at Grève de Lecq, Jersey, which seems to have puzzled the naturalists of Jersey. It was first announced in the ‘Jersey Times’ of June 27th as a Walrus, and the measurements there given were much exaggerated, a foot

being added to its length and about four feet to its circumference! According to another report it was a Sea-lion, *Otaria jubata*, although why this species should have been fixed upon it is difficult to say, seeing that it is a native of the southern shores of South America from Peru and Chili on the Pacific coast to Rio on the Atlantic side, and has never been met with north of the Equator. Moreover, no species of the *Otariidæ* is known in the North Atlantic. Fortunately Mr. F. P. Pascoe, who happened to be staying in Jersey at the time, secured a photograph of the animal, which he very kindly forwarded, and this shows it to be the Grey Seal (*H. grypus*), which has been met with on various parts of our coast from Shetland to the Isle of Wight. Mr. J. Sinel, of Jersey, in whose hands the animal has been placed for preservation, has been good enough to send particulars, and states that the entire length was 7 ft. 7 in., greatest girth 4 ft. 8 in., and estimated weight about 500 lbs.; the brain barely 1 lb. It proved to be an adult male, with the teeth much worn.—J. E. HARTING.

#### BIRDS.

**Flamingo shot in Hampshire.**—The following particulars concerning a Flamingo, which was shot in Hampshire in November last, have been communicated by Lord Henry Scott to Lord Walsingham, who has very kindly forwarded them for publication;—

“I have referred back to my journal, and find that the Flamingo was shot on the 26th of November, 1883. It had been flying about on the mud-banks outside the Beaulieu river for about a fortnight previously, and many people had gone out to try to shoot it. It was very wild and wary, and no one had been able to get within gunshot of it, as it was able to fly extremely well, and never allowed any boat to approach near enough to it. The coast-guardsmen frequently shot at it with their rifles. When I heard that the bird was being thus shot at, and had been at the mouth of the river so long, I sent a keeper of mine (a naval pensioner and a capital hand with the punt-gun) in the gunning-punt to try to get the bird for me. In this he succeeded, but he was not able to get nearer than about 120 yards. He was laying the punt-gun on the bird at about that distance, hoping he might get nearer and shoot it with the shoulder-gun, when the Flamingo, being on the alert and very wild, rose on the wing, and my keeper Goff fired the punt-gun at him and brought him down with three shots through him. The bird is a very fine grown one, quite pink all over, and with a good scarlet wing. There was nothing to show that it could have been at any time in captivity, for its wings were quite perfect, and it was extremely wild and could fly well, taking long flights. I cannot remember much about the weather previous to the bird being seen off the Beaulieu river, for I only returned home on the 20th from Scotland; but there had been a great gale from the south-west about a fortnight before, and it is my belief

that the Flamingo had been blown by this gale to the British shores. Whether he came from North Africa or from the South of France (mouth of the Rhone) it is impossible to tell; but that the bird was a wild one, and had been blown to England by stress of weather, I have no doubt."—H. J. SCOTT.

**Unusual Variety of the Snipe.**—I have been intending for some time past to send you a note of a variety of the Common Snipe, intermediate in general colouring between the so-called "Sabine's Snipe" and the common species, though approximating more nearly to the latter. It was bought at a poulterer's at Hastings in the winter of 1881-2, and was killed in the vicinity. It was secured by Mr. Sorrell, who showed it to me when at St. Leonards some time afterwards. Having recently seen the collections of Mr. Bond and Mr. Whitaker, I may state from recollection that there is no variety of the Common Snipe in either of these fine collections like the Hastings bird, but, if a comparison could be made, it would probably be found to be like the Irish specimen recorded by you in 'The Zoologist' for July (p. 272).—J. H. GURNEY, JUN. (Hill House, Northrepps, Norwich).

**Rose-coloured Pastor in Sutherlandshire.**—A fine male of *Pastor roseus* was shot, with another example, at Bordighera, on June 7th, and brought in the flesh to my sister, by the owner of the cherry orchard which it had frequented. It seems not improbable that they might have nested in the neighbourhood had they escaped molestation. A female of *P. roseus* was shot about the same time in Sutherlandshire, and sent in the flesh to Macleay, of Inverness, who showed it to me when just set up.—H. A. MACPHERSON (Carlisle).

**Curious Site for a Redstart's Nest.**—When nesting in the big wood here in April last, I saw a Redstart fly out of some dead leaves, and on looking found a nest with six eggs. The nest was on the ground under the leaves, and a run of about six inches through the leaves led to it. I have seen many nests of this bird, but none in this situation before.—J. WHITAKER (Rainworth Lodge, Mansfield).

**Fieldfares and Redwings.**—In reference to Mr. Young's note (p. 228) on the scarcity of Fieldfares and Redwings during the past winter, I may say that here both species were very abundant up to the end of November. I noticed Redwings (eight birds) first on October 6th, and Fieldfares (a flock of about fifty) on November 3rd. On the 10th and 11th of that month my diary runs:—"Very large numbers of Fieldfares, more than I have seen for two or three years—several considerable flocks. Many Redwings. Fieldfares in great abundance." I don't think I ever went into the Cherwell meadows all the winter without seeing a few of both species. The last

Fieldfares I saw were two birds flying over on April 23rd.—OLIVER V. APLIN (Great Bourton, near Banbury, Oxon).

**Note on the Nightjar.**—Having had exceptional opportunities this summer, in Berkshire, of watching the habits of this curious bird, I venture to send the following remarks:—On its arrival, about the end of April or beginning of May, it is much bolder than it is later in the season. The note is loud and discordant then, and it is easy in the twilight to walk to the tree on which it may be sitting lengthwise on the branch, with head low. If disturbed it gives a peevish hoot and claps its wings together behind, after the manner of some pigeons, pausing an instant after each clap to recover its equilibrium. Later on, as the breeding season approaches, its note becomes very ventriloquial, and it is then sometimes very difficult to stalk. The jarring note becomes much softer, and sometimes resembles the purring of a cat. If roused from its perch whilst making this noise, it continues the same note, letting it grow fainter till it dies away, and then gives the cry, or “hoot,” which is always uttered on the wing. The bird rarely appears in daylight, though I have heard one occasionally during the brightest summer afternoon. At half-past eight, at midsummer, they begin to appear, and continue till shortly after ten, but on moonlight evenings they may be heard till midnight. They lay earlier in the year than is generally supposed, on June 25th, I found two “nests” (?), each containing eggs; one lot had been sat on for some little time; and a keeper assured me that on June 19th he found young birds. When the hen is disturbed on her nest, if only one egg is laid, she flies straight away; but if she is sitting she will draw the intruder away by feigning a broken wing, at the same time uttering a cry of distress. The eggs are laid on the ground, not the slightest pretence of a nest being made; in one case, however, some fallen pine-needles had been scraped away till the bare soil was reached. The hen bird appears to select her breeding-place some time before laying, notwithstanding the absence of a nest. When the eggs are reached there is difficulty in seeing them, so much do they resemble the ground; few better examples of “protective mimicry” could be given, the eggs exactly matching in colour the leaden sand with its white stones found in the district of Berkshire where these notes were taken.—T. N. POSTLETHWAITE (Millom, Cumberland).

**Hen Harrier breeding in Dorsetshire.**—The occurrence of a pair of Hen Harriers nesting this year in Dorsetshire seems worth recording. They selected a spot dangerously near a preserve, and the female bird forfeited her life after her fifth or sixth day of incubation, as the pair were flying home with a young duck and pheasant. The first egg was laid on the bare ground in a bed of rushes, which was afterwards made more comfortable by bits of grass being scratched together. Although she



apparently began to sit after laying the second egg, she subsequently laid two more. There were four in the nest when she was killed, which catastrophe occurred about a month ago. I saw a male Hen Harrier the day before yesterday (July 9th) in the neighbourhood, which was probably the mate of the other. The Poole Estuary is crowded with the Black-headed Gulls, young and old; they must have had a good breeding season.—J. C. MANSEL PLEYDELL (Whatcombe, Blandford).

**Montagu's Harrier in Nottinghamshire.**—A neighbour brought me a hawk which he had taken out of a pole-trap on the Forest, which, as it was not at all injured, I kept for a few weeks and then sent on to the Zoological Gardens. It was a young male Montagu's Harrier, and as this is the first authentic occurrence of the species in this county I think it is worth recording. I have just heard from Mr. Bartlett that it has since died, and Gardner is making a skin of it for me.—J. WHITAKER (Rainworth Lodge, Mansfield).

**Rare Visitors to North Oxfordshire.**—On May 17th my brother and I saw a White Wagtail, *Motacilla alba*, in a pasture-field just below this village. We were able to get close to it, and with a good field-glass could see it perfectly. From the pure pearl-grey of the back and the clearly and sharply defined black cap, throat, and breast, I think it was a male. Although I have watched carefully for this species for the last five springs, this is the first time I have been able to identify it. Two Ring Ouzels—rare visitants to North Oxon only on migration—were procured about the end of April; one which I dissected had been feeding on ivy-berries, and was extremely fat. When examining the numerous small birds scattered over a field newly drilled with spring corn on March 16th, I turned the glass on a fine male Brambling. I do not know of any other instance of this bird staying here so late in the season; the sun being unpleasantly hot it seemed strange to see a bird which we are accustomed to associate with severe winters.—OLIVER V. APLIN (Great Bourton, near Banbury).

**The Larder of the Red-backed Shrike.**—Early in July, whilst watching a pair of Red-backed Shrikes, in order to obtain their nest, I found close to it, in addition to a plentiful supply of bees, beetles, &c., a good-sized red-herring (not exactly impaled, as were the beetles, &c., but in such a situation in the thorn bush that it could not easily be moved) eaten away almost entirely to the bone, evidently by the birds, and leaving only the head, tail, and fins untouched. I have found the young of other birds impaled by the Shrikes before, but never a fish.—F. STANSELL (50, Hill Terrace, Taunton).

[Of course our correspondent does not intend it to be inferred that the birds, or one of them, placed the fish on the thorns unaided. Doubtless it was placed there by human agency, either by way of a joke or by way of

experiment, to see if the birds would touch it. Apparently they seem to have relished it very much, as they probably would many other things which they are unable to procure.—ED.]

**Little Bittern at Colchester.**—On visiting our local birdstuffer, Mr. Ambrose, a short time since, I saw a specimen of the Little Bittern (*Botaurus minutus*) on his shelf. He informed me it was picked up under the telegraph wires, having probably killed itself by contact with them. This is the second specimen captured here within the last few years.—HENRY LAYER (Colchester).

**Food of the House Sparrow.**—I am glad to be able to record something favourable of this bird; the apple trees this year seem to harbour a great number of the larvæ of some insect, which rolls a leaf round itself. The Sparrows have been very busy picking these leaves off the trees, and then extracting the larvæ. I think, however, that now they will cease to do good, as various seeds are obtainable. I shot two yesterday; their stomachs were full of grass seeds, and I could not detect any insect remains.—E. F. BECHER (Southwell, Notts).

**Spoonbill in the South of Ireland.**—On the 7th of May last an adult male Spoonbill was shot about a mile from the village of Fethard, County Wexford.—JOHN N. WHITE (Rockland, Waterford).

**White Partridges.**—Some years ago, among a brood of common brown Partridges on my home-farm, there was one white one. The little bird interested not only me, but my grieve and his children, who took so much interest in it that if they saw the covey go off the farm they used to drive them back; and, lest it should be killed or lost, I forbade shooting on the farm. At the proper season it paired with a brown bird, and the result was five white and several brown birds. They were so purely white as to be easily distinguished on the ground from white pigeons by their purity. Again I took care of them. One was killed by a poacher, and found its way to a birdstuffer in Elgin, from whom it was taken by Capt. Dunbar Dunbar, of Seapark, on whose manors it had been poached. I believe he still has it. The other four survived the season and paired—two white ones together, and the other two with brown ones. I hoped for a good number the next season, but they all disappeared, and there have been none since. I should not have been surprised if they had all gone at once in a covey, for they might have been netted, in spite of my keepers; but they were in pairs, and with growing crops on the ground I could not account for it.—J. BRODIE INNES (Milton Brodie, Forres, N.B.).

**An Albino Cormorant.**—A remarkable specimen of the Green Cormorant, *Phalacrocorax graculus*, was shot at Midyell, Shetland, on the 27th February last, and sent to me for preservation, the general colour

being of a fine creamy white. It has since been added to the fine collection of varieties of Mr. Whitaker, of Rainworth Lodge, Mansfield, Notts.—GEO. SIM (14, King Street, Aberdeen).

**Hooded Crow wading.**—When walking along the banks of the Liffey between Straffan and Cellridge, Co. Kildare, one afternoon in April, I witnessed a Hooded Crow wading in the river, under the following circumstances:—Three Lesser Black-backed Gulls were flying along over the river, and alighted on a low gravel bank, near which is a plantation of Scotch pine and other trees, where a pair of Hooded Crows nest annually. They were soon seen to be feeding by one of the Crows, which flew down, buffeted them, and succeeded in driving them away, and then commenced feeding on what they had left. The Gulls very soon alighted on the water, and swam pretty near to the Crow. The latter then waded out almost to the Gulls, a distance of perhaps two yards, and succeeded in driving them off for good. It then waded back to continue in peace the meal it had appropriated. I think it waded into as deep water as it dare to; its legs, so far as I could see, were entirely under water, as was also the end of its tail. My friend Mr. W. Banks, who was with me, also witnessed this remarkable occurrence.—J. E. PALMER (Lyons Mills, Straffan, Co. Kildare).

[The circumstance of the Crow wading does not seem to us so remarkable as its bold attack on three such large birds as Lesser Black-backed Gulls. We have repeatedly observed both the Carrion Crow and the Hooded Crow wading along the banks of tidal rivers on an ebb tide in search of food which floated on the water or lay just below the surface. Mussels, the shell of which they can easily break with their powerful bills, seem to be a favourite food with them.—ED.]

**Terns and Gulls inland in Yorkshire.**—Whilst on Strensall Common, near York, on the 11th May last, I observed four Common Terns, *Sterna fluviatilis*, hovering over one of the “splashes” there. This is, I believe, the first time these birds have been recorded as occurring at Strensall during the breeding season. The Black-headed Gull, *Larus ridibundus*, are this year breeding in larger numbers than ever.—W. HEWETT (York).

**Great Reed Warbler at Ringwood, Hants.**—Your readers will be interested to hear that on the 3rd June last a fine specimen of the Great Reed Warbler, *Acrocephalus turdoides*, was shot by Mr. G. F. Hart, who takes charge of my fishery near Ringwood. He found it by the river side in a rank growth of sedge, reed, water hemlock (*Ænanthe crocata*), and willow. It has been preserved for me, and proved on dissection to be a male.—T. J. MANN (The Grange, Bishops Stortford, Herts).

[We have been favoured with a sight of this bird, which Mr. Mann very kindly brought for our inspection, and there is no doubt that it has been correctly identified.—E.D.]

**Habits of the Magpie.**—There is a remarkable instance of instinct displayed by the common Magpie which I have not seen noticed, although it has long attracted my attention, and is well known to farmers in the West of Scotland. This bird may be seen each year, on the first Sunday of March (old style), very busily employed carrying small twigs of branches to renew its old nest or form a new one for the approaching breeding season. This particular day appears to be appointed for taking formal possession of the premises, as no more work whatever is done for some weeks after. The instinct which enables a bird to take the sun's altitude on a particular day in March is certainly a very rare gift, but any person who wishes to satisfy himself of its truth, and who lives in a locality where these birds breed, has only to rise early on Sunday, March 16th, this year, to see them at work for himself. It would be interesting to know within what degrees of latitude this particular day is observed by these birds.—WM. BROWN.—*From 'Nature.'*

**Instinct of Birds.**—I have read Mr. Brown's letter relative to the instinct shown by Magpies in Scotland as to the time for commencing their nest-building, which goes so far as to assume that this particularly cunning bird is capable of fixing a certain day in March (the Sunday after the 16th, as I remember) as the invariable time to start the nest. And the writer observes that it would be well to ascertain if difference of latitude made any difference in the Magpies' calculation. Now I live in the south-east of Ireland, a good many degrees south of your correspondent's Scotch Magpies' locality, and it so happens that I have for the last twenty years observed the nest-building of Magpies, who have enjoyed undisturbed possession, and who invariably build in the trees close to my house. It is curious that this colony (if a single pair may be so called) never increases. Four young "Mags" are brought out every year, but though I have observed congregations of ten or fourteen at times, the breeding birds never exceed two. The young birds never, like Rooks, join a colony near their paternal nests, but are shipped off to new localities. I could mention many traits of my Magpies' instinct—"their tricks and their manners"—but will confine myself to the nest-building. They never repair or re-occupy an old nest. A new one is constructed every year, and always, each year, in a different tree. The nest-building is a serious labour, and takes a long time. So they begin early in *February*, selecting the sites often with much deliberation. The work is entered on very early in the morning, and the "Mags" seldom work in the daytime. About the end of March this domed nest with its two openings is finished, and the laying of eggs commenced. I am quite certain that the middle of March is not the time of beginning the nest, and this is important, as the claim set up for the Magpies' instinctive knowledge of dates therefore falls to the ground. I do not conceive it possible to prove that in this particular Magpies have a more

highly developed instinct than most other birds; all have their normal time of nesting, although there may be cases of abnormally late or early building; but as to the Magpies or any other bird being able to fix dates exactly to the day, it is unproved and incredible.—JAMES GRAVES (Inisnag, Stonyford, Co. Kilkenny).

I think it was about the year 1844 that the Duke of Argyll desired my late father, his factor, to preserve game in the district of Kintyre, Argyllshire. If any steps in this direction had been taken by other proprietors, they were very irregular. My memory goes back to about 1846 and 1848, and at that time the Grouse of Kintyre "sat like stones"; they might be shot to dogs from the first to the last day of the season; in fact it was often difficult to get the birds up. With this preservation Grouse increased enormously,—and therefore the food supply of the people,—to such an extent that the late Sir John Cunningham and my father shot, on one 12th of August, seventy-two brace of Grouse. Sir John was a very old man, and insisted on loading his own gun, an old muzzle-loader. My father never shot hard. Now I do not believe any two men with two guns and loaders could do this in the same district with all the improvements in arms and dogs; whilst I have heard my father say that seven brace was a good bag when he was young, before game-preserving. Grouse yet sit pretty well in Kintyre, and I believe this is the case because it was one of the last districts to preserve and shoot; but the birds are every year becoming wilder, and now in the month of September it is useless to take dogs on the hill, and for two years we, like others, have had to drive them. I account for this by an alteration in instinct, and I am as sure as any one can be, from observation and the opinion of competent persons, that it is *progressive instinct in successive generations*. Formerly the great enemies of the Grouse were Ravens, that took their eggs and young birds; Foxes, Polecats or Marten Cats, and Wild Cats, that took them at *night* on the ground; and hawks, that took them on the wing during the day. When man stepped in and altered the balance of Nature, the

Bird that up and flew away,  
He lived to breed another day.

No hawk was there to knock him down. He found from experience that flying away before man and his dog came near gave him safety; and his children that inherited the wit or instinct or power of turning heather into nerve-force or intelligent thought—or whatever the straw-splitters like to call it—lived; whilst his brother, that inherited the qualities which kept him hiding in the heather, was shot when forced up. I had this summer ample corroboration of this theory. About eight years ago I was shooting in the island of Rum; the Grouse were not preserved and were extremely tame, so tame in September and October that I had to run after them to

make them take the wing, and it was new to dogs. Last year I again shot in the island, and I observed the same tameness in one part of the island, but in another district I observed the Grouse were larger, darker, and much wilder. I was puzzled with this until I found out that the late tenant had three years before turned down some English Grouse, and in the district where they were so turned down the Grouse were very wild.—DUNCAN STEWART (Knochrioch).

Mr. Graves says, "As to the Magpies or any other bird being able to fix dates exactly to the day, it is unproved and incredible." I do not know what may be the case in regard to birds' nest-building, but I can give two instances of the regularity with which birds arrive at certain localities *en route* northward, whatever may be the state of the weather. During a ten years' residence on the shores of Hudson's Bay the first Canada goose of the spring migration was seen and generally shot on April 23rd. At Toronto, on Lake Ontario, large flocks of a pretty little Plover called the "Black-heart," from a black patch on its breast, pass along the islands, flying northward, on St. George's Day (April 23rd), and are seldom or never seen even a day before or a day after that date. The poor little birds have a sad time of it for six or eight hours, as a number of sportsmen go out for the occasion and knock them down by the half-dozen or more at every shot. In this case, as in the other, wind and weather appear to cause no difference.—JOHN RAE (4, Addison Gardens).—*From 'Nature.'*

**Golden Plover with white Primaries.**—On the evening of June 28th, while searching for young Golden Plovers in some rough ground towards the base of one of "MacLeod's Tables," in Skye, it struck me that one of the old birds seemed unusually light in colour. On shooting it I found that the greater part of the primaries were white. It proved to be a male in good condition.—H. A. MACPHERSON (Carlisle).

**International Ornithological Congress at Vienna.**—After a long delay we have at length received a copy of the resolutions which were passed at the First International Ornithological Congress at Vienna (see pp. 139, 188), of which the following is a translation:—

"The First International Ornithological Congress assembled at Vienna resolves:—

"1. To elect a standing international committee for the appointment of bird-observing stations, of which the Crown Prince is asked to take the protectorate.

"2. To ask the Austro-Hungarian Government to make representations to all those countries not represented in this Congress with a view to their arranging for ornithological observation stations, and to their notifying the president of this committee of proper persons interested in the matter.

"3. To request the delegates of the different States here represented

to suggest to their respective governments as follows:—*a.* The arrangement, so far as may be possible, of ornithological observation stations. *b.* The granting of money to carry on the business of the stations and for the publication of the annual record of their observations of birds; also to appoint local committees in their various States to be under the general direction of the president of the international committee.

“4. To request the committees to work after a common plan, as follows:—*a.* The ornithological observations will be spread over the entire inhabited globe, but in their first lines (*in erster linie*) will be attempted in Europe. *b.* The observations will be made, so far as possible, on one plan, for which the Austro-Hungarian and German will serve as a basis. *c.* Upon this basis (see the German and Austro-Hungarian reports) the communications coming in from the different States are to be worked up and systematically arranged, if possible, with the same system of nomenclature, and always with the same scientific names. *d.* A check-list of the native birds of each country is to be kept after the plan of that made for Austro-Hungary by E. von Homeyer and von Tschusi, the particular local names being added. *e.* Every effort should be made to enlist the interest in the observations of academies, natural-history societies, museums, &c.; also consulates, Catholic and Protestant missions, meteorological stations, journals of natural science, teachers, foresters, inspectors of lighthouses, &c. *f.* If skilful observers are at hand drawings should be made of all species of birds. Where this cannot be done it is to be left to the discretion of the committees to name some species well known to all lovers of Nature for special examination. *g.* It would be desirable at the same time to note anything unusual in the animal and vegetable kingdoms; also the meteorological phenomena,

“5. In the international committee each country is to be represented by one or more delegates, according to its size and importance. The committee has the right to appoint representatives to serve for those countries not represented in this Congress.”

#### FISHES.

**Blackfish on the Devonshire Coast.**—On the 20th June last four specimens of that scarce fish on the British coast, *Pompilus centrolophus*, were caught in a net off Penlee Point, at the entrance of Cawsand Bay, not far from Plymouth. The head in this species is small, and its body of graceful form, much resembling that of a salmon-peal; back and fins very dark, its general colour purplish black or dull neutral tint, shading lighter towards the belly, a silvery sheen showing, as it were, through the more sombre tint; the iris white, contrasting finely with the dark head and face. When dry the scales of these fish appeared to be marked with a small light oblong spot, forming rows of stripes both above and below the lateral line.

The length of the larger of two specimens examined by me was exactly one foot, and its depth three inches; the other somewhat less. Both are now preserved in spirit in the Museum of the Plymouth Institution, and the other two were, I believe, sent to Exeter for the Albert Memorial Museum. This species, like the Pilot-fish, is said to follow wrecks and large Sharks towards the shore, but I have not heard of either having been lately found or seen on this part of the coast.—J. GATCOMBE (Durnford St., Stonehouse).

**Ichthyological Notes from Mevagissey, Cornwall.**—April 26th.—Young Flounders, *Platessa flesus*, first seen for the season in our harbour; not larger than rice-grains, with eyes on each side of their heads, and swimming on the surface of the sea. My son also noted them at Portmelon beach, about a mile from here. They are to be seen every year about this date, and yet I have not been able to find the spawn in the sac before the young break the eggs. April 27th.—Sea Urchins (*Spatangus*) found at Portmelon beach in great quantities about six inches below the surface of the sand near low water, and congregated together in a shoal near the west rocks in about fifteen square feet. Every one has a hole in the sand communicating with the sea. The strangest circumstance is that they appear to be eating the sea-sands; possibly the worms and other marine life which the sands contain may sustain the life of the creatures, and not the sand itself. April 29th.—Mackerel boats were fishing from twenty to forty miles from land last night. Some landed as much as 2000 Mackerel; fish rather small, but all were full of roe—should think many would spawn in a fortnight. Quantities of minute Crustacea in the stomachs of all of them; I estimated that one had full thirty thousand of them stuffed tightly in his stomach-sac. April 30th.—Some Sea Bream, *Pagellus ventrodontus*, for the first time for the season; and Garfish, *Esox belone*, with well-developed roes in them. May 1st.—Joseph Elvins caught some hundreds of Herrings in his seine. Found they were feeding on minute young Herrings of about an inch long. One large Herring had eaten full fifty little ones. Dr. Day confirmed the fact that they were young Herrings; I sent him several, and a large Herring with a roe in it. The fish should have spawned in February, but could not do so in consequence of the vent being obstructed; the eggs had not yet broken out into the intestines, but were on the point of doing so; the eggs looked white and sickly. I have known Mackerel and Ling in this state; in the Mackerel these scatter among the intestines. I believe I have seen three years' eggs in one fish. June 12th.—Noted a Sandy Ray (Couch), female. Couch's figure is also that of a female. I have never yet seen a male of this species. Picked-dog-fish (Couch) are full of young ones and eggs. I believe I have seen them in this state in every month since December last. Took several large red parasites from gills of the Bib, *Morrhua lusca*. These must be new to science, for neither Couch nor Day mention them.



I have put them in spirits for further consideration. June 13th.—Pilchards are spawning about twenty miles from land. Congers full of roe; grains too small to be seen with the eye, but very distinct as seen through a magnifying glass. Noted this day Crustacea, *Rocinila dannoniensis*. These have been scarce on the rocks for some years; in some seasons they come in multitudes, and then the Sea-bream come and devour them. June 14th.—Noted Crustacea, *Couchea cylantricea*, in stomach of Conger. Mounts Bay boat here with three thousand Mackerel, at 6s. 6d. per 120. Noted they had a very green appearance. Men report that where the Mackerel are most abundant the sea has a very green appearance. This no doubt is caused by the food of the Mackerel being of a green colour and in such quantities as to alter the colour of the sea. Mackerel off our coasts, when at their best, are of a very blue colour. Saw a Blue Shark, *Squalus glaucus*, for the first time for the season. The Mackerel brought from Mounts Bay were full of small Crustacea in stomach, but very different in form from those caught off our coasts. June 16th.—Messrs. Fox, of Falmouth, directed my attention to the immense quantities of Crustacea in stomach of Mackerel caught off the Scilly Isles. June 20th.—Had large Mounts Bay Mackerel in Sandon Factory, full 1500, and noted they were full of roe. Took roe-sac from one; weight five ounces and a half. Found 238 eggs in one grain; the total number of ova in this Mackerel would be 560,000. Noted Sandy Ray (Couch), again a female, and Chads (young Sea-bream) for the first time for the season. June 24th.—First Pilchard landed for the season here, from spawn caught about fifteen miles from land. The whole family of Garfish, *Esox belone*, have now finished spawning; proportion of sexes, about three females to one male. Male much the smallest. These are very vicious fish, and use their beaks violently. Noted that several of the males are very much lacerated in the sides, evidently caused by the beaks of the Gars.—MATHIAS DUNN (Mevagissey, Cornwall).

**Opah-fish in Shetland.**—A fine specimen of the Opah-fish, *Lampris guttata*, was taken off Unst, Shetland, on May 22nd, and forwarded by the fishery officer to Prof. Ewart, University of Edinburgh. It measured four feet in length and over two feet in depth, and has been handed over to Prof. Turner, to enable him to complete an account of the fish begun some years ago, when he received a somewhat smaller specimen from the Moray Firth.

#### CRUSTACEA.

**Abnormal Growth in *Cancer pagurus*.**—I have received a specimen of the Common Edible Crab, *Cancer pagurus*, a female, measuring four inches across the carapace, and therefore mature, in which the right pedipalps were normal, but instead of the usual left pedipalps a small "claw" was developed, with arm, wrist, hand, and fingers all clearly defined, the

two ordinary claws being present and in perfect condition. I do not usually note monstrosities, but I do so in this case because it shows the tendency of any part of a Stalk-eyed Crustacean to assume the form of any other part.—THOMAS CORNISH (Penzance).

#### ARCHÆOLOGY.

Meaning of the word "Gaunt" applied to the Great Crested Grebe.—Attention having been directed (Zool. 1879, p. 468) to the fact that in the Co. Durham formerly (1343—1361) land was held by the tenure *inter alia* of paying one "wode henne" yearly to the Bishop of Durham for the time being, it may be worth while to mention that in the reign of Edward I. land was held in the Co. Bucks by the tenure of finding (amongst other things) a couple of Grebes. William, son of William de Alesbury, held three yardlands of the King in "Alesbury" by the serjeanty of finding straw in winter and rushes in summer for the King's bedchamber, and providing (amongst other things) two Grebes (*duas gantas*), which services were to be performed thrice a year if the King should happen to come three times to "Alesbury," and not oftener. Blount, who cites this tenure *sub voce* "Aylesbury," renders *gantas*, geese; but whenever geese were intended *anseris* is the word found in the Court Rolls. Bearing in mind the use of the soft satiny plumage for the trimming of robes and mantles, I have do doubt that by *duas gantas* we are to understand "two gaunts," *i. e.* two grebes. "Gaunt," a provincial name for the Great Crested Grebe, in the Sussex dialect signifies to yawn (Ang. Sax. *geanian*), and I have frequently observed in the grebes and divers a spasmodic action analogous to gaping or yawning.—J. E. HARTING.

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### SCIENTIFIC SOCIETIES.

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#### ZOOLOGICAL SOCIETY OF LONDON.

June 17, 1884.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

Mr. H. Seebohm exhibited and made remarks on some specimens of rare Asiatic and European birds, and called special attention to examples of a newly-discovered Russian species, *Bonasa griseiventris* (Menzbier).

Mr. Sclater exhibited the knob of the culmen of the beak of a Rough-billed Pelican (*Pelecanus*), which had been shed by the bird in the Society's Gardens last autumn; and called attention to the fact that on coming into breeding-plumage again this summer the bird had grown another knob.

Mr. Sclater also called the attention of the meeting to a very singular habit of a Vasa Parrot, *Coracopsis vasa*, as observed in the Society's Gardens.

Mr. F. Holmwood gave an account of his observations on the employment of the *Remora* by native fishermen of Zanzibar for the purpose of catching Turtle and large fishes.

Mr. R. Bowdler Sharpe read some further notes on the new Corsican Nuthatch, *Sitta Whiteheadi*, in continuation of former communications on the same subject.

A communication was read from Dr. G. Hartlaub, in which he gave the description of a new species of Creeper of the genus *Salpornis*, discovered in Eastern Equatorial Africa by Dr. Emin Bey. The author proposed to name it, after its discoverer, *Salpornis Emini*.

Prof. Flower read a note on the names of two genera of *Delphinidæ*, which he found it necessary to change.

A communication was read from Dr. Camerano, giving a summary of the distribution of the native Batrachians in Italy.

Mr. G. A. Boulenger gave the description of a new variety of Lizard of the genus *Lacerta* from South Portugal, which he proposed to describe as *Lacerta viridis*, var. *Gadovii*.

A communication was read from Mr. H. O. Forbes, containing remarks on a paper by Dr. A. B. Meyer on a collection of birds from the East-Indian Archipelago, with special reference to those described by him from the Timor-Laut group of islands.

Lieut.-Col. C. Swinhoe read a paper on some new and little-known species of butterflies of the genus *Teracolus*. The author referred to and described twenty-two species, sixteen of which were new to science and the others very rare.

A communication was read from Mr. Francis Day on the occurrence of *Lumpetus lumpetiformis* off the east coast of Scotland.

Mr. Oldfield Thomas read a paper upon the *Muridæ* collected by M. Constantin Jelski, near Junin, in Central Peru, during the years 1870-73. The collection consisted of ninety-two specimens, representing twelve species, mostly belonging to the genus *Hesperomys*, the nine subgenera of which were now arranged and re-defined. One species and two varieties were described as new under the names of *Rheithrodon pictus*, *Hesperomys luticeps*, var. *nitidus*, and *H. bimaculatus*, var. *lepidus*.

A communication was read from Mr. W. L. Distant, describing the Rhynchota collected by the late Mr. W. A. Forbes on the Lower Niger. The collection contained examples of twelve species, eleven of which belonged to the Hemiptera and one to the Homoptera. Two species appeared to be undescribed.

Prof. Mivart read a paper on the development of the individual and of the species as forms of Instinctive Action.

This meeting closes the present session. The next session (1884-1885) will commence in November.—P. L. SOLATER, *Secretary*.

## ENTOMOLOGICAL SOCIETY OF LONDON.

June 14, 1884.—J. W. DUNNING, Esq., M.A., F.L.S., &c., President, in the chair.

Capt. Richard Holt (Heathfield Lodge, Granville Road, Wandsworth, S.W.) and W. F. de Vismes Kane, Esq., M.A., M.R.I.A. (Sloperton Lodge, Kingstown, Ireland) were balloted for and elected Members of the Society.

Mr. G. Coverdale exhibited a box containing many Micro-Lepidoptera and several Macros set, on pith with gum, without pinning, according to his new process, described in the 'Entomologist' for June (xvii. 131). Messrs. Dunning, M'Lachlan, and Fitch made some remarks thereon.

Mr. R. M'Lachlan exhibited galls on the roots of various species of *Cattleya*, similar to those exhibited at the last meeting which produced *Isosoma orchidearum*, Westw., which had been received from the Hon. and Rev. J. T. Boscawen. He also exhibited the extraordinary heliciform lepidopterous larva-cases from East Africa—about 200 miles inland from Zanzibar—which he had described and figured in Ent. Mo. Mag., vol. xxi., p. 1; also, from the same locality, several other cases of *Psychidæ*, one species bearing a remarkable resemblance to a *Dentalium*; and an egg-case, probably of a Mantis, very similar to those exhibited at the last December meeting but not identical, these being neither so large nor so delicate and transparent.

Mr. M'Lachlan also exhibited nearly 100 microscopic slides of British Aphides, prepared by the late Francis Walker in 1847, which had been presented to him by Mr. P. Hubert Desvignes, son of the late Mr. Peter Desvignes, who was one of the original members of the Society; these slides evinced great care and skill in microscopic mounting, considering that nearly forty years had elapsed since they were prepared.

Mr. T. R. Billups exhibited several specimens of *Cremastogaster scutellaris*, Oliv., captured while running about on the pavement of Church Street, Greenwich. As there was a cork importer's in the immediate neighbourhood of the capture, and as the ants commonly nested in bark, their presence was not difficult to account for.

Mr. W. C. Boyd exhibited some remarkably fasciated strawberry plants from his garden at Cheshunt; it was thought that the attacks of a *Phytoptus* had caused the abnormal growth.

Mr. W. H. Patton communicated some "Notes on the Classification and Synonymy of Fig-Insects."

Mr. F. Moore communicated "Descriptions of new species of Indian Lepidoptera Heterocera, mostly from specimens in the British Museum."—E. A. FITCH, *Hon. Sec.*

Z. D.

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ON THE GROWTH OF DEER-HORNS, WITH REFERENCE  
TO SOME ABNORMAL ANTLERS OF THE ROE.

BY THE EDITOR.

THE manner in which the horns of deer are shed and annually reproduced is one of the most curious phenomena in Natural History.

The exact time of shedding the horns depends in some measure upon the age of the animal and the temperature of the winter and early spring. They are sometimes shed towards the end of February or beginning of March; but should the winter be cold and spring protracted stags shed their horns as late as May—the old ones at the beginning, the young ones at the end of that month.

It is very rarely, however, that an old stag is seen with his old horns on after the beginning of May; but a two-year-old deer will carry them for a month or two later.

In a few days after the old horns have dropped, the new growth shows itself, and gradually the new antlers are developed: they are then covered with a thick velvet, which preserves the point, as yet soft and tender, from injury. While in this soft condition they are very sensitive, and to avoid injury from striking against trees the deer leads a life of retirement. In about ten or twelve weeks they are full grown, and as they gradually harden, the animal rubs them against a tree to get rid of the velvet. This can only be done gradually, and a deer may often be seen at this time of year with the velvet hanging in strips, being only partially detached from the horns.

With the Red-deer, as a rule, the horns begin to appear at the age of about seven months, when two small protuberances are perceptible; and gradually, in the second year, straight pointed horns shoot forth. About the beginning of April, before the animal is quite two years old, these loosen at the root and drop off. In the course of the summer another horn grows up with a "tine" issuing from it in a downward curve towards the eyes; a year later an additional "tine" is seen on each horn, and from year to year, should no accident occur, the antlers, which in summer time shoot up anew to replace the old ones, increase in size and weight until the animal is six years old, after which, it is believed, no material alteration takes place; in other words, a deer will carry as fine a head at six years old as he is ever likely to have.

This is a brief summary of what takes place in regard to the casting and reproduction of the horns, so far as has been ascertained by the observation of sportsmen and foresters.

The great drawback in ascertaining very precisely what occurs is the difficulty of keeping *the same animal* under observation for any length of time. For unless it has some peculiarity about it which will always serve to distinguish it amongst its fellows, or unless it be specially marked or isolated in confinement, it is certain to escape recognition the following year; the more so because the change which by that time will have taken place in the growth of the antlers will have materially altered its appearance.

Some years ago Mr. J. Clarke, surgeon, of Lynton, being anxious to settle certain points in connection with the growth of deer-horns, upon which a difference of opinion prevailed, conceived the idea of keeping a solitary Red-deer in a paddock under his own immediate supervision, and making regular observations upon it until it reached the condition of a fully grown adult animal.

This he carried out, and subsequently published the result of his observations in a small pamphlet, which was printed at Barnstaple in 1866.\* As this pamphlet is now out of print, and unprocurable, it will doubtless be of service to naturalists to

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\* 'A Treatise on the Growth of the Horns of the Red-deer.' By J. Clarke, Lynton. Post 8vo, pp. 12. Barnstaple: A. C. Wood. 1866.

quote it *in extenso*, for the statements which it contains are founded on personal observation, and therefore valuable, and probably very few of my readers have seen the original.

“ Various accounts have been written respecting the Red-deer; but as controversies on the subject of the growth of the horns arise from time to time, I am induced to present the following observations, although they will be found to vary very materially from what has been written by others who are considered good authorities. The best description, and nearest the truth, which I have yet met with, is in the eighth volume of the ‘Penny Cyclopædia,’ published by Charles Knight & Co., in the year 1838. This, however, is not exactly correct, for, in the first place, it states that the horns of a male Red-deer do not appear till its second year, whereas they do appear in his first year as a knob, or single straight horn, varying in length from one to nine inches, but are not shed until he is twenty months old. The formation of horns commences by an increase of blood through the arterial circulation, as has been correctly stated by John Hunter in his work on the blood, and copied into the ‘Penny Cyclopædia’; but this is a part of the subject which I need not dwell on, and beg to refer the reader to the work named for further information. Shortly after shedding the first horns, the formation of the second takes place, according to the same process, and these are shed in the latter end of April or the beginning of May, when they will have attained a length of nearly two feet, or perhaps more; these in turn drop off, to be again renewed, and thus the same process is continued for a series of years, except some casualty should happen to his head, or generative powers, whereby the growth of horns becomes immediately arrested, as has been clearly and satisfactorily proved.

“ Several years since there came into my possession a young male Red-deer, only a few days old. Just then the Rev. J. Boyce (or as he was familiarly termed ‘Stag-hunter Boyce’) happened to pass through Lynton, on his journey to Porlock, and I had some conversation with him respecting stag-hunting and the Red-deer. Knowing him to be the oldest stag-hunter, and one who had been present at more deaths of the wild Red-deer in the county than any other living being, I, in the course of conversation, asked him whether he could tell, or if he thought it possible for anyone to tell, the age of a stag by his horns. His answer was prompt and decisive, ‘No.’ I then told him that I had a young male Red-deer, and that I intended to keep him for the sole purpose of ascertaining and proving the question. He said that this was the only way in which the different ages could be possibly ascertained, as no two persons could be found to agree on the subject.

“ At the time that this deer was in my possession I had an opportunity, which I doubt if anyone will again possess, of frequently seeing together a

herd of from fifty to eighty, or more, Red-deer of all ages (then harboured and protected on Brendon Barton and Scobhill, by the late Mr. Knight, of Exmoor), and which would allow a person on horseback to approach quite close to them, so that I could distinctly trace the growth of the horns of the different animals there assembled, and contrast them with the one in my possession. This opportunity I frequently embraced, and consequently I consider myself to have been in a position to give more correct information than any person who has yet written on the subject, and the result of my experience I will now proceed to state.

“In the first year of the stag’s life there appears a small straight horn, or it may be merely a knob, varying from one to nine inches in length. In the second year he may have what is termed in Devonshire his ‘brow,’ ‘bay,’ and ‘tray,’ which are called antlers; but frequently there is an absence of one or other of these, and when this is the case I have observed that it continues as he advances in years, and that the points on the top are diminished accordingly. But I must here remark that the points will not alone serve as a guide to his age, although by a combination of these and other marks, as I shall hereafter state, it may be ascertained. In short, I defy any individual who has merely followed the hounds and been present at the death—I care not how many times—to tell the age of a stag by his horns only.

“I have myself followed the hounds for a great number of years, and been present at many a death; and I can safely say that I have frequently heard the most ridiculous arguments as to his age, some asserting him to be three or four years old, and others saying he is ten and upwards. For my own part, of late years I have not seen a stag of ten years old, nor do I think that any one in the county can show me one; that they do live to the age of ten and upwards I do not for one moment dispute, but if anyone possesses a head of a stag of that age I should very much like to see it. Another error which I have frequently heard persons assert is, they know him to be an old stag because he is hoop-horned; but are these individuals aware, or will they believe, that this is not a mark of old age, but of youth, as most of the male Red-deer, from two to three years old, are what they call hoop-horned?

“But now the question comes, Can a stag’s age be known by his head? I believe it can up to a certain period, but only by those who have studied it. The latest publications, wherein it is said that a male deer has no horns in his first year, are in error, as I have already remarked, and the statement appears to have been copied from older writers, where the same error has been committed. But when the first two or three years of the animal’s life have been so confounded, is it to be wondered at that mistakes should arise as to his age? It has also been asserted that an animal which has been kept in a park or paddock will at three years old present the appearance of



a stag four, or even six, years old; but this is likewise incorrect. The one I had was kept, as is well known, for nearly seven years in a dry land field facing the south, of less than one acre, with a shed for him to go into, with not a drop of water in the field, nor ever having any given him (*and no artificial food*)—nothing but the natural grass of the field. When he was first put into the field there was a small mow of hay in one corner, which remained there for two years; as he never touched it, it was taken away and given to the cattle.

“This animal therefore lived under great disadvantages, having nothing but the same piece of land to graze over year after year, summer and winter, so that he was not (as has been misrepresented) kept highly fed, but the contrary, the purpose being to see the natural growth of the horns. And what has the experiment proved? that the character and growth of the horns depend almost entirely on the natural disposition of the animal; otherwise how can it be accounted for that one in his wild and natural state shall have a splendid head, with all his rights, and another quite the contrary? If it is owing to either or both of the parents, there surely must have been as fine heads as the one I possess; but then, I ask, what has become of them? For my own part, I know not where to find one.

“I will now give some particulars of the head and horns in my possession, with some remarks thereon.

“Before the animal was one year old the horns began to appear, about the latter end of May. In the following April these were shed, when they were nine inches long. A very short time afterwards others began to be developed, and in the latter end of April these were also shed, though not both on the same day. These had ‘brow,’ ‘bay,’ and ‘tray,’ upright—altogether upwards of two feet in length. In his *third* year he had the same kind of antlers, with two points on top on one horn, and two and an offer on the other. In his *fourth* year, antlers as before, with two points and an offer on each horn. In his *fifth* year, antlers the same, with three points on each top. In his *sixth* year, antlers as before, with four points on each top. In his *seventh* year (when he was killed), antlers as before, though on one horn the points were not so perfect as in his sixth year. It will thus be seen this deer had seven on each horn, making together fourteen.

“I do not think there is much difference in the points, &c., up to ten years of age, but the beam increases in size, antlers, &c., in length. After that age I believe the horns get shorter and wider at the spread.

“In judging a stag’s age it must be borne in mind that, by the increase of the base of the horn or coronet, and projection of the burr, with the size of the beam, the greater distinctness of the superficial furrows, together with the length of the antlers and number of points, a stag’s age may be nearly ascertained, but then only up to a certain period.

“The head and horns of the animal just spoken of were exhibited at

the Bath and West of England Agricultural Show, held at Barnstaple in 1859.

“ It has been shown that the hind brings forth her calf in May or June, but, as far as I have been able to ascertain, she does not drop her calf until July or August; at all events, the one I had was not dropped until the latter end of August.

“ As my sole purpose in publishing this treatise is to correct statements which have been hitherto published respecting the growth of the horns, with the antlers and number of points, I have not thought proper to enter on the mode of hunting the Red-deer, as practised in Somerset and Devon, and have in addition only to observe, if anyone doubts the statements I have advanced, let him procure some male calves and rear them as I have done this one, and by close observation he will then see whether I am in error, and, if so, where. Surely there are plenty of persons in the world possessing the means, provided they have the will and inclination, to keep and study the Red-deer, respecting which there yet remains a great deal to be learnt.

“ There certainly is not a more noble creature existing than a seven- or eight-year-old stag (with all his rights—which, by the bye, is not now to be seen), especially on his first being roused and breaking the covert, just after he has lost his velvet, which takes place early in September. Indeed it is a sight which must be witnessed to be described; and the pursuit of such an animal is well worthy of royalty, as it was wont to be in ancient times.

“ I last season witnessed a most splendid chase of several hours, after which the stag was taken in a bedroom at Minehead, and I was somewhat surprised on viewing his head—having a ‘ brow ’ and ‘ bay,’ no ‘ tray,’ with three points on top of one horn, and two on the other—to find his beam small and antlers short, while the horn was of a dark colour. Now, how can this be accounted for? I believe from the following:—A few years since I was informed that a number of Red-deer (which I then understood were foreign, but have since learnt were from Cheshire) were procured and set free among the different herds of wild deer in Devon and Somerset. These stags (for I believe they were mostly, if not all, male deer) had shorter horns, with generally only a ‘ brow ’ and ‘ tray,’ and of a dark colour. I once saw a pair of their horns, but they bore no comparison to those I had hitherto had under my inspection. Why, or for what reason, the animals were obtained and so mixed, I know not. (Query). Were those animals of a larger frame? If so, their horns were very inferior. Those above described derived their dark colour, I have not the least doubt, from the imported stock. This will make a vast difference in the horns and head of the future stags, and much further investigation will be required towards settling the question, so as to be able to judge of a stag’s age by his horns ;

for in my opinion this cross will always continue to be more or less marked, just as various marks may be seen in sheep and cattle, when the breed has been crossed. Does it not tend to prove it is the natural disposition of the animal? Surely it cannot be said it is owing to his keep or pasturage, or age; for as I have before stated, the number of antlers which a stag has in his second year, continues throughout the growth of the horns, and the ones he is then deficient of he never regains; so that if he has his 'brow,' 'bay,' and 'tray,' they will continue to be developed in the same manner, though there may be some slight variations in them, and possibly in each of them. If he has only his 'brow' and 'bay,' he never gets a 'tray,' nor does he get a 'bay' if he had only had 'brow' and 'tray' in his second year: this I believe to be strictly correct as far as my observations have been carried.

"Having said thus much as regards a stag's head, horns, &c., I feel bound to bestow my humble meed of praise on the present pack of staghounds latterly hunting the counties of Devon and Somerset, and also to add that the greatest credit is due both to Babbage the huntsman and Arthur the whip for the command which they have over their hounds, and likewise for the manner of hunting them. Indeed it is a sight worth riding miles to witness; and in conclusion I wish them health and strength, with plenty of deer, and support for many years to come.

"I certainly differ from some who fancy the Red-deer must soon be exterminated, for I believe if the landed proprietors in Devon and Somerset would unite and fence off certain portions of waste land, together with sufficient quantities of woodland and plantations where the deer may be harboured, and not disturbed by sheep, dogs, or poachers, that there may be always plenty of deer.

"The farmers also in these counties ought to consider where hunting is practised, that it not only gives a stimulus for rearing and breeding good horses, but also, if I may be allowed the expression, will be the means of bringing 'grist to the mill.'

"That the deer are not generally such close feeders as some have represented, I think, will appear from the small space of ground the one I had was kept in, though in their wild and free state they have a much larger space to roam over, and feed at their will."

Dated Lynton, July, 1866.

With the Roebuck, the first horn which appears is a single short prong with a small burr at the base. The following year this prong, or rather the new one which supplies its place, curves backward and throws out a tine rather above the middle, and pointing forwards. In the succeeding year a second tine is thrown out a little higher up and pointing backwards; the main

stem, or "beam," as it is termed, continuing upwards and curving slightly forwards. Each horn therefore has three well-



FIG. 1.



FIG. 2.

developed tines, and this is the usual and normal condition of horn with the adult Roebuck (Fig. 1). An animal with a head of

this character, carrying three tines on each horn is called by German sportsmen a "six-ender," and this number of "ends," or as we call them "tines," is very rarely exceeded. Old writers on hunting sometimes refer to "eight-enders" in cases where an additional tine appears midway between the one first thrown forward and that directed backwards; and Blasius even gives an illustration of a "ten-ender," in which there is a bifurcation of the tine thrown backward, as there is of the main stem towards its extremity. Such heads, however, must be very uncommon, and are said to be unknown in Germany. Blasius speaks of their having been met with in Servia (Sclavonia) and Croatia.



FIG. 3.

Roebucks with very long and heavy horns are found in the Ural, the Altai, and in Great Tartary; but, notwithstanding their abnormal size and weight, would all be described, I believe, as six-enders. (See Fig. 2, which has been drawn to the same scale as Fig. 1, for the purpose of comparison.) Fig. 3, although not so symmetrical, represents an unusually fine large head for a Roe.

It is a curious fact that abnormal growths of horn are more frequent amongst Roe than with Red-deer. It is difficult to say

why this should be so, but such appears to be the experience of both English and German sportsmen who have devoted themselves to the pursuit of these animals. It may be due indirectly

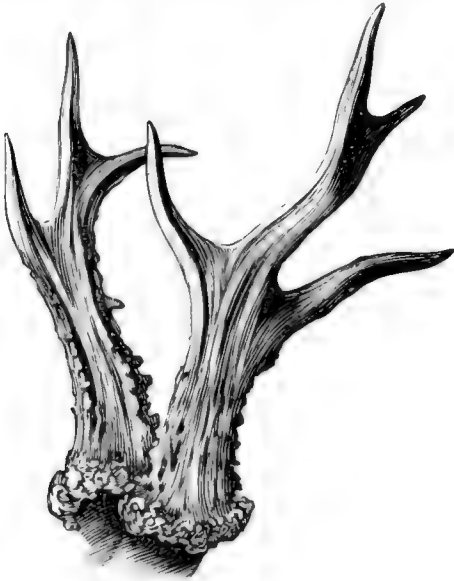


FIG. 4.



FIG. 5.

to the different habits of the two species; for as an abnormal growth of horn must be occasioned either by disease or by direct



FIG. 6.



FIG. 7.

injury to the horn itself while still soft, or "in the velvet," as it is technically termed, it would follow that the species whose habits would be most likely to subject it to accident would most

frequently exhibit an abnormal growth of horn. Now the Roe-deer is a timid, shy creature, keeping much to the woods, easily



FIG. 8.



FIG. 9.

taking alarm, and dashing off suddenly into the thicket at the approach of an intruder. Nothing is more probable than that



FIG. 10.



FIG. 11.

Roe-deer constantly injure their horns while "in the velvet" by coming in contact with some opposing bough during hasty flight.

Red-deer, which are not so much attached to the woods, and are more circumspect in all their movements, would be less likely to meet with such mishaps.

It may, I think, be fairly assumed that in all cases of abnormal growth wherein the antlers are asymmetrical (as in Figs. 4 and 5, and Figs. 6 and 7) the abnormality is due to direct injury to the particular horn which is distorted or affected. But in cases where the horns are symmetrical and yet abnormal in character (as in Figs. 8 and 9) the abnormality is probably to be traced to some peculiar physical ailment whereby the growth and proper development of the horn is arrested or interfered with at a critical stage.



FIG. 12.

The size and weight of antlers will doubtless depend much upon the nature and quality of the food available, and will vary in proportion to the supply of phosphate of lime secreted in their formation.

A third class of abnormal growths (as in Figs. 10 and 11) is not to be explained as due either to injury or disease. In Fig. 10 we see *two pairs* of horns springing from the same skull, one pair directly above the other, and both fairly symmetrical, although not quite normal in character. In Fig. 11 we see a coalescence of the burrs of what should have been two independent horns,



and a union of the two beams into one in the centre of the forehead with a subsequent bifurcation and development of a single tine on each prong of the fork.

The specimen from which this drawing was made is probably unique; and I may take this opportunity of stating that all the heads here figured as remarkable (with the exception of Fig. 13) may be seen at the present time in London, at the well-known Auction Rooms of Mr. J. C. Stevens, 38, King Street, Covent Garden, who has on view and for sale a most extraordinary collection of Red-deer and Roe-deer horns from Germany.

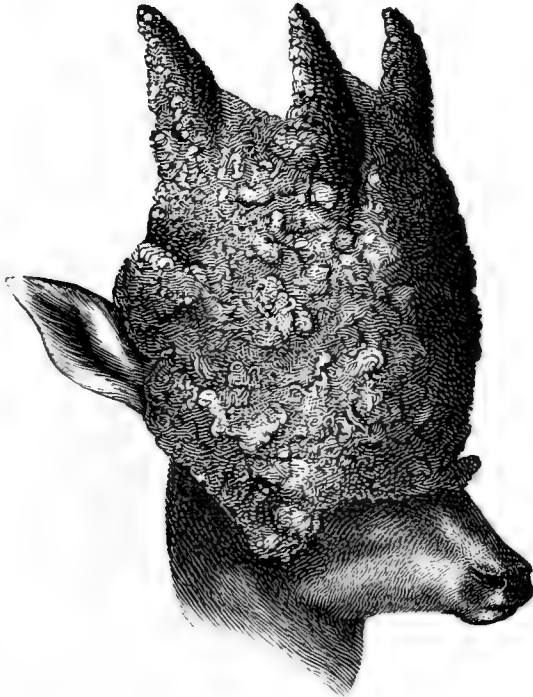


FIG. 13.

This collection, numbering about 600 head, is the property of Dr. Leo von Klipstein, of Giessen, who inherited it under the will of his uncle, Colonel Geoffroy von Klipstein, a great sportsman, who spent fifty years in its formation.

These horns, it appears, were not all procured in one district, but were obtained at different times in various parts of Germany and Austria. There are, of course, amongst them, a good many heads of the normal type which have been preserved simply as sportsman's trophies; but there are also amongst them some very singular and remarkable antlers which are well

worth going to see. Sportsmen and naturalists should not miss the opportunity of examining so good a collection of German Deer heads.

From so large a series it was a somewhat difficult matter to make a selection for the draughtsman and engraver; but through the courtesy of Mr. Stevens, who gave every facility for the purpose, a dozen heads have been picked out which are all notable in their way, some of them, probably unique.

As a sequel to Fig. 12, showing the appearance of a diseased growth of horn, I have added another (Fig. 13), copied from Dr. Altum's 'Forstzoologie' (i. p. 365), illustrating a case in which the horny substance (phosphate of lime and gelatine) has exuded over the top of the head, covering the upper portion of the face like a mask, and depriving the animal of the sight of one eye. This very remarkable specimen was alive when found and secured by his Royal Highness Prince Frederick Charles of Prussia, in December, 1872, near Potsdam.

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## THE FINWHALE FISHERY ON THE COAST OF FINMARK.

BY ALFRED HENEAGE COOKS, M.A., F.Z.S.

Most people who have paid the least attention to the *Cetacea* are aware of the existence of the veteran Norwegian sailor Herr Svend Foyn, and associate his name with the invention of gear enabling him to cope successfully with the large and active Finwhales, a family hitherto usually let alone by whalers as too dangerous for the known appliances of their craft; and are also aware that he established a very successful whaling business at Vadsö, on the east coast of Finmark. But the number of persons (beyond the actual whalemén,\* and natives of the North of Norway) who know anything about the fishery,—extended within these last two years by the expiration of Herr Foyn's patent-rights,—may be almost reckoned on one's fingers.

As very few persons have visited the scene of the whale-factories, and no account has been published in England, so far as I am aware, and as I am, I believe, the first amateur who has

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\* The whalemén are none of them natives of the North of Norway, but all come from the south—from Sandefjord and Tönsberg.

seen a whale captured by this new system, some account, however imperfect, of what I saw there may be of interest.

Herr Foyn's exclusive rights to the fishery on the Finmarken coast terminated at the end of the season of 1882, but he allowed some companies to start whaling that season. Last year (1883) was the first open season, and various companies, all got up in Sandefjord and Tönsberg in the South of Norway, tried their fortunes, and at least in most cases I believe did extremely well from a commercial point of view. One Russian steamer was also engaged last season in this fishery; and this season there are to be several, I understand.

It is now about sixteen years since Herr Foyn established his factory at Vadsö, which is situated far up Varanger Fjord; at that time the fjord was a favourite resort of the huge Sibbald's Rorqual during the summer. This is now quite changed; constant hunting and harrying has taught the survivors to keep outside in the open sea. The new factories therefore were established at Vardö, with a few at other convenient situations\* on the north coast; they are therefore much closer to the cruising grounds of the whales, so that when one is killed all the long miles of towing up the fjord are saved.

Most of the whaling companies' factories at Vardö are known by the name of their resident manager, all of whom are, I think, sea captains, with the exception of one, and this company is almost or quite the only one which has not paid this season. Besides these, there are some whaling establishments in West Finmarken, where, however, Sibbald's Rorqual is not common.

Arriving at Vardö in the middle of August, I was quite at the end of the season, and too late to see much of the chief object of the "fishery"—the huge Sibbald's Rorqual, or Blue Whale as it is called in Norway, and which latter name seems decidedly preferable for ordinary use.

I met with great civility and kindness from all the owners and managers of the whalers; my thanks are especially due to Captains B. and S., to whose kindness I am indebted for a cruise in one of the steamers; other kind invitations I was unable to avail myself of, owing to the season coming to an end. I propose to give some account of this cruise, and then to give

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\* At Sylte Fjord, Jar Fjord, &c.

such particulars as I was able to note about the different species of *Balænopteridæ* found in those waters.

We weighed from Vardö on the evening of August 26th, and, leaving the Sound by the north entrance, made for the N.W. The harpooner went up to the crow's nest while we were still in the sand, and almost immediately saw a steamer hunting a whale; we steamed steadily ahead, and in the course of the evening we saw three other whalers, one of which turned into Sylte Fjord, where there is a factory. At ten o'clock, the nights being already by this time of the year dark, the fires were let down, and we ceased steaming, the vessel being allowed to drift while it was too dark to see whales. We were under steam again by three o'clock the next morning, and some time later the harpooner (from aloft) saw a Common Rorqual, which spouted three times and disappeared. At about eight o'clock a Humpback Whale (*Megaptera*) was sighted, so we turned after it towards the north, across the bows of another whaler; at 8.30 the whale rose and blew close on our port quarter; it next rose a little ahead of us, and when it dived again we stopped. The harpooner, who remains at the crow's nest for hours at a time if no whale is sighted, comes down from aloft as soon as a chase commences, and remains as it were glued to the gun fixed at the extreme forward end of the forecastle; he cannot even go below for his meals, but has to snatch as best he can a hunk of bread and meat brought him by the steward. The whale next rose close on the starboard bow, heading to starboard. The harpooner slewed the gun round as quick as lightning and fired, but the whale (as small ones are said frequently to do) swerved at the moment and the harpoon missed it, though it received a "smack" from the shank of the harpoon, slightly grazing the skin. It instantly dived, and next came up 150 or 200 yards away, when it screamed more from fright than pain, I fancy, and then disappeared. We hauled in the line, and proceeded to reload, which latter operation takes all hands just half an hour to accomplish.

This is perhaps the best place to attempt a description of the harpoon, and the gun from which it is fired. The harpoon-stock (all of iron) is about five feet long. It has two pairs of folding flukes, barbed, lying at right angles to each other; the butt end of the shank is enlarged and flattened at the extremity like a

ramrod. A slit is carried for about three feet lengthwise through the shank, in which travels a ring or grummet made of coils of thin iron wire, to which the whale-line is attached. Forward of the end of the slit a joint is formed by two large rings. This joint is rendered rigid, however, when ready for firing, by firmly lashing the ring of the anterior part back to the end of the slit. This lashing is broken by the movement of the whale after the harpoon has entered it, allowing the joint to have free play, and at the same time the resistance offered by the lashing before it parts breaks the force of the otherwise sudden strain on the rings. In front of the second ring come the barbs before mentioned, and the shaft terminates in a screw-worm, the fore end being hollow to the depth of about six inches. Into the hollow is fitted a tin cylinder about five inches long, containing a small glass specimen-tube covered with india-rubber piping, which on the fracture of the glass tube comes in contact with fulminating powder, which then explodes. The fracture of the glass tube is brought about by the meeting in the middle line—inside the hollow end of the harpoon—of the inner ends of the larger pair of folding flukes, which are continued inwards beyond their pivots. On to the worm at the hollow end of the shank is screwed a conical iron shell nine inches long, which is filled with gunpowder, and this is exploded by the means just mentioned, assisted by a little powder added as a priming inside the worm. Into the fore end of the shell is screwed a three-side spearhead like a ploughshare, four and a half inches long; an older pattern, as used by Herr Foyne, is shaped like an ordinary spearhead—*i. e.* flat.

The explosion takes place when, after the harpoon has entered the whale, sufficient strain is brought on to the line to cause the lashings by which the flukes were previously held down to break, and allow them to open out; the inner ends of the larger pair then almost meet in the middle line, and, squeezing the glass tube, break it as before described.

The harpoon-cannon works on a pivot fixed on the forward end of the fore-castle. There is no bowsprit or forestay: a kind of platform projects over the bows on either side, giving room to the harpooner to stand and turn the gun well round to either side. Over the stem projects a square sheet of iron, lying at a slight angle forwards; on this about twenty fathoms of the

whale-line (which is fully double the thickness of the whale-line used in the Greenland fishery) is very carefully coiled down, and lashed in place with spun-yarn, which breaks directly the line gets the least strain on it. The sheet of iron is hinged, and when steaming in rough weather through a head sea the harpoon is removed from the gun and the iron turned up, so as to protect the gun from the seas.

The cannon has naturally to be very strong, and was in this instance  $4\frac{1}{4}$  inches thick at the muzzle. The charge of powder is 15 "lod," and is kept ready measured off in round canvas balls about the size of a cricket-ball. The recoil is taken off by pads of gutta-percha several inches thick at the rear of the trunnions. A pistol-stock shaped handle is fixed to the breech to aim the gun with; the details, such as percussion-caps, &c., vary, I believe, in the guns of almost every company; but I have, I think, attempted a description of every important point.

(To be continued.)

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## ORNITHOLOGICAL NOTES FROM NORFOLK.

BY HENRY STEVENSON, F.L.S.

A BAD season for the shore-gunners means, always, brief notes for the naturalist; and both before and after Christmas, in the winter of 1881-2, an almost total absence of "hard-weather" fowl, and a singular scarcity of Fieldfares and Redwings, were readily accounted for by November of 1881 being the mildest and warmest for many years.

In the first week of January, 1882, I heard of two or three Waxwings, seen or shot, near Holt, and one at Lamas, near Cromer, indicating, as I have before observed, that the advent of this beautiful but irregular migrant is by no means confined to severe winters.

On the 6th a Common Buzzard appeared at Northrepps, and a large Raptor, seen at the same place on the 30th, was, possibly, a Rough-legged Buzzard, of which species one had been shot at Fulmodestone on the 14th. Of wild-fowl, the only entries I find worth notice during this month are a male Gadwall, at Salthouse,

on the 6th, and another at Hickling on the 14th, the latter, in all probability, bred in this county.

On the 22nd a Snow Bunting was shot at Cromer, which had already begun to assume its breeding-dress,—an exceedingly early date.

March followed suit as to mildness of temperature, and the first three weeks were altogether foreign to its usual character.

On the 1st, at Gunton, near Cromer, a solitary Brambling was seen consorting with a flock of other small birds; and on the 4th and 6th Hooded Crows, in some numbers, were observed passing southwards, near the coast at Northrepps. By the 12th some thirty Rooks' nests were completed in Brundall Wood, and about twenty more by the 16th; and young Herons were hatched at Taverham prior to the 25th. Of the earliest summer migrants, the Wryneck was heard in Cossey Park on the 20th, and the Willow Wren and Chiffchaff at Northrepps, about the same date.

Snow Buntings, in small numbers, remained along the coast at Yarmouth till late in the month. Redshanks were clamorous in the marshes quite early in March, and Lapwings' eggs were in Yarmouth market by the last week of the month.

April was not a pleasant month, the weather variable, and mostly cold and wet, with a prevalence of north and north-east winds. Two or three Magpies were seen at Forncett on the 1st of the month; and one or more of that species were observed at Northrepps, on the coast, throughout the winter. Of the dates of arrival of summer migrants, I may quote the following from various correspondents:—Cuckoo, 14th, at Northrepps; Nightingale, 16th, on the Ipswich and Unthank's Roads, Norwich, and Reepham a few days earlier, Thorpe 20th, Keswick and Yarmouth 22nd; Blackcap, 10th, Woodbastwick; Swallow, 18th, Keswick, 19th, Thorpe River; Sand Martin, 19th, Thorpe River; Redstart, 16th, Eaton. On the 21st, at Eaton, a bright spring day, with a south-west wind, I heard and saw, in the sheltered copse of "Blue-bell Hole," Nightingales, Redstarts, Willow Wrens, Blackcaps, and Chiffchaffs, and three Red-backed Shrikes on a neighbouring fence. Neither in the village nor on the river did I see a single Swallow, or Martin of either species.

A few Hooded Crows still remained at Northrepps into the second week of April; and a Woodcock was flushed there on the

10th. A large number of Pied Wagtails appeared at Yarmouth about the latter date ; and early in the month a Water Rail was caught alive on board a smack, just off the coast. During the first week, also, the puzzling occurrence of French Partridges, seen to come in from the sea with a strong easterly wind, and, as usual, in an exhausted state on arrival, was observed on the beach at Yarmouth, and I have notes of a single bird, seen to fly in from the sea, at Lowestoft in March, and, in the same month, a small covey of this species arrived on the sands at Cromer, in like manner, and crept into any holes they could find for shelter. Being birds of rapid but not sustained powers of flight, as is well known to sportsmen, it is not easy to conjecture, if continental immigrants, from whence they come. We have no record whatever of this Partridge being found in the Eastern Counties till eggs were imported at the close of the last century, and as when Sir Thomas Browne wrote just two hundred years ago it was not seen in Norfolk, I still incline to the theory advanced in the 'Birds of Norfolk' that these apparent visitants are but residents after all, seized with a restless migratory impulse in spring, and daunted by the vast expanse of water, as they pass out to sea, swerve round again towards the land, and alight in the exhausted state in which they are usually found. Some of our immigrants, also, may cross the Wash, from the Lincolnshire coast, or arrive from still more northern counties.

A Hobby was observed at Northrepps on the 16th of May, and of spring migrants amongst the Waders on Breydon "muds" the Whimbrel was seen on the 3rd, Turnstones on the 10th, and both Common and Green Sandpipers on the 13th ; and on the 16th and 17th a Greenshank and some Bar-tailed Godwits, all these putting in an appearance about their accustomed time, as the 12th of May is known as "Godwit-day" to the shore-gunners. Somewhat later, Grey Plovers and Pigmy Curlew were also seen at Yarmouth in summer dress ; and three Avocets were said to have been seen, and one Spoonbill shot, the Bird Protection Act notwithstanding. A flock of Black Terns were observed on the 22nd, hovering over the river between Brandon and Lakenheath ; and on the 28th a large flock of Common Curlew were seen passing at Northrepps.

On the 29th Mr. J. H. Gurney, Jun., found the larder of a pair of Red-backed Shrikes, at Northrepps, their prey spiked, as



usual, on the thorns of a fence ; and this within a few yards of the spot where he had noticed the same occurrence, in the previous summer,—a tall fence, on the road near the Cromer Station.

A stay at Cromer, from the 12th of May to the 9th of June, afforded daily observation of bird-life in that neighbourhood ; and renewing acquaintance with that well-known and genial old fisherman, Billy Mayes, I learnt from him, when at sea in his crab-boat, many interesting facts, both as to sea-fowl and sea-fish.

On one occasion I saw a few adult Greater Black-backed Gulls, passing rapidly, with an evident purpose in view ; and I believe, from many former observations, that with an instinctive knowledge of the ebb and flow of the tide, these Gulls come for miles to exposed feeding-grounds near Yarmouth, and work back again, late in the day, to roost on the extensive sand-hills about Blakeney and Cley.

Mayes tells me that about the month of October, the fishermen see Gulls by hundreds, day after day, flying in the direction of Blakeney, late in the afternoon, where he has seen them congregated in great numbers ; but, as at that season they never see them going in the other direction in the morning, he supposes they must pass along the coast earlier than even the fishermen are about at that time of the year. Early in May he had seen Guillemots out at sea, off the Cromer lighthouse, passing northwards, no doubt to their breeding station at Flamborough, from whence, in the breeding season, as the fishermen assert, they pass regularly for food down to Yarmouth Roads. At different times when fishing out at sea, he has seen various species of birds coming over the sea, and making direct for land, more or less exhausted ; and amongst them he mentioned Starlings, Rooks, Sparrows (Tree Sparrows, probably), Chaffinches, Swallows, and Martins, and the tiny Gold-crested Wren. Rooks he had seen settle on the waves, as if to refresh themselves, as is frequently the case with the Swallows, dropping their feet into the water, and raising their wings at the same time. He has seen French Partridges making for land, but never saw or heard of an English Partridge in flight over the water.

One morning a small flock of the Common Gull, and on another, of Black-headed Gulls, all birds of the previous year, were hovering over and settling on the waves, within gun-shot of the beach, attracted, no doubt, by the fish-offal thrown overboard

by the fishermen before coming ashore; and I noticed, also, that a few old Rooks on the Runton beach came regularly to feed on the same diet, when washed up by the tide. This is a common habit with them in the autumn and winter, in company with the Grey-back Crows; but I had never noticed it before in the nesting season.

On the 4th of June, an adult Night Heron was seen by Mr. Cremer, at his pond at Beeston. At Palgrave, near Diss, my friend, Mr. Ringer, had his attention drawn to the note of the Wryneck, and on tracing the sound to an old Scotch fir in the churchyard, he saw two of these birds, sitting, one above the other, each on a short, broken branch projecting from *the trunk*, and as they uttered their notes with a curious elongation and twisting of the neck, they seemed to lean hard against the bole of the tree; and this they continued to do till he was tired of watching them.

(To be continued.)

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## ORNITHOLOGICAL NOTES FROM SWITZERLAND.

BY W. WARDE FOWLER, M.A.

THE following notes, made by me in Switzerland last summer, may perhaps be of interest as supplementing the observations on Swiss birds recently contributed to 'The Zoologist' by Dr. Hamilton and Mr. Backhouse.

While visiting Stanzstadt, on the lake of Lucerne, on the 26th June, 1883, I observed a pair of Blue-headed Wagtails, *Motacilla flava*, by the lake. The landlord of the hotel showed me a fine Bittern, shot by himself, but said it was not a resident species.

On the road to Engelberg, on June 27th, Buzzards, Magpie, Redstart, *Ruticilla phœnicura*, and Marsh Tits, slightly different in colouring from ours as I fancied, the white on ~~the~~ the throat and sides of the head occupying a larger space. In the Bern Museum is a variety, more resembling *P. ater*, and wrongly marked "*P. borealis*, var. *alpestris*, Bailly." See Prof. Newton in Yarrell's 'British Birds' (ed. 4, i., p. 49).

June 28th.—At Engelberg, Black Redstarts, *R. titys*, Whin-chats, and Tree Pipits were all abundant. We heard a single

Cuckoo. In an opening in a wood a huge bird passed slowly over us at no great height, enabling me to see it frequently from below with my glass. This I believe to have been a Golden Eagle, *Aquila chrysaetus*, for my guide, who knows the bird well, saw one near the Engstlen-Alp the same day. I afterwards saw one alive in a cage on the Wengern-Alp.

June 29th.—Joch-pass. Heard the Chiffchaff on the Pfuffenwand, more than 5000 ft. above the sea. In these higher regions a Pipit is abundant, which, I feel pretty sure, is *Anthus spinoletta* (Linn.). It frequented well-watered pastures, and would perch on stones, or on the very top twig of a pine, and to the best of my belief was neither *A. pratensis* nor *arboreus*. More puzzling was a bird which my observant old guide, who now joined us, called an "Alpen-lerch;" this bird made a trilling noise when sitting on a stone, and would then mount and sing on the wing. A skin since forwarded to me by the guide proves this to be *Accentor alpinus*. It was abundant on and about the Joch-pass, where I hope to give special attention another season.

My guide wrote of this bird: "The brown bird I sent you is called here in our common speech 'Bliemtrittel;' it has this name because, when it is in the valley (*i. e.*, in winter), it often haunts barns, and there picks up the 'Bliem'—that is, the blossom-dust that is found under every heap of hay. In the books (*schriftweise*) it is called '*Alpenlerche*.' Old Professor Dollfus used to call it 'the tourists' guide,' because we see it in summer on the high mountains, which, like the tourists, it leaves in winter for the lower grounds. I shot the specimen I sent you close to my own house (just out of Meiringen) at the beginning of January. We saw the bird on the Engstlen-alp when you were with me last summer. It sits usually on a stone, where it sings with a sweet voice; it does not sing on the wing. [This, I think, is a mistake. W. W. F.] It builds its nest among rocks and stones in the mountains in the summer; the nest is of moss, and the hen bird lays, I believe, beautiful pale blue eggs. When it is in the valley in winter, we find it sometimes here and sometimes there, but the one I sent you is the only specimen I have seen this winter. The reason of this is no doubt to be found in the beautiful mild weather we have been having, which has enabled the little things to make a long stay in the mountains.—Johann Anderegg. Meiringen, Feb. 24th, 1884." [Translation.]

June 30th.—Engstlen Alp. (7000 ft.) Here were a few Ring Ouzels (which descend to the valleys in winter, but according to my guide do not leave the country) and Cole Tits, *P. ater*. I talked with the guide about migration; he told me of twenty-two Redstarts having been found in a hollow cherry-tree in Canton Valais in winter, all in a cluster. We talked of the beautiful red-winged Rock-creeper, *Tichodroma muraria*, and he told me positively that it loses the end of its long bill every autumn, and that a new one grows rapidly. He says that he told M. Fatio (a Genevan naturalist) of this, and on his disbelieving it sent him specimens to prove it. I afterwards found in the Bern Museum a specimen which had lost the end of its bill. Here also were Redstarts, chirping their little song from the roofs of the chalets, in which they build and bring up young even before these upper pastures are visited by human-kind in early June. I see that Bree ('Birds of Europe,' vol. ii., p. 6) gives a "Grey Redstart," *R. Cairii*, which exactly answers in appearance to some of these on the Engstlen Alp, which I took for young of *R. titys*; and this *R. Cairii* is there said to inhabit the highest Alps, 'where it breeds in old isolated chalets and huts, where one never sees by any chance a specimen of *R. titys*.' I certainly do not remember to have seen any specimens of the adult male of *titys* on these Alps; yet it seems to be now agreed that this mountain bird is not a distinct species.

July 1st.—Engstlen to Meiringen. The guide was much taken aback by the rising of five wild ducks under his nose while he was enjoying an early pipe this morning; this was at a little pool of melting snow water about forty paces from the inn. From the feathers they left I should say they were Teal; but Switzerland boasts of a great variety of wild duck, as I learn from the Bern Museum. We had looked for the Crested Tit, *P. cristatus*, yesterday; my guide tells me it is a rare bird even here. To-day, however, he detected it, keeping eyes and ears on the look out, and I had the great pleasure of watching a family of these birds. The note is very much like that of *Acredula caudata*; motions and gestures as like those of *P. cæruleus* as possible. Its black collar also reminds one of the latter. The female seems to be much browner than the male, whose prevailing colour is bluish grey; in fact the guide erroneously described to me two species, one grey and the other brown. He was right, however, in telling

me that it is not a shy bird; it allowed me to come quite close without getting alarmed.

July 2.—Meiringen. *Certhia familiaris* abundant in the apple trees; Marsh Tit and Robin. A little Warbler, very slender, but otherwise looking very like the Chiffchaff, was singing a somewhat tremulous note in the hazel bushes and brushwood on both sides of the valley; *i.e.*, near the paths to Hasliberg and Rosenlain. As the note was strange to me, and as it could hardly have been that of our Wood Warbler, I have consulted Bree, and find there figured a bird which closely corresponds, *viz.*, Bonelli's Warbler, *Phylloscopus bonellii*, which is said to be common in Switzerland, and to prefer wood-covered hills, alders, hazels, &c., and to have a very monotonous note. I shall hope to examine the bird more closely next summer.

July 3rd.—Rosenlain. Pair of Yellow Wagtails, with black or dark heads, and therefore probably *M. flava*, though much yellower in general appearance than those I saw at Stanzstadt. I saw a Missel Thrush on the top of a pine; also some round holes in an old pine, made (so said the guide) by the Great Black Woodpecker, *Picus martius*.

July 5th.—Grindelwald to Wengern Alp. Heard a Robin sing with two Cuckoo-like prefatory notes, repeating its song many times. A little further on I found a Ring Ouzel singing the same two notes from the top of a pine; was Robin imitating? My guide suddenly declared he saw a "Gold-amsel," a rare bird he had only seen two or three times. We left the path and stalked this bird, and I saw at last a bird of the size of a Blackbird, with yellowish tints about it, flying from one bush to another. This was very likely the female of the Golden Oriole, *Oriolus galbula*, many specimens of which I saw in the Bern Museum afterwards. It must have been the male which caught the guide's sharp eye, but we could not find it. This was at a height of about 6500 ft.

July 6th.—Lesser Scheidick. Here I saw a pair of Snowfinches, *Montifringilla nivalis*, close to the glacier which descends from the Eiger, the only ones I saw this year. I have seen them in flocks on the Gemini Pass, and very beautiful they are as they rise together in the sunshine. I call them Snow Finches, though both Snow Finches and Snow Buntings were in the Bern Museum, and I could not have clearly distinguished the two at the distance I was from this pair of birds; but Prof. Newton (Yarrell, vol. ii.,

p. 8) leads me to suppose that the Bunting is of exceptional occurrence in Switzerland.

July 7th.—Wengern Alp. The *Corvidæ* seem partial to this place; we saw a Raven, Crows, and Alpine Choughs—the latter always three together. At this hotel is a Golden Eagle (Steinadler) in a huge cage. The gigantic cliffs opposite are said still to afford protection to a stray Lämmergeier, *Gypaetus barbatus*.

I was not able to go to Mürrur, as I had intended, but it is worth noting that the landlord of the new hotel there has an admirable collection of Alpine animals, which he will gladly show to anyone who wishes to inspect it. We returned home by Bern, where Spotted Flycatchers, *Muscicapa grisola*, were building their nests in the garden corridor of the Hotel Belle-vue. The Museum afforded me plenty of occupation during the two hot days I spent here. We returned to England without further opportunity for making observations.

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## NOTES AND QUERIES.

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The proposed Marine Biological Laboratory.—As we have already mentioned (p. 270) an Association has been formed which is collecting funds for the purpose of promoting marine biological study, and we cannot doubt that its objects need only to be widely known in order to receive the encouragement they deserve. The harvest of the sea is only less important to the people of this country than that of the land and the study of marine biology is to the one what the study of agricultural science is to the other. The life and habits of the fish on which we feed are still for the most part shrouded in mystery. Fishermen go mainly by tradition and the rule of thumb. They know empirically where certain fish are to be found at certain seasons, and provided they secure a good haul, they trouble themselves as little as possible about the causes which produce it or the conditions which favour it. They cannot be persuaded that Science has anything to tell them which they do not know already, and they have the common distrust of practical men for scientific methods and conclusions. The researches already made, however, in foreign marine laboratories have incontestably proved the value of such institutions having resulted in promoting the supply of Oysters. It has long been known that the Oyster of Northern Europe is hermaphrodite, and that its eggs are hatched inside the shell of the parent, the young being thus carried and protected until they are so

far developed as to be ready to fasten themselves on a rock and to live independently. It follows, of course, that the continued existence of the parent is indispensable to the life of the young Oyster, and that Oysters of this particular species cannot be artificially bred. It does not follow, however, though the inference was hastily drawn, that all Oysters are of the same unaccommodating nature. If Oysters could be found as careless of their offspring as the Salmon, the Herring, or the Mackerel, it would not be difficult to increase the supply by collecting and cultivating the eggs. This discovery has been made by Prof. Brooks, of the John Hopkins University at Baltimore, by means of the marine laboratory attached to that institution. European visitors to the United States are agreed that the Baltimore Oyster is the best in the world, and Prof. Brooks has ascertained that in this particular Oyster, and, indeed, in the American Oyster generally, the sexes are separate, and that the eggs, instead of being hatched inside the parent shell, are thrown out into the water in immense numbers, and are then fertilized and developed without further assistance from the parents. This is a scientific fact first discovered in a Marine Biological Laboratory, and its industrial and commercial bearings are manifest. Prof. Brooks was not so successful as Thales, however; he did not himself make a fortune out of his discovery. He succeeded in showing the possibility of fertilizing the eggs artificially, and of rearing the young Oysters until after they had acquired their shells; but he failed to keep them alive until they were able to take care of themselves. The next step in practical discovery was taken by Lieut. Winslow, of the United States Navy, who had followed the experiments of Prof. Brooks, and being afterwards stationed at Cadiz repeated the experiments with Portuguese Oysters, and found that they also exhibited habits of breeding identical with those of the American Oyster. It appears, moreover, that a French *savant*, M. Bouchon-Brandely, the Secretary of the Collège de France, was encouraged to similar experiments by the observations of Prof. Brooks, and that, having reached the same conclusions as Lieut. Winslow, though quite independently of that officer, as to the breeding habits of the Portuguese Oyster, he has overcome the practical difficulties, and has succeeded in producing Oysters of commercial value from eggs artificially impregnated. Similar results have since been obtained by Mr. Ryder, in Maryland, so that the artificial breeding of Oysters may now be regarded as a practical undertaking on both sides of the Atlantic. It would be difficult to give a more satisfactory demonstration of the practical value of marine biological research. The commercial importance of the discovery of Prof. Brooks and M. Bouchon-Brandely is obviously immense, and it opens up a prospect of unlimited extent to the whole gastronomical world. The possible extinction of the unaccommodating "native" may now be regarded with comparative equanimity. Its marsupial habits, so to speak, unfit it for the struggle for existence. Its parental

affection is its ruin. Its place will be taken by the less philoprogenitive but not less delicate bivalve of Baltimore or of Portugal. Meanwhile the contrast between the two may well serve to point the moral of scientific research, and to promote the establishment in these isles of Marine Biological Laboratories. What Science has already done for the Oyster it may well be expected to do in time for many another of our sea-fishes and shell-fishes. The field of research is almost inexhaustible, and Science would be perfectly ready to cultivate it, if once it could obtain the means and opportunities. It is impossible to doubt that the study of the structure and habits of the fishes which frequent our coasts will result in an accumulation of knowledge which must in the end direct and inform the practice of our fishermen. But it is not merely for the increase of the supply of Oysters, or even for the improvement of our fishing industries in general, that the Marine Biological Association has been formed. The object is the scientific study of a branch of Natural History which has hitherto been neglected for want of adequate means and opportunities for its prosecution. The undertaking is a costly one, and it is hoped that the necessary funds will be freely forthcoming.—From *'The Times'* July 9th.

[We understand that the Corporation of Plymouth has already offered a site for the erection of the building as well as a very liberal donation to the building fund.—ED.]

#### MAMMALIA.

**Wild Cat in Lincolnshire.**—In the spring of the present year I saw in the shop of Mr. W. Barber, of Lincoln, a cat which was received by him in the flesh from one of his country customers. It was shot in the early part of March, 1883, by Mr. Arthur Belton, a farmer living at Bullington, near Wragby, and under the following circumstances:—He was out with his gun in a small plantation near Bullington Wood, when his dog—a small terrier—brushed the animal from beneath a thicket of brambles. Instead of flying the cat at once attacked the dog, which it severely mauled. Seeing his dog was getting much the worst of the combat, Mr. Belton rushed in, on which the cat took refuge in an oak tree, crouching between two branches above the bole; perceiving the creature apparently making preparations to spring, he fired at its face and brought it down. He thinks it is the same cat which had been seen at intervals in the neighbourhood for many years past. Mr. Barber told me that on skinning it he found all the characteristics of a wild animal; the muscles were very strong, red, and highly developed, and the intestine was much shorter than in the common cat. On comparing the animal with the best written descriptions, as well as with a Scotch Wild Cat obtained many years ago in Mar Forest, I have not the least hesitation in stating that it is undoubtedly a genuine Wild Cat, *Felis catus*. It agrees closely in coloration and dimensions with the wild type,



and the only difference that I can point out is that the tail is not quite so full at the end as in some Scotch examples. According to Macgillivray, however, Scotch cats vary in this respect; speaking of the tail, he says ('British Quadrupeds,' p. 191), "Generally as broad to the end as the base, although often narrowed at the tip." In the Lincolnshire example, which is a fine old "tom," the canine teeth are remarkably developed and very formidable; the tongue across the middle is covered with strong horny papillæ directed backwards; ears large and triangular, and directed forward; fur very thick and close, general colour a yellowish grey, with the lateral stripes on the body and limbs a darker grey, two small stripes below the eyes, and four across the head to the nape, which are dark brown, almost black; there is also a black irregular stripe down the centre of the back; and the tail, which is cylindrical and covered with long hairs, has alternate rings of black and grey, the tip for two inches black; feet yellowish, soles black, claws horn-coloured and very strong. Bullington Wood was the last haunt of the Kite in Lincolnshire; a pair nested there in 1870. The Pine Marten still lingers in the district, examples being obtained almost every year. The Polecat is very numerous, also the Stoat and Weasel. The wood itself is one of an almost continuous chain of great woodlands extending from Mid-Lincolnshire to near Peterborough. Much of this district has never been preserved for game, the shooting being left in the hands of the neighbouring farmers. Keepers are few and far between, hence the wild animals have enjoyed an almost complete immunity from persecution. Cats are known to have bred in these woods in a wild state for generations, and there is no improbability that the subject of this notice may have descended directly from the old British Wild Cat. That it should be a reversion from the domestic cat to the wild type is scarcely probable, so closely does it agree with the original wild race, unless we are prepared to allow for a strong admixture of original blood coming directly from pure wild ancestors which at no distant period inhabited the district.—JOHN CORDEAUX (Great Cotes, Ulceby).

**Weasel in Skye.**—At p. 12 of the 'Mammalia of the West of Scotland,' drawn up by the late Mr. Alston, it is stated that the Weasel is absent from all the Western Isles with the exception of Islay, where it is rare. At the present moment the Weasel is well established in Skye. I have seen it trapped in a district where it is more numerous than the Stoat.—H. A. MACPHERSON (Carlisle).

#### BIRDS.

**The Birds of Pembrokeshire.**—As only the county of Carmarthen separates us from the county of Pembroke, it may be worth while to compare those birds which have occurred here, but which Mr. Mathew, in his interesting paper (p. 211), has been unable to identify in Pembrokeshire:

This may possibly assist him to find some of them in the southern and more wooded part of that county. The Long-eared Owl, Tree Sparrow, Hawfinch (rare), Wood Lark, Nuthatch, Green, Greater, and Lesser Spotted Woodpecker, all occur with us; also occasionally the Stock Dove, which is common in Herefordshire. I have also seen the Ring Ouzel, Pied Flycatcher (fairly common), Nightingale, Wood Wren, Garden Warbler (once), Reed Warbler, Redstart, the Pied, Grey, and Yellow Wagtail (common), Turtle Dove, and Wryneck. Regarding this last bird some little doubt has been expressed with respect to its occurrence here by English ornithologists. I have no doubt of it; it has been caught in pole-traps set for hawks in Radnorshire. I myself heard it close to Brecon this year, and have seen its eggs taken from a nest near here this year. It is certainly not common, but, from its excessively shy habits, is often unperceived. The note of this bird, however, when once heard is not easily forgotten. Among the autumn migrants Mr. Mathew has been unable to detect, we have the Siskin (very common last winter), Brambling (one specimen only recorded), Twite, Black Redstart (one specimen), Firecrest, Royston Crow (one specimen), Solitary Snipe, and Green Woodpecker. I have never heard of the Thick-knee or Norfolk Plover in South Wales. With regard to Mr. Dix's list of birds observed in Pembrokeshire, I have no doubt but that he is right as to the Wryneck. Its name in Welsh, "Gwas-y-Gog," the servant of the Cuckoo (or, as it is called here in English, the "cuckoo's maiden"), points it out as well known in Wales. I think the Garden Warbler is very rare here. The Black Grouse, if extinct now, must have been an indigenous bird in all South Wales, and the many blackcock runs one sees there everywhere attest its presence. It is increasing in Breconshire, Radnorshire, and especially in the northern part of Carmarthenshire, where it is now plentiful; it is probable therefore that with a little preservation it may spread into Pembrokeshire. May I ask why Mr. Mathew does not publish a complete list of the birds of Pembrokeshire? It would be most acceptable to ornithologists, and with such an extensive sea-coast as the county possesses, the list of sea birds should be very complete. I hope by the time it appears he may be able to include the Black Grouse among its game-birds.—E. CAMBRIDGE PHILLIPS (Brecon, S. Wales).

**Greenland Falcon in Skye.**—On the 3rd January last a female Greenland Falcon, in immature plumage, was shot at Ardmore, Skye, by my friend Capt. Macdonald, who recalls a similar visit from a Greenland Falcon thirty years previously. It had haunted the neighbourhood for some days, and was sent in the flesh to Macleay, of Inverness, who has mounted it well in a case with a Peregrine, but omitted to take any measurements. I examined the bird last June, but a detailed description is unnecessary.—H. A. MACPHERSON (Carlisle):

**Dotterel in Nottinghamshire.**—Thirty of these beautiful but now rare birds were seen by a farmer in one of his seed-fields about three miles from Nottingham during the last week of April. Having no respect for the Wild Birds Protection Act, he shot three of them; the rest I hope have since reared their broods amongst the Cumberland or Westmoreland hills. I never remember so large a "trip" having occurred in this county before; they generally come in small numbers only once in two or three years.—J. WHITAKER (Rainworth Lodge, Notts).

**Nesting of the Long-tailed Titmouse.**—On the 27th March last I found the nest of the Long-tailed Tit built in a wild rose on the outside hedge of a wood. It was domed but not quite lined, and the entrance also needed some finishing touches. Both the birds were busily engaged in completing the nest. Not unfrequently one of them, arriving with a feather in its beak before the other had finished its work, would wait patiently until its turn came. After adjusting the feather to its satisfaction, and before leaving, it carefully restored the nest to its right shape. So far as I was able to observe both head and wings were used for this purpose, but as nothing was visible but the tail, which projected from the opening in the side of the nest, I could only judge from the strange way in which the nest bulged out now on one side, now on another. Occasionally, when this operation had been conducted with great violence, the bird would cling by its feet to the outside of the entrance, and, after pulling out portions of the fabric, rearrange them, moving the head rapidly from side to side, as if weaving together the disordered part. This nest was finished and contained one egg on April 9th. Another nest I found only just commenced on April 14th was finished and contained six eggs on April 28th. The Long-tailed Tit (*Acredula rosea*) was more abundant in this neighbourhood last spring than has been the case for several years, but I fear several nests were wantonly destroyed. One sent me from Newark, built in a thorn, had the outside ornamented with bits of paper. I have noticed this peculiarity occasionally in nests of the Chaffinch, when built in the neighbourhood of a town.—W. BECHER (Hill House, Southwell, Notts).

**The St. Kilda Wren.**—Having spent three weeks on St. Kilda in June, 1883, it might be supposed that I overlooked the bird which Mr. Seeböhm has lately described in this Journal as a new species of British Wren (p. 333). On the contrary, one of my principal objects next to making a complete list of the St. Kilda Flora, which was practically unknown, was to procure a specimen of its Wren to see whether it differed from, or was identical with, the Common Wren of the mainland, or of the Faroes. On my return some short notes were put together and shown to Mr. Howard Saunders in September last, and in these the St. Kilda Wren and the special interest attached to it were particularly men-

tioned, as well as my failure to obtain a specimen. The inquiry would naturally suggest itself to any one aware of the variations of *Troglodytes parvulus*, but my attention was first directed to it two years ago by my friend Mr. A. G. More. That St. Kilda possesses a Wren was not first ascertained by Mr. Dixon, as stated by Mr. Seebohm, for its existence was recorded so far back as 1698 by Martin in his 'Voyage to St. Kilda' [as also in Macaulay's 'History of St. Kilda,' 1764, p. 160.—ED.] A Wren, too, was seen there by Atkinson in 1831 (Trans. Nat. Hist. Soc. Newcastle). It must, however, be rare there and difficult to meet with, for I only came across it six times during three weeks; and I visited every island of the group possessing vegetation, Borrera, Soa, the Doon, and St. Kilda proper. I do not wonder therefore that Macgillivray, who spent four days on St. Kilda, has omitted to mention it (Edinb. Phil. Journal), and that Sir William Milner, who only remained there three days (Zool. 1848), does not make any allusion to it. There is perhaps some danger in giving the exact localities or islands on which I saw this Wren. One, however, may with safety be referred to. Armed with a vasculum and gun I was botanising on the ledges of the great cliff Conacher (1220 feet) wherever it was possible to creep, thus encumbered, when I saw a rope descending over a ledge, and attached above to a rotten peg. Knowing that some men must be Fulmar-catching below I awaited their return, but, losing patience, laid aside the gun and vasculum, and, taking off my boots, descended hand over hand some three or four hundred feet, having first ascertained that the peg was not so rotten as it looked. Going down the rope a Wren flew out of a crack, and I paused for three or four minutes, placing my feet against the rock, and watched it hopping among the luxuriant herbage which grows here in every cleft and fissure. I may here correct a common impression that St. Kilda is extremely barren. Some regard it as an igneous rock with precipitous sides, whose summit has less vegetation than the lava-beds of Iceland; and Mr. Seebohm says it does not possess a "tree or shrub, or even a bush of heather." There are 110 phanerogams on St. Kilda, and amongst them are *Sambucus nigra* (planted), *Salix herbacea*, *Calluna vulgaris*, *Erica cinerea*, and *Lonicera periclymenum*. On three islands, Borrera, Soa, and the Doon, the grass is long and plentiful between the rocks, and, though St. Kilda proper has a very barren look from the sea, a short examination will show that, although the flowering plants are comparatively few, yet some of them grow with exceptional luxuriance on the cliffs where they are beyond the reach of sheep. The sorrel (*Rumex acetosa*) especially attracts attention on the north-east of St. Kilda, and the primrose can be gathered here in most places. The Wren has therefore plenty of cover, and I should say insects also; and it would take some of the best cragsmen in the Alpine Club to extirpate it. I never saw it within 400 ft. of the water's edge. Those who study the daily weather charts issued from

the Meteorological Office in London will see that the centre of a great number of the cyclonic disturbances which affect the British Isles pass near St. Kilda and the Hebrides; and it may be that this fact, combined with the situation of St. Kilda and its freedom from frosts, affects the growth of some species which prefer a very moist, uniform, and cool climate near the sea. Whether the St. Kilda Wren derives any of its characters from the same influences I am unable to say. Out of the six occasions when I saw a Wren I only got a shot twice, but never saw the bird at which I fired afterwards either alive or dead. My anxiety to procure one could not be disguised, and as I passed by the houses daily "Dra-an-dhoun," the St. Kilda name for the Wren, was frequently heard in the remarks of the natives, who, I began to fear, had given me that nickname. Sandy Campbell, a native of Skye, was the only man on the island, except the minister, who could speak English, and he was the medium of every ornithological query put to the natives. He did all in his power to procure me a Wren. Naturalists will be pleased to read of Mr. Seebohm's success in procuring such an interesting bird, and I am glad to learn from a letter received early in July that Mr. Dixon, who obtained it, had Sandy Campbell with him, upon whom I had impressed the importance last year of obtaining at least one specimen of it. St. Kilda, as well as the Orkneys and Shetlands, are all well within the 100-fathom line on the west coast of Europe; whereas Faroe is separated from it by water 400 to 500 fathoms in depth.—RICHARD M. BARRINGTON (Fassaroe, Bray, Wicklow).

**Green Sandpiper at Farnborough.**—On August 7th, at a deer-pond on the downs near here, I shot a female Green Sandpiper (*Totanus ochropus*) weighing  $2\frac{1}{2}$  oz., and measuring 11 in. The barred tail-feathers and axillary plume are the subject of a tail-piece in Bewick's 'British Birds.' The bird is rare here. Is it common elsewhere?—E. T. WHITEHURST (Farnborough Rectory, Wantage).

[The Green Sandpiper is a regular spring and autumn visitor, generally appearing about the last week in April, and again about the end of July or beginning of August. On its return in autumn it often stays a considerable time, frequenting small streams, out-of-the-way ponds, and marsh-drains, where we have frequently met with it when looking for Snipe in October. Occasionally we have heard of specimens being shot in November and December, but the majority of those which visit us in July and August go a long way south and south-east for the winter.—ED.]

**White Carrion Crow.**—A beautiful specimen of a white Carrion Crow (*Corvus corone*) was lately killed near Brecon by Mr. Rees Williams, of Aberyskir, and has been sent to Shrewsbury for preservation. Albinos occur frequently among Rooks (*Corvus frugilegus*), but are, I think, much rarer among Crows and Ravens. Unfortunately this bird had been sent off

before I had an opportunity of examining it, or it would have been interesting to have noted the colour of its eye. In most albinos it is pinkish red, or brown with a reddish tinge, as was the case with a white Starling killed last year at Aberystwith, and recorded by me (Zool. 1882, p. 144). On the other hand, some years since I saw a white Jackdaw (*Corvus monedula*) with not only the plumage, but the eye, beak, legs, and claws pure white; this, however, seems to have been an exception to the general rule. I also saw recently, at Aberystwith, a peculiar buff-coloured Starling killed near that town. Speaking to a brother naturalist the other day he agreed with me that, considering the enormous number of Starlings, albinos among them were most rare. I hope the Editor will therefore forgive me if I say that his note thereon (Zool. 1883, pp. 144) has not yet converted me to his views.—E. CAMBRIDGE PHILLIPS (Brecon, S. Wales).

**Habits of the Huia.**—Any reliable information about the life of the Huia, *Heteralocha acutirostris*, Gould, will doubtless prove acceptable to ornithologists, as particulars of the habits of this bird in its wild state, as hitherto published, have been very meagre. Its range is restricted; a few years ago we found it was not of very rare occurrence in some of the valleys that run into the spurs of the Rimutuka mountain; about the Manawatu country it is yet to be met with. That it will be driven thence within a short time seems only too sure, for the clearings of the noble forests in that district are permitted to be carried on with great rapidity. Maories, too, lend their aid in the work of extermination; they have great regard for the plumage of the bird as an ornament; rangitiras of very distant tribes may be seen decorated on certain great occasions with the feathers or with the head of the Huia. These much-prized ornaments lead to the destruction of great numbers of these interesting birds. The Maories use very effective calls which draw Huias from a considerable distance; in the winter months, about July, camps are formed for the purpose of hunting these birds; usually some hundreds fall victims to arts of the destroyer. Not only are skins with the heads dried; I have a female specimen which the native taxidermist has preserved whole in a flattened state. Huias usually wander about in pairs; they are very seldom to be seen on the ground; their time is mostly passed in the tops of the larger timber trees, travelling from limb to limb, moving from tree to tree. Their flight is not powerful nor long sustained, rarely do they cover more than a hundred yards without perching. Sometimes, in the winter, as many as four may be seen in company, in which case it is probably a family party that is thus met with. Although their home is in deep forests amongst huge trees, they have been observed in manuka scrub (*Leptospermum*) that clothes the more open spurs and terraces, but such occurrences have been rare. Like so many of our native birds, they are very tame and confident, and perhaps may never acquire the safeguard of shyness. Restless, they roam about,

shifting their quarters frequently. Early are they astir: their peculiar whistle or call may be heard soon after daybreak lights up the forest, when their food-search begins. Their notes are more often sounded in dull or foggy weather, when mists settle on the leafy tops, and the broad trees—clad with mosses and drooping parasites—are dropping glistening beads of moisture; the sweet note of the Huia is then frequently heard. To those not familiar with the aspect of New Zealand forests it may be told that the lofty trees are clad with mosses, with tangled network of delicate filmy ferns that hang translucent—an evergreen fringe that overlaps the rough bark of the great stems that tower aloft. Beneath this covering lies the Huia's food; both sexes may be noticed, using their strong white bills to tear away mosses or ferns in order to extract the larva or grub of one of the large Longicorn beetles (*Prionoplus reticularis*). This insect is well distributed from the interior to the coast; in summer time it hums its sonorous drone just about dusk. The larva is found very plentifully in the decaying wood; the industrious birds strip away ferns or tear rotten wood in order to get at the sluggish insect; the stiff shafts of the tail-feathers aid them in their work by being pressed closely against the bole or branch. The breeding season is late spring or early summer, as I have notes of two nests in the month of November. Huia's being often noticed about an ancient hinau tree (*Claocarpus dentatus*) that stood about two miles from the banks of the Manawatu river, the nest before me was discovered. There was a large hole about fifty-four inches long by eighteen inches wide at eighteen feet from the ground, not far above a large limb. The nest was placed a little below the mouth of this cavity, about sixteen feet six inches from the ground: the diameter of the tree was four feet. It is a large structure, rather loosely yet symmetrically built, the foundation of coarse grasses and the bases of dead grass-leaves, closely plied and twisted together; on these the walls are raised, of dead sprays and bits of coarse herbaceous plants, twined into a basin-like form; the inside lined with long chips of coarse yet soft grasses; the whole measuring, outside the walls, thirteen inches in diameter, with a cavity of six inches and a half in width, the depth not exceeding four inches. On November 18th it contained one young bird that appeared about a week old; this was carefully fed on the larvæ of the beetle before mentioned, and is still alive. The nest material had been collected from the ground. In November, 1881, a nest was discovered in the same neighbourhood which contained three young birds.—T. H. POTTS (Ohinitahi, February 6, 1884).

**Tit's Nest in a Railway Carriage.**—The following paragraph is from the 'Suffolk Chronicle' of May 31st:—"Mr. Wm. Briggs, the engine-driver on the Clacton-on-Sea branch, forwards an account of an ornithological incident of some interest. In one of the buffer-plungers of a carriage which is running on that line a pair of Tomtits have built a nest. The

eggs have been laid and the usual attention is now being paid to them. The only entrance to the nest is through a round hole, exactly one inch in diameter, and is precisely in the centre of the buffer-facing. This hole is, of course, covered by the buffer-facing of trucks when going towards Clacton or by the buffer of the engine when going to Thorpe, so that the bird is a prisoner on each of her trips. On arrival at Clacton-on-Sea on Wednesday morning the buffer was watched, but although the carriages stood there for about two hours, the bird, which was distinctly seen on arrival, was not observed to leave her nest. No doubt her mate was waiting for her at Thorpe, where their movements were first observed on Tuesday by some plate-layers." The distance from Thorpe to Clacton is four miles and a half. Being acquainted with the station-master at Thorpe (Mr. Rushbrooke), I wrote to ask if he could verify the statement. Annexed is his reply, dated June 9th.—H. MILLER (Bismere House, Norwich Road, Ipswich).

"I have pleasure in verifying in every particular the correctness of Mr. Briggs' statement, as per extract from 'Suffolk Chronicle,' but am sorry to say that some mischievous individual has destroyed the nest since the account appeared. I am vexed it should be so, as doubtless the eggs would have been hatched, rendering the incident more interesting thereby. I return the extract."—O. RUSHBROOKE (Railway Station, Thorpe-le-Soken, Essex).

**Common Domestic Duck diving for Food.**—When at Buxton last year I spent a good deal of my time in watching and occasionally feeding the waterfowl in the ponds of the garden. On week-days the ducks received large contributions from the visitors, but on Sundays they apparently were on rather short commons, judging by their greater activity in searching for food, and constantly standing *on their heads* in the water, so as to search the bottom for aquatic plants. Of course every scrap of plant to the depth of ten or fifteen inches (eighteen inches where the geese were) was cleared away. I was surprised one Sunday to see a common Domestic Duck (female) diving in three or four feet of water, and searching along the ground, as if she had been "to the manner born," for plants, which, when she found, were brought to the surface; some fifteen or twenty other ducks watched her proceedings with great interest, and made an immediate rush at her when she came up to share in the food, exactly as the Wigeon pounce upon the Canvas-back Ducks at the mouth of the Delaware River and other favourite winter feeding-places of these delicious birds, which, notwithstanding their difficulties with their thievish tormentors, must manage to pick up a fairly good living, as when killed they are usually in fine condition. I saw only one duck (a Mallard) at Buxton make any attempt to imitate the clever diver, but his efforts were always ignominious failures. Had I been living in Buxton I should have endeavoured to get some eggs of this diving duck and had them hatched, with the object of



finding out if the progeny inherited the peculiarity of the mother.—JOHN RAE (4, Addison Gardens).—*From 'Nature.'*

[We have on several occasions observed farmyard ducks diving in sport, but not in search of food.—ED.]

**Scarcity of Summer Birds in Co. Kildare.**—During the past summer Spotted Flycatchers and Cuckoos have been remarkably scarce in this district; and most of the smaller summer migrants also appear to me to have been less numerous than usual. Several persons have remarked to me on the great scarcity of Cuckoos, some saying that they had only heard two or three all the season, while in other years they had heard numbers every day. I did not hear the Cuckoo here more than half a dozen times this year, although during the past few years I have heard it constantly through the month of May from where I now write. The Spotted Flycatcher, too, has not appeared in many of its usual haunts in this immediate neighbourhood. This was also observed by a friend of mine, who remarked on its absence from his garden, where it has been in the habit of nesting for years. The Corn Crake, on the contrary, which I am inclined to think is becoming more abundant here than formerly, appears to have been more plentiful than usual this summer. I saw more Corn Crakes than I ever saw before during the early part of May; they made known their presence, moreover, in considerable numbers by their incessantly-repeated notes. During the greater part of May and June it would have been impossible in this neighbourhood to help hearing several calling at once at all times of the day and night. Perhaps, however, their seeming greater abundance was not a reality. The grass was very backward during the spring for want of rain; that accounts for my seeing so many, for the grass in many parts of the meadows did not cover them. And I noticed that after many weeks of fine dry weather, when the rain came towards the end of June, the Corn Crakes became comparatively silent. So possibly circumstances made them appear unusually numerous. Whether the wet weather was the cause of the cessation of their notes I am unable to say. The Swallow, Swift, and the two Martins appeared in their usual numbers. The Chiffchaff I first heard on March 16th (the earliest date on which I ever observed it); the Sand Martin I saw on the 27th; and the Willow Warbler I first heard on April 3rd. These three birds arrived earlier than usual this year, but those which do not come so early did not, so far as I observed, appear earlier than the average date of their arrival.—J. E. PALMER (Lyons Mills, Straffan, Co. Kildare).

**Instinct in Birds.**—The question of instinct, as compared with reason in animals, is one commanding a good deal of attention, so that circumstantial evidence on either side is of considerable value. One of the most remarkable points of this question is the fear of man, or other

natural enemies, on the part of animals and birds. That this is an acquired feature, so to speak, is shown by the entire absence of such fear in islands where birds, &c., have never seen man; but is that knowledge of danger in inhabited countries imparted by the parent birds or not? This will help somewhat to show that it is. A few days ago I visited a friend of mine, who said, as soon as I entered the house, "Oh! I have something fresh to show you," and he left the room and returned with a young, but nearly full-grown, Starling perched on his shoulder. This bird he had picked up when very young, it having evidently dropped from a nest, and had reared it successfully. Though a perfect stranger the bird allowed me to take it up, and it perched on my finger, and nothing that I did in the way of a sudden noise seemed to disturb its serenity in the least; in short, I never saw a bird so devoid of fear. My friend keeps a cat, but its first introduction to the Starling was by the latter flying in its face, which has evidently so upset the calculations of the cat that it never attempts even a hostile demonstration. This bird has free run, or rather "fly," of not only the house but the garden; in fact, it is free to go altogether, but it never does go far, and, so far from being a "shy pet," it is the most obtrusive, impertinent bird I ever saw, and if its "tame-ness" and utter want of fear increases with age it is likely to become a somewhat troublesome Starling. I think this is worth recording, as I was able to judge the case myself, and it seems to support the idea that many characteristics of birds and animals that are regarded as innate are really not so, but that the information is imparted by the parents.—EDWARD LOVERT (Addiscombe, Croydon).

#### FISHES.

**Long Sun-fish near Penzance.**—On June 21st a specimen of that rare species, the Long Sun-fish (*Orthogoriscus oblongus*), was observed by Mr. F. W. Millett lying dead on the beach at Marazion. I saw it two days afterwards. It measured, to the extremity of the caudal fin, 2 ft.; its greatest depth was 1 ft., the pectoral fins were 4 in. long, the dorsal 7 in., and the anal 6 in.; the eyes had been eaten out, but their sockets measured  $1\frac{1}{4}$  in. in diameter, being certainly large for the size of the fish; the caudal fin was well defined and rayed, and extended from the dorsal fin straight down to the anal. The fish had a very small mouth (from which the teeth had rotted out), and had no scales but a placoidal skin not so rough as the skins of the smaller Sharks. This specimen must have been dead for some time, for when I saw it it was too far decomposed to be set up. Its colour was of a uniform dull leaden blue, but a specimen captured alive at Looe last year (Zool. 1883, p. 342), and of which my friend Mr. Stephen Clogg advised me at the time, showed brilliant colours on its sides.—THOMAS CORNISH (Penzance).

## SCIENTIFIC SOCIETIES.

## ENTOMOLOGICAL SOCIETY OF LONDON.

July 2, 1884.—J. W. DUNNING, Esq., M.A., F.L.S., &c., President, in the chair.

Dr. Fritz Müller (Blumenau, Santa Catharina, Brazil) and Dr. A. S. Packard (Providence, Rhode Island, U.S.A.) were balloted for and elected Honorary Members of the Society; and Charles Golding Barrett, Esq., was elected an Ordinary Member.

Mr. C. O. Waterhouse remarked on the great changes which occurred in the colours of insects from exposure to light, changes so startling that they would certainly mislead anybody not cognisant of the fact; as a rule, brilliant fiery red became changed to bright green, blue to black, green to purple or purplish brown, and pale yellow to light brown. In illustration, Mr. Waterhouse exhibited certain specimens of the following Coleoptera before and after exposure in the show-cases of the British Museum:—*Eurhinus cupratus*, Illig., *Poroppleura bacca*, Kirby, *Eumolpus ignitus*, Fabr., *Doryphora cincta*, Germ., and *Omoplata aulica*, Bohem. Mr. W. L. Distant remarked that from this cause quite recently old and exposed specimens of Lepidoptera had been described as new species.

Mr. E. P. Collett exhibited a specimen of *Calosoma sycophanta*, Fabr., captured on the cliff near Foreness Point, Kent, by Mr. Cockerill, in 1879; also thirteen females of *Athous difformis*, Lac., captured last June by sweeping at night at Guestling, near Hastings, by the Rev. E. N. Bloomfield.

Dr. Sharp exhibited two nests or cocoons he had received from Mr. James Inglis, of Dilkhoosha, India, each containing a large stag-beetle, *Odontolabus carinatus*, Keitter. These nests were constructed in the thatch of a house, which was mixed with much earthy matter, and were lined with some fine earthy substance making the interior smooth. Mr. Inglis sent them under the impression they were the hybernacula or “winter-nests” of the stag-beetle; but they were more probably the cocoons in which the insect had undergone its transformation to the imago state, although it was improbable that the larva of so large an insect should live in and feed on the thatch.

Dr. Sharp also exhibited a small insect recently received, together with its larva and peculiar nests constructed by the latter, from Senor Antonio de Lacerda, of Bahia. The beetle is a small *Cassida* identified by Mr. Waterhouse as *Porphyraspis tristis*, Dej. Senor Lacerda states that they are found on the “young leaves of the cotto-nut tree.” The larva constructs a nest, similar in form to a bird’s nest, and composed of coarse vegetable fibres, which are apparently attached to the insect by a membranous process

extending from the hind part of the dorsal region of the insect; the latter is thus completely concealed by these fibres, so that no one would suspect there was an insect beneath them.

Mr. W. F. Kirby exhibited drawings of a new species (and probably genus) of *Mymaridæ*, which had been bred by Mr. J. M. Gooch from the coccus affecting St. Michael oranges, and which appeared to be near the genus *Limacis*, Först., but had some of the characters of the *Tetrastichidæ*; also an extensive series of drawings of the saws of sawflies drawn by Mr. Gooch under the camera from fresh specimens.

Mr. T. R. Billups exhibited specimens of *Trichopteryx brevicornis*, Mots., a species hitherto only found in Madeira, which were shaken out of a stack of radish seed at Canning Town, West Ham, in November, 1883.

Mr. Billups also exhibited specimens (some living) of *Pelopæus architectus*, St. Farg., and its nest, which was found attached to a leaf of tobacco from Owensboro, Kentucky, and taken from a hogshead weighing over 12 cwt. recently opened at Whitechapel. Mr. Kirby remarked that he had seen a similar nest to the one now exhibited attached to a pod of maize.

Mr. A. Sidney Olliff exhibited a small coleopterous larva, evidently one of the *Staphylinidæ*, and possibly that of a species of *Philonthus* or *Quedius*, which was found by the Rev. Robert Dunn, of Cricklade, engaged in a vigorous encounter with a large earthworm. The specimen was the one to which Mr. W. E. Darwin called attention in a letter published in a recent number of 'Nature' (vol. xxx., p. 146). Mr. Billups thought this no uncommon occurrence, as he had frequently witnessed encounters between the larva of *Ocypus olens* and earthworms, and had kept *Carabus auratus* alive on nothing but earthworms for more than five months. Dr. Sharp remarked that *Cybister Raseli* had been kept alive five to seven years by being fed on earthworms once or twice a day; he thought that the larva exhibited was carabideous, and that earthworms were the favourite food of carnivorous coleoptera. Mr. Waterhouse remarked that he had fed the larva of a *Telephorus* on earthworms with much success. Mr. W. Cole thought it very probable that the later stages of many entozoa which were known to exist in earthworms, and had been sought for in vain in birds, would very probably be found in coleopterous insects.

Mr. H. T. Stainton communicated a newspaper cutting taken from the 'Dundee Advertiser' of June 27th, 1884, in which it was recorded from Dunning, near Perth, that the gooseberry sawfly (*Nematus ribesii*) larva was making sad havoc with the black currant bushes; he had never known this larva to attack the black currants of his own experience. Mr. Waterhouse and Mr. Fitch thought it extremely improbable that the larva of *N. ribesii* would eat the black currant.

Mr. J. B. Bridgman contributed "Further Additions to Mr. Marshall's Catalogue of British Ichneumonidæ."—E. A. FITCH, *Hon. Secretary*.



# THE ZOOLOGIST.

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DOGS: ANCIENT AND MODERN.\*

By J. E. HARTING, F.L.S., F.Z.S.

THE great French zoologist Cuvier has characterized the Dog as the completest, the most singular, and the most useful conquest ever made by man. It was probably the first animal selected by man to assist him in his pursuits as a hunter, but it is by no means clear that it was the first of the beasts of the field to come under his subjection. It is more likely that sheep and cattle were the earliest subjects of human conquest; for with the skins of these man formed for himself a defence and clothing, and the milk which they yielded, as well as the meat which they supplied, furnished him with nutriment. But as these would offer no companionable qualities, and could render him no assistance in capturing wilder animals, he would naturally be led to look around him for such a companion and assistant as the dog would be likely to prove.

The marked prejudice which existed against the dog in certain parts of the East doubtless operated for some time to protract its perfect domestication; nor was it likely that until its valuable qualities had gradually but irresistibly conquered this prejudice, it would be enlisted into the confidence and esteem of man, and its services be duly appreciated. But when it was found that in this animal were united exquisite powers of scent and vision, great strength, speed, and courage, and an instinctive ardour in

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\* An abstract of one of the "Davis Lectures," delivered at the Zoological Gardens, July 3rd, 1884.

the pursuit of all wild animals, its future association with man must have become fixed by an indissoluble tie.

It is not unlikely that the unity of purpose displayed by wild dogs in their gregarious state, when spontaneously pursuing game, may have first impressed man with the idea of enlisting them, if possible, into his service. How would this be accomplished in the first instance? Probably the first dogs were taken in pitfalls, traps, and snares formed for the capture of deer and other wild animals on which the hunter had to live. Such as might prove with young would be preserved, in which case their progeny would gradually become domesticated, and as they yielded to future discipline would prove useful, not only in the chase, but in giving notice of the approach of enemies of their owners, or of their owners' flocks.

In the wilds of North-east Australia at the present day, as I am informed by a recent traveller there, Dr. Lumholz, the natives, who employ the Dingo in their hunting, never capture the adult animal, which will not breed in confinement (so they allege), but search for a litter of puppies, which they find in crevices in the rocks, or in hollows at the base of tree-trunks, and bring them up by hand. They gradually become familiar and obedient, and, since they hunt by scent, soon become useful in the chase. Dr. Lumholz, however, remarked that they do not long remain with their masters, for as soon as the inclination for pairing comes on (which with wild dogs happens only once a year) they betake themselves to the wilds, never to return. Thus their owners are compelled to seek for fresh puppies to reclaim and educate, and keep as long as they can.

It is evident, then, that the dog, which we now know in such a great variety of forms, has not always been domesticated, but has, at a very remote period, been reclaimed by man's agency from a feral state. The means employed to capture it I have just indicated. Let us now consider the question of origin.

Whence have arisen the numerous and remarkably different breeds which are now scattered all over the world? Can it be possible that they have originated from one wild prototype, whose descendants by transportation to different climates, and forced existence under altered conditions of life, have in the course of countless generations become so modified as to assume the appearance which they now present? Or are we to believe that more than one wild ancestor has contributed to the formation of

the various existing breeds, the variations presented by the wild types being still further increased by the hybridization of their progeny? Their variability, their universal commixture, the perfect fertility of the produce of the most widely separated varieties, are arguments in favour of their being only one species. On the other hand, the remarkable difference between some of the varieties is the argument chiefly relied on for the plurality of stocks. As there is sufficient evidence to show that the dog existed in a domesticated state in pre-historic times,\* neither history nor tradition enables us to solve with certainty the question of origin—a question upon which so much difference of opinion prevails that it is doubtful whether it will ever be satisfactorily settled.

I propose therefore to consider, *first*, what was the appearance presented by some of the earliest known forms of the domestic dog amongst different nations; *secondly*, what are the existing wild species of dog from which it is both possible and probable they descended; and *thirdly*, how far a knowledge of these existing wild types, and their geographical distribution, will enable us to classify the various modern domestic breeds, and account for their origin.

In historic times the earliest records of the dog are to be found in figures on Egyptian monuments more than 3000 years B. C., and these show that even at that early period several different breeds were known, such as the hound, mastiff, and a small long-bodied, short-legged dog not unlike the modern Turnspit.

From a critical and learned paper by Dr. Birch, "On the Tablet of Antefaa II.," published in the 'Transactions of the Society of ~~British~~ Archæology' (vol. iv. p. 172, 1876), it appears that the oldest dog seen on the monuments, appearing at the time of Cheops of the 4th dynasty, B. C. 3700, and called by some "the Khufu dog," was an animal of moderate size, having a pointed nose, upright ears, and curled tail, and resembling what we should now-a-days call a Wolf-dog.†

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\* Remains of the dog of the Neolithic age have been discovered in the kitchen-middens or refuse-heaps of Denmark and Switzerland, as well as in the Neolithic caves of N. Wales and the Neolithic tumuli of Yorkshire.

† Great difference of opinion prevails amongst Egyptologists with regard to dates. The date 3753 B. C. is that assigned to Cheops, or Khufu, of the 4th dynasty, by Brugsch Bey in his 'History of Egypt under the Pharaohs,' vol. ii. p. 312 (1879).

I may here remark, by way of parenthesis, that in all truly wild dogs the ears are erect, the tail pendent or drooping; while pendent ears and a recurved tail invariably indicate domesticity. It is not difficult to understand how this change came about. A wild dog for its own safety is ever on the alert, and depends much on its keen sense of hearing. The familiar expression, "pricking up the ears" suggests how much the muscles of the ears must be exercised and strengthened by daily and hourly necessitated use of them. In a domestic condition, a dog becoming attached to an owner and his friends, and growing accustomed to the approach of strangers without molestation,

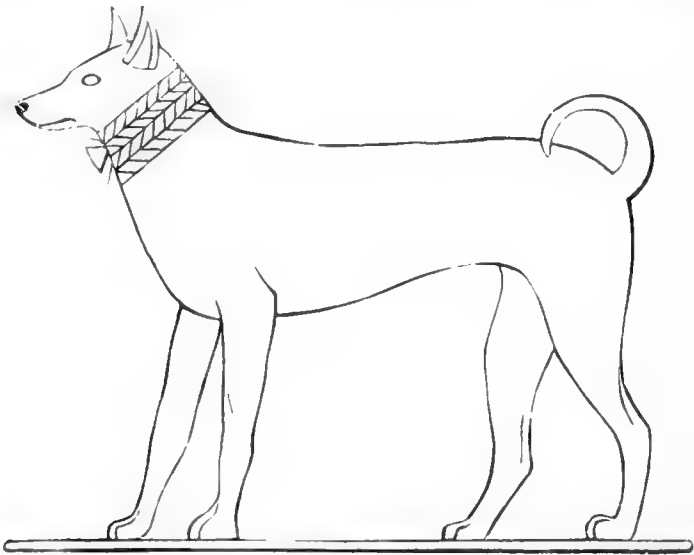


FIG. 1.—EGYPTIAN DOG. B. C. 3700. (Birch, *l. c.*).

would gradually lose his constant apprehension of danger, would consequently cease to prick up his ears, and the muscles of these gradually becoming weakened would fall into disuse; until, at length, from being semi-erect they would become completely pendent, and this peculiarity would become more and more marked in succeeding generations.\*

Then, with regard to the tail, we know what an index of temper it is in the dog. When an animal puts his tail between his legs, or wags it violently from side to side, we know as well

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\* This want of power to erect the ears is especially noticeable in Spaniels and certain long-eared hounds like the Bloodhound.



as possible the different emotions by which he is actuated. We can easily conceive that the altered conditions of life in which the domestic dog would exist, as compared with the habits of a wild dog, would lead to much greater exercise of the tail, which in consequence would become strengthened, gradually recurved, and eventually would be carried permanently in the position in which it had come to be so frequently placed.

Now it will be noticed that the earliest known dog within historic times, to which I have referred (Fig. 1), and which is sometimes depicted as a house-dog attached to the chair of its

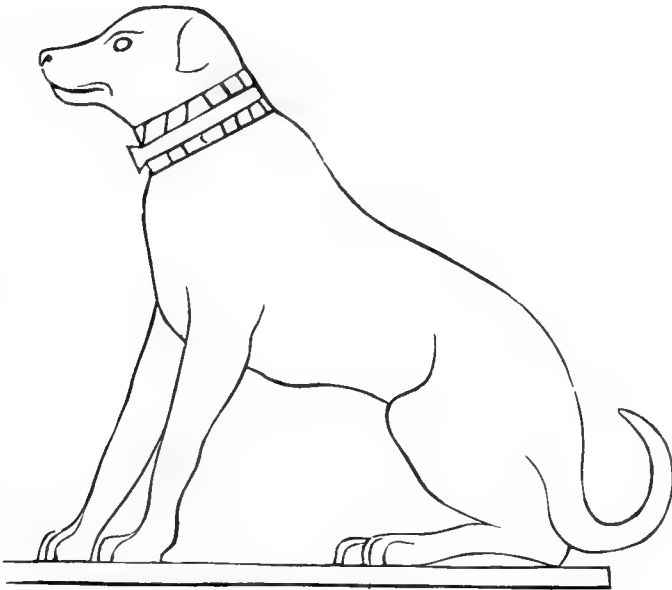


FIG. 2.—EGYPTIAN HOUND. B. C. 3700. (Birch, *l. c.*).

master, had upright ears, like a wild dog, but a recurved tail, like a domestic one; a circumstance which seems to indicate not only a relationship to some wild prototype, but also domestication for some considerable time before the date of the monument on which it is depicted.

On the same "Tablet of Antefaa II." deciphered by Dr. Birch, three other forms of dog are sculptured—or at least two, for two out of the four figures appear to resemble each other very closely. One is a hound with pendent ears and recurved tail (Fig. 2); another is a longer-headed, sharper-nosed dog, like a Greyhound,

having also a longer and more tapering tail\* (Fig. 3), while the fourth resembles the hound, but with a somewhat shorter muzzle and shorter ears, and is considered by Dr. Birch to be a kind of Mastiff. This type is seldom represented on the monuments, and may have been introduced into Egypt perhaps from India. It is somewhat similar to a large dog depicted on the marble slabs of Assyria about 660 B. C. (Fig. 4).

On other monuments and tablets, described by Sir Gardner Wilkinson, in his 'Manners and Customs of the Ancient Egyptians,' besides the breeds just mentioned, we find another and smaller dog with erect ears, a head like a Terrier, a long body, short legs, and slender tapering tail (Fig. 5). Thus, even at this

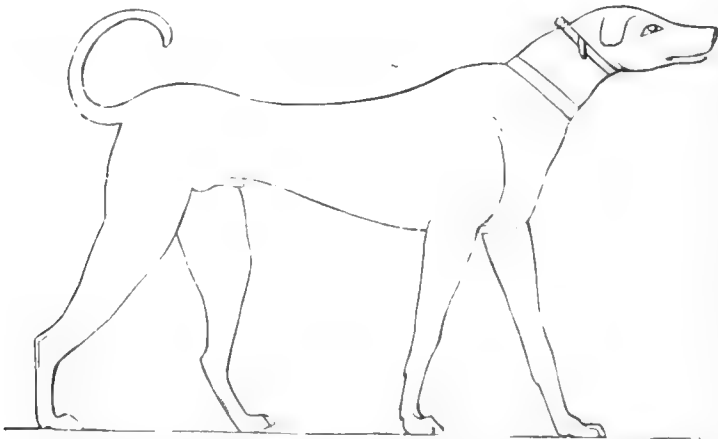


FIG. 3.—EGYPTIAN GREYHOUND. B. C. 3700. (Birch, *l. c.*).

remote period, several very distinct forms were known to the ancient Egyptians, and the fact of their being domesticated is still further indicated by their being represented with collars.

By the ancient Egyptians the dog was worshipped under the title *Anubis*, as the genius of the Nile—the appearance of Sirius, the dog-star, corresponding with the time of the annual rise of that river.

Among the ancient Assyrians we find sculptured representations of two kinds of dog: a large dog like a Mastiff, used in the chase of the lion, the wild bull, and wild ass (Fig. 4), and a sort

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\* This perhaps was the breed specially used for the capture of the white antelope, referred to and figured by the Rev. W. Houghton, in his 'Natural History of the Ancients,' p. 26.

of Greyhound employed for coursing the Gazelle. But although only these two kinds have been found upon the monuments, there is reason to believe that some other breeds were known to the Assyrians.

The Rev. W. Houghton, who has paid considerable attention to the subject, and has published a very learned and most interesting paper on "the Mammalia of the Assyrian Sculptures,"\* commenting upon the bilingual tablets which have been discovered, whereon the Assyrian names of animals and plants are represented side by side with their Accadian equivalents, states that he has found on one of these names which signify "the chained-up mouth-opening dog" (that is, a watch-dog), and

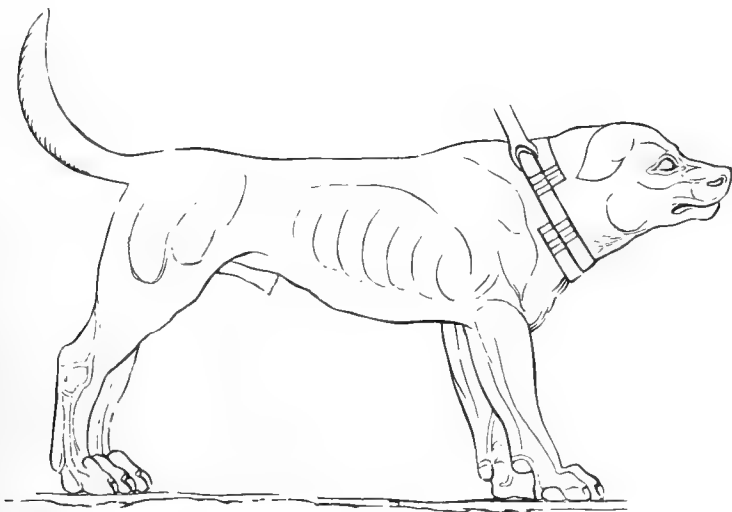


FIG. 4.—ASSYRIAN MASTIFF. B. C. 660. (Houghton, *l. c.*).

the "protecting dog," probably a sheep-dog. In addition to these he has also deciphered words implying "the water-dog," and "the dog of the earth," perhaps some kind of Terrier, or at all events an animal dwelling, as many wild dogs do, in a burrow. To the Assyrians, then, as to the Egyptians, several different breeds appear to have been known.

The earliest record of the dog in Sacred History is in connection with the sojourn of the Israelites in Egypt, and it has been suggested that the religious homage paid to it by their oppressors may probably explain why the Jews were taught to

\* Trans. Soc. Bibl. Archæol., vol. v. (1877).

regard it as unclean. Canon Tristram, however, assigns another reason, and considers that the dog came to be regarded with aversion and disgust from its scavenger-like habits, and the filthy nature of its food in Oriental towns.\*

Every Oriental city and village abounds with troops of hungry and half-savage dogs, which own allegiance rather to the place than to persons, and which wander about the streets and fields howling dismally at night, and devouring even the dead bodies of men when they can reach them.

“The common dog of Eastern towns,” says Canon Tristram (*op. cit.* p. 80), “is the same breed as that of the Shepherd-dog, often in India called the Pariah-dog, and probably the nearest in appearance to the wild original, not unlike the Jackal, with short sharp-pointed ears, sharp snout, generally a tawny coat, and tail

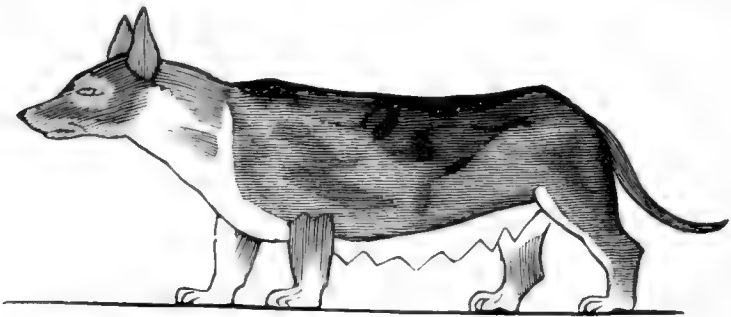


FIG. 5.—ANCIENT EGYPTIAN TERRIER. (Wilkinson, *l. c.*).

scarcely bushy. It much resembles in form and size the Shepherd's dog or Colley of the North of England. \* \* \* \* \* No other breed of dog is known in Palestine, save such as are introduced and kept by Europeans, excepting the Persian Greyhound, a very different animal from the town dog, and highly prized by the desert Sheikhs, who use it for the chase of the Gazelle. It is of the shape of our Greyhound, but larger and stronger, with long silky hair on the ears and belly, and a long pendent fringe of the same fine hair on the tail. Inferior in speed, it far surpasses our Greyhound in endurance, and can frequently run down the Gazelle.”

The only instance noticed in Scripture of the dog being treated “as a companion” occurs in the Book of Tobit, where

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\* ‘Natural History of the Bible,’ p. 79 (6th ed.).

we are told that young Tobias with a companion was sent by his father into Media to recover some money which he had lent to a friend, and that "they both went forth, and the young man's dog with them" (v. 16; xi. 4).

The Persians, like the Assyrians, had a large breed of dogs like our Mastiff, which they used in war as well as for the chase (Fig. 4). In time of war they were furnished with spiked collars, and savagely attacked the enemies of their owners when urged so to do.\* In the chase they were employed for hunting the lion, the wild bull, and the wild ass. Doubtless they were allied to the great Indian dog known to Alexander, and mentioned by Herodotus, Aristotle, Xenophon, and Strabo amongst the Greeks, and by Pliny and Solinus amongst the Latins. Models in terra-cotta of some of these large dogs as used, about 660 B. C., by Assurbanipal, the son of Esarhaddon, may be seen in the British Museum.

The Greeks held their dogs in great esteem, and cultivated two kinds, the large Mastiff-like dog to which I have referred, and a fleeter hound which ran by scent. Xenophon, in his 'Treatise on Hunting,' particularly mentions two kinds of dogs (both Spartan), one of which he calls Castorian, the other Alope-cian, or the fox-breed. He explains that the Castorian dogs were so called because Castor, who delighted in hunting, had most regard for them, and that the others were hybrids between dog and fox, adding that "through length of time the natures of the two animals had become completely amalgamated."†

Whatever may be said now-a-days as to the possibility of a cross between dog and fox, it is worth notice that such a cross was believed in by an authority on dogs who wrote about 400 B. C., and it also indicates the antiquity of a breed which even at that day was believed to be very old.

Coursing, as we now practise it, was unknown in Xenophon's day, although the hare was constantly an object of pursuit; but it was hunted by scent, by the kind of hound to which I have referred, and not by the fleeter Greyhound running by sight

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\* Pliny tells us how the people of Colophon and Castabala kept troops of dogs for war purposes, which used to fight in the first rank and never retreated (Nat. Hist. viii. 61).

† Xenophon, 'Cyngeticus,' iii. 1.

alone. Five hundred years later, however, as we learn from Arrian, coursing with Greyhounds had come in vogue, and this author has left us a very remarkable treatise on coursing, which presents a vivid picture not only of the way in which this branch of hunting was anciently pursued by the Greeks, but also of the peculiarities which were considered by them to be "good points" in a dog, and their methods of feeding, training, and general management.

Among the Romans dogs were divided into three classes:—

- (1) *Canes villatici*, House-dogs;
- (2) ,, *pastorales*, Shepherd-dogs;
- (3) ,, *venatici*, Sporting-dogs;

and in the last division they recognised three distinct breeds, which they termed—

- (a) *pugnaces*, pugnacious dogs;
- (b) *nare sagaces*, dogs running by scent;
- (c) *pedibus celeres*, swift dogs running by sight.

This threefold division of the *Canes venatici* (or dogs used for the chase) into *pugnaces*, *sagaces*, and *celeris* may be traced more or less clearly in the writings of many classic authors, as Grattius, Seneca, Artemidorus, Oppian, Claudian, and Julian Firmicus; although in Xenophon and the earlier Greek writers we only find mention of the two first-named, for the Greyhound of that period was unknown to them.

With regard to the original geographical distribution of these three varieties, the prevalent opinion of continental writers who have devoted their attention to the *Cynegetica* of Greece and Rome is that the *pugnaces* came from Asia, the *sagaces* from Greece, and the *celeris* from Gaul.

The Celtic or Gallic hound does not appear to have been introduced generally into the more southern parts of Europe till after the dissolution of the Commonwealth of Rome. It is first mentioned by Ovid, and its style of hunting the hare is so well described by him that it must have been derived from actual experience in the field rather than hearsay; which circumstance alone seems to have given it admission into the *Cynegeticon* of Grattius, Ovid's contemporary.

The dogs used by the early Britons for the protection of their flocks and for the chase appear to have been of great importance with them. Three varieties were cultivated with considerable

care, *viz.*, the Mastiff, the Boar-hound, and the great rough Grey-hound, generally known as the Wolf-hound. It is remarkable how well these three breeds correspond with the *pugnaces*, *sagaces*, and *celerēs*, to which I have just referred. They were common in all European countries, particularly the northern, but varied somewhat in size and substance, according to locality and the different conditions of life under which they were obliged to exist. It is a matter of much regret that we are so little acquainted with the real form and dimensions of these notable and ancient dogs.

These early breeds are all remarkable for having erect or semi-erect ears, like all wild dogs and wolves. The pendulous ear was not seen till near the decline of the Roman Empire.

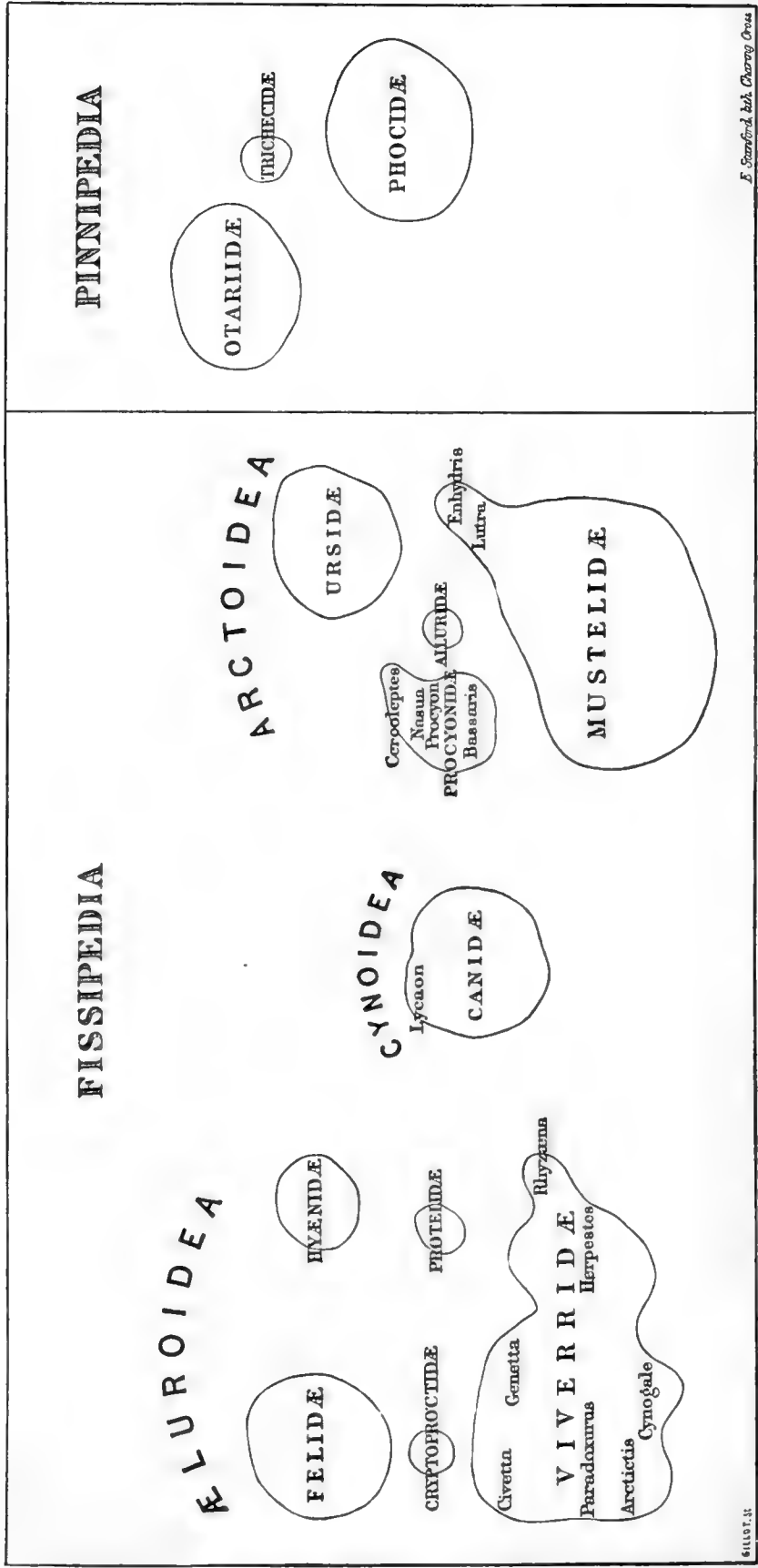
Having now glanced briefly at the different kinds of dogs which were known to the great nations of old, let us consider what are the existing species of wild dogs (including Wolves, Foxes, Jackals, and a few other aberrant forms), from which it is possible, and indeed probable, that our domestic races have descended. To take a survey of these satisfactorily it will be desirable, in the first place, to note the position which the great family *Canidæ* occupies in the order *Carnivora* in relation to other Carnivores. It will be perceived, on looking at the accompanying diagram (which I have copied by permission from Prof. Flower's Classification of the Carnivora\*), that the land *Carnivora* or *Fissipedia* may be conveniently separated into three large groups or sections, the *ÆLUROIDEA* (comprising the *Felidæ*, *Hyænidæ*, *Viverridæ*, &c.), the *ARCTOIDEA* (comprehending the *Ursidæ*, *Mustelidæ*, *Procyonidæ*, &c.), and the *CYNOIDEA*, which includes all the different forms of dog-like animals.

It should be observed that this is no mere arrangement of fancy. A careful study and comparison by various zoologists of the anatomy of most of these different forms (whenever opportunity has enabled the examination of specimens) has resulted in the publication of careful descriptions and figures, by means of which we are able to trace the relationships which are here indicated.

It need scarcely be said that the cranial characters, and especially the dentition (as indicating the animal's mode of life

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\* Proc. Zool. Soc. 1869, pp. 4—37. See also Proc. Zool. Soc. 1883, pp. 178—186.



*E. Stanford, 1891, Chering Cross*

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**DIAGRAM OF THE RELATIONS OF EXISTING CARNIVORA.**



and the nature of its food) have been regarded as most important in determining its zoological position;\* and thus, this grouping (artificial or arbitrary as it may at first sight appear) really indicates in the case of each of these three sections, the possession by its members of certain characters in common which link them, as it were, together, and which being well marked are easily recognisable.

It will be seen, then, that the section CYNODEA holds a position intermediate between the ÆLUROIDEA and the ARCTOIDEA; its affinities with the former section, through the Hyænas, being indicated by *Lycaon pictus*, the Cape Hunting-dog, which possesses much resemblance to a Hyæna, and its relations towards the latter section in the direction of the *Mustelidæ* being indicated by that curious aberrant canine form the Bush-dog of Guiana, *Icticyon venaticus*.

This being the position of the *Canidæ*, then, in the order *Carnivora*, let us see what are the members of this family now existing in a wild state, and what their geographical distribution.

From a general review of these existing forms it would appear that they may be conveniently grouped into perhaps eight genera:—I. *Canis*, to include Wolves and Jackals; II. *Cyon*, the wild dogs, like those of India and Sumatra; III. *Vulpes*, the true Foxes; IV. *Fennecus*, the Fennec-Foxes, remarkable for their abnormally large ears; V. *Otocyon*, represented by a single species, the South-African large-eared Fox; VI. *Lycaon*, the Cape Hunting-dog; VII. *Nyctereutes*, the Raccoon-like dog of Eastern Siberia and Japan; and VIII. *Icticyon*, the Musteline-looking Bush-dog of British Guiana.

The last four of these genera, it will be seen, contain each but a single representative species. Of the Fennecs four species have been described, although it is by no means certain that they are distinct, for some of the differences noticed may be attributed to the altered conditions of life under which the so-called different species have had to live.

Of the wild dogs (*Cyon*), which have a somewhat different dentition to the typical *Canis*, four species also are recognised—two inhabiting India, a third the Altai Mountains, and the fourth

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\* See Prof. Huxley on the cranial and dental characters of the *Canidæ*, Proc. Zool. Soc. 1880, p. 238.

Sumatra. It is possible, however, that *C. primævus* of Northern India, and *C. dukhenensis* of Southern India may not be really distinct.

By far the largest number of existing wild species of *Canidæ* are comprised within the two great genera *Canis* and *Vulpes*, the Wolf-like and the Fox-like forms, the former containing more than a score of species, the latter more than a dozen.

As regards the geographical distribution, we find that throughout the whole of the Palæartic and Nearctic Regions both Wolves and Foxes abound. In the Ethiopian and Oriental Regions we find numerous species of Jackal; in North Africa, Asia Minor, and the countries bordering the Black and Caspian Seas, all the three last-mentioned animals are found; the African Fennecs and the Cape Hunting-dog having a more restricted distribution. The Neotropical Region is characterised by the possession of certain dog-like Wolves (or dog-wolves, as they are generally called), of which some ten or a dozen species have been described, several of which have been procured and exhibited in the Zoological Society's Gardens.\* Their names will be found in the subjoined list of species of the genus *Canis*.

#### Genus *CANIS*.

<i>Canis lupus</i> .*	Common Wolf of Europe.
„ <i>hydophylax</i> .*	Japan.
„ <i>laniger</i> .*	Thibet.
„ <i>pallipes</i> .*	India.
„ <i>aureus</i> .*	India. Jackal.
„ <i>anthus</i> .*	North Africa. Jackal.
„ <i>variegatus</i> .	„ „
„ <i>mesomelas</i> .*	South Africa. „
„ <i>lateralis</i> .*	West Africa. „
„ <i>occidentalis</i> .*	North America.
„ <i>latrans</i> .*	„ „ Prairie Wolf.
„ <i>azaræ</i> .*	South America. Dog Wolf.
„ <i>gracilis</i> .	„
„ <i>rudis</i> .*	„
„ <i>microtis</i> .*	„
„ <i>cancrivorus</i> .*	„

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\* All the species of *Canidæ* to which an asterisk is affixed are those which are now, or were lately, living in the Zoological Society's Gardens.

<i>Canis fulvipes</i> .*	South America.
„ <i>braziliensis</i> .*	„
„ <i>vetulus</i> .	„
„ <i>magellanicus</i> .*	„
„ <i>jubatus</i> .*	„
„ <i>antarcticus</i> .*	Falkland Islands.
„ <i>australis</i> .*	Australia. Dingo.

The Common Wolf of Europe was, as we all know, once an inhabitant of the British Islands, and was only exterminated with great difficulty after payment of large rewards for its destruction, and burning down whole tracts of the forests which harboured these animals. As I have elsewhere entered very fully into the history of the Wolf in Great Britain,\* I need say no more here than refer to the date of its extinction in this country. So far as I have been able to ascertain, it became extinct in England during the reign of Henry VII.; it survived in Scotland until 1743; and the last was killed in Ireland about 1766-70.†

With regard to the other members of the genus *Canis*, whether Wolves, Jackals, or Dog-wolves, the list shows their geographical distribution, and space will not permit me to enter upon the history of each one of them. I may refer, however, to the Australian Dingo, the last upon the list, because in some respects it is more remarkable than any of the others.

In appearance and colour (a reddish brown) it resembles the wild dogs of India and Sumatra (*Cyon primævus*, *dukhenensis*, and *sumatrensis*), but in regard to its cranial characters and dentition it agrees with the typical *Canis*, and is perhaps more nearly allied with the Indian Jackal than any other species. It is an ancient form, and is believed to be indigenous to Australia in consequence of its remains having been discovered in caverns with the remains of other animals now extinct.‡ It is thoroughly wild still, but (as might be expected as a result of colonization) not nearly

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\* 'Extinct British Animals,' pp. 115—205.

† The evidence which fixes these dates will be found in the work to which I have referred.

‡ Prof. M'Coy states that he has identified remains of the Dingo in bone caverns beneath the basalt flows of Mount Macedon, associated with those of an extinct Kangaroo, *Macropus titan*, and recent species of *Hypsiprimnus* and *Hydromys*. (Ann. Nat. Hist., 3rd ser., ix. p. 145).

so numerous as formerly. The puppies are searched for and reclaimed by the natives, as I have already incidentally remarked (p. 394), and are trained to be useful in the chase.

It, or a variety of it, is also found in New Zealand, where it is said to have been introduced from Australia some two or three centuries ago.\* The dog of the native New Zealanders, however (now extinct) was not the Australian Dingo, but a much smaller animal, resembling a Jackal, according to Dieffenbach. †

From the united testimony of the first voyagers to that country, it appears that the ancient New Zealand dog was much like those of Tahiti and other South Sea Islands; that it was merely a domestic animal; small in size, with pointed nose, prick ears, and small eyes; hair long and lank, of different colours, and a short bushy tail. It was a lazy sullen animal, with no proper bark, and with but small powers of scent. ‡

From the statements of the natives it appears that the ancient Maori dog was of small size, and by no means numerous in the "pas" or villages; that it did not bark, only howled plaintively at times; that it would not bite man; that the owners were much attached to them, gave them names, and petted them; that some of them were trained to seize ground-birds (*wekas* and *kiwis*) for their masters, and this was effected chiefly by stratagem on the part of the native, who, when he went bird-catching, would take his dog with him, always leading him securely tied by a cord, and, squatting down concealed in a suitable place, held his dog, and imitating the cry of the bird he was in quest of, the bird came near, when the little dog was let go, and he ran and seized the bird and held it, or brought it to his master.

This native dog was useful in various other ways; for its flesh was used for food, its skin for clothing, and its hair for orna-

\* Polack, 'New Zealand,' i. p. 320 (1838).

† 'Travels in New Zealand,' p. 184 (1843).

‡ See 'Cook's Voyages,' 4to, 1773, ii. pp. 152, 196; G. Forster's 'Voyage round the World,' i. p. 219; J. R. Forster's 'Observations,' 4to, 1778, pp. 189—208; Parkinson's 'Journal of a Voyage to the South Seas,' 4to, 1784. An admirable summary of all that has been contributed to this subject by these early voyagers has been embodied in an article by the Rev. William Colenso, "On the Ancient Dog of the New Zealanders," printed in the 'Transactions of the New Zealand Institute' for 1877 (vol. x. pp. 135—155).

mental purposes. This was the case not only in New Zealand, but in many of the islands of the South Pacific.

It would take too long to go into the history of the various other wild dogs which are to be found scattered over the world; but it will be of interest just to glance at some of those which exhibit a manifest resemblance to certain domestic breeds with which we are acquainted at the present day.

The Esquimaux Dog, for example, so closely resembles the Arctic Wolf, both in appearance and voice, that even so experienced an Arctic traveller as Sir John Richardson on one occasion mistook a pack of the former for a troop of the latter.

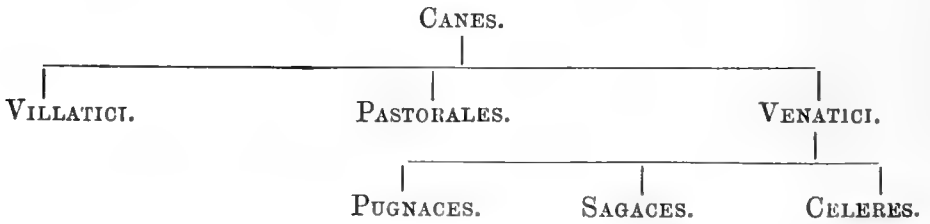
The domestic dog of the Hare Indians on the Mackenzie River is exactly like the Prairie Wolf, *Canis latrans*, though smaller. The Sheep-dog of Hungary resembles the European Wolf, and, according to Blyth, some of the Hindu Pariah-dogs resemble the Indian Wolf. In tropical countries, where Jackals take the place of Wolves, the domestic dogs closely resemble the former. In Tropical America, where Jackals are unknown, the domesticated dogs resemble the native wild dogs which take the place of them. In Australia, as we have seen, the Dingo occurs at the present day both in the wild and domesticated state.

Thus it seems pretty evident that more than one wild ancestor has contributed to the formation of the various domestic breeds which now exist. Reviewing this question of origin, in his 'Animals and Plants under Domestication,' Darwin concludes that it is highly probable that the domestic dogs of the world have descended from two good species of Wolf, *Canis lupus* and *C. latrans*, and from two or three other doubtful species of Wolves,—namely, the European, Indian, and North African forms,—from at least one or two South American canine species, from several races or species of the Jackal, and perhaps from one or more extinct species.

In this view I think we must concur, coming as it does from so high an authority.

Then comes the question of the classification of the existing breeds of domestic dog.

I have already referred to the way in which the Romans of old classified their dogs:—



So simple a classification as this might have done very well at that period, when the number of breeds then known was comparatively few. At the present day, of course, it would be quite inapplicable.

If we look at the classification of Dr. Caius, the author of a well-known Latin treatise on English Dogs, composed in 1576 at the request of his friend Conrad Gesner, and translated into English by one Abraham Fleming, we shall find that although it brings us nearer to the present day by taking in certain breeds which were unnoticed because unknown to the Romans, it is nevertheless at the present time more curious than useful:—

ENGLISH DOGGES.	}	Generous, or Thorobred.	}	Hounde.	{ Terrar. Harrier. Bloudhounde.
				Hunting.	{ Gasehounde. Grehounde. Leviner. Tumbler.
				Hawking and Fowling.	{ Spaniel. Setter. Water Spaniel.
				Delicate.	{ Spaniel Gentle.
				Country.	{ Shepherdes Dogge. Mastive, or Bau- dogge.
				Degenerate.	{ Wappe, or Warner. Turnespete. Dauncer.

According to Prof. Fitzinger,\* there are at least 185 distinct varieties of the domestic dog, and considering that the origin of

\* Fitzinger, 'Der Hund und seine Racen,' 1876. Prof. Fitzinger's classification is—(1). House Dogs, *Domestici*, 48; (2). Spaniels, *Extrarii*, 30; (3). Terriers, *Vertragi*, 12; (4). Hounds, *Sagaces*, 35; (5). Mastiffs, *Molossi*, 19; (6). Greyhounds, *Leporarii*, 35; (7). Hairless Dogs, *Carabæi*, 6; Total, 185.

many, if not most of them, is uncertain, it is not surprising that much difference of opinion should exist as to the most natural mode of grouping them together.

Their arrangement into the following six races, founded to a certain extent, on the form and development of the ears, perhaps affords an approximation to a natural classification:—

- |                    |               |
|--------------------|---------------|
| I. Wolf-like dogs. | IV. Hounds.   |
| II. Greyhounds.    | V. Mastiffs.  |
| III. Spaniels.     | VI. Terriers. |

By the judicious crossing of these half-dozen types, it would seem possible, in time, to produce every one of the present existing breeds of domestic dog.

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#### ORNITHOLOGICAL NOTES FROM NORFOLK.

BY HENRY STEVENSON, F.L.S.

(Concluded from p. 374).

A PAIR of Snow Buntings and a pair of Bramblings both nested, and had eggs, in my aviary in June, but unfortunately no young were hatched. In each case the male assumed the most perfect summer plumage. I also noticed for the first time in my experience, that a male Twite re-assumed the flame colour on the upper tail-coverts and a Lesser Redpoll the red on its forehead, which had been lost for a time, and is hardly ever re-assumed by such birds in confinement.

On the 18th of June, this year, I heard the Cuckoo's note seven or eight times repeated, when sitting in my garden, on the Unthank's Road, within a few minutes' walk of the Market Place; and a few days afterwards I saw one on a fence, as close to the city as Mount Pleasant Lane.

Lesser Redpolls and Goldfinches had nests and eggs in my aviary by the first week in July.

An adult Magpie, found dead on the 15th, and a young one trapped a few days later, at Northrepps, proved the nesting of that species in this vicinity, in spite of all precautions in the interest of game preservers.

On the 24th, I spent an hour or two on Surlingham Broad, but though a bright, sunny day and still, with a south-west

wind, both Reed and Sedge Warblers were strangely silent; the former, I was told, being very scarce. But I learnt afterwards from Mr. Robert Pratt, who is constantly on the water, that he had scarcely ever known the Broad so void of melody in marsh-birds' notes; and the same might be said of the cries of Coots and Waterhens, so terribly had these birds been thinned down in the hard winters of 1879—80 and 1880—81. They had not, in fact, recovered their losses, especially in the former winter, when, with the Broad frozen over, the half-starved birds were knocked down with sticks, or killed by dogs and Hooded Crows; and the remnants of the Waterhens took to the stackyards and upland fences. The Coots, after a time, left for the salt-marshes on the coast, where the gunners killed large numbers, and very few returned in the spring. Migratory birds were heard whistling over the city, one night, near the end of this month.

In the course of the summer I had ocular demonstration of the abundant breeding of wild-fowl on a Norfolk estate, where the strict preservation of game proves a sure safeguard. Here, on extensive waters, were seen many pairs, with their young, not only of the Common Wild Duck and Teal, but of Shovellers, Garganey, Pochards, Tufted Ducks, and Gadwalls, as well as Great Crested and Little Grebes. Further details as to locality, site of nests found, &c., are carefully preserved in my journal.

On the 1st of August a Hobby was seen at Northrepps. By the 12th and 15th I find the usual notes of migratory waders appearing on Breydon, and along the coast at Cley and Blakeney. Curlew and Green Sandpipers were very plentiful at the former place, where two immature Spotted Redshanks were shot on the 15th and 26th, and a few Pigmy Curlew and Knots. Four Cormorants appeared on Breydon on the 29th, and one Kentish Plover was obtained on the 21st; and a Black-tailed Godwit at Cley.

A Nuthatch visited my garden on the 7th, and was very busy about the trunk and branches of a cherry tree. This species nests, regularly, in some spot on the Unthank's Road, between my house and "Mount Pleasant" Lane, as I frequently hear its peculiar cry during the summer months.

I may here mention that Mr. H. M. Upcher, of Feltwell, informed me that he had reason to believe that the Short-eared Owl nested, once again, this summer in the fens at Feltwell.



A Red-necked Phalarope was sent me in the flesh from Yarmouth, shot on Breydon on Sept. 4th, and another was seen at the same time and on the same date exactly on which a specimen was killed there in 1881. There was somewhat a paucity of migratory waders at Yarmouth early in the month, though including Knots, Pigmy Curlews, and Golden Plovers (still with much black on the breast) and several Greenshanks; more than usual of this species. Terns, both Common and Lesser, were leaving about this time. Redstarts were still seen on the coast about Yarmouth late in the month, as well as many Golden-crested Wrens; and Siskins had arrived at Overstrand on the 18th, and Caister Denes on the 20th. Numbers of Titmice, Great, Blue, Marsh, and Long-tailed, in plantations near the sea; also a good many Kingfishers about Breydon water, of which, I regret to say, ten or twelve were shot, whether migrants or residents.

On the 21st a Hoopoe was killed near Barton, and another specimen, some time this month, at Sheringham.

Towards the end of September there seems to have been a very mixed assortment of waders at Yarmouth; and, in a list sent me by Mr. G. Smith, of birds shot on Breydon and on the beach between the 16th and the 25th, I find Little Stint, Reeve, Oyster-catcher, Greenshank, Dunlin, Sanderling, Bar- and Black-tailed Godwit, Green Sandpiper, Purple Sandpiper, Turnstone, Curlew, and Golden Plover.

A single Snow Bunting was seen on the beach as early as September 16th. Some Honey Buzzards appear to have arrived on the coast in the last week of September, as one was trapped at Northrepps on the 30th, and another, I understand, occurred at Flegg-Burgh near the same time, and at Lound, near Lowestoft, a third (all immature) about the 26th.

On the 3rd of October Snow Buntings appeared in considerable numbers on the Denes at Yarmouth, where about a score were netted, and I received three pairs for my aviary. An immature Hobby was taken on a smack off Yarmouth on the 9th, and Bramblings were plentiful in the same neighbourhood on the 13th. On the 5th an immature Little Gull was shot on Breydon. A Hoopoe was killed at Horsey on the 9th. On the morning of the 12th a Woodcock was shot on Yarmouth Denes, from a fresh flight, and about a dozen in that neighbourhood by

the 15th. Short-eared Owls also appeared there about the same date. On the 12th, at Blakeney, Mr. J. H. Gurney, jun., found numbers of Song Thrushes on the sand-hills, apparently just arrived. Gray Crows, first seen at Northrepps on the 9th, arrived in large numbers at Yarmouth on the 22nd, and some Fieldfares. On the 20th also, at Northrepps, a considerable flight of Jackdaws was seen passing inland. There seems to have been an arrival also of Magpies about Weybourne and Sheringham on the 10th; and, on the 17th at Northrepps, an apparent immigration of Robins, as observed by Mr. J. H. Gurney, jun. A good many Ring Ouzels appeared at Yarmouth and its vicinity between the 6th and 15th of the month (and several at Weybourne in September). Mr. Smith told me he had seven or eight specimens brought to him. And, of other birds in that locality, seen or shot, I may mention a Peregrine at Caister on the 14th, an immature Richardson's Skua on Breydon, same date; a Great Snipe at Bradwell on the 18th, and one at Lopham on the 28th, weighing  $8\frac{1}{2}$  ounces; also a Grey Shrike on the North Denes on the 26th; and a young male Merlin at Barton on the 23rd.

A good many Spotted Rails were met with in the Yarmouth neighbourhood this month. The chief ornithological event, however, of the month was the arrival, in unusual numbers, all along the coast, of the tiny little Golden-crested Wren; their flights occurring at intervals of some days, commencing in the previous month, and noticeable up to about the 20th of October.

A single bird, which flew, exhausted, into a room in Dr. Beverley's cottage at Overstrand, close to the sea, on the morning of the 5th, marks the date, no doubt, of one flight; and on the 8th they were abundant in a plantation on the Caister road, near Yarmouth, and Mr. Smith described them in the same locality, and in like shelter, at Gorleston, as "very thick," on the 15th. In the neighbourhood of Cromer, Mr. J. H. Gurney, jun., noticed a very large arrival on the 13th, and they were numerous in the garden of Colney House, Cromer, on the 18th and 19th; and just at this date, twelve were picked up dead against the Hunstanton Lighthouse.

Among the Starlings, Skylarks, and other migrants killed at the Cromer Light, this month, was a specimen of the Knot Sandpiper, a very exceptional circumstance.

Another special feature of this month was the great influx of Shore Larks on the beach and denes at Yarmouth. They were first seen, Mr. G. Smith informed me, on the 15th, and from that date to the 29th about fifty were shot, of which thirty passed through his hands; and of these he believed only six were females. Two were shot at Cley, out of a considerable flock, on the 30th. Twenty years ago I gave a long price for a Yarmouth specimen, as one of our Norfolk rarities.

The wild-fowl killed on Breydon this month consisted only of a few Pintail Ducks, Wigeon, Mallard, and Teal, a few Grey Geese, of what species not known; a large flock was observed, flying, at Northrepps on the 25th, and a lot of seven Sheldrakes on the 23rd. The fearful gale, however, from the east on the 27th, drove hundreds of gulls, large and small, in shore, which sought Breydon waters for shelter.

November, mild, wet, and stormy, and with but slight frosts, afforded little sport to the gunners. The only winter fowl at Yarmouth were represented by a few immature Scaups, Golden-eyes, Red-breasted Mergansers, and Goosanders, on Breydon, and considerable flocks of Scoters out at sea. Several young Slavonian Grebes were also met with, and about sixteen Whoopers appeared, but passed on in safety.

The paucity of *Tringæ*, both on the beach, and Breydon muds, this month, was remarkable; but Snipe were at times very plentiful in the marshes, with hundreds of Lapwings.

A few Shore Larks still frequented the Denes, and five more were shot in the first week, and two on the 25th, and one caught alive, which came to my aviary. A pair were seen at Hunstanton on the 2nd (when Skylarks and Hooded Crows were arriving off the sea all day), and three were shot at Blakeney the same week. Large flocks of Wood Pigeons were observed coming inland at Northrepps on the 5th, and Lapwings, in successive flocks, high up, on the 23rd.

Of other occurrences may be noted a fully adult male Shoveller, in brilliant plumage, shot near Yarmouth on the 3rd. A Norfolk Plover, from Swaffham, as late as the 8th of this month, which was very fat, and weighed 1 lb. 6 oz. A Fork-tailed Petrel was said to have been for sale in Yarmouth market. A Crossbill, shot from a flock at Caister, near Norwich, and a beautiful adult male Merlin at Caister, by Yarmouth. Two or

three Great Spotted Woodpeckers, seen this month in unusual localities near the sea, had, no doubt, arrived on this coast. The last House Martins seen this year were two young birds of a very late hatch, flying feebly about Bracondale Hill on the 8th of November.

Several rime frosts and one severe night when eight degrees of frost was registered, in December, did not avail to bring wild-fowl, or other winter visitants, to our shores in any numbers; and the list of occurrences on any part of the coast is but a meagre one.

When going up to London by rail on the 4th, I saw a prodigious quantity of Lapwings rise from the meadows near the Lakenham Viaduct. I should say between three and four hundred. I never before saw so many in one flock; and with the sun on them, as they rose and spread out, it was a beautiful as well as a remarkable sight.

The scarcity of waders on Breydon was the same this month as last; and a few Knots and a Bar-tailed Godwit, shot on the 19th, was an event amongst the gunners. Golden and Green Plover were plentiful, and a good many Wigeon appeared on the 3rd, and a Whooper was shot on the 11th. About the 16th, seven Goosanders were sent into Yarmouth, one an adult male, shot in the neighbourhood; and three other young birds had been killed on Breydon with one or two immature Red-breasted Mergansers. Immature Golden-eyes were the only "hard-weather" fowl, and one or two Greylag Geese were shot on the coast—eight seen in one flock; and three Bean Geese in the marshes near Yarmouth. Two more Slavonian and one Red-necked Grebe were also obtained on Breydon. On the 8th another Little Gull was shot on the beach, and an immature Hen Harrier, male, on the 15th. Two Bitterns, from Hickling, were for sale in Yarmouth market; and a Peregrine Falcon was shot on Breydon on the 13th.

Early in the month, three Great Gray Shrikes were killed in the county, at Loddon, Aylsham, and Fakenham.

Waxwings were seen, and two or three shot at Palling, Sheringham, and Hunstanton; at Yarmouth, one was killed in the "Apollo Gardens" on the 14th, and two were reported from Gorleston on the 17th. Woodcocks were numerous about the 15th, when thirty were shot in the coverts at Hempstead.

## THE FINWHALE FISHERY ON THE COAST OF FINMARK.

BY ALFRED HENEAGE COCKS, M.A., F.Z.S.

(Continued from p. 370.)

VERY little, ornithologically speaking, was observed during the cruise; but about this time a duck—I think a female Long-tail—flew past us; and about an hour later a Mealy Redpoll came on board, and settled on the steam-winch, close to where the mate and I were standing; on my trying to catch it, it flew forwards, and remained some minutes trying to eat the frayings of the whale-line coiled in front of the gun on the iron tray or sheet previously described; it finally flew away in the direction of the land. Rather later I saw distinctly, and watched for some little time as it swam, a Razorbill, a bird which, so far as my experience goes, is decidedly rare on the Norwegian coast. I afterwards saw a Skua, which may probably have been *Lestris pomatorhinus*. Kittiwakes, once or twice in large flocks, probably feeding on Coal-fish, complete my list of birds.

The harpooner told me that Common Rorquals, when sounding, never throw their tails out of the water, like the Humpbacks, but the Blue Whales do so sometimes. He descended from the crow's nest and joined us at dinner about 12.20, and reported four steamers after about as many whales. Ten minutes later we also started after a Humpback, and very soon found that there was a pair in company, the larger having a wound on the right side, forward of the fin, and hence reasonably supposed to be the individual we had shot at yesterday. The chase was very interesting, and at times intensely exciting. Once I saw one of the whales, on its side, put its long flipper straight up out of the water. They generally dived and came up again nearly at the same time; once they both sounded at the same instant, and once we got between the two; two or three times spray came over us from their flukes. After some time one whale left, and we continued after the one with the mark on its side; it had evidently learned wisdom by experience, and kept well on the look-out. The range of the harpoon-gun, from the weight it has to propel, and more especially from the great weight of the line stopping its momentum, is very short: I cannot give the range accurately in yards, but it is only about, or very little more than,

what is roughly called "pistol-shot." At length the whale miscalculated its distance while under water, and came up right under our bows, heading from us; the harpooner immediately pulled the lanyard attached to the trigger, but the cap snapped! As soon as the gun was recapped we continued hunting, but the whale did not give us another chance, though we were never very far away. At last, soon after 6 p.m., we gave this whale up as a bad job, and went after another which we saw at some little distance. This whale (or it may have been a different one again) proved on approaching it to be a Common Rorqual, which sounded for very long periods; the longest that I timed was not more than three minutes, but some of the soundings before I began to time them were probably three times as long. Just as the steward announced supper at seven o'clock we saw another whaler fire and get fast to a Humpback. After watching for a few minutes I went below, and hurrying over supper hastened on deck again, when I found the poor beast was screaming every time it rose to the surface; the screams being distinctly audible from our deck, though the whale was (according to the mate's estimate) more than an English mile from us. I was told by the Norwegian whalers that the Humpback Whale is the only species which appears to have a voice, but in 'A Whaling Cruise and History of the Whale Fishery,' by J. Ross Browne (London, 1846), the author speaks of a Sperm Whale, when harpooned (page 209), giving "a tremendous hollow roar, like that of an infuriated bull."

The screaming of the Humpback is referred to in 'Recent Memoirs on the Cetacea by Professors Eschricht, Reinhardt, and Lilljeborg' (edited by Prof. Flower, and published by the Ray Society, 1866), in the 'Synopsis of Scandinavian Cetacea,' by Lilljeborg (p. 293), where he mentions a case of a young Humpback caught at Godthaab (Greenland), which still followed the mother, who was for several days afterwards seen swimming about in the same bay in the greatest anxiety:—"Her sudden jumps and a peculiar way in which she spouted, often with an audible bellowing sound, plainly indicated her grief." The sounds which I heard emitted by this species I should rather describe as a shrill scream, reminding me very forcibly of the gruesome sounds uttered by a wretched pig when being rung or stuck, but somewhat less shrill.

During the short interval that I had remained below we had commenced hunting two Common Rorquals in company. Presently we saw the whaler, which was fast to the Humpback, lower a boat and proceed to lance the unfortunate animal; my shipmates, who although Norwegians, are I suppose the kindest-hearted people in the world, had grown callous to the sufferings of a whale, and shouted with laughter at every fresh scream uttered by the huge beast in its agony. Exactly an hour from the time of harpooning it the "flurry" took place; the whale turned on its side, churned the water with its long flipper, at length died, and immediately sank.

We continued meanwhile hunting our Finner, and half an hour later it gave us a chance. It rose just ahead of us, and came right towards us, shaving close past our starboard bow—so close that I for one expected to feel it collide with our hull. At the moment when he was right under our bow the harpooner pulled, but the cap again missed fire! Everybody's disgust and disappointment may perhaps be imagined. We continued hunting it, and three-quarters of an hour later it passed us on the starboard side; the harpooner again pulled, and this time the gun went off, but the harpoon fell harmlessly into the sea. The men said afterwards they thought the whale was too far off, and that the harpoon fell short. By the time that we had reloaded it was too dark to hunt, being about a quarter to ten; so steam was let off, and we lay by for the night.

The following morning we were under steam soon after five o'clock, again a beautiful morning. We hunted a Common Rorqual—whether the one seen the previous evening there was nothing to show. Meeting the steamer that we had seen kill a Humpback yesterday, we stopped for a talk. She had towed it into Tana Fjord, and came out again without loss of time. She had taken a large Blue Whale on the 26th, which I afterwards saw in Vardö.

After some time our Finner disappeared, and we went after a Humpback, which we soon perceived was the same one that we had hunted so long the previous day with the wound on its right side, showing that they keep their ground to some extent. Just before eight o'clock it gave us a chance, coming up on our starboard bow, and the harpooner fired. The whale, as is usual, disappeared instantly, and then came a few minutes of almost

breathless suspense before we could tell for certain whether the harpoon was in him. He proved to be fast, and we presently saw the harpoon in his left side, high up on the back, a little way below the fin. The harpoon being near the vertebral column apparently prevented his sounding, and he never went far down. Once or twice he put his head out of the water and turned over on his back, and nearly every time he spouted he screamed. A boat was lowered for the purpose of lancing him, with four men to row, a boat-steerer, and harpooner. They rowed carefully round astern of the whale, and then watching their opportunity, approached, and the harpooner lanced it; the operation was repeated whenever an opportunity offered. Once he dug the lance in so deep that he had to leave go and haul it in by the line attached; when recovered the lance was much bent, and had to be straightened before being again used. Presently the whale swam a little away and spouted blood, and, dying soon afterwards, sunk. On the return of the boat the crew told us that they had heard the shell explode while they were close to the whale, and this accounted for the somewhat sudden death, which took place three-quarters of an hour from the time of harpooning. Having hoisted the boat and waited a minute or two to see whether the whale were really dead (for, having previously killed only one or two Humpbacks, they were not sure of the behaviour of this species), we began heaving on the line (of which it had taken out seventy fathoms) with the steam-winch, and using an india-rubber relieving tackle or multiplier attached to the foremast, similar to that used on the 'Challenger' Expedition when the dredge was used while the ship was under sail.

One of the reasons, I believe, why the Humpback Whale is seldom or never hunted by the Scotch or American whalers (independently of the small amount of blubber on them) is that this species almost always sinks when killed (no doubt in consequence of having so little blubber), and the lines used in open boats are not strong enough to haul it up by. Even the huge hawsers used by the Norwegians off the Finmarken coast are not strong enough to bear the enormous weight of a large Blue Whale, and I was told of a whaler who had killed a large example which sank, riding to it for three days, and then thinking it must by that time have become sufficiently inflated



by gas to be light, commenced heaving in; to the surprise of the whole crew the harpoon came up quite easily, and they discovered that the detested Greenland sharks had eaten, if not the whole whale, at least the blubber and muscle round the wound, freeing the harpoon.

We continued heaving gently until the flukes came to the surface, when the engine was immediately stopped, and the "pram" (a small boat answering the purpose of the English dingy) was lowered with a couple of men, who put two bights of chains round the tail, just in front of the flukes; these chains were carried to the foremost tompions, and secured aft. The flukes were cut off with a blubber-knife, as they would considerably increase the resistance in towing; and at once steaming ahead the body swung round, and we began towing it tail first, the whale lying alongside the steamer. In this position the harpooner and I measured him as well as we could in a straight line along the deck; but as the huge body was plunging and surging about in a moderate sea, with the head more or less under water, we could not arrive at great accuracy, but it was about forty-four feet long, and was a male; a few measurements are given lower down.

We took it to the west centre of the entrance to Tana Fjord, about ten English miles (or perhaps rather less) from land, *viz.*, in about  $71^{\circ}$  N. lat., and  $28^{\circ} 52' 30''$  long. E. G. The towing began about 9.30 a.m., and we proceeded at about three knots per hour, using full speed (twenty-five horse-power); the wind freshened in the afternoon, and by about 4 p.m. it was blowing a fresh breeze, gradually moderating towards evening. We arrived of Vardö at 1.30 next morning, and after an early breakfast (5.30) I went ashore.

I made the following scanty notes on *Balænopteridæ*:—

Humpback Whale (*Megaptera boöps*, Fabr.) — Norwegian names, Knöl, Pukkelhval,\* or (Finmarken) Troldhval. Specimens seen, three males, estimated at about 30, 40, and 44 feet respectively in length. A fœtus  $34\frac{3}{4}$  inches long; a skeleton roughly cleaned (by Dr. Guldberg), &c.† The colour of the

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\* Dr. Guldberg, 'Vardö Posten,' Aug. 12th, 1883.

† In addition to these were living specimens, and another dead one or two seen from some distance.

whole upper side of the body, and both upper and lower parts of the head, jet-black. The under side towards the tail end is also black; the remaining portions varied in the three males I examined.

In the specimen about forty feet long (Aug. 23rd) the throat, with the furrows and nearly the whole of the under side, was white; part of the under side of the flukes white; the flukes were about 15 ft. across, narrow, notched along the free edge. The flippers measured 11 ft. 4 in. to the head of the humerus; breadth at their broadest projection 3 ft. 2 in.; opposite axilla 2 ft. 1 in. The flippers were black on the outer side, white on the inner, the black extending round the edge to the inner side, with an occasional blotch of black, and two or three black rings—looking as if the outer side had been painted black, and the colour brought well round the edge to prevent the white showing from in front.

In the specimen about forty-four feet long (the one caught during my cruise) the under side was entirely black, except two white or marbled patches on the chest, just aft of the flippers, and one or two tiny white spots not bigger than crown-pieces about the belly; half the lip of the navel was white. Flippers all white on the inner side; proximal quarter of the outside black, but the black stopping short of the anterior margin. Length from blowholes to end of nose, 7 ft. 10 in. Greatest width of skull, a few inches anterior to blowholes, at the zygomatic portion of the frontal bones, 5 ft. 4 in. Length of flipper, including humerus, 15 ft. (about 13 ft. 9 in., measured to the skin at axilla); width of flipper at proximal notch, 3 ft. 7 in.; width of flipper at biggest notch more than half-way down, 3 ft. 1 in. Height of fin at after end, 9 in. The flukes having been cut off, not to be in the way in towing, I could not measure their width, but from fore to aft at the middle line they measured 3 ft. 7 in.

The specimen about thirty feet long was almost entirely black on the under side, flippers quite white on the under side, and only black on the upper side a little way down from proximal end. This species may be immediately identified by the remarkably long, unnatural-looking flippers; they are not distinctly curved or scimitar-shaped, as in the Rorquals, but are nearly straight and deeply notched or undulated along the anterior margin, and to a slight extent on part of the posterior also.

The dorsal fin springs from a small hump on the back ; Lilljeborg (Recent Mem. Cetacea, Ray Soc.), p. 289, thus describes it:—"The dorsal fin . . . . has rather a long base, but is very low, and in old specimens has the appearance of a hump, having thereby given rise to one of the names of the animal." The measurement which I took of the height of the fin (9 in.) was independent of the base. The baleen is quite short, and entirely black, the fringes or hairs on the inner edge being of a lighter tint than the faded brown of the under side of a Hedgehog. The tongue is very soft and flaccid, attached throughout its length, and black in colour. The palate between the rows of baleen is flesh-coloured, and convex downwards instead of concave, as in most animals. When the skin and blubber had been removed the pelvic bone could be felt, slightly forward of the centre between the penis and the anus, and probably at least two feet from the median line in the specimen about forty feet long.

A skeleton of this species prepared by Dr. Guldberg, and lying at the time of my visit on the quay, ready for shipment, has an exostosis or enlargement of the bone on the middle of the under surface of the right maxilla. There is a large projection on the central line of the under side in this species, about midway between the anus and the flukes. There are two transverse creases or folds of the skin about two feet respectively in front of and behind the anus, dividing the median line of the under side.

A fœtus, from a whale killed about August 21st, I brought home and gave to Prof. Flower for the Museum of the College of Surgeons. It measured  $34\frac{3}{4}$  in. Girth behind flipper, 21 in. ; length of flipper,  $9\frac{1}{2}$  in. ; breadth of flipper to largest projection on anterior edge,  $2\frac{1}{2}$  in. ; breadth of flukes,  $8\frac{3}{4}$  in. It was flesh-coloured, and its eyes were open.

Doubtless everyone who has seen a dead whale ashore has noticed its greatly inflated condition, and probably put it down to putrefaction ; but in the only case that came under my observation, *viz.*, the example of this species which I saw killed, swelling began almost immediately after death—that is to say, it was perceptible after the lapse of about an hour, and the inflation steadily increased, the belly gradually rising more clear of the wash of the sea. Another individual of this species which I saw being towed in the offing by a whaler who had picked it up floating at sea, and which had probably been dead some days,

was so much inflated as to float high out of the water, and resembled a balloon rather than a cetacean.

The parasitic Crustacea, *Diadema coronula*, L. (*balænaris*, Lilljeborg), with *Conchoderma* (*Otion*, Lilljeborg) *auritum*, L., growing on them, were very numerous on the Humpbacks I examined, while "lice" (*Cyamus*) were in thousands; I found some under the skin at a depth of two inches or so beneath the surface.

Dr. G. A. Guldberg, Conservator of the University Museum in Christiana, was sent for, I think, two seasons to East Finmarken, to study the Cetacea on the spot; and now goes up there during the summer on his own account to prepare skeletons, for the sale of which he is in correspondence with many of the principal museums of Europe. He has probably had greater opportunities of studying the life-history and anatomy of the three species—the Sibbald's and Common Rorqual, and the Humpback—than any other authority. He delivered a lecture on Whales in Vardö last summer, a verbatim report of which was published in the 'Vardö Post.' The whole account is very interesting, but I must confine my quotations to his remarks on the coloration and reproduction of each species. He also went for a cruise on one of the Finmarken whalers, an account of which he published in 'Norsk Jæger-og Fisker-Forenings Tidsskrift,' 1883, p. 89, *et seq.* He was not fortunate enough to see a whale killed during his cruise. One Englishman had been for a cruise on one of these whalers before me, but he also was not lucky enough to see a whale killed; and I am, I believe, the only amateur so far who has seen a whale killed in this comparatively new fashion.

(To be continued.)

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## NOTES AND QUERIES.

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The Albert Memorial Museum, Exeter.—At Exeter on Sept. 12th, the presentation of a silver salver, a diamond locket, and one hundred sovereigns was made to Mr. and Mrs. W. D'Urban by the Mayor, in recognition of their services in connection with the Albert Memorial Museum, of which Mr. D'Urban has been curator for twenty-two years.

## MAMMALIA.

**The Growth of Deer-horns.**—A friend has sent me 'The Zoologist' for September, with your article on the growth of deer-horns. It is a subject in which I take a great deal of interest, for I have had some opportunity of studying it, as we have here the heads of some seventy deer killed during and previous to my great-grandfather's mastership of the North Devon Stag-hounds; and I have been Master of the Devon and Somerset Stag-hounds since April, 1881, since which date we have killed some eighty stags and male deer. I hope therefore you will excuse me if I offer some observations on your paper. I am sure that a deer's horns alone are a very uncertain guide to his age, though between them *and his teeth* you can tell a good deal about him. I doubt if deer in a wild state bring their heads to perfection as quickly as Dr. Clarke's did, for though it is true he had only one small piece of ground to get his living off, yet as that was only an acre, he could not have taken a great deal of exercise. It would have been interesting to know what his weight was when killed. The horns of Clarke's deer are in the museum at Exeter, and if I saw them on a wild deer I should certainly say the animal was a year older than Clarke's deer was when he had them each year on his head, as they are big well-developed horns, and this has much more to do with the deer's age than the number of points. Quite young deer will have eight and ten points, though both horns together are no bigger than a single one well grown with but four or five points on it. But I do not believe a deer ever has more than twelve points till his sixth year, and he will not have so many *well developed* before that time. I doubt the correctness of your statement that a deer has as fine a head at six as he ever will have. I think up to nine or ten years old the horn gets more points on it, and may improve in all respects. I am sure deer don't have fifteen or sixteen points much earlier; after that age it gets narrower and the points shorter, though I write this under considerable reservation, for Lord Brownlow told me that his Red-deer at Ashridge go on improving till fourteen, at which age they have twenty-four to twenty-eight points. He showed me the head of a deer thirty years old; it had nearly thirty points, but was short and hoop-headed. My predecessor, Mr. Bisset, ear-marked and turned out several deer; these occasionally come to hand, and give us information. On August 28th, 1882, we killed a great big stag, with brow, bay, and tray antlers, and two on top of one horn, four on top of the other. He was proved by ear-marks to be seven years old. On August 30th, 1883, we killed another ear-marked deer; he had brow, bay, and tray, and four on top of both horns. He was eight years old, but I should doubt if his horns were any heavier than those of the deer killed in the previous year. On September 1st, this year, we killed a deer also ear-marked with "B. B. T. 2" on both horns; he was five

years old—the age which, without knowledge of the ear-marks, my huntsman assigned to him. All these deer had lost the velvet. My huntsman has a theory that early calves lose it sooner than later ones; but there is only a week or ten days difference in the time of shedding the velvet, and at least three months, if not more, in the time of calving. This I know by observation. Moreover, we have been obliged of late years, by the increasing number of deer, to hunt hinds as late as March, and the development of the fœtus differs very much. I do not know if you have noticed it, or can give any reason for it, but in English and Scotch Red-deer it is the exception for the bay (or second) antler to be longer than the brow, while that is the rule in the Kashmiri, Bara Singh, and the American Wapiti. But deers' heads grow all sorts of ways. We killed a stag last year, which, from his teeth, was very old, with a head like this [the sketch shows a head without bay antlers, and clubbed at top, the knob on the off-horn being eleven inches in circumference; that on the near-horn nine inches.—ED.], and another not long before with a palmated top. A curious thing about the former was that his "slot" was no bigger than that of a four-year old, and his testicles also were small, though the condition of his teeth left no doubt as to his age being great. Three years ago, too, we killed a stag with knobs on his horns, and he was only a six- or seven-year-old stag. But the strangest head I ever saw was one killed in the Duke of Bedford's park at Woburn, being more like a Fallow-deer's head, only very irregular, and with the horns squeezed up against each other. I may add that the modern heads here, notwithstanding the crossing against which Dr. Clarke inveighs, compare favourably with the ancient ones. The bay antler is as often as not missing all through. Since writing the above I have seen a pair of horns which were shed this spring by a stag we killed the other day. They had two on top one side and three on the other. When we killed him he had three on top both sides and the horns are somewhat larger. He was apparently an eight-year old deer; and I know another similar instance. A very fine stag was killed some years ago near Holincote, with I think five and four on top; the horns he shed the spring previous had one point less, and were somewhat smaller all over; both pairs are in the possession of Sir T. D. Acland. This was one of the heaviest deer ever killed, and was supposed to be nine or ten years old. Our late Master, Mr. Fenwick Bisset, who died the other day, left me his hunting records and papers, and I expect that from them I could give you further particulars as to the horns of deer whose ages were known by ear-marks, as also of a castrated deer having horns like another. We have a theory down here that if a stag fails to grow his bay antler when he ought—*i. e.*, at three years old or thereabouts—he will never do so; but I rather doubt if this always holds good, though no doubt it often does. We hunted a stag on Sept. 15th which still had velvet on his horns. Lord Portsmouth has the head of a stag

killed by his father, which has only uprights, about eighteen inches long, such as a yearling might have, only wider spreading; but an old sportsman who saw him killed told me he was the biggest stag he ever saw. Lord Graves, on giving over the Mastership of the Staghounds to my great-grandfather in 1812, wrote thus about the points on stags' horns at various ages:—"A male calf has no horn; a brocket (after one year old the male is termed a 'brocket'), only knobbers and small brow antlers; a spire (three-year-old), brow antlers and uprights; a staggart (four-year-old), brow and tray antlers and uprights; a five-year-old deer, brow, bay, and tray antlers, a crocket or two on top of one horn, and an upright on the other; a warrantable stag (six-year-old), brow, bay, and tray antlers, and two on top of each horn: after this age their heads vary much in appearance."—EBRINGTON (Castle Hill, North Devon).

**Growth of Deer-horns.**—Having just read your interesting article on the "Growth of Deer-horns," in the 'Zoologist' for September, I venture to send you a few remarks bearing on it. You say "It is believed a deer at six years' old will carry as fine a head as he is ever likely to do." This statement seems strange; for assuming, for the sake of argument, that the majority of stags have attained their rights and three crockets on top of each antler at six years old, for years after this number is reached the stag, if healthy, will usually have one point at least added to the crest of the horn every year, until a bullet or natural causes cut short its course. A case in point came under my notice, of a stag of twelve points having one point added every year until the number had reached seventeen, and that number would in all probability have been further increased had not the stalker's bullet interfered. In overcrowded districts the antlers are very often almost rudimentary, and often, if well shaped, deteriorate at an early period; but, on the other hand, when the deer are few and the grazing good, there is very little supposition for concluding that the antlers do not attain great size, with many points, as age increases. I remember once picking up a single antler with ten points, perfectly developed, the coronet well spread and the bone furrows very deep, plainly indicating the stag to be of considerable age and size. Assuming the fellow antler had ten points, this would give eight points added after six years had passed. The experience of Mr. Clarke could hardly be taken as a test case, for not only were his observations confined to a limited area, but the stag he takes as a type was in confinement. The experience of Mr. Collyns (Dulverton) set forth at length in his book ('The Chase of the Wild Red Deer,' 1862), is more in accordance with general notions on the subject. He undoubtedly was of opinion that, until natural decay or disease afflicted the animal, a gradual yearly increase, both in the size of beam and number of points, was kept up. I should like to see the collection at Mr. Stevens's, for Germany is the land of well-developed antlers now-a-days.—HERBERT GOW STEWART (Hole Park, Kolvenden, Ashford.)

**Notes on Mammalia of Northamptonshire.**—The Polecat, *Mustela putorius*, though formerly very common in this neighbourhood, has become so rare therein of late years that I consider the capture of a pair during the past winter as worthy of record. I was laid up and unable to write at the times of capture, which occurred with an interval of several weeks between them, and regret that I have not an accurate record of the month or day; but my impression is that the first of these two animals was trapped about the beginning of this year in a plantation which has been hitherto the place of execution of almost all of the few Polecats that we have taken in this neighbourhood during the last twenty-five years; this individual was a female, and not a very large one; the second, a very fine male, was caught—I think in March—at an old stone pit just outside our deer park. My neighbour, Mr. G. Hunt, of Wadenhoe, found the head of a Pike, *Esox lucius*, recently killed by a small Otter, *Lutra vulgaris*, whose tracks were quite fresh, on March 2nd. I record this, because Mr. Hunt assured me that this Pike's head weighed three pounds. May 31st, one of our people brought in an orange-coloured Mole, *Talpa europæa*, var., alive and uninjured, but it declined food, and died in a few days.—LILFORD (Lilford Hall, Oundle, Sept. 14, 1884).

#### BIRDS.

**Hoopoe in Sussex.**—I learn from a friend in Sussex that during the first week of September a Hoopoe, *Upupa epops*, was shot at Alfriston, and is in the hands of Mr. J. Balcombe, Southover, Lewes, for preservation. Many persons regard this as a rare British bird, but the regularity with which it makes its appearance in spring and autumn, shows that it would be very much commoner if people would only abstain from shooting it whenever it appears. In France, where it is common in some parts, I have seen it strutting about on the grass within sight of the windows, raising and depressing its crest, and uttering its singular note "hoop-hoop," "hoop-hoop." A more curious and attractive bird on a garden lawn can scarcely be found.—J. E. HARTING.

**Food of Sparrows.**—Having been asked to collect information on the food of Sparrows for the Norwich Chamber of Agriculture, I should feel extremely obliged to anyone who, having kept dated dissections, would allow me a sight of them. Capt. E. F. Becher sent me two of the larvæ (from apple trees) on which Sparrows were recently feeding in Nottinghamshire (Zool. p. 342), and I forwarded them to Mr. C. G. Barrett, by whom they were identified as *Teras contaminana*, Hüb. Instances of adult Sparrows eating any insects except small beetles, in the summer months, are rare. Nor are the young habitually fed on caterpillars. Far from it; I have opened several which contained none, and many in which corn largely preponderated. There is no doubt that the good which Sparrows do has been



greatly exaggerated; whether the good is enough to balance the evil is another point.—J. H. GURNEY (Northrepps, Norwich.)

**Ruff and Green Sandpiper in Co. Sligo.**—On September 8th I was presented by Mr. C. Little with a specimen of the Ruff, shot by him a few days previously, when Grouse shooting on a lone flat moor near Tullylin, in this county. The bird was probably a female, but owing to its bad condition, I was unable to ascertain its sex with any certainty. The Ruff is a very rare bird in this western district, this being the first specimen I have met with, or even heard of, and in Thompson's 'Birds of Ireland' there is no record of its occurrence on the western coast. On August 28th, when walking through Castletown demesne, I disturbed a Green Sandpiper as it was feeding along the bank of a stream running from a mill-pond. I was surprised at its unusual tameness, for on being flushed it flew only a few yards, and alighted on the muddy bank of the pond, and gave me a good opportunity of observing it for some time at a distance of about forty yards. From its very dark plumage it was evidently an old bird. The Green Sandpiper is of very unusual occurrence in this district—sometimes a period of several years elapses between its visits; the last noted occurrence was in 1877, when I shot an immature bird on October 4th.—ROBERT WARREN (Moyview, Ballina).

**Water Rail near Penzance.**—I received a Water Rail which had been killed by flying against the telegraph-wires near Marazion station. On taking it to Mr. Vingoe to have it set up, I found that he had already received two others on that day from places within the district. The bird is a scarce one in this neighbourhood, and does not, I believe, breed here. This coincidence of three specimens received together suggests a migration.—THOMAS CORNISH (Penzance).

[The late Mr. Rodd, in his 'Birds of Cornwall,' writes of this bird (p. 134):—"In sedgy morasses and overgrown wet ditches the Water Rail is sometimes met with. It is probably not uncommon, but from its skulking habits and disinclination to take wing, unless pressed by a dog, it doubtless often escapes observation."—ED.]

**Black Stork near Rainham.**—About the beginning of July a large heron-like bird, with black back and belly white, was seen by a shepherd on an island marsh near here. On Sept. 8th Mr. Charles Gordon, of Dover, being at my house, we happened to go on the same marsh to shoot, and beside the shepherd's house on the creek shore we found a skin of a bird very much decayed, which Mr. Gordon pronounced to be the skin of a Black Stork. From its appearance we assumed that it must have been lying there for about six weeks, floating on the shore with the tide. I picked up the pinion of one wing, one foot, and the skull. On questioning the man he said that he had captured it at a small splash of water

where eels had collected, all the rest of the ditches in the marsh, from the long warm dry weather, being quite dried up.—WALTER PRENTIS (Rainham).

**Ornithological Notes from Dorsetshire.**—On August 5th I met with a Greater Shearwater, *Puffinus major*, in Durlleston Bay, Swanage. As it was not shy I got within a few yards of it several times, and when disturbed it took only a short flight, settling down again upon the shore without any apparent alarm. I left it floating in the bay quite close to the shore. The next day I saw it in Swanage Bay. As I have not since heard of its capture or death, I would fain hope it has escaped the usual fate of rare birds in the neighbourhood of Poole. Two pairs of Stone Curlews (*Ædicnemus*) selected a fallow field in the neighbourhood for their nests. Unfortunately it required reploughing before the young were hatched, and both nests were destroyed. Three broods of Pochards were produced this summer on their usual breeding ground, which a pair selected about seven years ago for the first time; at least there is no record of such an event before. The present is a good season for Sheldrake; several broods have been noticed in the Poole Estuary, but since the termination of the close season their numbers have been sadly diminished. A Snipe which I flushed the other day, after taking a short flight, settled upon the highest branch of an ash tree, and remained there until I again disturbed it, wishing to satisfy myself that I was not mistaken.—J. C. MANSEL PLEYDELL (Whatcombe, Blandford).

**Blue-throated Warbler on Spurn Head.**—On Sept. 15th I saw two Blue-throated Warblers on Spurn Head, and shot one of them. I afterwards wounded the other, but lost it. On the 18th I procured three more, one of which is a male, I think of the second year; the other two are birds of the year. These Bluethroats were all feeding on insects amongst the bent grass covering the headland. They could hop very fast; I sometimes put them up thirty or forty yards away from the spot I had marked them down.—THEO. FISHER (Erfurt Lodge, Greenwich).

**Nesting of the Black Redstart in Bavaria.**—On the very day that a window-frame was put into a house in the process of building at Partenkirchen, Bavaria, a pair of Black Redstarts (*Ruticilla titys*, Scopoli) commenced their nest in the space between the arch of the opening and the frame itself. The men worked daily in the room without the birds minding them, and the eggs in due course were hatched. Soon after this it became necessary to move the nest for the purpose of finishing the room. It was accordingly carefully removed and placed in a small box hung up outside the window under a joist intended to support a future balcony, and about a yard from its original position. The birds made no objection, and in due time the brood was reared. I am inclined to think that the males do not change their plumage until the second year. A young pair, in the plumage described by Dr. Bree under the name *Ruticilla cairii*, built their

nest under my balcony last year, and reared their brood. This year a similar pair built within a foot of the same spot, and reared a brood. The male is now (September 5th) beginning to change to the darker plumage. I think it was the same pair, because they occupied the very twigs they did last year, and approached the nest exactly by the same route, and were even more friendly this year. They remain here throughout the winter.—MICHAEL FOSTER WARD, Col. (Partenkirchen, Bavaria).

**Green Sandpiper in North Yorkshire.**—A party of Green Sandpipers (*T. ochropus*) passed here in the middle of August last, on their autumnal migration. I saw one at Marfield Pond, a sheet of water of considerable extent much frequented by wild-fowl, on the 15th; another was seen by the river-side near Clifton Castle on the 19th; one was shot at a rapid stream on the Yore on the 21st, close to Masham; and on the 24th a second was shot on the edge of a small horse-pond, about a mile and a-half down the river. 1880 was the first year we noticed these birds in this locality, when one was feeding on a sandbank by the river side on August 15th. August 16th, 1883, I flushed one from almost exactly the same spot. None were seen during the two years 1881–1882. It is remarkable how nearly the dates of the three appearances of these birds fall upon the same day of the month, they being the 15th, 16th, and 15th respectively.—THOMAS CARTER (Burton House, Masham).

**Manx Shearwater inland in Shropshire.**—On Sept. 12th I received from my brother, the Rev. W. Bond, a fine adult Manx Shearwater, which had been picked up the previous day in a barley field at Aston-on-Clun, Shropshire. It is now in the hands of Mr. Burton, of Wardour Street, for preservation.—F. BOND (Staines).

**Black Game in Pembrokeshire.**—By a printer's error I am made to say, in my notes under this heading, with reference to the Blackcock (p. 382), "the many blackcock runs one sees there everywhere attest its presence." This should, of course, be "Blackcock Inns," alluding to the various inns of that name which occur generally throughout the whole of South Wales.—E. CAMBRIDGE PHILLIPS (Brecon).

#### REPTILES.

**Lizards on the Rock of Filfola.**—The most interesting inhabitant of this limestone rock is the black variety of the common Green Lizard, *Podarcis muralis*, so common and universal in Malta. It has been remarked that they are tamer than their green relations on the mainland, but this is only natural, as human beings are comparatively unknown to them. Concerning this peculiar colour variety, Prof. Giglioli states that he has invariably found that *P. muralis* constantly presents dark varieties "on islets adjoining small islands," and quotes as examples islets off Ponza,

Ventolene, Vacca (Sardinia), Panaria (Lipari Is.), &c., the extreme cases being Saraglione off Capri and Filfola. Similar observations have been made in other parts of the world. The cause of this coloration has been assigned to the action of the sun on the pigment-cells of the skin, the lizards on islets being more exposed to the sun's heat than on larger tracts of land. These black Filfola lizards are, as a rule, larger than the type in Malta. I received several specimens; there was considerable variation in the arrangement of the scales on the belly, as also in the intensity of the bronze-black. They were all more or less marked with green scales, varying from emerald-green to a pale bright green. An excellent instrument for obtaining lizard specimens is a very small-bore walking-stick-gun, with No. 10 shot; it kills or disables them without mauling.—E. F. BECHER Capt. R.A.

#### FISHES.

**Wreck-fish at Penzance.**—On August 17th I obtained here a specimen of the Wreck-fish (*Polyprion*, Couch), one of the three fishes known as Stone Bass. It was found, as usual, near wreckage (in this case a wrecked barrel) afloat. I have nothing particular to record of it, except perhaps the fact that it proved exceedingly good from a culinary point of view.—THOMAS CORNISH (Penzance).

**Ray's Bream at Penzance.**—On Sept. 5th I received from Porthgwara (a fishing cove west of the Logan Rock) a small specimen of Ray's Bream, *Brama Raii*. It was captured, as these fish usually are, in a dying or disabled state on the edge of the waves. It is a small specimen, weighing about twenty ounces, and is chiefly remarkable from my having made it the subject of experiments with an antiseptic powder exhibited in our little West Cornwall Fisheries Exhibition held here during the past fortnight. The fish was taken on Sept. 4th, was bathed in the prescribed solution of the antiseptic powder on the 5th, and was eaten by me on the 12th, when I found it in a perfectly fresh state.—THOMAS CORNISH (Penzance).

#### MOLLUSCA.

**The proposed adoption of Trinomial Nomenclature.**—Objection has been made to the trinomial system of nomenclature proposed by Dr. Coues, on the ground that it would be very liable to abuse, especially by amateurs, and certainly no better justification of this stricture could be found than the following extract from 'Science Gossip' for September:—"The early part of this week I had a very pretty banded *Helix nemoralis*, var. *hybrida*, var. *minor*, var. *sinistrorsum* (reversed), sent me from a village near Bristol." Readers of 'Science Gossip' will doubtless be grateful to the writer for the translation of *sinistrorsum*, which of course should be *sinistrorsa*; but surely the addition of "var. *x-fasciata*" is required to complete the description.—B. B. WOODWARD (British Museum).



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## A VISIT TO SKOMER ISLAND.

BY THE REV. MURRAY A. MATHEW, M.A., F.L.S.

IN delightful weather at the end of May I was able to gratify a long-formed wish to visit Skomer Island, and to make acquaintance with its birds, especially with the Manx Shearwaters. I had the advantage of the company of Mr. Mortimer Probert, of St. Davids, who is an enthusiastic oologist. Received with no little kindness by the hospitable occupier of the island and his family, we saw the sights of his interesting domain under most favourable circumstances, and much that is stated below is the result of information which he imparted to us.

Skomer Island lies off the south-west of Pembrokeshire, at the southern extremity of St. Bride's Bay, corresponding with Ramsey Island, which occupies a similar position to the north, and like the sister island is parted from the mainland by a narrow sound of deep water through which the tide rushes with great force. The sounds which part the two islands from the shore have besides the same characteristic in being studded with rocks, which render them rather dangerous for navigation when there is anything like a sea on, which is generally the case. In area Skomer contains about 700 acres. All over its surface large citadel-looking rocks crop up, and give to the island its name, which is taken from a Danish word signifying "the rocky." Remains of an ancient occupation are visible in sepulchral barrows, and in the rough outlines of dwelling-places and enclosures. A conspicuous mark on the eastern side of the

island is a lofty upright stone. There are similar stones on the mainland, which are said to mark victories gained by Harold over the Danes. The village of Haroldston takes its name from such a memorial.

A visitor to the island in the summer-time is struck with astonishment at the vast multitudes of Puffins which resort to it for nesting. They are everywhere, and are so tame that they hardly trouble to move out of one's way. In walking, you are sure sooner or later to find your foot slipping through into some Puffin's burrow, astonishing the bird sitting placidly on its egg. The whole demeanour of the Puffins may be said to be placid. It is not easy either to hurry them or to frighten them. Every now and then they may be seen scuttling out of their holes and making off in a ridiculous manner, rolling and tumbling head over heels before at last they can rise on wing. Unless they face the wind, or are on an eminence, Puffins are unable to fly, and when these conditions are not present to them they may be easily caught. All along the edge of the cliffs they were to be seen thickly congregated; their white breasts turned towards us had the appearance of monster snow-flakes. The only notice taken by the birds of our approach was to fall in in closer order, the outside ones advancing together with an absurd kind of military precision until the host was drawn up on the brink of the cliff four or five deep. And even then, unless one went close up to them, they remained stolidly motionless, regarding the stranger with no apprehension and with much indifference out of their queer little eyes. Throw a stone at them, and the bird near which it passes will only duck its head. As we were watching a great body of Puffins, wheeling backwards and forwards over the water, we suddenly noticed one with pure white wings, which was a very conspicuous object among its companions. After a while this bird flew several times close by where we were seated, and might easily have been dropped had a gun been at hand. The Puffins arrive on Skomer with great punctuality on the 1st of April, and leave the island early in August. The Manx Shearwaters are a little earlier in coming and later in their departure.

In the bird way Skomer possesses two phenomena, one being the great multitude of its Puffins, the other the equally vast hosts of the Manx Shearwaters. During the daytime none of the

Shearwaters were visible, being all asleep in their burrows. Anyone walking over the island might have little notion of the vast population slumbering just under his feet, in the deepest rabbit-earths, or in holes of their own excavation. Since the Sea Birds Preservation Act was passed, the rabbits on Skomer have greatly diminished in numbers; the annual take, which used to be 9000, is now barely 3000. As the rabbits are the chief produce of the island, this represents a serious loss. The Herring Gulls are the greatest depredators, being for ever on the hunt for young rabbits; and the Puffins and Shearwaters are continually worrying the breeding rabbits in their burrows, thus contributing their share to the mischief. The Shearwaters do not emerge from their holes until dark. At 10 p.m. there was no sign of them, but going out at midnight the whole island seemed alive, and the air vocal with their unearthly wailing cry.

From the sky above, from the ground at one's feet, and from below the ground, the noise proceeded, and was compared by a friend to the cry of jackals at night, and it seemed to us that the words "Come over the wall," "Come under the wall," rapidly repeated in a sibilant whisper, would represent the sound which surrounded us. It was not a deafening noise, far from it; rather a soft, weird, and unearthly chorus, resembling nothing we had ever listened to before. It was too dark to see the birds, unless they flew directly overhead, but we could hear them fluttering close by, and feel our cheeks fanned by their wings. They were also to be heard beating along the ground at our feet; for, like the Puffin, the Shearwater is unable to rise unless it is on sloping ground, or is assisted by the wind. A setter we had with us caught the birds and brought them to our hands uninjured as fast as we could take them from her; and it would have been easy in this manner to have captured hundreds, or aided by a lantern to have run down the birds and knocked them over with sticks. One night we were told that the farm servants actually destroyed a multitude in this manner, and that the bodies of the birds were ploughed into the ground as a dressing for wheat. Alas, poor "cockles"! to what vile uses did they come. N.B. "Cockle" is the local name for the Manx Shearwater, from the noise the bird makes when its nest is dug into. The night we spent upon the island the wailing of the birds was incessant

until about 3 a.m., and at the first streak of dawn it died away, as they then retired to their holes.

We were out early in the morning to perambulate the island, and came upon a single Shearwater at the mouth of its burrow, and no rabbit could have made a more precipitate bolt than it did on our approach. After peering into many rabbit-holes we at last found one in which a "cockle" was to be seen, distant about an arm's length, sitting either asleep or upon its egg; and not coveting its treasure, after a good look into the hole we left it undisturbed. We searched in vain for the White-winged Puffin, which was either out on the water, in its hole, or somewhere else out of sight. On the top of the island we came upon numerous Sea Pies, nesting in the stunted heather and fern. The old birds wheeling above our heads and keeping up an incessant piping of alarm and anger, were very handsome objects, with their vividly-contrasted black and white plumage standing out well against the blue sky. We could find no eggs, and all the birds seemed to have young; and it was not long before some little chicks were detected crouching beneath the shooting bracken. These bore a great resemblance to young Peewits, but had far stouter legs. We sat down for some time opposite a grand cliff at Wick Haven, on the south-west side of the island, which swarmed with myriads of birds. The lower ledges were occupied by countless Kittiwakes seated on or beside their nests, which, like the structures of the House Martin, seemed made with mud. On the higher ledges sat Razor-billed Auks and Guillemots row upon row, in places five and six deep, and every coign of vantage on the top of the cliff was occupied by the inevitable Puffin. A babel of sounds came forth from these innumerable birds, the hoarse cackle of the Kittiwakes, which seemed to formulate the complaint, "tobacco I want, tobacco I want," prevailing over all.

Walking further on we came to a spot where a little colony of Lesser Black-backed Gulls had taken up a station on the top of the cliff, and soon found several nests containing eggs. A little later I nearly trod upon a Whimbrel among the fern. The bird walked slowly off, trailing its wings—suspicious behaviour which made me search for its nest, but none was found. It would have been a grand discovery could Whimbrel's eggs have been detected so far south as Skomer. Choughs and Ravens were



noticed about the cliffs, but the absence of all hawks surprised us; not even a Kestrel was visible. We were told that a pair of Peregrines had an eyrie upon the island, and that Buzzards sometimes visited it. An old stone wall was pointed out to us as frequented by Stormy Petrels, which place their nests, like Wheatears almost, in the interstices of the stones; but we were not fortunate enough to find what would have been to us one of these interesting nests. Partridges thrive very well on Skomer, and in the season good bags are made. The island possesses an immunity from rats. Mice are abundant, and are looked after by numerous White Owls, which have their habitations among the rocks.

While gazing on the myriads of sea-birds, we could not help thinking what an enormous quantity of fish there must be in the adjacent waters to maintain them, and what immense numbers the birds must capture. When the young Puffins are hatched, the old birds may be seen returning from fishing to their burrows, with little fish hanging like ribbons, two or three on either side of their beaks. These little fish are presumably young herrings. But no doubt there are enough fish in the green depths for all the birds, for all the seals, for all the larger predaceous fish, and for all the fishermen who go after them, and plenty over when the wants of all these are appeased to the full. Seals are not scarce round Skomer, and inhabit the caves at the base of the cliffs. We were favoured by the sight of one. As we sat among the sea-pinks (what singular cushions these plants form!), on the side of the island looking down on one of the havens, the seal was immediately beneath, and in the clear water his movements were perfectly visible. Every now and then he would lift his head just above the surface, and gaze up at us in a lazy indifferent manner, and then we could see him sink again and slowly paddling beneath the water, among the masses of many-coloured sea-weed. An ordinary sight this to dwellers upon the island, but to landsmen like ourselves, the apparition of the seal appeared something to be preserved among the pleasant pictures stored away in the gallery of memory.

The experiment has been tried on Skomer of removing the eggs from the Gulls' nests and substituting hens' eggs, which have been invariably hatched out, and the chickens then

removed to the farm-yard. Even a pair of Carrion Crows were successfully entrusted with a quota of hen's eggs, and this, which might well seem a risky venture, resulted in the due appearance of the chickens and their safe removal home. The fact that one of them was black, although the eggs were the produce of fowls in which that colour was not represented, was of course regarded by the farm people as due to the influence of the Crows.

I must not omit to state that there are no Common Terns upon Skomer, as I erroneously asserted in my paper on the Birds of Pembrokeshire (p. 218); but a small colony of about twenty pairs, as I learned from the boatman who brought us across, inhabit Skokolm Stack, a large rock off the eastern end of Skokolm Island, some four or five miles distant from Skomer, and this would appear to be the only breeding-station of these birds in Pembrokeshire waters.

Skomer, like Lundy and Ramsey, is without either bush or tree, and does not appear to be dowered with the same wealth of wild flowers that one finds on those two islands. The white lychnis, and the beautiful wild roses of Ramsey were absent from Skomer. But as one walks round its cliffs there are some grand effects of colour. At one place the rocks are coal-black; this is at their base, and where they contrast with the green sea-water and sea-weeds of varied hues; higher up there are larger masses of deep orange-colour, while intermingled are rocks of brown and grey of different shades.

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## EGGING ON THE COAST OF YORKSHIRE.

BY THOMAS CARTER.

THE night we arrived at Filey (June 13th) we met on the cliff-top, past the old church, two men returning from a day's "climning," as it is there called; they had eggs of the Guillemot, Herring Gull, and Lesser Black-backed Gull, though very few of the last named. After making arrangements to accompany them on the next occasion, we enquired the best place on the Flamborough cliffs to see some "climning," and were told Bempton.

Accordingly, on the 16th, my brother and I proceeded there. Arrived at the cliff-top we found a strong north-east wind blowing,

bringing with it a strong fishy smell from the birds below, numbers of which were flying about in an agitated manner. Two men seated on the edge of the cliff were hauling in a rope in capital time, and as we reached them their comrade's head appeared from below, and the next moment he walked up to where we stood. He proved to be the head man of this set of four, and had brought up about thirty eggs, all Guillemots' or Ringed Guillemots'. This he considered a fair number for the time of year, the season being so far advanced. He wore two broad-brimmed felt hats padded with tow, for the chief danger arising from the fall of loose stones, it is necessary to have some protection. As he goes down he takes care to clear away with his feet any stones which look likely to become detached; it is, however, impossible to free the face of the cliff from all loose pieces, and if he sees a fragment falling he dodges it, if possible, by swinging out of the perpendicular. He had been so far fortunate as never to have met with any serious accident during the whole period of his climbing (thirty-six years), though he had occasionally been struck by falling stones, but never much hurt.

The ropes used are two in number, made of finest Russian hemp, and every third year a fresh pair, costing about £2, is carefully selected. The "climber" first puts on the "breeches," which are about three inches deep and made up of stout sacking. The legs are thrust through the two loops, which are pulled up to the fork of the body, and two belts attached to the breeches are crossed over the body and buckled on the chest. Two canvass bags, each capable of holding a great number of eggs, are slung one over each shoulder, for if an egg be picked up on the right side it is difficult to put it in a bag on the left side, and *vice versá*; hence two bags are necessary. A strong leather shield is strapped over the left wrist, and the "climber" is ready for work. One of the ropes is then fastened to two small loops on the front of the breeches, and passing over the left wrist (where the leather guard is strapped to prevent chafing), is held by the men on the cliff-top. An iron spike, about eighteen inches in length, with a flat top the size of a crown-piece, is then driven into the ground near the edge of the cliff, one end of the other rope is made fast round it, and the whole length of the rope thrown over the cliff, the birds flying out by hundreds from below as it falls.

The "climber" now stands astride of this fixed rope, which is called the "hand-rope," and grasping it in his hands, leans well back and walks backwards over the cliff, sticking his toes against any projections which appear. His companions, who have seated themselves behind one another on the cliff-top, with the "guide-rope" (the one fixed to his breeches) carefully coiled beside them, paying it out as he goes down. The one nearest the edge wears a broad leather band round his body to prevent the friction of the guide-rope (which runs round his body and through his hands) becoming painful.

A bank of earth from two to four feet in height is thrown up near the cliff, to prevent cattle straying over. Beyond this is a footpath, and between this path and the extreme edge of the cliff is a steep grassy slope, like a house-roof, so that it is impossible to lie down and look over, and care has to be taken not to shoot off. While the "climber" is being lowered the rope is allowed to run out along this slope, the friction retarding too rapid a descent, and thus helping the men at the top. When the man below has gathered as many eggs as he can reach, he jerks once upon the rope fastened to him, and as the other end is held by his companions they feel it at once, and draw him up, he all the time aiding himself with hands and feet in mounting upwards. The signalling is done by jerking the rope; thus one jerk means "pull up," three "more hand-rope," &c.

As the "climber" went down we walked to where the cliff jutted out a little, and as he was in a curve of the cliff we had a good view of his proceedings. This is the only way by which a proper view can be obtained. Down he went at a fair speed, every now and then striking his feet against the face of the cliff, and in his rebound gliding down the hand-rope a considerable distance. Proceeding lower still, he grew rapidly less to sight until he was perhaps two hundred feet down, when he stopped, and began to pick (to us) invisible objects from the ledges and put them in his bag; with an opera-glass we could see they were eggs, the birds—which seemed mere specks—flying round him in hundreds, the sea below being dotted with their numbers. Now and again a bird would rise as high as the top of the cliff, and skim past us, twisting its head about in an anxious manner. The Guillemots, by far the most numerous species, kept crying in a harsh croaking voice, "or—r—r"; the Ringed Guillemots and

Razorbills have a similar note, while the Kittiwakes reiterate their own name.

Now the "climber" has got so low down that the sea-spray wets his clothes, and as the only eggs to be found so low down are Kittiwakes' and not much in request, being small and easily broken, he stands on a ledge and jerks once on the guide-rope. One of his comrades goes to the edge of the cliff, holding by the hand-rope, and sticks an iron pulley on a short spike into the ground, passing the guide-rope on to it. The weight of the man on the rope keeps the pulley fast, and thus they haul him steadily but rapidly up. He empties the contents of his bags into large baskets, and we find the eggs are almost all Guillemots', with a sprinkling of Ringed Guillemots', which can only be told by watching the birds off the eggs, though the men profess to be able to distinguish them by their being shorter and rounder; but some eggs from which the men watched the birds for me, and brought up, were exactly similar to those of the Guillemot. The colours are most brilliant and varied, and a basketful is a beautiful object.

Next to the Guillemots, Razorbills are the most abundant species; but the eggs of these birds are generally difficult to reach, being, as a rule, placed in a deep fissure. Then come Kittiwakes, which make their nests just above reach of high tide. Puffins are very numerous, but as their eggs are almost invariably placed at the end of a deep crevice or hole, they are not often seen in the "climber's" baskets. Rock Pigeons build in some numbers in the caves below, but from their inaccessibility their eggs are seldom taken. Jackdaws build in the nooks and crannies of the rocks, but the eggs are too small to be worth the trouble of looking after. Occasionally the nest of a Kestrel or Carrion Crow is met with, and twice only in his life had our informant taken a Cormorant's nest. Ravens have been extinct for the past fifteen years. The birds are known by the following local names:—the Common Guillemot is called the "Scout" (pronounced "Scoot"); the Ringed Guillemot, "Silver-eyed Scout"; the Razorbill, "Auk"; the Puffin, "Parrot"; the Carrion Crow, "Raven Crow"; the Kittiwake, "Kittiake."

The next time the "climber" went below he brought up a live Razorbill which he had caught on her egg; she was in a very bad temper, and bit savagely at his fingers. When he let her fly

she had some difficulty in getting below again, for the wind struck upwards from the cliff as it blew in from the sea. These birds are often blown inland in stormy weather, and never get back again, seeming to get quite bewildered.

£1 reward is offered for information given for every bird killed or taken during the close season; hence a sharp look out is kept for any offenders against the law. We were glad to hear that the birds have been increasing in numbers every year since the Act was passed, and we were told that if the passing of the Act had been delayed a few more years there would have been no birds left.

On asking whether they would let us try to bring up some eggs, they said "Yes, if we dared." Accordingly we arranged to go next day, and they would find an easy place or two where the cliff was not hollow. After going down a few more places they left off for that day, as one of the set was absent, and it was hard work for only two to keep pulling up the third all day. They take it in turns to go down, one man climbing one day and next day another, and all the eggs are divided equally among them. They sell most of them for eating among the villagers and farmers, but pick out some of the best-marked specimens to sell to visitors at neighbouring watering-places, and sometimes to an egg dealer. They have their regular places where they always go down, and each place is visited twice a week, so that the eggs cannot get incubated. The different sets of climbers along the cliffs have each their own ground, and do not trespass on one another's territory. The farmers along whose fields they climb receive a basketful or so of eggs as rent. The men are ordinary working men, perhaps renting a field or two, and climb from about the middle of April or beginning of May till the first week in July, though they cannot climb when the weather is very wild or wet.

On arriving the next day at the cliff-top, I found the men at work nearer Speeton, on Raincliff, where the cliffs are about four hundred feet in height; the highest point is at Speeton, four hundred and fifty feet. They were just at the place where they had decided to let me down, so taking off my hat, coat and watch I donned the breeches, bags and gauntlet, and grasping the hand-rope, proceeded to walk backwards off the edge. I should imagine it is the first turning over the edge that tries the nerves of the amateur most. I felt an inclination to kneel on the edge instead

of leaning as far back as possible with my feet against the face of the cliff. However, I did not give way to this, but went steadily over and down, the men paying out the guide-rope. As soon as I was fairly over I looked straight down into the sea boiling below, and cannot say that I felt the least giddiness; on the contrary, I enjoyed the sensation very much. I was soon low enough to see two Guillemot's eggs on a ledge, and speedily bagged them, but on looking round could not see any more. I expect the men had cleared off all but these two, so that in case I did not put in my appearance no great loss would result to them. Giving the signal to pull up, I was soon at the top again, and was critically looked at by the men, who, seeing that I did not tremble, said I was "a good-plucked one."

They do not seem to care much about lowering amateurs, probably because it takes up too much of their time. The birds were very numerous here, and I was taken on to one projection and pointed out the slack on one side of it, where the birds were simply clinging in thousands to the face of the cliff, like bees. We shouted and waved our hands to try and frighten some of them off, but their screams drowned our voices, so that very few, comparatively, flew away. Almost all that left had been sitting on an egg, and very beautiful these looked against the white cliff. These birds were almost all Guillemots, and the reason for the vast colony at this point is that the cliff hangs over many yards at the top, so that it is quite impossible to swing far enough under to reach the eggs. The birds seem to know this, and breed in security.

The cliffs are of white limestone; down below are curious fissures, in which the "climbers" sometimes disappear from sight, and at the bottom are fine caves and arches. The Guillemots and Razorbills, as a rule, sit with their backs to the sea; they seem to be unable to fly directly up to their ledges, and approach them by a circuitous sideways route. Here and there a cluster of five or six Razorbills may be seen facing the sea, and as another bird flies past they stretch out their necks and hiss and snap at it. The little Puffins seem to take a delight in sitting in the mouths of the holes where their eggs are, and surveying the animated scene. The men told me that at one time a black variety of the Common Guillemot, and at another time a white Guillemot, haunted the cliffs, but were never killed to their knowledge. The

eggs are much liked by the villagers, who say they are never made bilious by eating them.

The next day my father, brother, and self set out again for the cliffs, and found the men climbing at "Danes Dyke," nearer to Flamborough. The birds were not so numerous there, with the exception of Puffins; but these birds were more abundant, probably, because a colony of rabbits also found quarters there, the Puffins doubtless finding the burrows made very convenient for nesting in. The rabbits ran about and disappeared over the edge of the cliff in a miraculous fashion.

As this was the last time we expected to visit these cliffs, I again donned the climbing apparatus, and was lowered a great distance, until I gathered two eggs of the Ringed Guillemot and one of the Common Guillemot, which were all I could see, one of the men having been over this part of the cliff earlier in the day. Taking a last survey of the wondrous surroundings from my airy position, I gave the signal, and was soon on the cliff-top again.

The eggs when fresh gathered are of the most brilliant and varied colours, and we were able to choose a splendid series from those we saw brought up. Those with a green or blue ground colour, with black markings, are most abundant; then those with white ground and black marks; and lastly, those with white ground and reddish brown and lilac markings. Two we saw brought up were of a uniform pale green colour, without any markings. The story that a Guillemot's egg will spin round with the wind must be a myth. The men said they had never seen anything of the kind, and when I was down I should imagine there was quite sufficient wind to turn them round if they would go. The greatest number of eggs we saw brought up at one time was forty-nine, but in the height of the season they sometimes get upwards of one hundred—no light weight to bring up.

We arranged that night with the Filey men, before mentioned, to climb the cliffs between the Brigg and Scarborough, and started early the following morning (June 19th). We commenced climbing soon after we passed the Spa, but one of the men and I went down several times without finding anything, until he brought up three eggs from a Herring Gull's nest. The cliffs are not so high as the Flamborough range, but much worse to climb, often overhanging very much, and composed of soft material which readily crumbles. We climbed as far as a part of the cliff jutting out



called "Scout Nab," as a small colony of these birds lay there, but we found only a few Herring Gulls' eggs, and some Rock Pigeons' nests, from which I was unable to extract the eggs, as they were so far in the crevices. We only saw one Guillemot's egg here, for the rest had all been taken by a climber from Filey a day or two previously. A Sheldrake flew quacking below us, and doubtless had a nest or young near. My fellow-climber said he had never found a nest. He said there had been a Teal with a brood of young on the Brigg that morning.

Past "Scout Nab" we found nothing until we came to a part of the cliff called the "Lime-kiln," and here we could see three Herring Gulls' nests, containing respectively three, two, and one egg. I again donned the ropes and went down. It was an awkward place, the cliff overhanging a considerable distance. When this is the case the best plan is to turn your back to the cliff at once and slide down the rope, as in this position you do not spin round and twist your ropes. I brought up three of the eggs in safety, not caring to take any more. A Rock Pigeon flying out, further on, I again went down, and saw the nest was in a deep fissure. Creeping up it as far as I could, with my walking-stick held out at arm's length, I succeeded with much difficulty in raking out the two eggs, but cracked them both in doing so; they were quite fresh, and I managed to blow them on reaching our lodgings, whither we then turned our steps, as it was late in the afternoon.

Several times in the course of the next few days when on the Brigg, we observed some Cormorants fly into a bend in the cliffs past the Spa; so we went along the top of the cliff, and saw one of the birds on a projecting point, while two more flew out from below it. Feeling sure there must be a nest there, we went with one of the men on June 26th, but though he and I went down several times we could see no traces of a nest, though the cliff had a quantity of the droppings splashed about where we had seen the Cormorant perched.

We then went to a recess between the Spa and the Brigg, from whence we had often seen a Rock Pigeon leave its nest. Our companion held the rope above, and after throwing both ends down, I climbed below, and tying the guide-rope round my chest, gave the signal and climbed up the rope—for the cliff was hollow and overhung some yards—until opposite the crevice where the

nest was. By swinging in, I was at length able to catch my foot on a projecting cornice of rock, and then my brother, who stood below to shout directions to the man above, told him to slack the rope. I was thus able to get a hold of the rock with my hands. Then, as he continued to slack the rope, I crawled further under the cliff along a ledge which led to the nest, and at length was able to reach the eggs, which fortunately were only a hand's length in the hole. Pocketing these, I crawled back as far as possible, and then, swinging away from the cliff, slid down to the ground. Our companion was delighted when he saw the eggs, as he said "climbers" considered Rock Pigeons' eggs the most difficult to get. I may mention that we several times saw tame Pigeons flying about the cliffs in company with the genuine Blue-rocks. When climbing on these cliffs we did not use "breeches," but merely tied the rope under our arms. The "breeches" are certainly more comfortable, as the rope then does not chafe.

On June 27th, as we still observed the Cormorants visiting the same part of the cliffs, we hired a boat and rowed out round the Brigg, opposite the Point. We had not been there long before a Cormorant flew up and alighted on a ledge, where it sat watching us and preening its feathers; but though we waited an hour it would not show us its nest, and at length flew away. While we were watching two other Cormorants flew past us and disappeared behind the cliffs jutting out at Gristhorpe Bay. Next morning we went across country to this bay, where we commenced climbing, but could see no traces of Cormorants or their nests. A pair of Kestrels screaming round told us they had a nest near. One of the men then descended, and we saw him thrust his arms into a fissure, below which we had remarked a quantity of droppings. Then ensued a tremendous screaming and chattering from within. Out fluttered a young hawk to the foot of the cliff, and immediately after our man pulled out by the legs five young Kestrels, screaming, fighting and clawing one another vindictively. He said they were all standing in a row in a crevice of the cliff, with no sign of a nest.

We then climbed towards Scout Nab, but with very poor success, finding only a few Herring Gull's nests. These were full of dry grass and roots, and placed on ledges of the cliff, especially where a little grass is growing, and are often in places most difficult of access, doubtless from the incessant persecution to

which they are subjected by the "climbers" from Filey, parties of whom are constantly visiting them; but in spite of this we were told that these birds are not decreasing in numbers. They make a tremendous outcry when their nests are approached, hovering so close as to show the sparkling of their eyes, and all the time screaming vociferously. We did not take any of their eggs, for we had a sufficient number; and one of the men and I kept climbing at intervals, in the hope of finding a Cormorant's nest, but in vain. We only found two Jackdaws' nests with eggs, and one Guillemot's egg, which, being a nicely marked specimen, I secured after some difficulty. We also found two plump young Herring Gulls, as large as pullets, walking briskly along a ledge half way down the cliff. We saw but a single pair of Lesser Black-backed Gulls during the three days we were on these cliffs.

From the number of times we saw Cormorants turn in past the Spa, I feel sure there were one or two nests there. A large fissure ran into the cliff in a slanting direction, but as the cliff hung over very much it was quite inaccessible, and my opinion is the nests were in there. Had there been any nests on the face of the cliff we should have seen them. A man who had been climbing that week assured us that a Cormorant had flown from this very fissure, nearly striking him as it hurried out, but that he could not possibly climb into it. All whom we asked said Cormorants' eggs had never been taken there; but one climber said he once saw a nest with three eggs on Scout Nab, but in an unapproachable position. He said that Ravens had not built, or been seen, on these cliffs for upwards of twenty years, though formerly they bred there regularly; and that one year he took some large-sized eggs, of a pale green ground colour, with red blotches from the cliffs near the Spa, and that remains of many birds, &c., were scattered about near, from which we judged them eggs of a hawk. He sold them to a dealer in Filey, but on making enquiries we found they had been again sold, though not identified.

On July 3rd we visited Flamborough Caves, and found the birds there were mostly Puffins, with a few Guillemots. On the sloping banks on the shore between Filey and Speeton we found nests of the Titlark, Linnet, Sedge Warbler, Sand Martin, Whinchat, and Hedgesparrow in abundance. We also noted Grasshopper Warblers and Stonechats, and found a Wheatear's nest with young between Filey and the Brigg. House Martins had

nests on all the cliffs, and here and there a pair of Swifts flew about, evidently having their nests in some crevices. Corn Buntings and Skylarks were most abundant inland, and on several occasions we saw two or three Ringed Plovers feeding on the Brigg.

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## ON SOME INTRODUCED BIRDS IN NEW ZEALAND.

BY T. H. POTTS, F.L.S.

SOME particulars about introduced birds seem worth recording, such as the remarkable rate of reproduction in some species, the retrogression—without apparent cause—that may be noticed amongst others.

The Hedgesparrow, *Accentor modularis*, is plentiful in the gardens and hedgerows about Christchurch and its suburbs; it finds such capital shelter in the thick gorse hedges. On Banks' Peninsula it is rarely met with.

The Song Thrush, *Turdus musicus*, may be found at Riccarton, near Christchurch, but in most other places it is a rare bird. There were several nests in the gardens at Ohinitahi eighteen years ago, but a cock bird that made its appearance in the summer of 1882-3 was looked upon as a rarity.

It has been hitherto unexplained why this species should die out, when its congener, the Blackbird, *Turdus merula*, is so prolific, increasing in numbers wherever there is cultivation or covert to skulk in. About Christchurch it breeds in far too great numbers for the contentment of owners of gardens and orchards, for it attacks most kinds of fruit. Notwithstanding the gun, the trap, and even poison, the Blackbird flourishes. I have known more than one hundred and fifty killed in one strawberry garden in about three months.

Of the Australian Magpie, *Gymnorhinus*, the numbers have decreased almost everywhere. Probably many are destroyed during the breeding season, for at that time its attacks on persons are so savage and persistent that it tries peoples' patience too much for its welfare. Native birds have increased since the Magpies have left this district.

The Rook, *Corvus frugilegus*, thrives in the suburbs of Christchurch; it breeds on the taller blue-gums (*Eucalyptus*). The

cawing and wheeling of large flocks reminds one of the rural delights of the old country.

The Starling, *Sturnus vulgaris*, has greatly increased in numbers. Large flocks settle in the sheep-paddocks, where they do good service. In the autumn the Starling affects the taller trees about the plantations.

The Chaffinch, *Fringilla cœlebs*, once was common here; during the past two years it has sensibly decreased. In nest-building it very frequently uses fragments of printed paper as a substitute for lichens where this favourite material is scarce.

The Goldfinch, *Fringilla carduelis*, is now one of the commonest species here. It breeds in our gardens freely, and is sometimes seen with Sparrows searching for food on newly-dug ground.

The Greenfinch, *Fringilla chloris*, was once one of the worst pests of the corn-fields and fruit-gardens. One of its favourite habits in the winter months consisted in picking out seeds from the large cones of the cluster pine (*P. pinaster*).

The Sparrow, *Passer domesticus*, has become a terrible nuisance to the farmer. At a recent meeting at the rooms of the Agricultural and Pastoral Association the damage from Sparrows was estimated to have entailed a loss of £50,000 to the Canterbury farmers. Very energetic measures have to be taken for lessening its numbers. Sparrow Clubs have started in all directions, and tens of thousands of eggs and young birds are annually brought in for the rewards offered for them. The Sparrow is gregarious in its breeding habits in some instances.

The Yellow Bunting, *Emberiza citrinella*, is not very often seen here. It has been introduced twenty years, but its numbers in this part of the country are not large.

The Skylark, *Alauda arvensis*, has increased in an astonishing manner. As it annoys farmers by eating off many varieties of young plants, great numbers are destroyed annually. I knew the English South Downs well very many years ago, but neither there nor in any other district of England have I heard at one time so many Skylarks aloft, pouring forth their melody, as in some parts of this colony—notably in Nelson and on the Canterbury plains. There seems to be gradually taking place some change in their habits, influenced doubtless by the altered conditions of life in this country; although gregarious I have never noticed them packing together in vast flocks. Migration

from one district to another is doubtful, except perhaps from the higher western lands during winter. In the "back country" to the west the winter season is severe and well marked, but over a great part of the colony the weather during that portion of the year is open enough to allow them ample scope for getting their living. In this district it remains with us all the year round. In the old country I never observed the Skylark in full song when perched. This habit is not very infrequent here; I have noticed it in Nelson, Akavao, and in some places on Banks' Peninsula. Taking up a position on a post or rail, gently turning from side to side, now and then with a slight movement of the wings, it indulges in song as joyous and powerful as when ascending in spiral circles skyward. At Sumner it has been observed singing whilst on the ground. Perhaps this may be the beginning of a gradual development of a newly acquired habit. It does not shun trees so much as in England. After favourite plants it will freely enter gardens or orchards. I have seen one perch on a dwarf kouhai tree (*Sophora tetraptera*, Aiton) by the roadside, near the Maori pah at Raupaki. One may observe considerable variety in the coloration of the eggs: whitish or grey-yellow, profusely speckled with brown of various shades; dull greyish with a green tinge, freckled or mottled with ashen brown; rich brown, abundantly marked with darker shades, highly varnished. A nest from the Ashburton district contained eggs of pale dull pink, profusely speckled with reddish brown; these beautiful specimens differ from any I have seen. Usually there are three in a nest.

Ohinitahi, N. Z., July 9, 1884.

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## NOTES ON THE ORNITHOLOGY OF NORTHAMPTONSHIRE.

BY THE RT. HON. LORD LILFORD, F.L.S.

SHORTLY after sending my last communication, dated Nov. 15th, 1883 to 'The Zoologist' (Zool. 1883, p. 502), I was laid low by a severe attack of rheumatic gout, which kept me a close prisoner to the house, and often to my bed, till the first week of June, 1884; so that the following notes are, with few exceptions, given on the authority of others.

The Common Buzzard hinted at in the notes to which I have

just referred, was not a myth, but distinctly seen and described to me by several persons, till Nov. 22nd. A Swallow, *Hirundo rustica*, was seen at Achurch on Nov. 14th.

Two birds seen by the Hon. Thomas Fitzwilliam, an experienced snipe-shooter, on Nov. 16th, were reported by him to us as undoubtedly specimens of the Great or Solitary Snipe, *Scolopax major*. Mr. Fitzwilliam was out with his hounds, and flushed these birds close to him, from a field of newly-sown wheat near Barnwell. This is a very late appearance for this species in this neighbourhood, in which it is at all seasons an uncommon bird.

A Short-eared Owl, *Strix brachyotus*, was shot and brought to us on Dec. 1st. Eight Wild Geese, *Anser* sp.?, reported to us as passing southwards on Dec. 2nd. A Green Sandpiper, *Totanus ochropus*, was shot by Mr. George Hunt on our land near Clapton on Dec. 4th. An adult female Peregrine Falcon reported to us on Dec. 5th, by Mr. Hunt and one of our gamekeepers, as haunting the river very near this house. I only record this for the reason that both my informants were struck by the large size and "blueness" of this individual. A Dunlin, *Tringa alpina*, shot "up the river," and brought to us, on Dec. 7th, by one of our gamekeepers. On the same day Mr. Hunt bagged thirteen Snipes, *Scolopax gallinago*, two Jack Snipes, *S. gallinula*, six Wild Ducks, *Anas boschas*, three Teal, *A. crecca*, and an immature Common Gull, *Larus canus*, on our property between this house and Thrapston.

On Dec. 12th, an Oystercatcher, *Hæmatopus ostralegus*, was knocked down by a "large hawk" near Clapton, and shot by the gamekeeper to Mr. Freeman; this specimen was very kindly presented to us by the Rev. E. Freeman, of Clapton Rectory.

On Jan. 29th, 1884, we received, for identification, a stuffed specimen of a young Puffin, *Fratercula arctica*, which was caught alive at a cottage-door near Naseby Reservoir on the evening of Dec. 12th, and reported to us, and recorded in local publications, as a Little Auk, *Mergulus alle*. With reference to these last two occurrences, I may mention that I find Dec. 12th, 1883, recorded in my journal as "a wild stormy day, after a fierce gale and heavy rain during the previous night."

On Jan. 30th a very large and fine Bittern, *Botaurus stellaris*, was brought to us, in the flesh, by Mr. S. Deacon, of Polebrook, from whom we learned that the bird had been shot by a gamekeeper near Ashton, on the river below Oundle.

Early in February Dr. Tomlinson, of Oundle, reported to us having several times seen a Blackbird, *Turdus merula*, var., of a light golden sandy colour, at a certain spot on the road between Oundle and Lilford cross-roads, not a mile from this house.

On March 1st authentic reports reached me of Wild Ducks beginning to sit on full complements of eggs near the house. On the 18th the Rev. F. M. Stopford reported a nest of Wood Pigeons, *Columba palumbus*, containing two eggs, in the garden of his rectory at Tichmarsh. On the 19th a pair of Stock Doves, *Columba ænas*, were busy at nesting in a thick Pinsapo pine tree immediately in front of the house and my bed-room windows.

On March 26th one of our gamekeepers brought me a Tawny Owl, *Strix aluco*, alive, with an egg, one of four upon which the bird sat without moving till the hollow tree in which the nest was situated was felled and about to be sawn up. The woodmen had been at work at the tree all the previous day, unconscious of the Owl's establishment therein, and she remained on the *débris* of her productions till caught. We let her go out of window about half an hour after receiving her, and were glad to see her sail off in the direction of her ruined home, uninjured, but hotly pursued by "Sankey," a tame Spanish Raven, *Corvus corax*, taken from the nest near Santander by us in 1876, who has, and takes every every advantage of, complete liberty of action.

On March 27th we received from the Rev. W. Finch Hatton an escaped Silver Pheasant, *Euplocamus nycthemerus*, female, which had been caught a few days previously on the high road near Deene, and remained unclaimed.

On April 2nd Mr. Hunt reported large flights of Fieldfares, *Turdus pilaris*, and Redwings, *T. iliacus*, going northwards on March 29th, and Wood Pigeons still in large flocks about the open fields, though many of this species are now sitting. I imagine that these flocks consist principally of our autumnal immigrants on their return journey, and that those employed in domestic duties are our home-bred birds.

On April 5th my son put a Wild Duck from her nest full of eggs, on a broken elm at some fifteen feet from the ground; and reported that on enquiring from one of the gamekeepers about the "golden" Blackbird above mentioned he found that the bird was well known to, and had been repeatedly seen by, that individual, who took him to the spot previously alluded to, and soon



showed him the bird, which my son described as being of the colour of an Australian sovereign.

On April 6th three Woodcocks, *Scolopax rusticola*, were observed "glading" in Souther Wood. On the 8th Wild Ducks were beginning to hatch. On the 11th fresh remains of Woodcock were found by Mr. Hunt in Little Wadenhoe Wood. On the 15th Woodcock seen at dusk near Souther Wood, and again on the 17th. On the 19th, vast numbers of Wood Pigeons in flocks near Thurning. On the 20th four Swans, *Cygnus* sp.?, were seen by several persons about and near the park here on wing.

On April 21st one of our gamekeepers assured me that he had seen a large female Sparrowhawk, *Accipiter nisus*, in December last, make several fierce dashes at a rabbit running on some bare "spring" wood. We think that we shall be borne out by falconers in stating that the above is a very uncommon occurrence; but it is not the first to the same effect that has reached us, and in this instance we have every reason to believe in the complete accuracy of our informant.

On April 24th another Wild Ducks's nest with eggs was reported as discovered on a broken elm-bough, in our park here, at some fourteen feet from the ground. Woodcock seen in Souther Wood on the 22nd.

Spring migrants reported to us in the following order:—

- March 9. Whinchat, *Pratincola rubetra*.
- „ 22. Wheatear, *Saxicola œnanthe*.
- „ 27. Chiffchaff, *Phylloscopus minor*.
- April 1. Redstart, *Ruticilla phœnicura*.
- „ 7. Wryneck, *Yunx torquilla*.
- „ 11. Ring Ouzel, *Turdus torquatus*; Cuckoo, *Cuculus canorus*
- „ 12. Swallow, *Hirundo rustica*.
- „ 13. Willow Wren, *Phylloscopus trochilus*; Blackcap, *Sylvia atricapilla*.
- „ 16. Sand Martin, *Cotyle riparia*.
- „ 23. Yellow Wagtail, *Motacilla rayi*.
- „ 30. House Martin, *Hirundo urbica*.
- May 2. Common Sandpiper, *Totanus hypoleucus*.
- „ 3. Whitethroat, *Curruca cinerea*.
- „ 4. Landrail, *Crex pratensis*; Swift, *Cypselus apus*; Spotted Flycatcher, *Muscicapa grisola*.
- „ 8. Hobby, *Falco subbuteo*.
- „ 12. Turtle Dove, *Turtur communis*.

I left home on June 3rd, and did not return till August 20th, and as Mr. Hunt, my neighbour and chief purveyor of ornithological news, left Wadenhoe shortly after the first-mentioned date, I have very little to record during June, July, and the early part of August.

On June 10th we received information of the finding of three eggs of the Hobby, *Falco subbuteo*, at some twelve miles from this house, in a nest in an oak tree, from which a pair of Carrion Crows, *Corvus corone*, had been killed and their produce destroyed about a month previously (letter dated June 7th).

Mr. Hunt, on June 15th, found a nest of the Red-backed Shrike, *Lanius collurio*, containing three eggs, in his garden at Wadenhoe. This occurrence is one of purely local interest, as the Butcher-bird has only of late years bred in this neighbourhood, and the present is but the second instance of the finding of its nest in this district that has come to my knowledge.

On July 8th I heard of young Hobbies in a Carrion Crow's nest, in the same tree from which I received two of these little falcons last year (see Zool. 1883, p. 427). On July 10th three young Hobbies, from the nest mentioned June 10th, were brought to Lilford. The second nest (July 8th, *suprà*), said to have been destroyed by "crows"—a statement about which I am, with good reason, extremely sceptical.

On August 22nd one of our gamekeepers assured us that on the previous day he saw five Partridges, *Perdix cinerea*, sitting upon the top rail and posts of a five-barred gate near this house. On the 23rd we saw a large raptorial bird at no great distance from us, which I believe to have been a Honey Buzzard, *Pernis apivorus*. On the 25th three Whimbrels, *Numenius phæopus*, flew past my windows in a S.W. direction, "tittering" loudly, about 6 a.m.

On August 27th a "white Swallow," *Hirundo rustica*, var., was reported by one of our gamekeepers as seen and watched for some time near Aldwinckle. My informant is quite certain as to species, as distinct from Martin, *Hirundo urbica*, and saw the bird again in the same district on the 29th. My sister-in-law and our coachman also reported a "white Swallow" as seen by them whilst driving near Clapton on Sept. 6th; but neither informant in this latter case knows a Swallow from a House Martin.

On Sept. 1st a flight of some twenty or thirty Whimbrels passed high overhead, going S.W., as we were shooting near Pilton. On this day Mr. Wirley P. Birch, of Cranford, near Kettering, kindly brought to me alive a Shag, *Phalacrocorax graculus*, which his son had "fetched down" a few days previously, as it was passing high in air near the last-named village. The bird is very little injured and doing well, on a little pond in our garden, in company with a Black-footed Penguin, *Spheniscus demersus*. I consider this Shag to be a bird of last year's hatch.

On Sept. 4th four Snipes (two of which were, as we are assured by the gamekeeper who saw them, "Jacks"! ) were noticed at a pond near Thrapston. We do not feel quite assured as to correct specific identification in this instance, but ourselves saw a Jack Snipe on Sept. 11th.

On Sept. 7th Dr. Tomlinson assured me he had seen that morning some young Swallows in their nest in his cowshed at Oundle.

Sept. 13th. Mr. Wm. Seale,—the London birdcatcher mentioned in my last communication (Zool. 1883, p. 502),—who has been here for some days past, has seen several Redpolls, *Linota rufescens*, and taken four of them. He reports a Ring Ouzle near this house about the 11th, and a long string of large Gulls, probably *Larus argentatus*, going southwards on that day.

Lilford Hall, Oundle, Sept. 14, 1884.

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## THE FINWHALE FISHERY ON THE COAST OF FINMARK.

BY ALFRED HENEAGE COCKS, M.A., F.Z.S.

(Concluded from p. 424).

Dr. Guldberg, speaking of the Humpback ('Vardö Posten,' Aug. 12th, 1883), says:—"The colour is above more or less coal-black; on the sides and under the belly whitish, or with white flecks and black rings upon white ground, which give it in many places a marbled appearance. The pectoral fins are marked upon the distal two-thirds with black rings. The proximal third is black. The baleen-plates, of which the longest is 2 ft., are grey-black, with yellowish hair. Its food consists of Capelan

(*Mallotus arcticus*), and other small fish, also of "kril" (*Thysanopoda inermis*), and other small Crustacea. . . . . With regard to its propagation, I have not chanced to come to any certain knowledge about it, either as to how long its period of gestation is, or whether it has any fixed pairing season. I have only had the opportunity of examining two fœtuses. . . . . Such fœtuses are considered of the greatest rarity. Both were of small size, from 1 to 1½ ft. in length, and were taken in the middle of summer,—in the month of July,—which should augur that the pairing season falls in one of the spring months."

Common Rorqual (*Balænoptera musculus*, L.) — Norwegian names, Fin Hval, Rörhval.\* Specimens seen, a male about 40 ft. or rather more, brought in Aug. 24th; one passed at sea, being towed by a whaler on Aug. 21st, about 60 ft. long; and a fœtus between 9 and 10 ft. long, in too bad a state to be worth preserving, probably obtained about the end of July or beginning of August. Grey-blue or greyish slate-colour on the back; the whole under side white, including the under side of the flukes. The white is only a few inches in width along the small part—the last few feet of the tail-end.

The extremely thin, elongated, or seemingly emaciated appearance of this species is very noticeable; the posterior portion of the back is almost sharp-edged, quite deserving the English name, "Razor-back." The white on the under side includes all the furrows, except about the uppermost row. The front of the under jaw and the chin are also white, with black flecks. In the figure of this species in Mr. Southwell's 'Seals and Whales of the British Seas,' the nasal protuberance or ridge along the median line of the head appears to shelve away gradually to the sides, instead of being a mere narrow ridge standing up abruptly on the otherwise very shallow skull. This figure is after one in Professor Flower's paper on an example of this species (Proc. Zool. Soc. 1869, p. 604), where the nasal ridge is shown correctly. In Mr. Southwell's figure the under side is shown almost entirely dark, and the shape of the tail portion between the fin and the flukes is more like a Blue Whale than this species, which is smaller or shallower; and this point is also, I venture to think, incorrect in Prof. Flower's figure. This

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\* Dr. Guldberg, 'Vardö Posten,' Aug. 19th, 1883.

latter figure is merely an outline, no coloration being shown, as the specimen from which it was drawn, having been for some time exposed to the action of the sea, had entirely lost the outer cuticle. The baleen-plates are narrow, black on the outer edge, then slate-colour, gradually striping to yellow on the inner. The bristles are light yellow, almost buff.

I noted the following few particulars of the anatomy of the foetus:—The intestine was distinctly divisible into large and small intestine; the former extended about three-quarters of an inch beyond the commencement of the latter—not enough to call a cœcum. The colon was about 4 ft. long. The kidneys are long ovals, almost pointed at the lower end, coarsely granulated, flattened, and much larger proportionately than the kidneys of any other order of Mammalia with which I am acquainted. The liver is divided into two lobes, each slightly smaller than, and much the shape of, the kidneys.

In the first of the three stomachs I found a small quantity of two species of *Algæ*, which I presume must have been forced there by the action of the tides since it had been lying on the beach. The heart was very broad; the ventricles were separated from each other on the inferior side by a well-marked depression running down the exact centre. The cavity of the thorax was much compressed. The diaphragm was very thick and muscular.

An idea prevails apparently amongst all, or at least a large majority of those connected with the whaling in Finmarken, that hybrids occur between the Common and Sibbald's Rorqual, and, without for one moment believing this to be the case, I have thought it well to refer to this belief, as showing, as I suppose, the variation in individuals of the common species. Captain F. describes these supposed hybrids as having the head of a Finner, the tail of a Blue Whale; bluer on the back than a Finner, and blue and white on the under side. Captain S. says the baleen is partly black, partly yellow; the flippers like a Finwhale's, but blue colour; the fin like a Finner's with the point cut off. Captain Bn. says he once killed one that was so fat it could not go fast! It had the narrow head, light-coloured baleen, and small flippers of a Finner; and had some white on the under side, but was on the whole darker than a regular Finwhale. Captain. Bg. describes them as most like Finners when caught, but like Blue Whales when the spœk is off. Captain Bn. also

told me that once, when eighty English miles from land, he saw a whale seventy-five to eighty feet long, the colour of the cheese well known to everyone who has been in Norway, called "Mæs Ost" (that is, a shade or two lighter colour than brown Windsor soap); it was with a Blue Whale, and had a small fin like that species. Captain S. also told me of whales which he called "Langrör" (Longreed), between fifty and sixty feet long, which are thinner than Finners; yellow nearly all over, and black on the under side. I think it will be allowed that all these appear like varieties of the common species, except perhaps the one described as like "Mæs Ost," which is as likely to have been a variety of the Blue Whale.

Dr. Guldberg ('Vardö Posten,' Aug. 19th, 1883) says of the Finner:—"Its length varies between sixty and seventy feet. The form of its body is rather slender, the greatest thickness lies behind the pectoral fins, and is most pronounced in old individuals. The pectorals are comparatively small, one-ninth to one-tenth of the length of the body, rather pointed and lancet-shaped. The back fin is small, with the point bent upwards and backwards, but arching forwards and curving inwards on the hinder side. The colour is above blackish, or else grey-black; underneath it is white, with a greyish band passing over it. Now and then, both in this and the following species, one meets with yellowish tinges, which originate from a peculiar colouring-matter; this likewise occurs among the older specimens. There is a variety of it, called 'Langrör' (Longreed), which is chiefly conspicuous from its length and slender build. The white colour under the throat reaches to the sides and on to the under jaw. The baleen-plates are short, the longest is scarcely 3 ft.; the colour is blue-grey or black-grey, with light stripes and yellow hair; they are likewise light on the sides, where the light colour extends up to the under jaw. The foremost baleen-plates are yellow and greyish white." ('Vardö Posten,' Aug. 26th).—"Its food consists partly of fish,—as, for instance, herring, small cod, and capelan; partly of small crustaceans, *e. g.*, shrimps. It is this whale which is called 'Loddehvalen' (Capelan Whale), when it is seen constantly pursuing the shoals of Capelan."

Sibbald's Rorqual (*Balænoptera sibbaldii*, Gray).—Norwegian name, Blaa Hval = the Blue Whale. Besides parts of several skeletons and quantities of loose bones, and a specimen already

flensed, I only saw two examples of this species during my stay at Vardö, as it was too late in the season for them; and I was fortunate in finding an unusually late season, as in most years, arriving as late as I did (Aug. 21st), I should not have seen a single example. The dates of the arrival at the factories of these two specimens were August 22nd and 28th, having been killed about the 20th or 21st, and on the 26th. The blubber is thickest on the neck and shoulders (about 8 or 10 in. with the skin, in a specimen from fifty to sixty feet long), giving the animal a somewhat humpbacked appearance. Upper side dark slate-blue; under side a shade lighter; no white about the body, but the flippers are white on the under side, and are longer than those of a Finner. The baleen is coal-black, including the bristles, and is rather broader than the Common Rorqual's. The blow-holes are situated in a very deep depression. The colouring of this species generally, and the shape of the tail just in front of the caudal fin, much more nearly resemble the figure of the Common Rorqual in 'Seals and Whales of the British Seas,' before referred to, than does that species in these particulars. The Blue Whale is probably the first to leave the Finmarken coast at the end of summer, the Finner next, and the Humpback last; but there are not many days interval between them all.

In 'The Arctic Voyages of A. E. Nordenskiöld,' p. 52, the editor, Mr. Leslie (whether on his own authority or Nordenskiöld's is not stated), says—"It is probable that 'finners' never live in colder water than  $2\cdot5^{\circ}$  C. ( $= 36\cdot14^{\circ}$  F.), and that the northern limit of their distribution coincides with sea of this temperature." It seems remarkable that on this voyage, while whales ceased on the outward passage in May, after lat.  $75^{\circ} 45'$ , they were seen again on the return passage in September as high as  $78^{\circ}$ .

During my voyage to Spitzbergen in the autumn of 1882 (Zool. 1883), we saw *Balenopteridæ* (all considered at the time as Blue Whales, though I now think some of the smaller individuals seen may have been Humpbacks) on the way north, on Sept. 1st, three or four specimens close to ice, in about lat.  $75^{\circ}$ ; temperature of the water  $34\cdot34^{\circ}$  F. ( $= 1\cdot3^{\circ}$  C.); two on Sept. 3rd, in about lat.  $75^{\circ} 28'$ , water  $32\cdot9^{\circ}$  F. ( $= 0\cdot5^{\circ}$  C.); and on our way south again we saw the first whale on Sept. 28th, in about lat.  $75^{\circ} 22'$ , and others later that same day (temperature of water was not taken).

Of the two whales passed in the cold water on Sept. 3rd, only the blowing of one was seen; the other was only about forty feet long, so they may have been Humpbacks. In my summer voyage to Spitzbergen in 1881 (Zool. 1882) I saw no whales as far to the north as this.

I was told, at third hand, of a Blue Whale which measured 102 ft., and similar stories are numerous; but I doubt if the whales were in any case accurately measured. Dr. Guldberg does not believe it ever attains a length of 100 ft.; a little over 80 ft. is, I believe, the longest that has been at all accurately measured at Vardö, and whales of this length are the exception. Dr. Guldberg ('Vardö Posten,' Sept. 2nd, 1883) says of this species:—"Its length varies between 70 and 80 ft.; the individuals that are 70 ft. and under, I have always found to be rather young, and not full-grown. That it can attain to a length of over 80 ft. is certainly unquestionable, although it may be very seldom. But the numerous measurements which have been taken of various individuals are not trustworthy, since they are not measured in a right line from the point of the under jaw to the cleft in the tail fin. . . . . The most characteristic feature to recognise it by when one sees it in the water, besides the high spout and conspicuous size, is the extremely small dorsal fin which is situated so far back. The colour above is blue-grey or blue-black, and sometimes copper-brown when it is seen rolling about in the sea. The dead whale\* has always a more or less pronounced blue-grey or steel-grey dark colour over the back, which on the sides becomes a little lighter, with, over all, peculiar slightly striped marks of a lighter grey, which often lie in small shallow pits, which give the surface of the skin an uneven appearance. Under the belly, and especially forward near the throat, it is more or less flecked with white, with some parts alternating with grey or blacker shades. It has always a more or less marbled appearance, which in some specimens present very pretty patterns. The baleen-plates are black or grey-black, with black-brown hair.

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\* On this change of colour after death in cetaceans, *vide* Dr. J. Murie, 'On the Organization of the Caaing Whale,' Trans. Zool. Soc., vol. viii., p. 239; and Prof. Turner's account of the present species in Trans. Roy. Soc. Edinb., 1870, p. 203.



“How long the Blue Whale goes with young is still a riddle. Two things are certain, *viz.*, that the pairing does not take place at any fixed time of the year, and that the gestation is longer than one year. As proof of this it may be stated that in the course of fourteen days fœtuses have been found of 2, 4, and  $6\frac{1}{2}$  ft. in length, coexisting at the same time of year as the pairing has been observed. From this, again, one may infer that the period of gestation was longer than one year, which is also borne out by several other things. There are, moreover, several certain observations of the fact that the young one follows the mother a long time; the mother has, for instance, been shot while accompanied by a young one of between 40 and 50 ft. I have, however, also received information that pairing has taken place notwithstanding that the mother was accompanied by its offspring. Consequently my theory is that the Blue Whale goes with young from eighteen to twenty months; this is borne out essentially by comparison with other mammals. It is a prevailing rule with whales that the size of the offspring amounts to a fourth part (or even a little more) of the mother. According to this, the newly-born young of the Finwhale would be about 15 to 16 ft. long, probably it is still larger; for, as regards the Blue Whale, the proportion must be between one-quarter and one-third, since fœtuses have been removed of 23 ft. in length. This latter species also cannot reproduce its species more frequently than every other year. This is its most favourable rate; we arrive perhaps nearer the truth when we say that the Blue Whale reproduces every third year, since there are many proofs of the fact that the young at a considerable size (up to 50 ft.) still follow the mother, and that the Finwhale reproduces every second year.”

A Blue Whale may be immediately distinguished from a Finwhale by the following external points of difference:—

## SIBBALD'S RORQUAL.

A fairly stout and well-proportioned looking whale, in spite of its great length; a slightly humpbacked appearance at the shoulder.

The whole of the baleen coal-black.

No white about the body.

## COMMON RORQUAL.

Looks emaciated, and much too long for its girth.

Baleen only black on outer edge, partly slate-colour and yellow.

Under side white.

Rudolphi's Rorqual (*Balænoptera borealis*, Lesson). — Norwegian names, Sildehval, Seiehval.\* This, I believe, is the species most frequently taken by the whalers stationed off West Finmarken, *i. e.*, the coast to the west of North Cape. I have not with any certainty seen a living specimen of this species, and my sole acquaintance with it was a hasty glimpse at the skeleton of the example killed in the River Crouch (Essex) in November last, when it was lying in the prosector's room at the Zoological Gardens. A full account of this specimen was published by Prof. Flower (Proc. Zool. Soc. 1883, p. 513, *et seq.*). The baleen is black, with white bristles. The dorsal fin had been brought with the skeleton; it was rather higher and more curved and pointed than the Common Rorqual's. The skin was still on the flippers; the outer side was black, the under side white; they were more pointed than the common species.

Dr. Guldberg ('Vardö Posten,' Aug. 19th, 1883) says:—"We shall next pass on to the so-called Herring Whale (Sildehval), whose natural affinities are rather obscure. I am inclined, from information given me, . . . . to consider it as identical with the so-called Coal-fish Whale (Seiehval), which both in the summer and earlier, is taken in greater or lesser numbers in West Finmarken. The length is about 40 ft. It resembles in several respects the Finner, but is smaller, and makes its appearance on the coast of Finmarken, especially in the summer months. Since it is also observed by Bergen, and on the Dutch coast, there is every probability for the supposition that its range is more southerly than that of the Lesser Rorqual."

Lesser Rorqual (*Balænoptera rostrata*, Fabr.). — Norwegian name, Vaagehval. In sailing up the Norwegian coast during the summer months, on reaching Vest Fjord one usually sees a few small Finwhales, which are most probably of this species. They are often in company with "Spring-hvale," which I have no doubt are Bottle-nosed Dolphins (*Delphinus tursio*, Fabr.), whose gambols are very interesting to watch. Occasionally one sees somewhat larger Finwhales, and these latter may very possibly be Rudolphi's Rorqual, but I cannot speak with any certainty.

On returning south last autumn, at the end of September and beginning of October, I did not see a single whale all along the

\* Dr. Guldberg, 'Vardö Posten,' Aug. 19th, 1883.

coast; whether this was in consequence of the lateness of the season, bad weather, or merely accidental, I do not know; but on my way home from Christiania, having to put in to Christiansand on October 19th through stress of weather, we saw a small whale spouting just outside the entrance to the harbour, a little to the east of Oxö Light. It seems odd that in all the passages I have made past Christiansand I should never have seen a whale thereabouts until this time when I was returning from interviewing some members of this great family in Finmarken.

This particular species does not seem to occur so far to the north as Finmarken. Dr. Guldberg ('Vardö Posten,' Aug. 19th, 1883) says of it:—"It scarcely exceeds thirty-two or thirty-three feet. The back fin is high, with the point curved backwards. The colour is black above, lighter on the sides, and under the belly white. A point, however, very characteristic of it is that the flippers or pectoral fins are black, with a broad white band in the middle. The baleen-plates are yellow, and small. . . . . On the whole it seems to have a less northerly habitat than the other larger Finwhales. . . . . Its food consists chiefly of small fish of the Capelan, Herring, and Cod families, which it pursues far up into the fjords. In the neighbourhood of Bergen it is hunted in fjords which have narrow inlets, where it is surrounded, and subsequently killed with harpoons or arrows discharged from large bows.\* . . . . It is supposed that the young is born in the middle of the winter; it is then six or seven feet long; there is seldom more than one at a time."

In the season of 1883 there were nineteen whalers (including tugs) off the East Finmarken Coast, and the total number of whales (*Balænopteridæ*) taken, was 406; to the eastward again was one Russian whaler, which took 20 whales; in West Finmarken (*i. e.*, west of the North Cape) I heard there were five whalers, but I learnt nothing for certain about them or the number of whales taken; the majority of the whales killed here are, I believe, Rudolphi's Rorqual (*B. borealis*). Of the 406 taken off the East Finmarken coast, I was told on the best authority that about 50 would be Humpbacks, and the remainder—about half and half—Blue and Common Rorqual. The largest

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\* Examples of these somewhat primitive weapons were exhibited in the Norwegian Court of the Fisheries Exhibition in London, 1883.

number killed by one ship was 40; she, however, was attended by a tug (to tow home whales as captured, leaving the whaler herself free to continue hunting). Her managing owner told me that 19 of these were Blue Whales, 8 Humpbacks, and the remainder (13) Finners. The whaler I was out in took 37 (unattended by a tug), while the other ship belonging to the same company only took 8. In 1882 Herr Svend Foyn took, I was told, 107 whales, while this season he went off in one of his whalers to Iceland, with a view to establishing a factory on that coast; \* he was "prospecting" rather than fishing, and only took two whales there; his other ship off Vadsö took 20.

*Synopsis of Balænopteridæ in North European Seas.*

**HUMPBACKED WHALE.**—Colour of body, whole upper part jet-black, including under side of the head; under side, towards tail end, black; throat, with the furrows and nearly the whole of under side, may be white, including part of under side of flukes; or may be more or less marked with white, or may be almost entirely black. Flippers very long, = 15 ft. (male about 44 ft.) to end of humerus; narrow; paddle or broad-sword shaped (*not* scimitar-shaped, as the Rorquals); deeply serrated along anterior margin; outer side may be black, or black only to extent of proximal quarter; under side cream-white. Baleen quite short, and entirely black; bristles a shade lighter, or *whiter* than the faded brown of under side of a hedgehog. Remarks:—Numerous tubercles round nose and under jaw; is always infested with *Conchoderma auritum*, L., growing on *Diadema coronula* L., and numberless *Cyami*. Very thick and robust.

**COMMON RORQUAL.**—Colour of body grey-blue, or greyish slate-colour on the back; the whole under side white, including the under side of the flukes; the white is only a few inches in width along the small tail part—the last few feet in front of the flukes; all the furrows included in the white, except about the uppermost row; under jaw also white; upper side of flukes dull black; width (in male rather over 40 ft.) 12 ft. Flippers remarkably short, light slate-colour, tipped with white at the extreme distal edge (but not along the side edge). Baleen black on the outer

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\* Vadsö is practically "used up," and Herr Foyn is removing his factory thence.

edge, then slate-colour, gradually *striping* to yellow on the inner; bristles light yellow, almost buff. Remarks:—Extremely thin and elongated, looking apparently *emaciated*.

SIBBALD'S RORQUAL.—Colour of body, upper side dark slate-blue; *no* white about the body, the under side being merely a shade lighter in colour than the upper. Flippers longer than Common Rorqual's, light slate-blue outer side, and white on the inner side. Baleen rather broader than Common Rorqual's; coal-black, including the bristles. Remarks:—Elongated, but still robust, compared with the Common Rorqual.

RUDOLPHI'S RORQUAL. — Colour of body, [Upper part black, under side white.—Southwell]. Flippers, outer side black, under side white; more pointed than the Common Rorqual's. Baleen black, the bristles white. Remarks:—Dorsal fin rather higher and more curved and pointed than the Common Rorqual's.

LESSER RORQUAL.—Colour of body, [Upper part black, under side white. Flippers black, with broad band of white across. Baleen yellowish white. Remarks:—Dorsal fin high.—Southwell].

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## NOTES AND QUERIES.

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### MAMMALIA.

**Photographing a Tiger.**—A correspondent to a Madras paper writes as follows:—"So far as I can ascertain, a photograph of a Tiger in the act of striking down a large animal was never taken until this week, when I secured a negative of a Tiger killing a Buffalo. I had focussed on the Buffalo, which was tied to the stump of a tree in the middle of a field, and had just put a dry plate in the camera, when a Tiger came up and struck down the Buffalo with a single blow of his paw. My camera was not ten yards from the Buffalo, and the Tiger might just as well have come at me, if he had chosen to do so, but fortunately he selected the Buffalo instead, and then I took advantage of my position and released the spring shutter just as he had given the Buffalo his knock-down blow. The negative, I am sorry to say, is not a good one, but it is nevertheless interesting, because it throws some light on that vexed question, 'How does a Tiger kill his prey?' In the photograph, which I have before me as I write, the Tiger is seen standing on his hind legs, which are bent; his body is inclined to the ground at an angle of about 45 deg.; his tail is straight, except the tip, which is curled upwards; and the right fore paw is seen above and the left below the Buffalo's neck. The head of the Buffalo covers the shoulder and heart

of the Tiger, whose head appears above his horns; his back is nearly level, but his front legs are doubled up under him and he is just in the act of falling. The head is drooping and lifeless, and the whole appearance of the Buffalo tends to confirm the generally accepted opinion, that the Tiger with his knock-down blow dislocates the neck of his victim."

**Porpoise in the Thames.**—On the last day of September some excitement was caused among the watermen plying on the river and persons walking along its banks, by the appearance of a Porpoise, which was seen to be ascending with the tide near Westminster. A number of shots were fired at it, but ultimately the pursuit ceased with the disappearance of its object. Later in the day, however, a Porpoise, believed to have been the one shot at in the morning, was captured by a bargeman, who struck it with his boathook off the Sufferance and Providence Wharf, Lambeth. When taken ashore, it was found to be about five feet in length and to weigh three-quarters of a hundredweight.

#### BIRDS.

**Ruffs and Reeves in Lincolnshire.**—It is worth recording that on September 12th I saw a flock of Ruffs and Reeves in the Great Cotes marshes, the latter apparently being very considerably in excess of the males. They rose from a large grass walk in company with eight young Curlews, but separated from them almost immediately, pitching alone in the next field. There must have been at least twenty, probably more, but they flew so closely—all in a lump—that I did not count them. On the 18th I saw a Ruff and seven Reeves, and also a single Ruff. The young Curlews come over by hundreds, in parties of seven to ten, in the bare summer-eaten clover walks and grass marshes at dusk every evening to feed, returning, with much noisy clamour, just at daybreak. They find numerous small coleopterous insects in the dried-up dung, from which source in this dry season their main supply of food appears to be drawn. The recent strong east winds have brought several immigrants on to the coast, including Pied Flycatchers and Redstarts, also large flights of Linnets and Greenfinches.—JOHN CORDEAUX (Great Cotes, Ulceby).

**Breeding of the Ruff in Lancashire.**—I wish to correct an erroneous impression originating in a statement made by Pennant ('British Zoology,' vol. ii. p. 75, footnote), that Ruffs "visit a place called Martin Mere, in Lancashire, the latter end of March or beginning of April, but do not continue there above three weeks." I have, in my opinion, conclusive evidence that the Ruff bred on the Mere within the last fifty years. Several of the oldest Mere-men now living, who have been close observers of the birds of the district and are keen wildfowlers, say positively that they have seen birds during the whole of the summer, have noticed them assume and

throw off the Ruff, and have often seen them at the "hill." One, William Parker, of Crosuns, near Southport, caught—between thirty and forty years ago—a young Ruff which could not fly; this he kept for several days in a walled-in garden; it was then killed by a game-cock. I have now in my possession two males which were taken on the Mere about forty years ago, by the late Henry Canner, gamekeeper to the late Sir Thomas Hesketh. Both birds have the ruffs and auricles fully developed, and one has the tubercles very prominent. Selby (Brit. Ornithology, vol. ii. p. 131) states that "The papillæ, or small fleshy tubercles, that cover the face and the region of the eyes during the height of the season (and which are ascertained by experiments on birds kept in confinement, to be only consequent on sexual connection) also disappear." Montagu says, "it is evident that the bare papillous head is only attendant on venery." According to these authorities, then, one of my birds must have paired, and as this takes place in the immediate vicinity of the future nesting-place, the evidence in support of my contention is conclusive.—ROBERT J. HOWARD (Blackburn).

**Shearwaters on the Rock of Filfola.**—Filfola is an islet between two and three miles from the S.W. coast of Malta; it is reached by hiring a small boat at a fishing village near Zurico, but landing is impossible with the slightest swell. It is a precipitous limestone, not covering more than perhaps half an acre, surrounded with *débris*, the fragments sometimes being of great size; amongst these fragments grows a coarse herbage, apparently of the nature somewhat of samphire, in great abundance. Filfola is the breeding haunt of the Mediterranean Shearwater (*Puffinus Kuhli*), the Manx Shearwater (*P. anglorum*), the Storm Petrel (*Procellaria pelagica*), and the Rock Pigeon (*Columba livia*). I visited this rock with a friend on the 5th and 12th April last. We found *P. anglorum* breeding in some numbers; they appeared to breed in a colony of about ten or fifteen yards radius; immediately outside this radius we could find none, though if we had had opportunity to search further we might probably have found more, but on the occasion of both our visits circumstances prevented our longer stay on the islet; on the last occasion we had great difficulty in embarking on account of the heavy swell. We only found on one occasion a hole proper selected as a breeding-place, and this was about five feet from the ground in the face of the rock; it extended twelve or fifteen feet, and terminated in a small fissure, too small for egress. The egg was about three feet and a half from the entrance, and two birds, presumably male and female, were with it. The favourite position for the egg was in the natural recesses formed by the overhanging herbage, or in the roomy and cool chambers underneath the fragments. Sometimes a few dried stalks were used as a quasi-nest, but more often there was no pretence of one, not even a hollow. We took two birds from off their egg, both of which on dissection proved to be males. We also found a few *Puffinus Kuhli* asleep

under rocks; one of a pair we killed was a female with the ovaries very little developed. The bill of *Puffinus anglorum* does not do much damage, as I found by making the experiment; but, judging from the care which the Maltese boatmen took to keep their fingers out of reach of *P. Kuhl*, I fancy it is able to inflict a severe wound; we did not care to prove it. We found several empty egg-shells with a hole at the top—I expect the work of the Lizards, which swarm on the rock. The eggs we took on the 13th were very much incubated; in fact, some of them appeared within twenty-four hours of hatching. We found no newly-hatched young birds. There are a few rabbits on the islet, which I am told, as one would expect, are very inferior eating. How they obtain enough food to sustain life I do not know.—E. F. BECHER, Capt. R.A.

**Dipper's Nest on the top of a Boulder.**—That many birds build their nests in what seem to us odd places is well known and perhaps in this respect the Dipper is one of the most eccentric. Not to mention cases of which I have heard and read, I have myself seen their nests in very extraordinary, nay almost incredible, places. In this I think the one I have now to notice will in a measure bear me out. In a river near here, and about midway in the stream, there lies, amongst others, a small boulder, which shows a foot or so above the usual current, and has a very slight depression on the top. Here a pair of Water Crows commenced their nest, and by some extraordinary means succeeded in rearing a home for themselves and their young. When finished, although it heightened the appearance of the boulder considerably, yet, from the shape and colour of the materials used, the nest could scarcely be distinguished from the boulder. It was discovered by the merest chance by a gentleman whilst fishing. The river at this spot is very bare, having no bank of any height, bush, nor tree near; yet the nest, although completely exposed to every gust of wind and rain, nevertheless withstood the fury of the elements for at least three months. By this time a family of four had been reared, and with their parents had departed elsewhere. The nest would have stood longer, but was removed to be preserved as a memorial of the strange place where built. The removal, however, proved a much more difficult matter than was anticipated. On the attempt being made, the nest was found to be so firmly attached, cemented on as it were to the stone, that it took some considerable time and trouble to detach it. On being minutely examined, it appeared from its construction to be impervious to rain.—THOMAS EDWARD (Banff).

**Wood Sandpiper in Nottinghamshire.**—During the first week in August I heard that the Mansfield Reservoir was very low, and as this is the time Sandpipers visit us, I took a walk over, and found that nearly twenty acres were turned into mud-flats. I could see several waders about, so got the keeper to bring his gun, and after a drive or two he was fortunate



enough to shoot a nice specimen of the Wood Sandpiper, a rare bird in this county, this being only the third authentic occurrence. I also saw Green and Common Sandpipers and Ringed Plovers, besides a lot of Coots and a few Tufted Ducks.—J. WHITAKER (Rainworth, Mansfield).

**Ruddy Sheldrake on Romney Marsh.**—A Ruddy Sheldrake was killed on September 8th, by John Southerden, at the Midripps in Romney Marsh, Kent, about twelve miles from Rye. It was brought, for preservation, to Mr. Bristowe, naturalist, of Silchester Road, St. Leonards-on-Sea. I have seen the bird. Bristowe informed me that it was a male, but the black band round the neck is entirely absent, and it has the head of a light buff, which all point to its being a female. Can it be an immature male?—THOMAS PARKIN (The Vicarage, Halton, Hastings).

**Bittern, White-fronted Goose, and Black Tern in Berkshire.**—I saw this summer at Sir R. F. Sutton's, at Benham Park, a Bittern obtained in November, 1883, under rather singular circumstances. When shooting the duck preserves at Kintbury,—about one hundred acres of reeds, willows, and alders, with intersecting streams, close to the Kennet, and called the "Wilderness,"—the Bittern rose from a thick bed of reeds and dashed in the face of one of the beaters; the man, alarmed for his eyes, which he said the bird struck at, knocked it over with his stick, breaking its legs, and then succeeded in capturing it. A fine old male White-fronted Goose was shot in the same locality, by Sir R. F. Sutton, on December 24th, 1879, and more recently an immature Black Tern.—JOHN CORDEAUX (Great Cotes, Ulceby).

**Black Pomatorhine Skua at Redcar.**—One of my fisherman friends, Kit Dobson, brought me a Pomatorhine Skua on October 4th, which he had shot at sea off Redcar: it is the black melanistic variety, resembling those first recorded by me as having been obtained here in October, 1879. The plumage is sooty black on the back; breast a shade lighter; the neck is rather moulted and thin of feathers, but the new ones appearing are very deep black, and have no appearance of yellow, which I have noticed on one or two dark birds. The state of the bill and the obtuse projecting tail-feathers show that the bird is a mature specimen. Gannets have been very plentiful off Redcar this season, young ones predominating, and a considerable number were shot during September and the early part of October. An adult Sandwich Tern was obtained in August. Mr. Fox Chilton noticed the first Wigeon on Cowpen Marsh on August 28th, and early in September he shot a Spotted Crake in Saltholme. Three Pigmy Curlews were shot at the Tees mouth about the end of September. I noticed the first Hooded Crow on October 5th, when a flight came from seaward. Short-eared Owls, Woodcocks, and Goldcrests have been dropping in during the past few days. Ducks have been passing almost daily for the

past month. On October 6th I noticed considerable flocks coming up from the East, and a solitary Goosander passed about a hundred yards away.—T. H. NELSON (Redcar).

**Building Sites of the House Martin.**—In looking over the last volume of 'The Zoologist,' I notice a paragraph with this heading, mentioning three nesting localities of the Martin among cliffs. May I add another? The high road from Conway to Bangor, soon after leaving Conway, passes under Pen-maen-bach, a bold headland of slate projecting into the sea. In September last I saw several Martins flying about the face of the cliff, which at this place overhangs the road, and, after a little watching, traced an old bird to its nest of young built far up under a ledge of rock.—HENRY CANDLER (Epsom, Surrey).

**Kingfisher in London.**—On Sunday, October 5th, while standing on the bridge over the Regent's Canal, close to St. Mark's Church, Regent's Park, I saw to my astonishment a Kingfisher dart up the water. It flew on until it reached the bridge in the Zoological Gardens, when it swerved in amongst the overhanging trees, and I did not see it again. As viewed against the dark olive-green surface of the water it looked beautiful. I have since ascertained that some five and twenty years ago, when the sewage from the Zoological Gardens drained out into the canal by a clump of sedge, Kingfishers used to come there to feed on the numerous small fish which were attracted by the sewage. Since then the sedge has been cut and cleared away, and the Kingfishers have deserted this former haunt.—CHARLES WHYMPER (55, Fitzroy Road, Regent's Park).

**Breeding of *Fratercula arctica* on the Burlings.**—In 'The Ibis,' 1871, p. 402, Mr. Howard Saunders, in his valuable paper on the Birds of Southern Spain, writes with reference to the Puffin, "The most southern breeding-place with which I am acquainted is at the Berlengas, or Farallones, a group of rocks in the Atlantic, a trifle to the north of the latitude of Lisbon." I find the following reference to these rocks and their fauna in Captain Boteler's 'Recollections from 1808 to 1830' (London, 1833). In 1826 Captain (then Lieutenant) Boteler, R.N., was in command of H.M.S. 'Syra,' belonging to the squadron in the Tagus. At p. 171 he writes:—"Another time I was sent to survey the Burlings, four or five islands of rock, three or four miles off Cape Peniche. There was a remarkable cave that I entered with my gig, disturbing myriads of sea pigeons, puffin, and bats, and I found to my surprise that the cavern went right through that point of the island."—H. W. FEILDEN.

**Reported Occurrence of Cranes near Clitheroe.**—Two of these birds have been seen near Clitheroe by Mr. R. Milne-Redhead, Bolton-by-Bowland, who has kindly furnished me with the following particulars:—On the 25th August last, about 4 p.m., he saw from his window, with the

naked eye, a Crane, *Grus communis*, flying S.S.E., and on looking through his glass he distinctly saw a second travelling in the same direction. He made a note at the time, and entered the weather as "brilliantly fine and clear, air cooler; bar. 29.55." We had a prevalence of easterly winds for some time previously. He further states that he is perfectly familiar with the appearance of the bird, having often seen it in Germany, Alsace, &c. Although the Cranes, when seen by Mr. Milne-Redhead, were not actually in Lancashire, their line of flight would in a few minutes have taken them over the boundary, and I think we may now consider Lancashire as one of the counties visited by this bird during the present century.—ROBERT J. HOWARD (Blackburn).

**Early appearance of Wild Geese in Ireland.**—On October 10th we had a cold north wind and hail showers—a sudden change from the recent genial weather. Being out on an upland district near this, about 4 p.m., with a friend well acquainted with *Anser albifrons*, and my keeper, we all recognised and watched eight Geese, which came from a northerly inland direction, flying about 200 or 300 feet high, and passed near us. They were unquestionably Wild Geese, probably the above species. I also saw on the same day a flock of Golden Plover, for the first time this autumn. Though the same bitter wind continued, Swallows, *Hirundo rustica*, were still to be seen on October 11th. Some usually stay with us until the end of this month.—R. J. USSHER (Cappagh, Co. Waterford).

**Spoonbills in Suffolk.**—Early in August four Spoonbills were seen to pitch on a marsh at Hollesley, Suffolk. A local gunner named Laugmaid went in pursuit, and was fortunate enough to shoot two of them; these were sold to a gentleman in London. On September 9th a Grey Phalarope was killed at Felixstowe. A Great Spotted Woodpecker was obtained near this town on October 7th. On the same day I saw a Woodcock exposed for sale, and on making enquiry as to where it had been killed, I was informed that it was seen to fly from an apple tree into some cabbages in a garden in this town, where it was afterwards flushed and shot.—J. H. H. KNIGHTS (Ipswich).

**Dipper in Sussex.**—A Dipper was shot, on September 13th, on the Salts at Bopeep, St. Leonards-on-Sea, an unusual place for a bird of this species; and a Dotterel was obtained at Lydd at the end of August.—THOMAS PARKIN (The Vicarage, Halton, Hastings).

**Grey form of the Tawny Owl in Buckinghamshire.**—A specimen of the grey form of *Syrnium aluco* was shot at Great Horwood, near Winslow, Bucks, in July last, and sent to Mr. Wyatt, taxidermist, Banbury. The bird is small, with a decidedly long tail, and is extremely grey, with the white markings conspicuous and no trace of rufous or tawny. A keeper from Yeovil noticed it in Mr. Wyatt's shop, and remarked that only similar

grey birds were found there, whereas neither Mr. Wyatt nor I have ever seen an entirely grey bird from this neighbourhood. The males of the common rufous form are all more or less greyish brown.—F. C. APLIN (Bodicote, Banbury, Oxon).

#### FISHES.

**Balistes capriscus** off Folkestone.—Two species of the genus *Balistes* common in the Atlantic are occasionally met with on the British coasts, *B. capriscus* and *B. maculatus*. Their popular names "File-fish" and "Trigger-fish" are derived from peculiarities thus described by Dr. Günther in the 'Encyclopædia Britannica' (9th ed.), under the name "File-fish":—"Their body is compressed and not covered with ordinary scales, but with small juxtaposed scutes. Their other principal characteristics consist in the structure of their first dorsal fin (which consists of three spines) and in their peculiar dentition. The first of the three dorsal spines is very strong, roughened in front like a file, and hollowed out behind to receive the second much smaller spine, which besides has a projection in front at its base, fitting into a notch of the first. Thus these two spines can only be raised or depressed simultaneously, in such a manner that the first cannot be forced down unless the second has been previously depressed. The latter has been compared to a trigger, hence the name of "Trigger-fish." The generic name *Balistes* and the Italian name *Pesce balistra* also refer to this structure. Both jaws are armed with strong incisor-like and sometimes pointed teeth, by which these fishes are enabled not only to break off pieces of madreporæ and other corals on which they feed, but also to chisel a hole into the hard shells of Mollusca in order to extract the soft parts. In this way they destroy an immense number of mollusks, and become most injurious to the pearl-fisheries. The specimen of *Balistes capriscus* to which this note refers was captured in a trawl on the 27th September last in the bay between Folkestone and Dungeness Point. When fresh it was of a dull slate-colour, and measured  $10\frac{1}{2}$  inches in length and  $4\frac{3}{4}$  inches in depth, excluding the fins. It was forwarded from Folkestone to Mr. Tegetmeier, who in 'The Field' of the 4th October last has given a brief account of it.—J. E. HARTING.

**Ray swallowing a Crayfish.**—At Sennen Cove, near the Land's End, one day in September, a large Ray of some sort was captured. Its belly was unusually distended, so much so that Mr. James B. Coulson, my informant (a seine owner there) caused the fish to be opened, and in its stomach was found a Crayfish, or Common Spiny Lobster, *Palinurus vulgaris*, of considerable size. I have no doubt of the accuracy of this information, and those who know the capacity of the mouth of the Rays for lateral extension (or gape) will not doubt their ability to swallow Crayfish, but surely this cannot be of common occurrence.—THOS. CORNISH (Penzance).

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## IRISH BREEDING-STATIONS OF THE GANNET, *SULA BASSANA.*

KNOWING that the Gannet was reported to breed on the Bull Rock, about three miles W.N.W. of Dursey Head, Co. Cork,\* in addition to its long recognized Irish breeding-station on the Little Skellig, I made arrangements to visit it early in the month of June last.

Before giving a brief account of my excursion, it may be interesting to refer to some statements regarding the breeding of the Gannet in Ireland. Thompson in his 'Natural History of Ireland' (vol. iii., p. 263), quotes the 'History of Kerry,' by Smith, who, describing the "second or middle Skellig," which is no doubt identical with the "Skellig Rock little," or Little Skellig of the Ordnance Map, says:—" 'Tis remarkable the Gannet nestles nowhere else on the south coast of Ireland, and though multitudes of them are daily seen on all parts of our coast, upon the wing, and in the sea, yet they were never known to alight on any other land or rock hereabouts, except on this island."

Smith's 'Kerry' was published in 1766, and, though I have no copy beside me, it is probable the Lemon Rock (a small low rock much nearer land) was counted as one of the Skelligs by Smith,

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\* See 'Zoologist,' 1882, p. 110, and 'Migration of Birds at Lighthouses,' 5th Report, p. 89.

since he speaks of a middle Skellig, as if there were three. The Ordnance Map gives but two, the Great and Little Skellig,—the former being 714 feet and the latter 440 feet high; they are a mile and a quarter apart. It will thus be seen that Smith, writing one hundred and twenty years ago, confines the Gannet to the Little Skellig. Thompson, however, quotes Mr. Chute, who, in 1849, stated that “at the larger Skellig they used to abound,” until the lighthouse was erected there. Mr. Armstrong, the Secretary to the Irish Lights Board, informs me that this was in 1826.

Michael Shea, of Dursey Island, contractor for attending the Calf Rock Lighthouse previous to its destruction in 1881, writes to me that he “believes that the Gannet did not breed on the Bull until after the Skellig Light was erected.”

If the Gannets ever nested on the Great Skellig, the erection of the lighthouse in 1826 would certainly have disturbed them, and probably caused them to desert the rock. It is noteworthy, however, that Smith makes no mention of the Great Skellig as a breeding-place, and that the Gannet is now confined to the Lesser Skellig as in his time. He refers to “another rock on the north coast of Ireland, where they alight and breed in the same manner,” as on the Little Skellig. Thompson is unable to conjecture what rock is meant.

The Stags of Broadhaven, off Mayo, are subsequently mentioned by the last-named author as a reported breeding-place of the Gannet on the Irish coast, his authority being Mr. Townsend, who, it appears, visited that part of Mayo in July, 1836. Mr. Townsend describes the Gannets and the Stags, and says there “cannot be a doubt the Gannet breeds at Broadhaven.” Michael Duffy, keeper at the lighthouse there, which is some miles distant from the Stags, wrote to me in 1882 that “the Gannet does not breed on the Stags, but is to be seen after herring” (see ‘Report on the Migration of Birds,’ 1882). It would be interesting, if it were possible, to reconcile these conflicting statements.

The Calf, Cow, and Bull Rocks are generally the first land sighted by the American liners on this side of the Atlantic. The Calf is three quarters of a mile S.W. of Dursey Head; a mile and three quarters N.W. of the Calf is the Cow; and another mile further out lies the Bull. They are almost in a

line. The height and size of these rocks, compared with the Skelligs, is as follows:—

	Height in feet.	Area.			Miles from shore.
		A.	R.	P.	
Calf ... ..	78	0	1	33	$\frac{3}{4}$
Cow ... ..	215	1	3	2	$1\frac{3}{4}$
Bull ... ..	302	1	0	8	3
Little Skellig ...	440	16	3	18	7
Great Skellig ...	714	44	1	28	$8\frac{1}{2}$

The Bull, Cow, and Calf are about sixteen miles S.E. of the Skelligs. The lighthouse on the Calf Rock was destroyed by a great storm in November, 1881, and it was decided to erect the new lighthouse on the Bull Rock. The works were commenced this year, and a steamer was stationed at Castletown Berehaven, in April, to convey the workmen to and from the Rock. These men are engaged blasting and quarrying away the summit of the Bull, to make a foundation for the new lighthouse.

Owing to my connection with the British Association Committee on the Migration of Birds at Lighthouses, permission was obtained to go out in the steamer—a concession not readily granted. The landing is so difficult in bad weather that the workmen had only been on the rocks fourteen days in two months. I asked my friend Mr. R. J. Ussher to accompany me, and Mr. J. N. White, of Waterford, and my nephew completed the party.

Until we were quite near the Bull, comparatively few birds were visible, but thousands filled the air as we anchored about 150 yards from the rock. The firing of a shot was followed by the appearance of a greater number of birds than I remember to have seen, except at St. Kilda. I spent three weeks on St. Kilda in 1883, living in a tent on the main island, and running some risk of spending three months there, or perhaps a whole winter had the weather proved boisterous. At St. Kilda, also, I was much struck by the scarcity of birds a little way out at sea. When approaching this remote group of islands, at a distance of two or three miles, one could scarcely suppose he was near the greatest breeding-place of sea-fowl in the British Isles.

To climb the Bull at the present landing-place would be difficult, were it not for the rope ladder-used by the workmen.

A lofty arch runs right through the rock. Its direction in the Ordnance Sheet is due N. and S., and it is over this arch, at both ends, that the Gannet breeds in greatest numbers. Over the southern entrance they are most numerous, occupying every shelf and ledge on the cliff, from the top of the arch to within thirty feet of the top of the Bull. At least 150 feet of the cliff is here literally white with Gannets. I estimate the number breeding on this, the southern face, at 1200 to 1500. Some two hundred feet over the northern entrance to the arch the blasting operations are in progress, and far fewer Gannets breed. Indications are not wanting, however, to show that here also they must have had a large colony; but the showers of stones falling down the cliff from the top of the island have banished all but a few courageous birds, which still cling to their nests, and sit hatching as the rocks and *débris* fly past and even over them. No Gannets breed on the east side, but on the western face there are several nests. Altogether perhaps 2000 breed on the Bull.

In 'The Zoologist' for 1876, p. 5048, Mr. J. H. Gurney, jun., put a query about the materials of Gannets' nests, quoting from H. Boece (1526), Willughby (1678), and others. Mr. Gurney found all the Gannets' nests he examined on the Bass Rock to be composed of seaweed mixed with grass. At the Bull, seaweed predominated, but a few nests had some grass mixed with it. The island of Borrera (1072 feet), at St Kilda, has in the breeding season a flock of Gannets frequently on its grassy top, pulling materials for their nests. Martin, who visited St. Kilda in 1697, in his 'Voyage' to that island, says (at page 8), that two Gannets "confirmed the truth of what has been frequently reported, of their stealing from one another grass wherewith to make their nests, by affording us the following very agreeable diversion, and it was thus: one of them finding his neighbour's nest without the fowl, lays hold on the opportunity and steals from it as much grass as he could conveniently carry off, taking his flight towards the ocean; from thence he presently returns as if he had made a foreign purchase, but it does not pass for such, for the owner had discovered the fact before the thief had got out of sight, and, too nimble for his cunning, waits his return, all armed with fury, and engages him desperately; this bloody battle was fought above our heads, and proved fatal to the thief, who fell dead so near our boat that our



men took him up, and presently dressed and eat him, which they reckoned as a good omen of success on the voyage."

Whether this account of Martin's can be credited or not, it may be evidence to show that the Gannets at St. Kilda desire to have grass in their nests, and do not rely altogether on seaweed.

The natives of St. Kilda told me they frequently got bits of candle in the nest of the Gannet! When at the Bull I saw the semi-digested remains of what I believe was once a squid, close to a Gannet's nest. It was just disgorged, and, with the cuttle-fish bone inside, bore a strong resemblance to a candle covered with slime!

In the 'Proceedings of the Belfast Natural History Society,' 1873-4, there is a paper on the swimming-birds of Belfast Lough. At page 110, on the authority of Mr. M'Donald, commander of H.M. cruiser 'Vigilant,' the following estimate is given of the Gannets breeding at the five Scotch stations:—Ailsa Craig, 12,000; Bass Rock, 12,000; St. Kilda, 50,000; the Stack, 50,000; Sula S'Geir (or Sulisker), 300,000. It is not easy to take a census of birds with the eye, but I should think 20,000 Gannets at St. Kilda would be more accurate. They have three breeding-places there: Stack-a-Lii, Stack-a-Narmin, and the island of Borrera; and all are inhabited, like every other British breeding-station. Sulisker is thirty-three miles north of the Butt of Lewis, and must be well worth a visit. The Stack is twenty-three miles N.E. of Cape Wrath, in Sutherlandshire. Next year, if possible, it is my intention to see both these stations.

In 1880 I was on both the Great and Little Skellig, and the number of Gannets then breeding on the latter seemed very few—scarcely thirty pairs—I thought; so that the Bull is now the greatest Irish breeding-place. It is possible I may not have seen all the Gannets on the Little Skellig in 1880, for although I have climbed the Matterhorn, Jungfrau, and many other peaks, I was baffled by a chasm on this rock, and failed to see the Gannets at close quarters. My guide crossed it, but would probably have fallen as he returned, had I not remained behind to pull him up. We had not time to choose an easier way.

This year we started for the Skelligs, after visiting the Bull, but bad weather compelled us to return when scarcely half way. The boatman who attends the lighthouse was with us, and said

he never saw so many Gannets breeding on [the Little Skillig as this year. This would lead one to suspect that when driven from the Bull by the blasting, they migrated to the Skilligs. The reverse process has probably been going on for several years. That the Gannets will completely desert the Bull in two or three years I have little doubt. Some may establish themselves on the Cow, a mile distant. Michael Shea, of Dursey Island, states that a few already breed there. We did not land on the Cow, but passing close in the steamer no Gannets were visible. The young speckled birds of a year old must keep away from the breeding-stations, for at the Bull scarcely two Gannets in a hundred were speckled, and at St. Kilda about the same proportion.

The birds breeding on the Bull Rock, in order of numbers, are:—

Razorbill, <i>Alca torda</i> , Linn. ...	...	5000
Gannet, <i>Sula bassana</i> , Linn. ...	...	2000
Guillemot, <i>Uria troile</i> , Linn. ...	...	1000
Ringed Guillemot, <i>Uria troile</i> var. ...	...	20
Puffin, <i>Fratercula arctica</i> , Linn. ...	...	500
Kittiwake, <i>Larus tridactylus</i> , Linn. ...	...	300
Herring Gull, <i>Larus argentatus</i> , Gm. ...	...	100?

No nest of the last-named species was seen; only the birds.

Taking the same area of rock surface, more Razorbills breed on the Bull than at any other locality I have visited (St. Kilda not excepted). The Doon at St. Kilda, and the Tearaght Rock, one of the Blasket group off Dingle in Kerry, are the greatest breeding-places of the Puffin I have seen. The Great Skellig, perhaps, comes next; then Tory Island, N.W. of Donegal. The surface of the Bull is too rocky for the Puffin, which prefers to burrow in soft turfy cliffs. From experience I can state that the Puffin is excellent eating; plucked, split in two, and roast, it is quite equal to duck.

Botanically speaking there is one point of interest about the Bull, *i.e.*, the occurrence of *Lavatera arborea*, Linn., growing luxuriantly on its summit. This plant is only admitted into the Irish list of phanerogams as a doubtful native ('Cybele Hibernica,' p. 54). I have also gathered it on Innishnabro, and on the Tearaght Rock, but nowhere have I seen it more likely to be indigenous than on the Bull Rock.

Since writing the above I have received a letter from Mr. Robert Warren, of Ballina, Co. Mayo, in which he says:—“I have no authentic record of the Gannet breeding on the Stags of Broadhaven. Dr. Darling sent his brother there in the summer of 1882, but there was no trace of them, nor did a young cliff-climber whom they employed know of their breeding within his memory. Sir R. Payne-Gallwey (*‘The Fowler in Ireland,’* p. 261) must have mistaken what I wrote to him. Mr. Townsend’s account to Thompson dates back to *July*, 1836. Is it possible young Gannets fly in that month?” Mr. A. E. Knox said, January 3rd, 1851 (see Thompson, vol. iii., Appendix, p. 451), that Gannets used to breed on the Stags of Broadhaven when he was a boy, “but not in numbers.” My cautious friend Mr. Warren adds, “neither Mr. Knox nor Mr. Townsend saw nests.”

The Fastnet Rock, eight miles S.W. of Cape Clear, Co. Cork, is inaccurately given as a breeding-place in Sir R. Payne-Gallwey’s book (p. 136), for neither the Gannet nor any other bird breeds on the Fastnet. The light-keeper there has just written to me,—“The Gannet does not breed on the rock, nor never did; in fact, no bird could breed there, as the rock is too small.” Anyone who has seen the model of the Fastnet in the Irish Lights Office can appreciate the truth of this remark. The lighthouse was erected in 1848, and the rock is only 52 feet above the sea-level.

RICHARD M. BARRINGTON.

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EARLY in June last, in company with Messrs. R. M. Barrington and J. N. White, I visited the coasts of West Cork and Kerry, with a view to Ornithology. Leaving Berehaven at 4 a.m., we coasted along the rock-bound peninsula of which Dursey Island forms a continuation. We then struck out into the Atlantic, towards those last fragments of land, the Cow, the Calf, and the Bull Rocks. On the latter (our special destination) a lighthouse is about to be erected. As we approached the Bull, which rises 293 feet out of the Atlantic, we were impressed by its appearance. The front presented to us is conical, like the front of a saddle, with slightly bulging sides, terminating below in cliffs. The island is pierced from end to end with a huge arch, through which the sea flows. The eastern and western ends are precipitous, and on the lofty ledges above the arch we

saw multitudes of Gannets, while numbers of these and of the Alcidae swarmed around and above. On the whistle of the steamer being sounded, the Gannets on the rock took flight, launching themselves forth from their lofty breeding-shelves, with outstretched necks and lengthy wings, in such numbers as exceeded anything we had anticipated. This surprise was heightened when, on rowing round the island, we found quite as many, if not more, Gannets breeding on similar elevated ledges, their nests being always placed high out of reach of the ocean breakers, at the western end and above the north-west corner. The lower rocks, especially some large detached ones near that corner, were thickly covered with Gannets, probably the males and more breeding birds. All these were in the white adult plumage, but we saw during the day an occasional grey immature Gannet on the wing, assuming the white on its head and shoulders. After comparing our estimates and cutting them down, we concluded that there were probably from a thousand to two thousand of these birds breeding on the Bull Rock. About twenty-five years ago, Mr. G. H. Kinahan, who was then at Castletown, Berehaven, on the Geological Survey, was well assured that no Gannets bred on this rock, for the clergyman of Berehaven, having then visited it, asked him after the visit why it was that Gannets bred on the Skelligs and not on the Bull Rock? "Many hundreds," however, were found breeding there in 1868, by Mr. S. N. Hutchins, as appears by a note from the Rev. W. W. Flemyng ('Zoologist,' 1882, p. 110.)

On ascending the rock we found we could get to some of the Gannets' building-ledges, both at the east and west ends, and a few of the birds remained on their nests till we approached within a pace of them. The nests were invariably of seaweed, with occasionally a little grass, not so well built as those of Cormorants. Each usually contained one egg or young bird, but in two instances I saw nests containing two eggs each. On emptying one of these pairs I found one egg fresh, the other decidedly sat upon, so that they may have been laid by different birds. Most of the eggs, from their soiled appearance, must have been sat upon some time. The naked black young, newly-hatched, contrasted quaintly with those which had assumed the white downy covering which added greatly to their apparent growth. One nest contained a half-digested fish about the size

of a mackerel. The harsh croaking cry of the Gannets was very striking. They are courageous birds: numbers of them sat while blasting took place close by, the splinters falling in showers around them, while Razorbills might be seen looking out of their nooks from under the very avalanche of *débris*. These quarrying operations have desolated a large portion of the rock, which is strewn with broken eggs of Razorbills and Guillemots. The former species is far the most numerous on the Bull Rock. Comparatively few Puffins breed, the rocky nature of the island and the absence of vegetable soil obliging them to lay under rock fragments and in fissures. Kittiwakes have garnished the lower cliffs with their numerous nests, but very few Herring Gulls or Lesser Black-backs breed on the Bull. There was also an absence of Cormorants, Shags, Oystercatchers and Terns; although on the Cow, another lofty rock about a mile and a quarter distant and 215 feet in height, we noticed a colony of Cormorants and many Herring Gulls, but no Gannets. The most striking plant on the Bull Rock is the *Lavatera arborea*, which grows on its summit to a height of four feet. During our subsequent coasting voyage we noticed a pair of Black Guillemots at Cod's Head, Co. Cork, and others in Ballinskelligs Bay.

On the 11th June we left Port Magee for the Skelligs, but after rowing an hour a heavy sea deterred our boatmen. We were then off the north side of Puffin Island, whose knife-backed ridge rose to our left against a sky covered with swarms of birds that breed in these cliffs. Manx Shearwaters, with their light flight, were skimming the sea around us.

We then rowed round the eastern extremity of Puffin Island, which is the lowest and nearest the mainland, from which it is distant only a furlong. Here a colony of Terns took wing. These from their slaty colour appeared to be Arctic Terns. On landing we found the surface where they breed composed of laminated rock on edge, in the interstices of which were several pairs of their eggs slightly incubated. Oystercatchers and Wheat-ears were breeding close by, and Rock Pipits numerous.

We then proceeded along the island, which is about a mile in length, but uninhabited. The northern side is a series of precipices 474 feet high, but the southern side, though steep, is clothed with thrift, forming a peat soil beneath it. Along this

steep surface one can creep rather than walk. It is pierced by innumerable rabbit and puffin-holes. Our conductor examined these, and where he found a slight trace of white dung at the mouth of one he tore up the peat, inserted his arm, and drew forth a Shearwater, then her egg. On searching another hole, near which he pointed out a similar white speck on the thrift, he pulled out a Storm Petrel and her egg. After a long search we procured a few of each species. We found these Shearwaters and Petrels breeding in a steep slope overlooking the sea, though at a very considerable height. On being liberated the Petrels always went with a zigzag flight down the cliffs. Their eggs were fresh, but those of the Manx Shearwaters were hard sat upon. Two Shearwaters, on being put into a basket containing cotton-wool, continued to burrow in the latter till they reduced it to rags, while two Petrels, also put into this basket, kept dancing about on the top of the wool. The burrow inhabited by a Puffin may be generally distinguished from that which a Shearwater frequents by the quantity of dung at its orifice. The latter, bird being nocturnal in its habits, does not so frequently enter and leave the hole as the busy Puffin, and leaves fewer traces after her.

On enquiring for the Great Black-backed Gull, our guide took us to the narrow western extremity of the island, where the ridge is lower and exclusively rocky. Here, on the very top, we found a nest of this species, composed of tufts of thrift and some withered stems. It contained three handsomely-marked eggs. Our guide had previously this year taken another set of eggs of the Great Saddle-back from this spot, to eat. Lower down among the rocks, Herring Gulls and Lesser Black-backs had their nests. Mr. Barrington pointed out a rocky islet rising to a height of 50 or 60 feet, where from his experience in St. Kilda he expected to find, and accordingly did find, on the very summit, another nest of the Great Black-backed Gull with three eggs. We saw some pairs of Choughs frequenting Puffin Island, which appeared to have nests in the lower cliffs. A deserted nest of the Hooded Crow in the cavity of a projecting spur, was easily accessible from the slope above which it rose, and strikingly contrasted with the inaccessible positions in which I have found this species breeding in more frequented places.

R. J. USSHER.

## NOTES AND QUERIES.

## MAMMALIA.

**Greater Horse-shoe Bat at Oxford.**—A friend of mine one evening in October, about ten years ago,—he thinks in 1875,—shot a specimen of this bat as it was flying over the reservoir here, and kept it some days in his house, but did not have it preserved. He was able to compare it, however, with a figure of the species, and he says it was very large, so that I have no doubt as to its identity. Like the specimen of Bechstein's Bat obtained at Godstow, as recorded in the 'Midland Naturalist,' it may, I suppose, be considered a native of Berkshire, the reservoir being on the south side of the river. Is not this the most northern English (perhaps European?) locality known for the species? For, excepting the counties of the south coast, it seems only to have been reported from Swansea, Bristol, Clifton, and Weston-super-Mare (from which place there is a specimen in the Oxford Museum), the Colchester record being considered a mistake.—J. E. KELSALL (Balliol College, Oxford).

[We have a note of one taken at Carperley, Wensleydale, by Mr. Carter, of Burton House, Bedale, which would place the range of this species in England considerably to the north of Oxford.—ED.]

**Rudolphi's Rorqual at Goole.**—The article on the Finwhale Fishery by Mr. Cocks, in your last number, proved very interesting to me, inasmuch as we had shortly before captured a young male Rorqual, and I will, with your permission, give a short description of it. It was seen in the Humber and Ouse on September 5th, and shortly after high water that evening was observed by some boys trying to get into the Barge Lock, attracted, in all probability, by the clear water escaping from the docks. The boys, with assistance, opened the lock-gates, and the animal at once entered; the gates were closed, and the capture was complete. After a very severe struggle it was killed, lashed to a vessel, and in the morning lifted out of the water by a large crane. It was carefully weighed and measured, with the intention of getting it properly identified. The length was 32 ft. 6 in.; greatest girth, 15 ft. 6 in., least (near the tail), 4 ft.; height at the flippers, 4 ft. 8 in.; length of flipper, 4 ft. 1 in.; length of dorsal fin, 2 ft. 4 in.; length from that fin to the tail, 9 ft. 3 in.; flukes of tail, 7 ft. 2 in.; across, breadth of fluke, 2 ft. 8 in.; from tip of jaw to blowholes, 4 ft. 5 in.; from end of jaw to eye (situated near the angle of the mouth), 5 ft. 6 in.; exposed portion of eyeball, 3 in. Weight nearly 9½ tons. The colour was black and smooth above, white on the under parts; the curious plaits or folds extended longitudinally from the under jaw to the middle of the body. The flippers were black on both sides. The baleen tapered in length from fifteen to

two or three inches, the palate being almost covered with the fringe, which was of a dirty white colour. The blubber was stripped off on Sept. 8th, and varied from three to seven inches in thickness. As this was the first visit of any of the *Balænopteridæ* to Goole we were very anxious to have it properly recorded, and my friend Mr Birks wrote to Mr. Southwell, of Norwich, who expressed an opinion that it was Rudolphi's Rorqual. *Balænoptera borealis*, and was kind enough to bring the capture to the notice of Dr. Günther, of the British Museum. An agent came to examine the bones, confirmed Mr. Southwell's opinion, and bought them for the British Museum. The money, together with that obtained by exhibiting the body at Goole, was presented to the Sailors' Institute. — THOMAS BUNKER (Goole).

ERRATA. — In the article on the Finwhale Fishery in Finmarken, p. 368, line 6, for "sand" read "Sound"; p. 369, lines 15 and 16, between "piping" and "which" insert "and containing a liquid"; same page, line 25, for "three-side" read "three-sided"; p. 419, line 5, insert comma after "who," and *dele* comma after "Norwegians"; p. 420, line 26, for "multiplier" read "accumulator"; p. 421, line 11, for "tompions" read "bits"; same page, line 22, between "west" and "centre" insert "of the".

#### BIRDS.

**Probable occurrence of the Lapp Bunting near Grimsby.**—When walking home from Grimsby, on November 8th, through the west marshes,—a locality where I used formerly to shoot Snipe, and have stalked Wild Geese, but now in great part covered with houses and the new dock works and coaling of the Manchester, Sheffield and Lincoln Railway,—I disturbed a small bird from a swampy patch in a grown-up and disused drain. At the first glance I thought it was an unusually large Reed Bunting in summer plumage, but on alighting on a rail-fence within a few yards I at once saw it was a very fine adult male Lapp Bunting; from the rails it flew to some coal-trucks standing in the siding near the dock. The curious thing was that it was in nearly full summer plumage, the black portions only being somewhat (but very little) flecked or broken. The black of the head separated from the cheeks and breast by a very conspicuous light streak, the gorget seemed to cover much more of the breast than in the Reed Bunting, and it had not the white collar of that bird. In flight it showed some white on the tail. Altogether it was a stronger and more robust bird than the male Reed Bunting, nearly, if not quite, equal in size to a Snow Bunting. Reed Buntings have been very numerous this autumn, and much in excess of what we usually see, and I have recently heard that there has been a large migration across Heligoland. It is disappointing to see anything which cannot with certainty be identified; this, however,



happened to me early in October, when I saw a bird as large as a Snow Bunting running over the mown masses of floating weeds collected near the mouth of our main outfall-sluice. In colour it resembled the female Lapp Bunting, and may have belonged to that species; in flight it showed a dull white patch on the upper part of the wing near the bend. Its note, which had a sharp metallic ring, was quite new to me. I saw a Wheatear here on November 7th. No Snow Buntings up to this date (Nov. 10th). Altogether this has been a very remarkable season, quite a host of rare immigrants having turned up on the east coast.—JOHN CORDEAUX (Great Cotes, Ulceby).

**Lesser Black-backed Gull on the Yorkshire Coast.**—Mr. Carter's graphically written and interesting paper on "Egging on the Coast of Yorkshire," in the last number, has recalled very vividly to my mind the grand Yorkshire cliffs along which I enjoyed many delightful rambles in the summer of 1875, 1876, and 1877. I have little doubt that the hawk's eggs referred to by Mr. Carter (p. 447) were the eggs of the identical Peregrine mentioned by me in 'The Zoologist' for 1876 (p. 5040), as follows:—"Speaking to me on the subject of the young Peregrines . . . Mr. Brown told me he had four Peregrine's eggs brought him in the spring of 1875, taken on the Filey cliffs." If the Lesser Black-backed Gull can be satisfactorily identified as having bred on the Yorkshire cliffs, it will be a matter of great interest to many naturalists. I never saw the bird in the breeding season either at Filey or along the Bempton and Speeton cliffs; certainly eggs said to be those of this gull have been offered me on the Yorkshire coast, but I have always been very doubtful about them, especially as the would-be vendor (not a "climber") professed to be able easily to distinguish the eggs from those of the Herring Gull, which I do not believe any one can do. Mr. W. E. Clarke, in his valuable 'Handbook of the Vertebrate Fauna of Yorkshire,' does not mention this bird as breeding in Yorkshire, neither does Mr. Hewitson, nor the Editor of the new edition of "Yarrell." I hope Mr. Carter will make another expedition to the Yorkshire cliffs next summer, and give the readers of 'The Zoologist' the result of fresh enquiries on this point.—JULIAN G. TUCK (St. Mary's Clergy House, Bucknall, Stoke-on-Trent).

**A Supplemental List of the Birds of Breconshire.**—In 1882 I republished a "List of the Birds of Breconshire," which had appeared from time to time in the pages of 'The Zoologist.' Since then, through the courtesy of one or two ornithologists in this county, I have been enabled to add the following birds to my list, which, though making it far from complete, at least swells it to a very respectable total.

Black Redstart, *Ruticilla tithys*.—One seen some years since, resting for a short time on the leads on the roof of Llanthomas, near Hay, in this

county. As far as can be remembered, it was in the month of November. It is most rare with us, and I have never seen it, but my informant is such an excellent ornithologist that I have no doubt of its occurrence.

Bearded Titmouse, *Panarus biarmicus*.—My last informant also reports that “what were believed to be one or two specimens of this bird were seen in the bog wood near Tregoya Hay, on the 28th of May in this year,” which bears out the statement of one of my boys (which I confess I passed by), who accurately described the bird to me from a specimen he said he had seen at Llanthew, near Brecon, in August, 1883. I have also another report from Carmarthenshire, close to the edge of the county, and am inclined from the above to think it very rarely occurs here.

Snow Bunting, *Emberiza nivalis*.—Some were seen near Llanthomas Hay, in the month of January, 1879, and were easily recognised by their colour and size.

Turnstone, *Streptilas interpres*.—One of these birds was killed at Llangorse Lake. Mr. Crawshay, who gave me this information, saw the bird, but unfortunately has forgotten the date.

Green Sandpiper, *Totanus ochropus*.—I have seen three of these elegant waders, that were killed at Talybont, on the River Usk. They occur every year in the spring, on a wet place there, but are seldom seen elsewhere in the county.

Bernicle Goose, *Anser leucopsis*.—One killed at Talybont on the Usk, by Mr. A. Crawshay, 1882.

Gadwall, *Anas strepera*.—Half a dozen seen on a small pool at Llandilo Graban, near Aberedw, close to this county, in August, 1880, as recorded by Mr. H. N. Ridley, ‘Zoologist,’ 1882, p. 431.

Leach’s Petrel, *Procellaria leachii*, or as my correspondent calls it, the Fork-tailed Petrel. A specimen of this, to us, rare sea-bird, was shot on the banks of the River Wye, Breconshire, by Mr. Wood’s keeper, on October 15th, 1877. The previous night and morning were remarkable for one of the severest south-westerly gales this country had experienced for many years.—E. CAMBRIDGE PHILLIPS (Brecon).

**Hooded Crow and Grey Phalarope at Malta.**—In the Valetta University Museum there are specimens of both these birds, which I think have not been previously recorded as having visited Malta. I cannot ascertain the exact date when the Hooded Crow was preserved; Dr. Gulia, Professor of Natural History at the University, says “a year or two ago.” The Phalarope is labelled as shot at Malta, October 13th, 1879.—E. F. BECHER, Capt. R.A.

**Hobby in Oxfordshire.**—I have a fine male specimen of *Falco subbuteo*, which was taken alive, entangled in some pea-sticks at Great Bourton on the 21st July last. The bird was in perfect adult plumage. I purchased

another, also a male, from Mr. Darby, of Oxford, which was shot close to the city, and stuffed by him. Mr. Darby informs me that he has a young one which was killed at Waterperry, near Oxford, in the middle of September. On Sept. 2nd, while shooting at Bloxham Grove, near here, my brother and I saw a pair of these birds; one was flying rapidly round a clump of chestnut trees, apparently hawking for insects; the flight was peculiarly easy and graceful. We were able to get near enough to distinguish the colours, and the long pointed wings were very conspicuous.—F. C. APLIN (Bodicote, Banbury).

**Breeding of the Hawfinch in North Yorkshire.**—On the 22nd of May last my brother found a nest of the Hawfinch here, containing five beautifully marked eggs. The nest was about six feet from the ground, in a hawthorn bush growing by the river-side; it was built of twigs and lined with fine roots, but so loosely that, when standing below, the contents could be seen through the structure. The hen bird, which was sitting on the nest when it was discovered, sat very close, and when she left her eggs the male bird flew towards her, and both circled round in an agitated manner. In the same bush was another nest, constructed in the same way as the one described above, from which it was not a yard distant, and a brood of young had evidently been reared in this last year. In July, 1883, finding that much havoc was being wrought among the peas in the garden by some strong-billed birds, nets were thrown over the rows, and the following day a young male Hawfinch was found entangled in the meshes. After this no more damage was committed in our garden, but some of our neighbours complained that their green peas were being plundered in a wholesale fashion. I may mention that some years since an adult male Hawfinch was captured in the gardens at Swinton Park, in a net thrown over some rows of peas.—T. CARTER (Burton House, Masham).

**White Wood Pigeon and other Varieties.**—When walking up the meadows here on September 8th three Wood Pigeons flew past at about eighty yards, and I was surprised to see one of them was nearly white. This must have been the bird which has been about during the last three years, and how it has escaped so long is a wonder. A birdstuffer in Nottingham informs me that he has seen two white Sand Martins and a cream Redpoll lately, and we have a white Sparrow, a white Lark, and cream-coloured Wagtail about here. A cream-coloured Rook was picked up dead at Popplewick Hall last spring.—J. WHITAKER (Rainworth Lodge, Mansfield, Notts).

**Notes on the Birds of Berkshire.**—Our summer migrants were all early this year in arriving, with the exception of the Cuckoo, which I did not hear till April 29th. The Nightjar arrived either that date or the day following; a keeper saw young Nightjars newly hatched about June 5th,

but the greater number of eggs were found between June 20th and 30th ; one clutch of eggs I found in a thick pine plantation ; the others were under isolated trees, either small pines or Spanish chestnuts (see p. 91). Young House Martins were flying about June 22nd. On July 1st I came across two or three Crossbills, *Loxia curvirostra*, but could not accurately determine the number, because of the density of the pine foliage ; they haunted the same spot for several days, and I picked up a pine-cone partially stripped of its seeds, which one of them was surprised in dissecting ; they were all in the green plumage. The date seems rather an unusual one for these birds ; I have failed to find any during the autumn. The last of our Nightjars I saw flying at 6.30 p.m. on October 2nd. Great numbers of Goldcrests appeared at the end of September and beginning of October, but they have now considerably diminished. The season, with its number of acorns, has been most favourable for the Jays ; the woods here (the outskirts of Windsor Forest) are full of these birds and Green Woodpeckers. The latter birds seem to alter their habits in accordance with circumstances ; in quite the borders of the forest, where the old timber has been cleared and young trees have sprung up, they occasionally nest in holes in the ground, generally by a rotten tree-root or post ; they hunt their insects on the ground, digging quite deep holes in their eagerness after their prey. I have noticed that when flushed off the ground they seldom, if ever, utter the cry which they generally employ when startled—a shortened form of the “laugh” used in the breeding season. Peewits, of which in spring and summer there are great numbers, entirely disappear from the district in early autumn. Swallows and House Martins I last saw on October 20th. On November 1st, seeing two dark masses overhead at a great height, with the aid of field-glasses I made out two flocks of Wild Ducks ; each flock consisted of between fifty and sixty birds ; they were flying S.W., with a favourable wind.—T. N. POSTLETHWAITE (Hallthwaite, Millom, Cumberland).

**Eared Grebe and Velvet Scoter at Hunstanton.**—On November 3rd I received from Hunstanton a fresh specimen of the Eared Grebe, in the first year's plumage. The boatman who forwarded it to me, in a letter dated October 20th, told me that on the 16th he shot two fine Velvet Scoters, adding, “It is very early yet for wildfowl.” He is a very intelligent observer, and knows the two species of Scoter perfectly well.—JULIAN G. TUCK (St. Mary's Clergy House, Bucknall, Stoke-on-Trent).

**Ornithological Notes from Oxfordshire.**—The Crested Grebes on the Reservoir had good-sized young following them by June 19th : the latter have a very shrill and rather loud piping cry, which they utter incessantly when following the old birds for food. As the Green Sandpiper has been mentioned several times in ‘The Zoologist’ and ‘Field,’ it may be well to state that Oxfordshire was visited by some numbers of these birds during

**August:** I noticed them first on the mud at Clattercutt Reservoir on the 2nd, when three birds were busy feeding at the very edge of the water near to some Common Sandpipers, with which, however, they do not associate. Mr. W. W. Fowler, writing to me from Kingham on the 11th, mentioned that they were there in unusual numbers. On the 21st I purchased an adult bird which was shot at Astrop, Northamptonshire, that morning; and a week later another—a bird of the year, I think—was shot on the Chervell below Bodicote, and given to me. It is very rarely that the Green Sandpiper visits us in spring, but I saw one this year at the Reservoir on March 15th (the same day that the Chiffchaff arrived), and one on the river the year before, on the 25th of that month. With regard to the musky odour of this species, observed by some writers (*vide* Yarrell, 4th edition), I may mention that in the Bodicote bird it was very strong, while the Astrop bird had not a trace of it, and the man who skinned it said he ate the body and found it very good. A Black Tern (probably in its second year), changing to winter plumage, was shot at Barton on August 21st, and Mr. Darbey tells me he had an adult bird in May, which was killed on the Isis near Letchlade. On August 2nd and 4th I saw six Teal on the Reservoir—evidently a brood, but all full grown; they were probably hatched there or in the immediate neighbourhood. This is the first instance of Teal nesting in North Oxon that has come under my notice, although in 1880 I put up a pair from an osier-bed early in April. On September 7th two Gulls, apparently immature *Larus argentatus*, flew over Bodicote village within gunshot.—OLIVER V. APLIN (Gt. Bourton, Oxon).

**Barred Warbler in Yorkshire.**—An immature example of the Barred Warbler, *Sylvia nisoria*, was obtained by me on the Yorkshire coast on the 28th August last, and was exhibited at the evening meeting of the Zoological Society on November 4th. The bird is a female of the year; the wings and tail are much like those of the adult in markings, but a shade duller in tints; the rump is barred with white, and the faintest traces of dark bars appear on the flanks, back, and rest of under parts unbarred: irides brownish yellow; feet and legs horn-colour. It is much like an example shot in Sweden about the same time of year, and now in the British Museum. This makes the second occurrence of *Sylvia nisoria* in the British Islands. For the first record, near Cambridge, see Proc. Zool. Soc. 1879, p. 219.—H. H. SLATER (Irchester Vicarage, Wellingborough).

[A third specimen has been obtained in Norfolk. See p. 493.—ED.]

**White Stork at Pevensey.**—Mr. Vidler, of Pevensey, near Hastings, has kindly sent me a specimen of the White Stork, *Ciconia alba*, killed during the latter part of August last. Mr. Vidler writes:—"There were two of the Storks, and they remained about the sea-shore for several days, but seemed very shy: at last one was shot by a coastguard; the other flew away inland, and was seen no more.—T. H. NELSON (Redcar).

**Sabine's Gull in Dublin Bay.**—On Wednesday, the 5th November last, I had the good fortune to shoot, at Clontarf, a specimen of the rare Gull, *Larus Sabinii*, in the first year's plumage, and very similar to an example in the same state of plumage in the Museum of Science and Art. I have presented my specimen to the National Collection of Irish Birds, and I may add that I have had the advantage of Mr. A. G. More's opinion in its identification.—J. J. DOWLING (1, Fingal Terrace, Howth Road, Clontarf).

**Note on the Hooded Crow.**—The Hooded Crow, *Corvus cornix*, sometimes sits very closely. The first nest I got this season was found by a boy in April last. He thought the nest looked rather new, climbed the bush in which it was placed, and put his hand on the back of the bird sitting on the eggs. From his account to me, it was difficult to know whether he or the sitting bird was the most frightened.—WILLIAM W. FLEMING (Clonegam Rectory, Portlaw, Co. Waterford).

**Breeding of the Ruff in Lancashire: Correction of Errors.**—In my note on the breeding of the Ruff in Lancashire (pp. 466, 467) kindly make the following corrections:—line 11, for "Crosuns" read "Crossens"; line 15, for "Canner" read "Caunce."—ROBERT J. HOWARD (Blackburn).

#### MOLLUSCA.

**Abnormal Shell of *Buccinum undatum*.**—Through the kindness of Mr. Sibert Saunders, of Whitstable, I have received a very curious shell of



the Common Whelk, which had been found amongst a lot of others by a fisherman. I have made a sketch of it, from which it will be seen that the growth has gone on regularly down to the fifth whorl, but at that point, owing to some interference from without, the animal appears to have been compelled to forsake its old anterior canal and to carry out a new one at a

considerable angle from the central spire; this movement, in consequence of the size of the animal itself, caused the outer wall of the body-whorl also to leave its normal course and to bulge out to the extent of twice its usual diameter. Judging by the appearance of the new departure, the animal was healthy and vigorous, and had it been allowed to grow to its full size would have evidently developed into a most remarkable specimen, the extraneous cause of its curious growth having apparently disappeared. The shell is altogether an exceedingly interesting one.—EDWARD LOVETT (Addiscombe, Croydon).

## CRUSTACEA.

**Scyllarus arctus at the Land's End.**—I have received from Mr. Stephen Bond, of Sennen Cove, a specimen of *Scyllarus arctus*, which was captured off the Land's End. It is a small specimen with nothing special to note about it except that it comes from a new locality.—THOMAS CORNISH (Penzance).

[This more or less uncommon species is figured in 'The Zoologist' for 1879, p. 473.—ED.]

**Abnormal Colour of Common Lobster.**—Messrs. Sinel & Co., marine zoologists, of Jersey, have sent me a specimen of the Common Lobster, *Homarus marinus*, the colour of which is a pale lavender; upon the back of the cephalo-thorax, however, there is a patch of mauve, and the large claws are of a bright pale blue; the usual mottled marking of the sides of the thorax are rather indistinct. This specimen reached me alive, so that I can vouch for the colours being quite natural. It was a full-grown female, carrying ova which was nearly mature. I remember having observed a mottled variety, and another which was a dull pink, both alive at the time I noted them; the pale blue variety is, however, less rare, I believe, though my specimen is particularly beautiful in tint.—EDWARD LOVETT (Addiscombe, Croydon).

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 SCIENTIFIC SOCIETIES.
 

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## LINNEAN SOCIETY OF LONDON.

November 6, 1884.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

A letter was read intimating that the late President, Mr. George Bentham, had bequeathed by his will a legacy of £1000 to the Society. A notice of invitation for the Fellows to attend the forthcoming Centenary (4th December) of the Royal Bohemian Society of Natural History in Prague, was also read from the chair.

Mr. R. A. Rolfe, of Kew, exhibited examples of British oak-gall produced by Cynipidean insects of the genus *Neuroterus*. These were the silk-button gall formed by *N. numismatis*, the globose gall produced by *N. ostreus*; the smooth spangle gall formed by *N. fumipennis*; the scarce spangle gall formed by *N. læviusculus*; and the common spangle gall produced by *N. lenticularis*, as also a purple variety of the latter gall. He stated that the plan and details of the galls depend on the nature of the irritating fluid deposited by the insect; but, on the other hand, the different species of oak seem to have an influence in determining certain variations, as to colour, and it may be of the general growth of the galls.

Mr. Geo. Brook read a paper "On the Development of the Five-bearded Rockling, *Motella mustela*," in which the following points were enunciated:—(1). While there is only one large oil-globule in the normal egg of *Motella*, this is sometimes subdivided into from two to eight or even more, but in these cases there is always an abnormal development which often results in the death of the embryo. In those that survive the small oil-globules always coalesce to form one large one before the embryo hatches. (2) In the further development of the newly-hatched embryo there is a cranial flexure produced which is analogous to that so characteristic of Elasmobranchs. This is caused by the rapid development of the dorsal portion of the head, while the ventral portion remains comparatively quiescent. Later the ventral portion plays its part, and with the development of the jaws the brain is pushed back to its normal position. (3). As in other pelagic teleostean eggs, there is no circulation observable either in the embryo as in the vitellus up to the time of hatching, nor indeed for some time afterwards. (4). In *Motella*, the anal gut does not open on the ventral surface for at least a week after hatching. Ryder has shown the same to be the case with the Cod-fish, so that the young *Gadidæ* would appear to be not in a position to take solid food at nearly so early a period of their existence as is usual with teleostans. Mr. Brook also called attention to the influence of temperature on the rate of development of pelagic eggs, and suggested that until we know the temperature at which the various observations are made on these forms no true comparison can be established.

A paper, by Mr. Thomas Henry Potts, entitled "Notes on some New Zealand Birds," was afterwards read. It contained chiefly memoranda and field observations on the Quail-hawk (*Hieracidea Novæ-Zelandiæ*), the Harrier (*Circus assimilis*), the Owl (*Athene Novæ-Zelandiæ*), the Kaka (*Nestor meridionalis*), the Sheep-killer (*N. notabilis*), the Long-tailed Cuckoo (*Eudynamis taitiensis*), the Bronze-wing Cuckoo (*Chrysococcyx lucidus*), the Kingfisher (*Halcyon vagans*), the Huia-bird (*Heteralocha acutirostris*), *Anthornis melanocephala*, the Wren (*Acanthisitta chloris*), and *Gerygone albofrontata*.—J. MURIE.



## ZOOLOGICAL SOCIETY OF LONDON.

November 4, 1884.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

The Secretary made a report on the additions that had been made to the Society's Menagerie during the months of June, July, August, and September, 1884, and called attention to certain interesting accessions which had been received during that period. Amongst these were specially noted two Red-cheeked Colies, *Colius erythromelon*, purchased June 12th; two Chaplain Crows, *Corvus capellanus*, from Fao, Persian Gulf, presented June 25th by Mr. B. Finch; a second specimen of the Heloderm Lizard, *Heloderma suspectum*, received in exchange from the Central-Park Menagerie, New York, U.S.A., July 3rd; a collection of Snakes from Japan and North America, brought home and presented to the Society by Mr. Gerald Walker, July 22nd, amongst which were representatives of five species new to the Collection; a young female Cape Sea-Lion, *Otaria pusilla*, from South Africa, presented to the Society by Capt. John Hewat, Superintendent of the Docks, Cape Town, July 25th; and a Fringed Gecko, *Platydictylus homalocephalus*, and six Black-spotted Toads, *Bufo melanostictus*, from Java, presented to the Society by Dr. F. H. Bauer.

Mr. Slater exhibited and made remarks on the skin of a Woolly Cheetah, *Felis lanea*, obtained at Beaufort West, South Africa, sent to him by the Rev. G. H. R. Fisk.

The Secretary exhibited, on behalf of Major W. Brydon, an egg of Blyth's Tragopan; and on behalf of Mr. J. C. Parr, a specimen of the chick of the Vulturine Guinea-fowl, *Numida vulturina*, hatched in Lancashire.

The Rev. H. H. Slater exhibited a specimen of the Barred Warbler, *Sylvia nisoria*, obtained on the Yorkshire coast.

Mr. H. E. Dresser exhibited specimens of the Barred Warbler, *Sylvia nisoria*, and of the Icterine Warbler, *Hypolais icterina*, killed in Norfolk.

Mr. W. B. Tegetmeier exhibited a specimen of the File-fish (*Balistes capriscus*), which had been recently caught off Folkestone.

Mr. F. E. Beddard read a paper on the anatomy of a gigantic Earthworm, *Microchæta rappii*, and pointed out its systematic position. For this very interesting specimen the author was indebted to the Rev. G. H. R. Fisk, of Cape Town.

Mr. A. G. Butler gave an account of a collection of Lepidoptera made by Major J. W. Yerbury at or near Aden. The author looked upon this collection as one of the greatest interest, since it not only contained a fine series of the beautiful species of *Teracolus* recently described by Colonel Swinhoe, but also many remarkable intergrades between certain long-established species, tending to prove either that hybrids between allied species are fertile, or that in Aden a condition of things still exists which in Asia proper and in Africa has long passed away.

A communication was read from Lieut.-Col. C. Swinhoe, containing an account of the Lepidoptera collected by him at Kurrachee between the years 1878 and 1880.

A communication was read from Mr. Thomas H. Potts, of Ohinitaki, New Zealand, in which he described a case of hybridism between two species of Flycatchers of the genus *Rhipidura*.—P. L. SCLATER, *Secretary*.

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## NOTICES OF NEW BOOKS.

*Elementary Text-Book of Zoology.* General Part and Special Part: Protozoa to Insecta. By Dr. C. CLAUS; Translated and Edited by ADAM SEDGWICK, M.A. Pp. 615, figs. 491. London: W. Swan Sonnenschein & Co. 1884.

IT is with much satisfaction that we are able to announce the publication of the first volume of Mr. Sedgwick's translation of Prof. Claus' valuable Text-book of Zoology. It has for some time been known that the translation was in course of preparation, and teachers and students alike have been anxiously waiting for its appearance: teachers, because they have so often had to make statements at variance with or in advance of what are to be found in the text-books already published in English; and students, because they have been sighing for a work which should not be too difficult of comprehension, and which should be really well illustrated.

It is, for Englishmen, a matter of painful reflection that the best work yet known in the English language is that of Prof. Gegenbaur, which is, as we all know, a translation from the German, and is, moreover, a work on Comparative Anatomy, and by no means on Zoology, as that term is ordinarily understood. We are convinced ourselves that Comparative Anatomy, as taught by Prof. Gegenbaur, is the best introduction to the study of the phenomena of animal life; on the other hand, man's susceptibilities have to be considered, and, if of orderly disposition, a man often wants to know something of how animals are grouped, and is often desirous of learning some details as to creatures which, interesting in themselves and their habits, are not always the most appropriate objects of morphological demonstrations.

For this numerous class the work of Prof. Claus is in all respects to be recommended; it is more easy of comprehension,

and it is much more fully illustrated than that of Professor Gegenbaur.

We would lay especial weight on the illustrations of this work for two reasons; first, because correct figures are of enormous assistance to the student,—we need not quote the well-worn Horatian axiom, but all teachers know that good figures do sink into men's minds, and leave an impress far beyond that of the most lucid explanations of the best teachers; and secondly, because the text-books of Prof. Claus best known to zoologists are without illustrations: the subject of this translation was published last year, and is of somewhat smaller size than the well-known 'Grundzüge der Zoologie,' which reached its fourth edition two or three years ago. With regard to the work just mentioned, we may say that it is within our knowledge that serious proposals were made some seven years ago in Oxford as to its translation into English, and that, only a little later, the same idea was mooted in London; and we may say, further, that one of the chief reasons which led to the dropping of these proposals was the fact that the work was without illustrations.

We do not know what kind of representations, if indeed any, were made to Dr. Claus with regard to the preparation of a well-illustrated work; but we must say that, proposals or no proposals, the volume before us contains as rich a supply of well-drawn, well-engraved, and well-selected figures as ever man could desire. The volume is admirably printed, and the whole enterprise reflects the greatest credit on the publishers.

The translation runs very smoothly, and is such that it will be read with ease and pleasure. That there are numerous faults in the style we cannot deny, but these are for the most part those of the author, and not of the translator. Indeed, if we use the term style in the correct French sense, there is no style in the book at all; literary execution has been sacrificed to carefulness of statement—that is much truly in a scientific text-book; but there is something to be said on the other side. Anatomical and zoological works do want a little salt of good literary taste, and the student of Prof. Huxley's anatomical—or of Prof. Foster's physiological—text-books will have our sympathy, at any rate, when he laments the absence from this book of the charm of attraction that well-balanced sentences and well-constructed paragraphs always have.

Having said this much, we can say further that, knowing the character of Prof. Claus' "style," we looked with some anxiety as to the results of Mr. Sedgwick's attempt to do the work into English; though we note some sentences that we should like to have seen differently arranged, he has, on the whole, succeeded beyond even our best hopes for his victory: in the present condition of things, we may think ourselves lucky to get a truthful and clear account of a subject which, confessedly, it is difficult to describe to a commencing student.

There is only one fault that we must find with the translation, and this is that after the systematic names of some of the insects we have the German popular name; *e. g.* (p. 563), "*Panorpidæ* (Schnabelfliegen)"; now "Schnabelfliegen" is no translation, but "Scorpion-Flies," which is the English equivalent, would have been; so again the *Coccidæ* might have been called the Scale Insects, or Mealy Bugs, the *Fulgoridæ* the Lantern-Flies, and the *Æstridæ* the Bot-Flies.

The first volume, which is alone now before us, has a most masterly general introduction to the study of Zoology, which, *inter alia*, is very properly regarded from its historical aspect; the Protozoa, Cœlenterata, Echinodermata, Vermes, and Arthropoda are dealt with.

What little we shall dare to say in the way of criticism of the contents of the book will be best postponed till the second volume is also before us. When that is published the English zoologist will have no cause to complain of the want of an admirable introduction to his favourite study, however much he may lament that an Englishman is not the author of his handbook. Perhaps Mr. Sedgwick may sometime find leisure to give us himself a work which may take a place on our shelves beside that text-book on Comparative Embryology which we owe to his lamented teacher, the founder of that morphological school in Cambridge which is so rapidly restoring to our nation the honourable place in zoological activity of which various causes have conspired to deprive it; the countrymen of John Hunter and Charles Darwin must never rest till our schools and studies of biology are not only on a level with, but in advance of, those of other nations.

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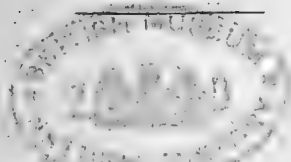
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be 14th November, instead of 14th June.—*ROBERT WARREN.*

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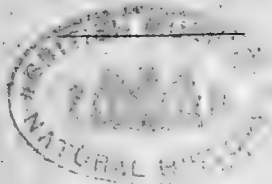
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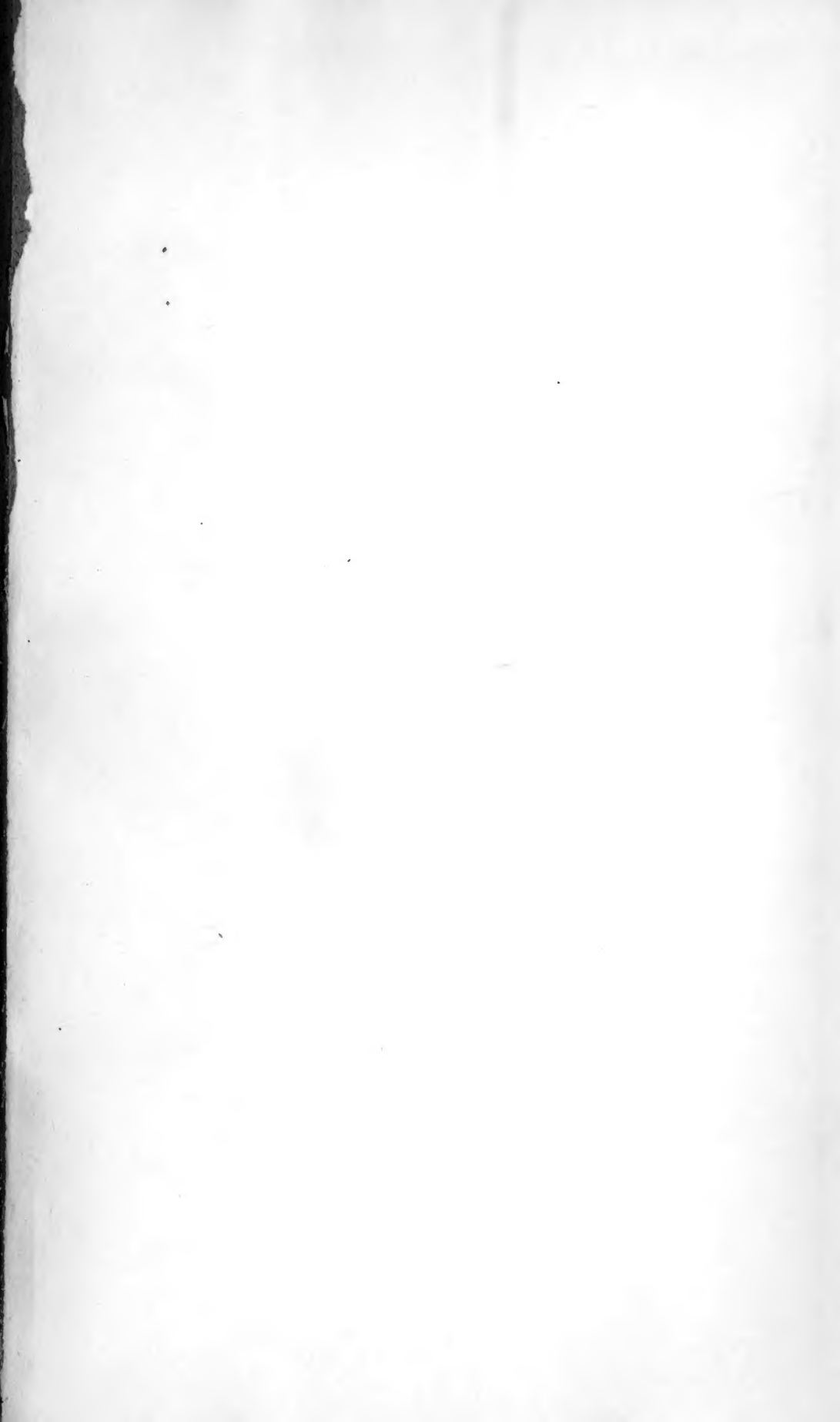
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To Secretaries of Local Natural History Societies.—The Editor desires to acknowledge with thanks the receipt of odd parts of the 'Transactions' and 'Proceedings' of various local Natural History Societies, which have been forwarded to him "for review," and to state that, owing to the large and increasing number of such periodicals, it has been found impossible to notice any of them. The space available for reviews in this Journal is extremely limited, and it would be invidious to make selections where all are striving towards the self-same end—the promotion of the study of Zoology.

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