

The Scottish Naturalist

A Monthly Magazine devoted to Zoology

With which is incorporated

“The Annals of Scottish Natural History”

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EDITORIAL.

UNDER the above heading it is proposed to place before our readers each month a brief summary of the more important zoological papers, observations, and records which appear from time to time in our leading scientific journals. Preference will be given to matter which deals with the fauna of Scotland, but articles and records of outstanding interest concerning other parts of the British Islands, and others of a general nature, dealing with life-histories, habits, and topics likely to interest our subscribers will also be referred to.

One of the most interesting additions to the list of British insects that has been made of late years, is the discovery by Mr Horace Donisthorpe of the remarkable Fly known as *Ænigmatias blattoides*. From a short article in the November number of the *Entomologist's Record* (pp. 277-278) we learn that the author found a specimen at Nethy Bridge on 21st July, in a nest of the Ant *Formica fusca*. This curious insect is wingless, and somewhat resembles a tiny cockroach in general appearance. It was first discovered in Denmark, and described by Meinert under its present name in 1890. Its systematic position is still a matter of doubt, but some authorities think it is the female of an insect found under similar conditions and

described in 1877 by Verrall as *Platyphora lubbocki*, a member of the Dipterous family Phoridae. Another addition to the list of Scottish insects is the Noctuid moth (*Cymatophora fluctuosa*), several examples of which were taken last year by Mr L. G. Esson in the Isle of Mull. These are recorded by Mr N. Charles Rothschild in the *Entomologist* for November (p. 314). A recently published fascicle of the *Proceedings of the Royal Physical Society* (vol. xix., No. 4) contains two entomological papers worthy of notice. The first (pp. 60-62) is by Professor T. Hudson Beare, and is entitled, "*Thanasimnus rufipes*, Brahm, a Beetle new to the British Fauna, and its Life-history." Five specimens were captured during July and August 1912, and one in July 1910, at Nethy Bridge. They were obtained by beating the cut-off tops of felled Scots firs. The species is fully described, in both larval and adult stages. It is stated to be exceedingly rapacious, feeding on Scolytidae and other allied beetles. On pages 93-95 of the same journal Mr William Evans publishes a list of Anoplura obtained in the Forth area. This is a much neglected but exceedingly interesting group of parasitic insects. Much remains to be done in the way of the exact determination of the species and their hosts in all parts of Britain. In the paper referred to thirteen species are recorded for the area under consideration, with full details of localities and hosts. The most important record is that of *Echinophthirius phocæ* (Lucas), taken from a Common Seal shot on the Isle of May. This species, which is figured, has only once been previously recorded for Britain, specimens having been obtained in Shetland by the Rev. James Waterston (see *Ent. Mo. Mag.*, 1913, p. 133, and *Scot. Nat.*, 1913, p. 144). As usual, the *Entomologist's Monthly Magazine* contains a number of interesting notes. In the November number (p. 259) Mr Kenneth J. Morton records the occurrence, in bright sunshine, of two Caddis-flies (*Mesophylax impunctatus* and *Stenophylax stellatus*) which usually fly at night. This interesting aberration of habit occurred at Lawers, Loch Tay, on 26th July. Our old friend the Red Deer Bot-fly (*Cephenomyia rufibarbis*) has once more been taken in

Inverness-shire. Mr H. B. Johnston records, on p. 259 of the journal just referred to, the capture of three specimens on Meal-na-Cuaich, on 1st July, at a height of 3000 feet. This is one of the highest hills in the neighbourhood of Dalwhinnie, and altogether about ten specimens of this handsomest of the British Bot-flies were seen. Perhaps we may remind our readers that the first Inverness-shire specimen was recorded by one of ourselves (see *Ann. Scot. Nat.*, 1896, p. 61). An interesting confirmation of an old record is to be found in Dr M. Cameron's note in the December number of the same journal (p. 275), on the capture of seven specimens of the Beetle *Atheta hybrida*, Sharp, in Dalmeny Park, near Edinburgh, on 4th November. The species was originally described from specimens taken near Edinburgh, and has not, we believe, been since captured until its re-discovery two months ago. Other records of Beetles worthy of mention are given on p. 257 (*op. cit.*) by Mr James W. Munro, who mentions the occurrence of *Cryptorrhynchus lapathi*, L., in Aberdeenshire, and *Magdalis carbonaria*, L., in Morayshire. On the following page the same author writes on the Beetles "*Rhagium bifasciatum*, F., attacking birch, etc.," and *Rhabdophaga albipennis*, Houard, in Aberdeenshire.

Ornithologists will learn with interest that a Swallow, ringed as a nestling by Mr R. O. Blyth at Skelmorlie, Ayrshire, on 27th July 1912, was captured at Riet Vallei, Orange River Colony, on the 16th March 1913. This record, which is given in the November number of *British Birds*, is specially instructive, since it affords information as to where some of our British summer birds pass the winter—a long-felt desideratum. From the same source we learn that a second British specimen of the Yellow-breasted Bunting (*Emberiza aurcola*) was procured at Cley, Norfolk, on 4th September, and a Rufous Warbler (*Agrobates galactotes*), another very rare visitor to the British Isles, at Brede, Sussex, on 21st September. In the same journal it is recorded that a Green Sandpiper (*Totanus ocropus*) was seen at Evie in Orkney on 7th August. The occurrence of a rare bird in the Outer Hebrides is mentioned in *Country Life* for 21st November. It is there recorded that a Carolina

Crake (*Porzana carolina*) was shot near Ness, Lewis, on the 12th November. This is only the fourth instance of the occurrence of this North American species in the British Isles, and the second for the Western Isles of Scotland. Our western contemporary, the *Glasgow Naturalist*, in the September issue (vol. v., No. 4, pp. 130-131) publishes three notes on birds. These refer respectively to the occurrence in Renfrewshire of the Turtle Dove, the Wood Sandpiper, and the Spotted Redshank. Lastly, the avifauna of Yorkshire has lately received a notable addition, which is recorded in the pages of the *Naturalist* for December (p. 421). Under the title "The Little Bunting at Whitby: an addition to the Avifauna of Yorkshire," Mr Thomas Stephenson publishes a note to the effect that a male example of this rare species was captured on the Airy Hill Farm, near Whitby, on 6th October. It was with a flock of Linnets and other small birds. We read with satisfaction that the specimen is to be placed in the Museum of the Whitby Literary and Philosophical Society.

Our present number contains several papers and notes which we trust will be of interest to our readers. Mr Malloch's article on the Sawflies of the Clyde district is a valuable contribution to our knowledge of a much neglected group of insects. The determination of Sawflies is no easy matter, but many of these insects are of interest and importance from an economic point of view, and we hope that the article, of which we now print the first instalment, will induce entomologists in other parts of Scotland to work up the distribution of the Sawflies in a similar manner.

ON SOME RARE AND INTERESTING MIGRATORY BIRDS OBSERVED AT THE ORCADIAN ISLAND OF AUSKERRY IN THE AUTUMN OF 1913.

By WILLIAM EAGLE CLARKE.

MANY excellent contributions have been made to our knowledge of bird-migration in the Orkneys, thanks to the labours of a number of light-keepers, but little attention has been paid by ornithologists to the bird-life of the islands during the seasons of the great passage movements. Yet the Orcades afford observing stations of first-rank importance for witnessing the phenomena. These two sets of facts led me to select Auskerry as the scene for the prosecution of my investigations in the autumn of 1913.

Auskerry, as I have stated in a previous contribution devoted to the occurrence of the Dusky Willow-warbler, is a small uninhabited island of some 260 acres, and is one of the most easterly of the Archipelago. To this I would add that it is low-lying, rising only to 60 feet above sea-level at the summit of the cliffs which form its western rampart against the fierce tides that rush around it. The interior of the island is barren, inasmuch as it is clad with short heather and grass, and affords little shelter or food for passage migrants. The chief resorts of birds visiting Auskerry are the lighthouse garden, the face of the cliffs on the west, and a few patches of nettles which are to be found above high-water mark on the low ground fringing the south, east, and north sides of the isle. In spite of this lack of suitable cover, Auskerry is much resorted to by migratory birds—a fact which was fortunately taken advantage of by Mr H. Laidlaw, one of the light-keepers, who has from time to time contributed interesting notes to our pages and to the yearly Reports on Scottish Ornithology, and whose good offices and assistance during my visit of nearly five weeks (3rd September to 6th October) I desire gratefully to acknowledge. I may here say that I

also had the advantage of the companionship and co-operation for a fortnight of Dr C. B. Ticehurst, and that Mr George Stout accompanied me as assistant and taxidermist.

In all, 104 species came under notice, but I only propose here to deal with some of the more interesting and rare species. Much useful information on the occurrence and movements of the rest I have handed over to the Misses Rintoul and Baxter, as a contribution to their Report on Scottish Ornithology for the year 1913.

GREY CROW (*Corvus cornix*).—Five birds—a family party—were present throughout our visit. One of these was entirely black, save a grey patch on the back. Only one pair of these birds breeds on the island.

STARLING (*Sturnus vulgaris*).—Starlings are common and resident, and are mentioned here because they nest only in rabbits' burrows; nesting sites in the western range of cliffs are available but are not resorted to.

LITTLE BUNTING (*Emberiza pusilla*).—A female appeared in the lighthouse garden on 21st September. The only previous Orcadian records are, one at the Pentland Skerries, 15th October 1903, and one at Sule Skerry on 22nd September 1908.

SCARLET GROSEBEAK (*Carpodacus erythrinus*).—The autumn of 1913 witnessed the arrival of this species—until recently regarded as among the rarest of British birds—in unusual abundance. When Saunders wrote on this species in the second edition of the *Manual* in 1898-1899, there were only three records of its occurrence in the British Isles. Between the 31st August and 30th September no less than nine visited this small Orcadian island—two on 31st August, one on 4th September, one on the 6th, two on the 14th, one on the 15th, one on the 29th, and one on the 30th. All these birds were in either the greyish phase of plumage of the female, or showed the decidedly yellow tinge of young males. They frequented the lighthouse garden and the face of the cliffs. This bird is new to the fauna of Orkney.

SHORT-TOED LARK (*Calandrella brachydactyla*).—This bird is new to the fauna of Orkney. A male was found in the garden on the morning of 1st October; was very wild, and for some time eluded attempts to prove its suspected identity.

PIED WAGTAIL (*Motacilla lugubris*).—This bird was observed on passage as follows—an adult male on 19th September, a female on 3rd October, and three examples on 6th October. The

previous records for passage movements at the Orkneys are few in number.

WHITE WAGTAIL (*Motacilla alba*).—Seen at intervals on passage from the day of our arrival, 3rd September, down to the 2nd October. On one occasion only did it appear in numbers, namely, on 6th September, when a lot arrived overnight, and about forty were seen on the wing simultaneously. Hitherto, from want of systematic investigation, this common migrant at our northern stations has only been rarely recorded from Orkney.

RED-THROATED PIPIT (*Anthus cervinus*).—A young male was obtained on 1st October—a welcome addition to the few authentic British records of the occurrence of this native of the high northern regions of the Old World. It is an addition to the fauna of the Orcades.

TREE-PIPIT (*Anthus trivialis*).—On several days from the 15th to 22nd of September this bird was quite abundant on passage. Hitherto there have been very few records of the occurrence of the Tree-pipit at the islands of the Orkney group.

RED-BREASTED FLYCATCHER (*Muscicapa parva*).—A young male frequented the face of the cliffs on 21st and 22nd September. This is the second record of the visit of this species to the Orkneys; the first occurrence was at the Pentland Skerries on 30th September 1912.

BARRED WARBLER (*Sylvia nisoria*).—On the 6th of September an adult was found amid some nettles. There is only one previously known visit to the Orkneys of this now not uncommon autumn visitor to our isles, namely, at this same island on 15th August 1912.

LESSER WHITETHROAT (*Sylvia curruca*).—Three single birds appeared in the garden, or on the face of the cliffs, on 4th, 24th, and 28th September. Hitherto this species has only been known to visit Sule Skerry and the Pentland Skerries; once at the former and in fair numbers at the latter in 1912.

DUSKY WILLOW-WARBLER (*Phylloscopus fuscatus*).—In the December number of this magazine, p. 271, the date for the occurrence of this new British bird was unfortunately given as 3rd October, it should have been the 1st of that month.

YELLOW-BROWED WARBLER (*Phylloscopus superciliosus*).—The first known visit of this native of Siberia to the Orkney Islands occurred on 29th September, when one was found in a patch of nettles—one of the very few spots affording shelter in the island.

WOOD-WARBLER (*Phylloscopus sibilatrix*).—One was observed in the cover afforded by the nettles on the 30th of September. If

the occurrence of a Wood-warbler at the far outlying Sule Skerry be regarded as an Orcadian record, then this bird is the second known visit of this species to the Orkneys.

NORTHERN CHIFF-CHAFF (*Phylloscopus collybita abietinus*).—Chiff-chaffs visited the island on four occasions between 14th September and 6th October, and were noted in small numbers on 30th and the 1st. The specimens obtained belonged to the Northern European race, not previously recorded for Orkney.

WHINCHAT (*Saxicola rubetra*).—There are very few Orcadian instances of the autumn visits of this bird to any of the islands. Two appeared at Auskerry on 15th September, one on the 16th, and one on the 30th.

RED-SPOTTED BLUETHROAT (*Cyanecula suecica*).—An immature bird frequented the garden all day on the 5th of September. This species has only hitherto been recorded for the Orkneys from the Pentland Skerries.

BLACK REDSTART (*Ruticilla titys*).—Single birds were observed on 29th and 30th September and on 5th October. There are only a few previous records for the visits of this species to the Orkneys.

HEDGE ACCENTOR (*Accentor modularis*). **CONTINENTAL RACE**.—A male was obtained in the garden on 1st October—the record day for the presence of migratory birds during our visit. This is the first record of the occurrence of the Continental race in the Orkneys.

SPARROW HAWK (*Accipiter nisus*).—An adult female and young bird arrived at the island on 24th September. This is an interesting occurrence, since we have no previous reliable record of the undoubted appearance of this species as a bird of passage in any of the northern islands of Scotland.

STOCK-DOVE (*Columba oenas*).—One appeared on the 4th of October. This may, perhaps, be regarded as the only satisfactory instance of this bird's occurrence in the Orkneys, though there are previous records for 1849, 1859, and 1861.

BLACK TERN (*Hydrochelidon nigra*).—An immature example was captured at the lantern of the lighthouse on 1st October. Many birds were flying in the rays from dark onwards, and 160 skylarks struck the lantern and were killed. The other unfortunates included Garden-warbler, Blackcap, Redwings, Wheatears, Song-thrush, Golderest, Jack Snipe, Storm-petrel and Teal; but a number of other species were flying in the rays. The Black Tern is new to the fauna of Orkney, and Auskerry is the most northerly locality visited in the British Isles.

LIST OF CLYDE TENTHREDINIDÆ (SAWFLIES).

By J. R. MALLOCH.

THE first list of Clyde species in this group was compiled by Peter Cameron, and published in the *Fauna and Flora of Clydesdale and the West of Scotland*, 1876. This remained until 1901 the only list for the district, when it was supplanted by that in the *Handbook on the Natural History of Glasgow and the West of Scotland*, prepared by A. A. Dalglish. Shortly after the appearance of the 1876 list, one by Cameron for the whole of Scotland appeared in the *Proceedings of the Glasgow Natural History Society*, as part of its projected "Fauna of Scotland," 1878, with a supplement, in 1886. Cameron's records are not included in the 1901 list. I had not intended to include the whole of these lists in my paper, but as the additional species are so few and the work attached to the elucidation of the names had already been undertaken for the original paper, I have decided to give them a place. For the most part this inclusion simply means additional locality records, but a few of the species are not in the 1876 list, nor in that of 1901. It may now be considered that we are as near finality as we are ever likely to get in the elucidation of Cameron's records, as even he was in some cases doubtful about certain species. The old records will in after years prove interesting, as many of the collecting grounds are now beyond hope from the collector's point of view. I have included at the end a list of those species I cannot satisfy myself about. In the genus *Tenthredopsis* one cannot depend upon the supposed specific distinctions, and all that are in the list have passed through the hands of Rev. F. D. Morice, to whom my best thanks are due for much assistance in compiling this list. The same remarks apply to the genus *Dolerus*, which Cameron seems to have imperfectly understood. In this list those species that have, after the localities, the figures ('76), ('78), ('86), and ('01), appear in the four lists mentioned above. Where

“Bonhill” occurs before (’01) in the list, the locality was included in the last mentioned; where it occurs otherwise the species has only been taken since 1901. The initials in the list refer to the following collectors: R.H. = R. Henderson; A.F. = Anderson Fergusson; A.A.D. = A. A. Dalglish; J.J.K. = J. J. F. X. King; J.R.M. = J. R. Malloch; G.W.O. = G.W. Ord. The arrangement of the species is according to Morice’s papers in the *Entomologist’s Monthly Magazine* (“Help-Notes towards the Determination of British Tenthredinidæ, etc.”), which is based upon Konow’s *Tenthredinidæ Europæ*. The significance of the occurrence of the sexes is so slight that, except in certain cases, I omit mention of them.

LYDINI.

Lyda stellata, Chr.—Cadder Wilderness, T. Grant (’01); Bonhill, J.R.M.; Colintraive, J.J.K. Cameron records a species as *Lyda nemoralis*, L., in 1876 and 1878, for Paisley Moss, as sometimes common. *Nemoralis*, L., is not British, and *stellata* being absent from Cameron’s lists, I suspect his species is the above.

Pamphilus balteatus, Fall.—New Galloway (’86); Bonhill, J.R.M. (’01); Clober, J.J.K.

„ *depressus*, Schr.—Kilsyth (’76); Cadder, Clober (’78); Bonhill, J.R.M.

„ *silvaticus*, L.—Cadder (’76); Luss, A.A.D. (’01); Bonhill, J.R.M.; Clober, J.J.K.

CEPHINI.

Macrocephus satyrus, Pz.—Bonhill, J.R.M.

Cephus pallipes, Kl.—Cambuslang, A.A.D. (’01); Bonhill, J.R.M.

SIRICINI.

Sirex gigas, L.—This introduced species, which has occurred for a considerable period in the area, may now be considered as a resident species in Bute and Argyll.

„ *juvencus*, Fab.—Has occurred in various parts of the area, but so far as I know has no claim to rank as a resident species. *Noctilio*, Fab., may also occur, and may have been recorded as *juvencus*.

CIMBICINI.

- Cimbex sylvarum*, Fab.—Bishopton ('76); Clober, Paisley ('78).
Trichiosoma lucorum, L.—Bishopton ('76); Cadder, Clober, Paisley, Kilsyth ('78); Giffnock, larva common on birch, A.A.D. ('01).
 „ *silvatica*, Leach (= *vitellinæ*, L.)—Common, Bishopton, Cadder, etc. ('76); recorded for Clober only in '78 list; Johnstone, J.J.K.
 „ *tibialis*, Leach (= *betuleti*, Kl.)—Rare, Canniesburn, Paisley ('76); Cadder, T. Grant; Crookston, A.A.D. ('01); Bonhill, J.R.M.
Abia sericca, L. (= *nitens* L.)—Common, Possil, Bishopton, etc. ('76); various localities ('78); Eaglesham, A. Ross; Glen Falloch, Bonhill, King's Cross, A.A.D. ('01).
 „ *fasciata*, L.—Clober ('76).

ARGINI.

- ¹ *Arge enodis*, L.—Cadder, on *Rubus* ('76).
 „ *cærulescens*, Geoff. (= *cyanella*, Kl.)—Near Paisley, Dunsmore ('86); Barr, Ayrshire, A.F. ('01).
 „ *ciliaris*, L. (= *cærulea*, Kl.)—Not uncommon, Dalry ('76).
 „ *ustulata*, L.—Cadder ('76); ('01); Carluke, J.J.K.
Schizoceros geminatus, Gir.—Kilmun, J.J.K.

LOPHYRINI.

- Lophyrus pini*, L.—Abundant on Scotch fir ('76); Cadder, Lambhill, Paisley, Bishopton, Houston ('78); Blairskaithe Moor, G.W.O. ('01); Bonhill, J.R.M.
 „ *pallidus*, Kl.—Houston ('86).

TENTHREDININI.

- Cladius pectinicornis*, Fourc. (= *difformis*, Pz.)—Common, Cadder, Canniesburn ('76); Bishopton, Dalry ('78).
Trichiocampus viminalis, Fall.—Cadder ('76); Milngavie ('86); Inveruglas, A.A.D. ('01).
 „ *ulmi*, L.—West Kilbride, A.A.D. ('01).
 „ *drewsinii*, Thom.—Bonhill, J.R.M.

¹ *A. enodis* is given by Cameron in '86 as = *gracilicornis*, Kl. I expect this refers only to his specimen. Mr Morice gives Cameron's monograph *gracilicornis* as = *cyanella*, Kl. = *cærulescens*, Geoff. It is doubtful if both species can be taken as having occurred.

- Priophorus padi*, L.—Common. In all lists.
- „ *tristis*, Zadd. (= *brullei*, Dbm.)—Cadder ('76);
Kilpatrick Hills ('86); Bonhill, J.R.M.
- Hemichroa alni*, L.—Common, Cadder, Cambuslang ('76); Clober,
Kenmuir ('78); Bonhill, J.R.M.
- „ *crocea*, Geoff. (= *rufa*, Pz.)—Rare, Bishopton ('76);
Clober ('78).
- Leptocercus luridiventris*, Fall.—“Common on alder” ('76); Clober,
Dalry, Loch Lomond, Glen Moriston ('78).
- Dineura nigricans*, Christ. (= *Degeeri*, Kl. = *virididorsata*, Retz.).
Common on birch ('76); Cadder, Clober, Paisley,
Bishopton ('78); Bonhill, J.R.M.; Pirnmill, A.F.;
Irvine, A.A.D. ('01).
- „ *stilata*, Kl.—Cadder, ('76); Bonhill, J.R.M.
- „ *testaceipes*, Kl.—Cadder, Possil, Canniesburn ('78);
Brother Loch, A.A.D. ('01); Bonhill, J.R.M.
- ¹ *Cryptocampus ater*, Jur.—Bonhill, J.R.M.; Frankfield Loch, J.J.K.
- „ *medullarius*, Htg. (= *pentandra*, Retz.)—Kilpatrick
Hills ('76); Dalry ('78); Lamington, A.A.D. ('01).
- „ *saliceti*, Fall.—“Common among willows” ('76);
Canniesburn, Gleniffer, Dalry, Milngavie, Glen
Moriston ('78); Luss, Cambuslang, A.A.D. ('01);
Bonhill, J.R.M.
- Pontania scotaspis*, Forst.—Bonhill, J.R.M.
- „ *xanthogaster*, Forst. (= *bipartitus*, Cam.)—Possil ('78).
- „ *leucosticta*, Htg. (= *sharpi*, Cam. = *crassulus*, Dbm.)—
Locality doubtful ('76); Possil, Cadder, Milngavie
(‘78); Luss, Crookston, Johnstone, Dundonald, A.A.D.
(‘01); Bonhill, J.R.M.; Cleghorn, J.J.K.
- „ *viminalis*, Htg. (= *nigrolineatus*, Cam. = *vollenhoveni*,
Cam.)—Common ('76); banks of Clyde, Allander,
Cart, and Kelvin, Bishopton, Loch Lomond ('78);
Kilpatrick Hills, Milngavie ('76); Lamington, A.A.D.
(‘01).
- „ *femorialis*, Zadd.—Common at New Galloway ('86).
- „ *vesicator*, Bremi (= *togatus*, Zadd.)—Arran ('86); Brother
Loch, A.A.D. ('01).
- „ *proxima*, Lep.—Recorded by Cameron under *gallicola*,
West., as “very abundant” ('76); “abundant
everywhere” ('78); Bonhill, J.R.M.

¹ Cameron's *C. flavipes* is probably *D. testaceipes*; and Mr Morice does not definitely rank his *nigritarsis*.

- Pontania salicis*, Chr. (= *vacciniellus*, Cam.)—Bonhill, J.R.M. ('01);
Frankfield Loch, J.J.K.
 „ *bella*, André (= *baccarum*, Cam.)—Bonhill, J.R.M.
 „ *pedunculi*, Htg.?—Cadder ('76); Canniesburn, Kilsyth,
Strathblane, Clober, Gleniffer, Dalry ('78); Cambus-
lang, A.A.D. ('01).

There has been considerable confusion in the species of *Pontania*, and particularly in *pedunculi*, which Cameron placed doubtfully in his lists. Mr Morice does not give it in his paper on the group in *Ent. Mo. Mag.* as British, as he does not remember to have seen a British specimen.

- Pteronus miliaris*, Pz. (= *croceus*, Fall. = *cadderensis*, Cam.)—
Common, Cadder, Port Glasgow ('76); Clober ('78);
Cadder, A.A.D. ('01); Possil Marsh, the larva feeding
on *Salix pentandra* ('86); Bonhill, J.R.M.
 „ *oligospilus*, Zadd. (= *microcercus*, Thom.)—Cambuslang,
Crookston, Irvine, A.A.D. ('01); Bonhill, J.R.M.
 „ *segmentarius*, Forst. (= *pulchellus*, Cam.)—Possil ('86).
 „ *brevivalvis*, Thom. (= *palliatus*, Thom. = *salicivorus*,
Cam.)—Cadder ('76); Possil, Arran, Bishopston ('78);
Mugdock ('86); Carmyle, G.W.O. ('01); Bonhill,
J.R.M.
 „ *myosotidis*, Fab.—Common among clover ('76); Possil,
Cadder, Kilsyth, Paisley, Cambuslang, Ardlui ('78);
Lamington, Barr; Irvine, A.A.D. ('01); Bonhill, J.R.M.
 „ *melanaspis*, Htg. (= *lacteus*, Thom. = *maculiger*, Cam.)
—Possil ('76); Lambhill ('78); Cadder ('86).
 „ *capræ*, L. (= *sylvestris*, Cam.)—Cadder ('86); Bonhill,
J.R.M.
 „ *curtispinis*, Thom.—Cadder, Mugdock ('86); Bonhill,
J.R.M.
 „ *hypoxanthus*, Forst. (= *orbitalis*, Cam.)—Cadder ('86).
 „ *bergmanni*, Dbm. (= *dorsatus*, Cam.)—Bishopston ('76);
Cadder ('86).
 „ *virescens*, Htg. (= *viridescens*, Cam.)—Mugdock ('86).
 „ *ribesii*, Scop.—In all lists as common. Feeds on goose-
berry and currant bushes in larva stage.
 „ *leucotrochus*, Htg. (= *consobrinus*, Voll.)—“Locality doubt-
ful” ('76); Milngavie ('86); Bonhill, J.R.M.
 „ *pavidus*, Lep.—Common, Cadder ('76).
 „ *polyspilus*, Forst. (= *glutinosa*, Cam.)—Common on alder
(‘86); Bonhill, J.R.M.

- Amauronematus histrio*, Lep.—Kenmuir ('76); Cleghorn, J.J.K.
 „ *fallax*, Lep.—Common, Possil ('76).
 „ *mundus*, Knw. (= *longiserra*, Thom.)—Bonhill,
 J.R.M.
 „ *viduatus*, Zett.—Irvine, A.A.D. ('01).
- Crasus varus*, Vill.—Clober ('76); banks of Allander ('78); in '78
 Clober was doubtfully given as for larva of *C. latipes*,
 Vill., and was not given for *varus*.
 „ *septentrionalis*, L.—Bishopton, Cadder ('76); banks of
 Allander ('78); Irvine, A.A.D. ('01); Mugdock, John-
 stone, Cleghorn, J.J.K.
- Holcocneme lucida*, Pz.—Clober ('86); Bonhill, J.R.M. ('01).
- Nematus abdominalis*, Pz.—Common ('76); Clober, Bishopton,
 Glen Moriston ('78).
 „ *acuminatus*, Thom.—Common ('86); Luss, A.A.D. ('01).
 „ *bilineatus*, Kl.—Clober ('76); banks of Allander ('78).
 „ *luteus*, Fab.—Very common ('76); banks of Kelvin,
 Clyde, Cart, Loch Lomond, nearly everywhere ('78).
- Pachynematus trisignatus*, Forst. (= *caprea*, Pz.?)—In all lists as
 „ common.
 „ *clitellatus*, Lep. (= *imperfectus*, Zadd. = *einersberg-*
ensis, Htg.)—Cambuslang ('76); Bowling, Crook-
 ston, Irvine, King's Cross, Arran, A.A.D. ('01);
 Bonhill, J.R.M.
 „ *xanthocarpus*, Htg. (= *clibrichellus*, Cam.) — Giff-
 nock, Crookston, W. Kilbride, Dundonald, A.A.D.
 ('01); Bonhill, J.R.M.
 „ *apicalis*, Htg.—Cadder, Bishopton ('78); Bonhill,
 J.R.M.
 „ *albipennis*, Htg.—Rare, Dalry, Dr Sharp ('76);
 Crookston, A.A.D. ('01).
 „ *vagus*, Fab. (= *leucotrochus*, Htg. = *leucogaster*, Htg.)
 — Possil, Canniesburn, Bishopton ('78); Pirnmill,
 A.F.; Barr, Johnstone, only females, A.A.D. ('01);
 Bonhill, both sexes, J.R.M.
 „ *obductus*, Htg. (= *conductus*, Ruthe)—Common ('76).
 Recorded under both names in the '78 list for
 various localities; Giffnock, Johnstone, Irvine,
 A.A.D. ('01); Bonhill, J.R.M.
 „ *rumicis*, Fall.—Bishopton ('78); Cambuslang, A.A.D.
 ('01); Bonhill, J.R.M.

- Pachynematus turgidus*, Zadd.—Recorded in '86 by Cameron from Cadder and Milngavie. Morice gives Cameron's *turgidus* as probably = *flaviventris*, Htg.
- „ *brachyotus*, Forst.—Recorded for Brother Loch, Possil, Ravenscraig, and Dundonald, A.A.D. ('01). I cannot find the species in Morice's paper, and do not know it.
- Lygæonematus ambiguus*, Fall. (= *furvescens*, Cam.)—Strathblane ('76).
- „ *pædidus*, Knw.—Bonhill, J.R.M.
- „ *laricis*, Htg.—Bonhill, J.R.M. ('01)
- „ *mæstus*, Zadd. (= *brevicornis*, Thom.)—Bishopton, A.A.D. ('01).
- Pristiphora fulvipes*, Fall.—Not common, Possil ('76); Irvine Moor, A.A.D. ('01); Bonhill, J.R.M. Cameron suggests that his *alnivorus* may be this species in his '78 list; localities, Cadder, Possil, St Germain's Loch.
- „ *crassicornis*, Htg.—Cadder ('76); Crookston, Johnstone, A.A.D. ('01); Bonhill, J.R.M. Cameron brackets this doubtfully in his '76 list with *alnivorus*.
- „ *conjugatus*, Dbm.—Milngavie ('86).
- „ *ruficornis*, Cl. (= *fraxini*, Htg.)—Possil, Cadder, Kilsyth, Kenmuir, Paisley ('78); “very common” ('76); Bonhill, J.R.M.
- „ *pallipes*, Lep. (= *appendiculatus*, Htg.)—Rare, Cadder ('76); Bonhill, J.R.M.
- „ *quercus*, Htg.—Cadder ('76).
- „ *pallidiventris*, Fall.—Cadder, ('76); common ('78); Barr, A.F.; Milngavie, King's Cross, A.A.D. ('01); Bonhill, J.R.M.
- „ *melanocarpa*, Htg. (= *Wustnei*, d. Stein)—Irvine, Luss, A.A.D. ('01); Bonhill, J.R.M.
- Heptamelus ochroleucus*, Hal. (= *Cænoneura Dahlbohmi*, Thom.)—Cadder, Cambuslang ('76); Newton ('78); Bonhill, J.R.M.; Cadder, J.J.K.
- Phyllotoma nemorata*, Fall.—“Very common on birch” ('76); Cadder, Clober, ('78); Bonhill, J.R.M.
- „ *microcephala*, Kl.—“Very common on willows” ('76); Possil, Kenmuir, Bishopton, Cadder, Clober ('78); Bonhill, J.R.M.
- „ *vagans*, Fall.—“Very common on alder” ('76); banks of Allander, Clyde, and Cart ('78).

- Phyllotoma ochropoda*, Thom.—Carlisle, J.J.K.
- Eriocampoides athiops*, Fab. (= *rosa*, Harr.)—Cardross ('86);
Luss, A.A.D. ('01); Bonhill, J.R.M.
- „ *annulipes*, Kl.—Very common, Possil, Cadder,
Kenmuir ('76).
- „ *limacina*, Retz. (= *adumbrata*, Kl.)—Bonhill,
J.R.M.
- Hoplocampa pectoralis*, Thom.—Canniesburn ('78); Bonhill, J.R.M.
- „ *cratægi*, Kl.—Not common, Cadder, Clober ('76);
Pirnmill, A.F.; Crookston, Arrochar, A.A.D. ('01);
common on hawthorn, Bonhill, J.R.M.
- „ *alpina*, Thom.—Not rare on rowan trees at Bonhill.
Not given in Morice's paper.
- „ *ferruginea*, Pz.—Bonhill, J.R.M.
- „ *rutilicornis*, Kl.—Rare, Dalry ('76).
- Mesoneura opaca*, F. (= *Dineura verna*, Kl.)—Rare, Cadder,
Strathblane ('76); Bonhill, J.R.M.; Gorge of Avon,
J.J.K.
- Ardis bipunctata*, Kl.—Bonhill, J.R.M.
- Periclista melanocephala*, Fab.—Mugdock ('86).
- Tomostethus nigritus*, Fab. (= *micans*, Kl.)—Dalry ('76).
- „ *fuliginosus*, Schr.—Paisley ('76); Barr, A.A.D. ('01).
- „ *luteiventris*, Kl. (= *fuscipennis*, Fall.)—Not un-
common in marshes ('76); Paisley Dams ('78);
common, marshy ground ('01). Generally dis-
tributed.
- Blennocampa assimilis*, Fall.—Canniesburn ('76); St Germain's
Loch ('78).
- „ *pusilla*, Kl.—“Common on rose” ('76); Cadder,
Clober, Kenmuir, Strathblane ('78); common at
Bonhill, J.R.M.
- „ *alternipes*, Kl. (= *cineripes*, Kl.)—Common, Ken-
muir ('76).
- „ *tenuicornis*, Kl. (= *alchemillæ*, Cam.)—Rare, Cadder,
Paisley ('76); Clober ('78); Pirnmill, A.F.;
Crookston, Busby, A.A.D. ('01); Bonhill, J.R.M.
- „ *geniculata*, Steph.—Bonhill, J.R.M.
- „ *subcana*, Zadd.—Possil Marsh, Cadder, Paisley ('78);
Milngavie, A.A.D. ('01); Bonhill, J.R.M.
- Scolioncurea nana*, Kl.—St Germain's Loch ('76); Bonhill, J.R.M.
- „ *betuleti*, Kl.—Bishopton, A.A.D. ('01); Bonhill, J.R.M.

- Monophadnus albipes*, Gmel.—Common, Possil, etc. ('76); Cadder, Paisley ('78); Bonhill, J.R.M.; Milngavie, G.W.O. ('01).
- „ *geniculatus*, Htg.—Not uncommon, Possil, Paisley ('76); Bonhill, J.R.M.; Crookston, A.A.D. ('01).
- „ *ruficrurus*, Brullé—Gorge of Avon, J.J.K.
- Kaliosysphinga ulmi*, Sund.—Not common, Kenmuir ('76); Cambuslang, A.A.D.; Gorge of Avon, J.J.K.; Bonhill, J.R.M.
- „ *dohrni*, Tisch.—Irvine, A.A.D. ('01); Bonhill, J.R.M.
- Fenella melanopoda*, Cam.—Cadder ('76); Clober, Bishopton ('78).
- Pseudodineura fuscula*, Kl. (= *parvula*, Thom.)—Rare, Cadder ('76).
- Fenusa pygmaea*, Kl.—Not common, Dalry ('76); Clober, Tarbert ('78); Clober, J.J.K.
- „ *nigricans*, Kl. (*betulae*, Zadd.)—“Common among birch” ('76); Cadder, Clober ('78).
- Entodecta pumila*, Kl.—“Common among birch” ('76); Bonhill, J.R.M.
- (I cannot satisfactorily place *Fenusa albipes*, Cam., and *F. pumilis*, Htg., but believe that one or other may be *K. dohrni*, which does not appear in any of Cameron's lists.)
- Athalia lugens*, Kl.—Gleniffer, Kilsyth ('78); Strathblane, G.W.O.; Barr, Dundonald, A.A.D. ('01).
- „ *lineolata*, Lep. (= *rosæ*, L.)—Very common ('76); abundant ('01); generally distributed.
- „ *glabricollis*, Thom.—“Clydesdale” (no locality) ('78).
- [*A. spinarum*, Fab.—Occurred in 1859 at Old Cambus, Berwickshire, but has not been noticed since ('78). This is an introduced species and is said not now to be found in Britain.]
- Selandria flavens*, Kl.—Rare, Possil ('76); Tollcross ('78); Possil Marsh, G.W.O.; Ravenscraig, Brother Loch, A.A.D. ('01).
- „ *serva*, Fab.—Occurs in all lists. Generally distributed and common.
- „ *sixii*, Voll. (*grandis*, Thom.)—Not common, Gleniffer Braes ('76).
- „ *furstenbergensis*, Knw.—Arrochar, A.A.D. ('01).
- „ *straminipes*, Kl.—Common, Kenmuir ('76); Cadder ('78); Pirnmill, A.F.; Arrochar, Luss, A.A.D. ('01); Bonhill, J.R.M.

- Selandria morio*, Fab.—Cadder, Kenmuir ('76); Strathblane, G.W.O. Lamington, Luss, Barr, A.A.D. ('01); Bonhill, J.R.M.
- Stromboceros delicatulus*, Fall. — Very common on ferns ('76); Cadder, Milngavie, Cambuslang ('78); Finnich Glen, R.H.; Bonhill, J.R.M.; Pirnmill, A.F.; Cadder, A.A.D. ('01).
- Strongylogaster cingulatus*, Fab.—Common on *Pteris aquilina* ('76); Bonhill, J.R.M.; Ailsa Craig, R.H.; Luss, A.A.D. ('01). The male has occurred at Bonhill.
- Thrinax contigua*, Kl. (= *mixtus*, Thom.)—Not common, Cadder ('76).
- „ *mixta*, Kl. (= *femoralis*, Cam.)—Not common, Cadder ('76); Kilpatrick Hills, Gleniffer ('78); Gorge of Avon, J.J.K.
- „ *macula*, Kl.—Kilpatrick Hills ('86); Bonhill, J.R.M.; Loch Long, Hawkhead, Mugdock, J.J.K.
- Eriocampa ovata*, L.—“Occasionally common on alder” ('76); Clober, Ardlui, Balloch, Glen Fruin ('78).
- Pecilosoma liturata*, Gmel. (*submutica*, Thom.)—In all lists. Generally distributed.
- „ *pulveratum*, Retz.—Common, Clober ('76); Balloch, Glen Fruin, Ardlui, on alder ('78); Bonhill, J.R.M.
- „ *excisa*, Thom.—Luss, A.A.D. ('01); Bonhill, J.R.M.
- „ *klugi*, Steph.—Bonhill, J.R.M.
- „ *longicornis*, Thom.—Cadder, Strathblane, etc. ('86); Bonhill, J.R.M. ('01).
- „ *immersa*, Kl. (= *Fletcheri*, Cam.)—Bonhill, J.R.M.
- „ *tridens*, Knw.—Giffnock, A.A.D. ('01).
- Emphytus togatus*, Pz. (= *sucinctus*, Kl.).—Near Paisley, Dunsmore ('86); Helensburgh, J.R.M.
- „ *cinctus*, L.—Common, Cadder, Strathblane ('76); Clober, Campsie, Kilsyth, Kenmuir ('78); Crookston, King's Cross, A.A.D. ('01); Bonhill, J.R.M.
- „ *rufocinctus*, Retz.—Common, Cadder, Kenmuir ('76); Paisley ('78); Bonhill, J.R.M.
- „ *calceatus*, Kl.—Not common, Possil, Bishopton ('76); Cadder, Clober, Kilmalcolm ('78); the '76 localities are dropped in the later list.
- „ *bracatus*, Gmel. (= *tibialis*, Pz.).—Cadder, Clober, J.J.K. ('78).
- „ *serotinus*, Müll.—Cadder, Paisley ('76); Clober, Kenmuir ('78); Bonhill, J.R.M.; Johnstone, A.A.D. ('01).

- Emphytus tener*, Fall.—Common, Possil, Kenmuir ('76); Cadder, Canniesburn, Bishopton ('78); Bonhill, J.R.M.
- „ *carpini*, Htg.—Rare, Canniesburn ('76); Kenmuir, Cadder ('78); Bonhill, J.R.M.
- „ *grossulariæ*, Htg.—Strathaven, A.A.D. ('01); Bonhill, J.R.M.
- Taxonus equiseti*, Fall.—Common, Possil, Cadder ('76); Common, Kelvinside, Clober, Bishopton, Paisley, Dalry (var. *coxalis*, Kl.) ('78); Bonhill, J.R.M.; Eaglesham, G.W.O.; Crookston, A.A.D. ('01).
- „ *glabratus*, Fall.—Common, Possil, Bishopton ('76); Clober, Cambuslang, Cadder ('78); Bonhill, J.R.M.; Pirnmill, A.F.; Crookston, Brother Loch, A.A.D. ('01).
- T. glottianus*, Cam., is said to be an aberrant form of *E. tener*.

(To be continued.)

NOTES.

Badger in Dumfriesshire.—It may interest the readers of the *Scottish Naturalist* to learn that a female Badger was killed on Quhytewoolen Hill, near Lockerbie House, on 9th July 1913.—HUGH S. GLADSTONE, Thornhill.

Bank Vole (*Evotomys glareolus*) in Renfrewshire.—This rodent is mentioned as “little known” in the *Fauna, Flora, and Geology of the Clyde Area* (British Association Committee, 1901), and has always been regarded as rare in Renfrewshire. Not being satisfied on this point, I recently caused my son to set traps in suitable places near Paisley, with the result that specimens have been repeatedly caught. The species is evidently fairly common in this district, and is probably so elsewhere in the west.—C. A. HALL, Paisley.

Richard's Pipit in Midlothian.—I write to record the appearance at Musselburgh of a specimen of that rare Eastern species in Scotland, Richard's Pipit, which was captured on the evening of 6th December. The bird was in an injured condition,

having apparently come in contact with some telephone wires, and had taken refuge in the doorway of a house occupied by Mr C. Sykes, where it was picked up by his son. Mr Sykes is a well-known local naturalist and bird-fancier, and it is due to him that this exceptionally rare species was recognised. He has kindly consented to the specimen being presented to the Royal Scottish Museum for preservation.—M. R. TOMLINSON, Inveresk.

[Richard's Pipit (*Anthus richardi*) is a native of Siberia and N.W. China, migrating to India and South-eastern Asia for winter quarters. It has only twice previously been recorded for the mainland of Scotland, namely, for Perthshire and Kirkcudbrightshire. It has occurred several times in autumn at Fair Isle.—EDS.]

Nesting of Pied Flycatcher in Peeblesshire.—With reference to my note in the February number of the *Scottish Naturalist*, it may be of interest to record that the birds nested in the spring of 1913 in the hole occupied two years ago. I first saw the cock bird on 2nd May, but it was not till a fortnight afterwards that I saw the hen, though I looked for her almost every day, and the cock was always within a few yards of the same spot. Even before the appearance of the hen, the cock had obviously decided that the nest was to be in the hole previously occupied, as he was always on guard near it, and drove away any tits showing a liking for it, of which there were several. The hen was carrying nesting material when I first saw her, so that she had probably arrived some days previously. The nest had three eggs on 24th May, and other three or four were laid, but it was impossible to count either the eggs or young accurately, owing to the shape of the cavity. The young hatched on 12th June and left the nest on the 26th. When newly arrived the birds seemed to prefer the lower branches of the trees, and a wire fence near was also much used as a good position for capturing flies, many of which seemed to be taken among the grass. Later in the season, when the leaves had opened, the birds kept to the higher branches, so that observation became more difficult and ultimately impossible, except when they were entering the nest. The change of habit evidently was due to the ever-increasing food supply as the foliage grew on the trees. There was a second pair within about a quarter of a mile, but I was unable to find the nest.—WILLIAM T. BLACKWOOD, Peebles.

Yellow-browed Warbler in Kirkcudbrightshire.—On 15th October I saw a small bird sitting at the edge of a coppice

near the Blackmark Burn, Kirkcudbrightshire. It was quite near me, and sat just long enough for me to observe that it was similar in size to a Golden-crested Wren, of a greenish brown colour, and had a most distinct light-coloured stripe over its eyes. I have since examined a skin of a Yellow-browed Warbler, from the Royal Scottish Museum collection, and feel certain that it was a bird of this species which I saw on 15th October.—JAMES BARTHOLOMEW, Glasgow.

Fieldfares in Shetland.—I beg to inform you that during my twenty years' residence in Shetland I have annually seen the Fieldfare, but never in anything approaching the myriads which were to be seen in Dale on 1st and 2nd of November. The usual Redwing outposts were present, and at a distance it is somewhat difficult to say which is which, although in this case I am certain the overwhelming majority of this vast flock were Fieldfares. It was not a case of flushing the same lot over and over again. They were everywhere. How many thousands, or millions, I cannot even hazard an idea.—P. MACDOUGALL, Scalloway, Shetland.

[Mr Laidlaw, Auskerry, Orkney, informs us that there was a "tremendous rush" of Fieldfares and Redwings on the night of the 25th-26th October: quite the biggest he has ever seen.—EDS.]

Late Swallow in West Lothian.—When down at Cramond, beside the Forth, on 30th November last, I observed a young Swallow hawking for insects. It kept flying between the Dolphington Burn at Dalmeny House and the cottages east of the burn, and the bird seemed strong on the wing. The weather was very cold and windy, and the Swallow seemed a pathetic figure. I saw it a few weeks before the above date and in the same locality.—REGINALD H. S. PAGE, Edinburgh.

Sparrow Hawk and Mistle Thrush as Migrants at Barra, Outer Hebrides.—On the 8th November I had a near view of a Sparrow Hawk (*Accipiter nisus*) on the Island of Barra. There had been a gale for two days from the S.S.E., and movements had been marked amongst other commoner migrants.

On the 14th November a Mistle Thrush (*Turdus viscivorus*) was seen at the same place. This bird remained on the island for several days.—M. BEDFORD, Woburn.

[These records are of considerable interest. Not only are both new to the fauna of Barra, but they are the first known instances of the visits of both species as migrants in the outer Islands. The

Sparrow Hawk is, so far as we know, the first authentic record of the bird's occurrence in the Outer Hebrides.—EDS.]

Variety of the Gannet.—I am obliged for your courteous review of *The Gannet, a Bird with a History*, but may I be allowed to correct one mistake pointed out by Mr W. Evans, before it goes farther. By some slip I have described the curious white-breasted Gannet in the Royal Scottish Museum, shot at the Bass in September 1894, as being six months old, instead of three months, on page 488.—J. H. GURNEY, Norfolk.

Ringed Grouse.—I wonder if any of your readers can help me to the identity of a Grouse that was shot at Loganhouse last year. It was marked RP/+/09/3218. Enquiries have been made, but with no result. I have an idea the bird may have come some distance. I must apologise for troubling you, but shall be glad of any information you can obtain.—ROB. CRAIG COWAN, Penicuik.

Quails in Fife.—On the 22nd October, Mr Lindsay Norman shot an old female Quail on the farm of Waughmill, near Dunfermline. I may also record that I saw a bird of the same species on Raith estate on 26th September, but as it was too far away I did not attempt to shoot it.—D. J. BALFOUR KIRKE, Burntisland.

Common Snipe at Duddingston Loch.—Common Snipe have been out of all proportion more abundant at Duddingston Loch this autumn than for the last eleven seasons. The first few arrived about the 24th August. On the 30th, after fog and rain, there was an abnormal rush of them: they were running about the edge of the loch or flying over it as if they were little companies of the social dunlin, and in the twilight of the 31st their notes were sounding in all directions as they came swooping down on the loch. The numbers gradually decreased during the next ten days.—WILLIAM SERLE, Duddingston.

Sword-fish in Dumfriesshire.—An example of the Sword-fish (*Xiphias gladius*) was stranded at Annan, Sandrig, on 3rd September 1913. It measured $7\frac{1}{2}$ feet in length and weighed about a hundred-weight.—HUGH S. GLADSTONE, Thornhill.

Sympetrum fonscolombii (Selys) in Arran.—In the *Scottish Naturalist* for January 1912, Mr William Evans recorded the occurrence of *Sympetrum fonscolombii* at several points in the

east of Scotland during July and August 1911—notably a female example in the Isle of May. Later records (Lucas in *Entomologist*, May 1912, pp. 142-4) showed that this beautiful migrant had the same summer been more than usual in evidence in the south, Mr Lucas having taken it in the New Forest and Lieut.-Colonel C. G. Nurse in West Suffolk, while in the west the Rev. E. J. Nurse had met with it in Merionethshire.

Another Scottish record falls to be added. Mr A. M. Stewart, Paisley, in sending me for examination some Western Scottish examples of *Sympetrum striolatum*, included a Dragon-fly which is undoubtedly a female of *Sympetrum fonscolombii*, and which was taken by himself at Brodick in August 1911, one of several seen on the shore flying over brackish pools. It is interesting to have this additional proof that the migratory movement of this species in 1911 extended northwards far beyond the ordinary limits on both sides of Great Britain.—KENNETH J. MORTON, Edinburgh.

Boreus hyemalis (L.) in East Lothian, etc.—In the hope of adding this peculiar insect to my list of East Lothian Neuroptera, I went to Presmennan, at the foot of the Lammermuir Hills, on 13th December 1913, and succeeded in finding it—but only a single example (♀)—in ground-moss under an oak. At first I looked for it in patches of *Dicranum scoparium*, a moss in which it has occurred to me on the banks of the Esk, etc., Midlothian, but eventually I found it in quite another kind of moss, namely, *Hypnum splendens*. Some Midlothian records were published a number of years ago in the *Annals Scot. Nat. Hist.* (cf. vols. for 1897 and 1898). On 21st November 1903, I took a specimen (♂) at Glen Burn, foot of West Lomond Hill, Fife, and I have to thank Dr C. B. Crampton for a number, some of them just emerging from the pupal stage, which he found in moss on a wall-top at Torwood, East Stirlingshire, in October 1907.—WILLIAM EVANS, Edinburgh.

BOOK NOTICES

OUR COMMON SEA-BIRDS: CORMORANTS, TERNS, GULLS, SKUAS, PETRELS, AND AUKS. By Percy R. Lowe, B.A., M.B., C.B., London. Published at the offices of *Country Life*. Price 15s. net.

This is a handsome large-8vo volume devoted to a series of interesting articles on our marine birds, chiefly from the pen of Dr Lowe, but with special contributions by other writers. Though the letterpress is excellent, yet the chief attraction of the book lies in the great wealth and beauty of the illustrations, some 240 in number, all good, and some among the best we have ever seen. We note one or two errors which we think it desirable to point out in case future editions are called for. In enumerating the breeding-places of the Gannet, Sule Skerry is mentioned; it should be Sule Stack, an island a few miles south of the Skerry. At St Kilda the great Gannet colony on the island of Boreray—whose grandeur as a sea-bird haunt is unsurpassed in British seas—is not mentioned. Another error is the assertion that the incubation period of the Storm Petrel is seven weeks; we are able to aver, from personal researches, that this is two weeks in excess of the correct time.

FLIES IN RELATION TO DISEASE—NON-BLOODSUCKING FLIES. By G. S. Graham-Smith, M.D. Cambridge University Press, 1913, 8vo., pp. xiv. and 292, 24 plates and 32 figures. Price 10s. 6d. net.

During the past year or two it has been shown that many common flies which inhabit dwellings, even though not addicted to blood-sucking, are nevertheless important agents in the spread of certain diseases. The appearance of the present volume, which forms one of the "Cambridge Public Health Series," may therefore be welcomed as a most useful summary of our present knowledge of the subject. The author's position as an authority on hygiene stamps the book with the mark of accuracy, while the masterly manner in which the subject is treated renders the work of great value, especially to the student and others who desire an account of the life-histories of the domestic flies and their relation to disease within a reasonable compass. The general get-up of the volume and the quality of the numerous illustrations are, as might be expected, all that could be desired.

(*Authors are responsible for nomenclature used.*)

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[FEBRUARY

EDITORIAL.

THE question is often asked, "Do our summer migrants *sing* in their winter quarters?" In this connection the following remark by Mr L. Beresford Mouritz, in a paper on "Birds Observed in Katanga, Belgian Congo," published in *The Ibis* for January, is interesting. On 6th October 1911 he saw "a number of Willow Wrens (*Phylloscopus trochilus*), and heard them singing feebly; they appeared to have only just arrived" (p. 29). In the same journal (p. 169) Mr George L. Bates states that in January 1913, in a grassy plain at Akonolinga, north of the forest region at Biteye, German Camerun, he saw a good number of European winter migrants. "Especially were Swallows there in immense numbers, skimming by day over the river-bottom plain, especially over parts of it where water was still standing, and gathering in huge flocks to roost at night in the tall grass of the higher ground. As mosquitoes were very abundant, it seems a reasonable guess to suppose that the Swallows were attracted by the numbers of mosquitoes upon which to feed." As Mr Bates has obtained only two specimens of *Hirundo rustica* during many years' collecting at Biteye, it seems probable, he thinks, "that the bulk of the southward winter migration stops in Africa at the edge of the great forest."

The chief item of interest in Scottish ornithology to be recorded this month is to be found in the visit of a number of Waxwings. This erratic "Bohemian" from the far north of the European continent has been in evidence in most

parts of Scotland. We have records of its appearance from Pomona, in Orkney; from the Island of Lewis (Stornoway); and from the Scottish mainland from the extreme north to the Solway on the west, and the Tweed on the east. Usually single individuals are notified, but a few small parties have been seen. The dates range from early November, but most of the birds have come under notice since the new year set in.

In the *Glasgow Naturalist* published last November a faunal paper of some interest appears (pp. 7-32) from the pen of Mr Alexander Ross. It is entitled "The Birds of Islay," and contains a list, with full details, of 145 species. The paper embodies the results of several years' observations, but previously published records are also noted.

Professor W. C. M'Intosh has published, in the January number of the *Annals and Magazine of Natural History*, a further instalment of his interesting "Notes from the Gatty Marine Laboratory, St Andrews." The paper occupies thirty-four pages (pp. 77-110), and is illustrated by two Plates. The first section is devoted to an account of the ventral furrows of the Lesser Rorqual (*Balenoptera rostrata*). The nature of these furrows in a specimen stranded at Crail, on the Forth, is described in great detail, and the animal figured on Plate V. It differs from examples described by Sir William Turner and others, and is possibly an abnormal specimen. The description "leaves about half the series (to the right) untouched, but it will suffice to indicate that, whilst there is truly a parallelism in the ridges, the condition is more complex" owing to some of the ridges splitting into two. In later sections of this paper two families of British Marine Worms, the Amphictenidæ and the Ampharetidæ, are dealt with. The various species are fully described, and their distribution round the British coasts indicated. A new species of the latter family is described under the name of *Melinella macduffi*, but no locality is given.

The 27th Annual Report of the Liverpool Marine Biology Committee, issued in December, is devoted to an interesting account of the Marine Biological Station at

Port Erin, which has just attained its majority. The Report occupies some seventy pages, and is full of valuable information on a variety of topics connected with marine life. Of special interest to Scottish naturalists is a report of the cruise of the *Runa* along the West Coast of Scotland during the months of July and August last. A detailed list is given of 259 species of Foraminifera obtained in four samples obtained from (1) Lowlandsman's Bay, Jura; (2) the Sound of Mull; (3) off Ardnamurchan; and (4) Loch Sunart. Following this are interesting accounts of "Fish and Plankton," "The Sea-Pens," of which all the three British species were obtained, and "The Hebridean Green Syntethys" (*Diazona violacea*). Of this extremely rare Ascidian over thirty fine colonies were obtained on a shell-bank lying to the north of the Croulin Islands, the original locality for the first British specimen, which was obtained by Professor Edward Forbes in 1850.

Among the entomological papers published in January, we may call attention to one by Mr Kenneth J. Morton in the *Entomologist* (pp. 1-7), entitled "Some Remarks on the Atlantic Forms of *Sympetrum striolatum*, Charp." In this article the author gives an exceedingly useful summary of the characters and distribution in Britain of what appears to be a distinct ("Atlantic") race of this well-known Dragon-fly, characterised by "darker femora, and usually by more strongly pronounced lateral thoracic markings than in the more typical forms." To this race he assigns the examples from Lochinver, recently described by Mr W. J. Lucas as *S. nigrescens* (*Entomologist*, June 1912). The Scottish form of the insect is stated by Mr Morton to fall under the subspecies *nigrifemur* of de Selys.

A new British Fly, *Dolichopus caligatus*, Wahlberg, is recorded by Mr A. E. J. Carter in the *Entomologist's Monthly Magazine* (January 1914, p. 17). A single male was captured by him at Aberfoyle, on 21st August 1906. Lastly, the Scottish list of Beetles receives an addition through the discovery, by Professor T. Hudson Beare, of *Neuraphes angulatus*, Müll., at Hawthornden, near Edinburgh, in October last (*Ent. Mo. Mag.*, 1914, p. 15).

A SPERM WHALE IN THE MORAY FIRTH.

By WILLIAM TAYLOR.

ABOUT the 18th December 1913 a male Sperm Whale (*Physeter macrocephalus*) was stranded about a mile east of Fort George, and about three miles east of the spot where I found Risso's Dolphin in December 1912. Both species are rare on the east coast of Scotland. The Sperm Whale differs so much from every other animal, that I recognised the species a quarter of a mile away, though I had never seen one before. The huge, projecting forehead and the hanging under jaw were easily seen at a distance.

No mention is made of this species in Harvie-Brown and Buckley's *Vertebrate Fauna of the Moray Basin*, nor in Sim's *Vertebrate Fauna of Dee*. During the past twenty years that I have paid attention to the Cetacea here, I have never seen nor heard of one. I know of one old record in the *Gentleman's Magazine* (1753) saying: "three Sperm Whales were stranded at Findhorn in February of that year and sold for the benefit of those concerned." The present whale, as far as I know, has not been sold, and nobody seems "concerned," though I believe sperm oil and spermaceti are still valuable products.

When I arrived at the whale, the teeth had already been cut out of the lower jaw, and the epidermis was being torn off by the waves. It resembled thin, black leather-cloth. Quantities of oil were oozing out where many cuts had been made. The oil, slightly mixed with blood, congealed on the cold surface of the water, and was scattered along the sands in cakes, reminding me of mottled soap. The entire length of the beast, in a straight line, was 48 ft. It was nearly 30 ft. in circumference at the thickest part. Though the teeth had all been cut out of the lower jaw, there were about fifteen deep pits in the gum on each side of the upper jaw for their reception. There were no functional teeth in the upper jaw. The enormous forehead projected $3\frac{1}{2}$ ft. beyond the anterior end of the mouth.

The gullet protruded into the mouth, about the bulk of a man, while the length of the gape was 8 ft., and the height of the head, from the upper lip to blowhole, 8 ft. The blowhole was a longitudinal slit on the left side and nearly straight, very slightly sigmoid, and 14 ins. long. The left paddle was about 4 ft. long in front, but only 2 ft. behind, measured from the armpit, and about 2 ft. broad.

From blowhole to dorsal fin was 30 ft. The dorsal fin was very low, being $3\frac{1}{2}$ ft. long and 9 ins. in greatest height. It was rather handsome, not a hump as described in old specimens. From front of head to insertion of penis was 27 ft. The protruding penis was $4\frac{1}{2}$ ft. long, tapering to a point.

The tail measured 11 ft. across the flukes, and the middle of the tail was deeply notched, but the notch was not readily seen, as the edges of the flukes overlapped. This is very different in the case of *Hyperoodon* and *Mesoplodon*, where there is no notch but a projection instead.

The colour of the skin was blackish above, and dark grey below; but as decomposition had set in, the colour may have slightly changed. The front of the head seemed a firm, fibrous mass, like what is seen in the male *Hyperoodon*, and when I kicked it it seemed quite solid. No doubt they ram each other with this huge buffer.

It is high time that the truth should be told about the size of Sperm Whales. Over thirty years ago Sir Wm. Flower demonstrated that there was nothing in the world to prove that Sperm Whales ever measured more than 58 ft. long, when measured in a straight line. The straight line is the only measure that is of value, as, when measured along the curves of the body, no two measurements agree. I thought the 68-ft. Sperm Whales were as dead as 13-ft. tigers, but I see that Millais, in his recent book on *British Mammals*, has revived them. Millais also states that female Sperm Whales are sometimes found in British seas. There is no evidence of that whatever, as all the individuals of the species stranded or captured on our coasts during the last hundred years have been males; and he does not seem to know that the female is very much smaller and a differently shaped beast. The 57-ft. one he mentions was *not* a female!

An old male is three times the length of his skull. So, a 19-ft. skull means a 57-ft. whale. I think a female would be four times as long as her skull. So, an old female skull 10 ft. long might equal a 40-ft. whale or thereby.

Wiedersheim, in his *Comparative Anatomy of Vertebrates*, says whales have an os penis. Flower says they have none, but Sir William Turner has figured and described this bone in *Balæna biscayensis*. A day or two later I cut off the huge penis and carefully opened it up with a knife, from end to end in longitudinal section. I examined it thoroughly for bone, as it lay on the sand spread open. There was no trace of a bone or even a cartilage that might represent one. So there is certainly no os penis in the Sperm Whale. I did not find one in Sowerby's Whale.

This Fort George beast was nearly as large as the model of the Sperm Whale in the British Museum.

NOTES ON BIRD-LIFE IN THE OUTER HEBRIDES AS OBSERVED DURING MAY AND JUNE 1913.

By MARY G. S. BEST, F.Z.S., E. L. TURNER, H.M.B.O.U.,
and MAUD D. HAVILAND.

IN May and June 1913, we spent some weeks in studying and photographing birds in the Outer Hebrides. Most of our expeditions were made along the west coasts of the islands, and we did not visit the more mountainous districts; but in most cases, for obvious reasons, it has been necessary to suppress the locality.

From the nature of the country—desolate peat bogs and bleak machar—we found Passerine birds scarce. Indeed, of the smaller species, the only ones that were at all abundant were the Wheatear, Skylark, Twite, Meadow-pipit, and, along the shore, the Rock-pipit. The Song-thrush

was frequent wherever there was sufficient covert, and the Corn-bunting was not uncommon in the crofted area of the islands, where, on one farm, a flock of fifty or sixty birds were seen flying together like Sparrows. We found two pairs of Stonechats in the same locality in which Mr Chapman recorded them in 1900, and noticed a few House-sparrows round some of the larger hamlets, but these birds were not at all general. We saw two Swallows on 8th May and a single bird on 16th June, all these evidently on passage up the west coast. The Wren was very common on the inland lochs, but we never saw it near dwellings. The song of these Hebridean Wrens struck us as being particularly loud and sustained, and the bird itself much shyer than the mainland Wren.

The most interesting of the smaller birds were the Tree-sparrow and Hedge-sparrow. E. L. T. identified the former species among a flock of House-sparrows on a farm in Uist at the end of May.

Of the Hedge-sparrow, Dr M'Rury, who found the bird breeding in Barra in 1892, says: "I never saw the bird in Uist" (*Ann. Scot. Nat. Hist.*). However, we observed three pairs of the birds in the latter island at the end of May, and found two nests. The islanders do not recognise this bird, and it is not at all common.

The Starling was an abundant breeding species. The Cuckoo, as was to be expected, was scarce, but a pair were generally to be seen in the neighbourhood of one of the Hedge-sparrow's nests mentioned above. The Hooded Crow is a pest in all the islands. During our visit, one keeper shot a hybrid between *C. cornix* and *C. corone*, which partook of the characteristics of both species and was mated to an ordinary Hooded Crow. The Raven, Peregrine, and Kestrel are common in the mountainous districts, but we only observed a single pair of both the Merlin and Short-eared Owl. We were told that two or three Hen-harriers were seen at an old haunt in one of the islands, but we were not able to visit the place.

The Heron was not an uncommon visitor, and we frequently saw Gannets and Cormorants on the west coast.

The former were visitors from Sulisgeir or St Kilda, but we found a small colony of the latter breeding to the south of Haskeir.

The season of 1913 was a very late one for the breeding of the Grey Lag-goose. This bird is said to be increasing in the districts that we visited, owing to the increased protection accorded it. Mallard, Teal, and Red-breasted Mergansers were the commonest ducks. The Shelduck probably breeds among the dunes of the west coast of the Uists and Benbecula, but we only once saw a pair of these birds. The Eider is common, both on the sea-islands and fresh-water lochs. Contrary to what has been stated by some writers, who say that the drake never goes near the nest, on one occasion we observed a drake standing beside an incubating duck. Another day, the drake was seen calling the duck back to the nest.

The most interesting duck that we observed was the Pochard. In 1912, two pairs are said to have bred in the nesting-place of the Red-necked Phalarope mentioned below. In 1913 we saw a drake in the same place. The spot was inaccessible except by boat, but we have little doubt but that the Pochard is an annual breeder in this district.

Of the Fulicariæ, the Coot and Corn-crake were both common, especially round the machar on the west coast. The only member of the Columbidiæ that we saw was a Turtle-dove, an interesting and somewhat unusual visitor to the Hebrides, which was observed in an exhausted condition on a peat bog on 6th June.

The Ringed Plover, Dunlin, and Lapwing all breed in hundreds along the west coast, but both the Oyster-catcher and Golden Plover were remarkably scarce, although suitable breeding-places abounded, and we only saw two nests. The same may be said of the Snipe and Redshank. We were told that many pairs of the latter species used to breed annually in a certain marsh on the west coast; but at the time of our visit, we only saw one bird, which did not seem to be nesting; but we do not know whether this decrease is general in other parts of the islands.

Flocks of Whimbrel, consisting of from five to twenty

birds, were seen frequently up to the middle of June. Other non-breeding waders were a Grey Plover, observed in summer plumage on 6th June, and some Turnstones seen on 16th June.

We paid three visits to a well-known colony of the Red-necked Phalarope. As far as we could judge, the number of birds breeding there at present is anything from thirty to fifty pairs. The owner of the place does all in his power to protect the birds, but owing to the nature of the ground, it is very difficult to watch it adequately, and unfortunately it is well known to collectors.

We discovered a colony of the Common Tern, nesting among some Black-headed Gulls, on an island to the north of any breeding-station previously recorded for the Outer Hebrides in the *Annals of Scottish Natural History*. The Arctic Tern was breeding in considerable numbers in the same district, but in separate colonies. Two or three pairs of Lesser Terns were also seen in this locality, and from the date—5th June—it is probable that the birds meant to breed there, but the eggs were not found.

On 31st May M. D. H. observed a Black Tern (*Hydrochelidon nigra*) on the west coast, flying in a south-westerly direction.

The Common Gull, Herring-gull, Black-headed Gull, and Greater and Lesser Black-backed Gulls all bred in the districts that we visited. The least common was the Lesser Black-back. We visited a breeding-place of the Richardson's Skua during the second week in June, but found no nests and only saw two and a half pairs of the birds. This particular moor is generally occupied by a dozen pairs, and we are at a loss to account for the birds' non-arrival in 1913.

Of other sea-birds, we saw a few Manx Shearwaters in the Minch at the beginning of May, and picked up a newly killed Fulmar on the machar in the middle of June. We also saw a few Puffins, Razorbills, and Black Guillemots—probably visitors from Haskeir—on the west coast. We also saw a mature Black Guillemot on 4th June, swimming in a fresh-water loch, five miles from the sea.

The Dabchick is common, and breeds on every moorland

loch that affords a patch of green rush covert. The Red-throated Diver is frequent on the peat pools in certain districts, but the Black-throated Diver is scarcer, and we only saw one nest during our visit. This species, however, is said to have benefited much by increased protection. We only saw one specimen of the Great Northern Diver, which was observed in adult plumage off the west coast on 10th June.

SUPPLEMENT TO DR SHARP'S "COLEOPTERA OF SCOTLAND."

By ANDERSON FERGUSON.

(Continued from 1913, page 259.)

- [*C. metallicus*, Pk.—SOLWAY, *Dumfries*, Lochrutton Loch, Lennon (10).]
C. impressus, F., var. *rufipes*, Schil.—TAY, *Mid Perth*, Rannoch, Donisthorpe (9).
 [*C. bipustulatus*, L.—SHETLAND, *Shetlands*, Shetland, Nilis.]

LYCIDÆ.

- Pyropterus affinis*, Pk.—MORAY, *Easterness*, fourteen from rotten pine stump, Aviemore, Champion (8); under bark of Scots fir, Nethy Bridge, Beare (24).

TELEPHORIDÆ.

- Telephorus fuscus*, L. — FORTH, *Haddington*, one Aberlady, Beare (14).
T. figuratus, Man., var. *cruachanus*, Chitty. — ARGYLE, *Main Argyll*, near Ben Cruachan, Chitty (2).
T. oralis, Germ.—SOLWAY, *Kirkcudbright*, common but very local, Orchardton, Lennon and Douglas.
 [*Rhagonycha fuscicornis*, Ol. — CLYDE, *Clyde Islands*, south end of Arran, Billups.]

Malthinus fasciatus, Ol.—SOLWAY, *Kirkcudbright*, not common, woods about Orchardton, Lennon and Douglas.

M. frontalis, Marsh.—FORTH, *Linlithgow*, Dalmeny Park, Beare (15); DEE, *South Aberdeen*, Braemar, Fowler (6); MORAY, *Easternness*, Aviemore, Fowler (6); East Ross, near Garve, Joy (5).

[*Malachius aeneus*, L.—CLYDE, *Clyde Islands*, south end of Arran, Billups.]

[*Anthocomus rufus*, Hbst.—CLYDE, *Clyde Islands*, south end of Arran, Billups.]

[*Psilothrix nobilis*, Ill.—CLYDE, *Clyde Islands*, south end of Arran, Billups.]

[*Dolichosoma lineare*, Ross.—CLYDE, *Clyde Islands*, south end of Arran, Billups.]

CLERIDÆ.

Thanasimus rufipes, Braham.—MORAY, *Easternness*, Nethy Bridge by beating fir tops, 1910 and 1912, Beare (32).

LYMEXYLONIDÆ.

Hylecætus dermestoides, L., var. *marci*, L.—CLYDE, *Dumbarton*, in a log of Scots fir, Ardlui, Bagnall (5).

H. dermestoides, L., var. *morio*, F.—CLYDE, *Dumbarton*, in a log of Scots fir, Ardlui, with the previous insect, Bagnall (5).

PTINIDÆ.

[*Hedobia imperialis*, L.—SOLWAY, *Dumfries*, two on railway banks near Dumfries, Lennon (10).]

CISSIDÆ.

Cis hispidus, Pk.—MORAY, *East Ross*, near Garve, Joy (5).

C. fuscatus, Mel.—CLYDE, *Clyde Islands*, one Brodick, Arran, April 1895, Evans (6).

CERAMBYCIDÆ.

[*Spondylus buprestoides*, L.—SHETLAND, *Shetlands*, Nilis.]

Crioccephalus rusticus, Dj.—MORAY, *Easternness*, Nethy Bridge, D. Sharp (2); common in bark of stumps and felled trees, Donisthorpe (3); pupæ and perfect insects in abundance in the very hard wood of burnt standing pines, June 1911, Donisthorpe (9).

LAMIIDÆ.

Pogonocherus dentatus, Fourc.—MORAY, *Elgin*, one in flood rubbish, beginning of October, Culbin Sandhills, Chitty (3). The record of this species for SOLWAY in Dr Sharp's Coleoptera was based on an old record from Moffat by Rev. W. Little in Murray's "Catalogue of the Coleoptera of Scotland" (1853), under the name *P. pilosus*, Fab., but Dr Sharp was doubtful of the correctness of the determination, and remarked: "very rare if indigenous." Chitty's record confirms the occurrence of the species in Scotland.

Saperda scalaris, L.—MORAY, *East Sutherland*, several on birch, Invershin, July 1900, Champion (13).

CHRYSOMELIDÆ.

Orsodacna lineola, Pz.—CLYDE, *Renfrew*, specimens from Paisley sent by Mr Dunsmore, Champion (12).

O. lineola, Pz., var. *humeralis*, Lat.—CLYDE, *Renfrew*, a male from Paisley sent by Mr Dunsmore, Champion (12).

Donacia thalassina, Germ.—FORTH, *Linlithgow*, fairly common on Eleocharis and other water-plants in a pond at Drumshoreland, 1st June 1895, Evans (5).

Hemionia appendiculata, Pz.—TWEED, *Selkirk*, rare, Cauldshiels Loch, Whitehead. This species, which is a most interesting addition to the Scottish list, was recorded as *H. curtisi*, Lac. Mr Whitehead kindly sent me his specimens, four in number, and upon examination they were found to be an extremely small form of *appendiculata*. Commander Walker has compared them with his *appendiculata* taken near Oxford, and he writes me that the Scotch specimens are barely half the size of those from Oxford, and are much paler in general aspect owing to the obsolescence of the dark markings. *H. appendiculata* has only been recorded from a few localities in England, and it has also occurred in Ireland, near Dublin.

Zeugophora subspinosa, F.—MORAY, *Easternness*, with *Z. turneri*, Pow., at Aviemore, Beare (30).

Cryptocephalus aurcolus, Suf.—MORAY, *Easternness*, one on a buttercup, Nethy Bridge, July 1909, Maitland-Dougall.

C. parvulus, Müll.—MORAY, *Easternness*, Glen Affric, on birch, 1884 (Cruttwell), Fowler (6).

Timarcha tenebricosa, F.—SOLWAY, *Kirkcudbright*, nearly a dozen on Scree, Service; seven on waste land, Orchardton, Douglas (3); Potterland Hill, Lennon and Douglas; *Wigtown*, in hundreds near shore, Port William, Gordon (1).

Chrysomela staphylea, L., var. *sharpi*, Fow.—SOLWAY, in salt marshes, Fowler (6); HEBRIDES, *Outer Hebrides*, Stornoway, normal type not met with, Walker (1).

Luperus nigrofasciatus, Goetz.—SOLWAY, *Wigtown*, by beating firs, Corsemalzie, Gordon (1).

Lochmæa suturalis, Th., var. *nigrita*, Weise.—FORTH, *Edinburgh*, two at Kirknewton, May 1901, Evans (8).

Galerucella fergussoni, Fow. (*sagittariae*, Gyll., var. *B.*, Shp.).—CLYDE, *Lanark*, Possil and Frankfield, on *Comarum palustre*, Sharp (9), Fowler (7), and Dalgligh.

*Longitarsus*¹ *anchusa*, Pk.—TWEED, *Peebles*, in flood refuse, River Tweed, near Peebles, Beare (7); SOLWAY, *Kirkcudbright*, Orchardton, Lennon and Douglas.

[*L. nigerrimus*, Gyll.—Reported to have occurred in Scotland, Tomlin and W. E. Sharp; but see "Supplementary Note on *L. nigerrimus*, Gyll.," by the same authors (*E.M.M.*, xlviii., p. 284), from which it appears that the Scotch record, if authentic, may apply either to *L. nigerrimus*, Gyll., or to *L. plantago-maritimus*, Dollman. The latter, according to Tomlin and Sharp, may or may not be a species previously undescribed.]

L. senecionis, Bris. (*piciceps*, Brit. Colls.).—MORAY, *Elgin*, Forbes, Tomlin and W. E. Sharp. These authors state that this species is generally, if not very commonly, distributed over the kingdom. The most northerly record appears to be that noted above.

[*L. lycopi*, Foudr.—ORKNEY, *Orkneys*, Stromness, one specimen, Poppius. Tomlin and W. E. Sharp state that this species appears to be very rare in this country, and the few records available are all from the south of England. It may therefore be as well to consider the Orkney record as one which requires further confirmation.]

¹ Dr Sharp in his "Coleoptera of Scotland" (*Scot. Nat.*, vi., p. 94) recorded only the species of this genus which he had taken himself, nine in all, but he remarked that no doubt the Scotch species were really more numerous than this, and commented on the difficulty of making use of the records in Murray's Catalogue owing to the confusion in synonymy. With the aid of Tomlin and W. E. Sharp's "Notes on the British Species of *Longitarsus*, Latr." (*E.M.M.*, xlvii., p. 241 *et seq.*), I have gone into the records since the publication of Dr Sharp's list, and the species here noted, with the exception of two, the records of which seem doubtful, appear to be additions to the Scotch list. I have not given the records for Scotland of *L. luridus*, Scop., although Fowler in his British Coleoptera remarked that it was not recorded from Scotland, as it is clear from Tomlin and W. E. Sharp's paper that the records of *L. brunnea*, Duft., in Dr Sharp's Scotch list refer to this species.

- L. membranaceus*, Foudr.—FORTH, *Fife*, Balmuto (Power), Fowler (6); MORAY, *Elgin*, Forbes, Tomlin and W. E. Sharp.
- L. ochroleucus*, Marsh.—FORTH, *Fife*, Kirkcaldy (Power), Fowler (6). Also recorded from Edinburgh by Stephens, but this record was disregarded by Dr Sharp in his list. Tomlin and W. E. Sharp remark that some of the records of the species should perhaps be received with caution.
- L. gracilis*, Kuts.—TWEED, *Berwick*, one, dean at Old Cambus, J. Hardy (1); CLYDE, *Lanark*, one, sweeping, Coatbridge; *Cantyre*, Tayvallich, two in 1901, Fergusson (11).
- Haltica palustris*, Weise.—FORTH, *West Perth*, one Aberfoyle, May 1896, Evans (5).
- Phyllotreta nodicornis*, Marsh.—SOLWAY, *Kirkcudbright*, one male, sweeping near the shore, Orchardton, Douglas (3), Lennon and Douglas.
- P. sinuata*, Steph.—TWEED, *Roxburgh*, near Smailholm Tower on *Cardamine pratensis*, Hislop; FORTH, *Haddington*, Dunbar district, not common, Hepburn (3); *Stirling*, on watercress, rarely, near Polmont, Hislop; CLYDE, *Dumbarton*, by sweeping, Luss, Fergusson (6).
- Aphona nigricaps*, Redt.—FORTH, *Fife*, Kirkcaldy, in profusion, August 1869 (Power), Fowler (6).
- A. herbigrada*, Curt.—TWEED, *Roxburgh*, Stitchell Linn (Hislop), Fowler (6).
- [*Podagrica fuscipes*, L.—SOLWAY, *Dumfries*, Dalswinton, Lennon (2), not included in MS. List of the Coleoptera of Mid Solway.]
- Crepidodera aurata*, Marsh.—TWEED, *Berwick*, on willow, Girrick Pond, Hislop; SOLWAY, *Wigtown*, by sweeping, Corsemalzie, Gordon (1); CLYDE, *Dumbarton*, Bonhill, July 1900, Luss, May 1902, Fergusson (6, 8).
- Chaetocnema confusa*, Boh.—MORAY, *Easternness*, Newtonmore, Black (4).
- Psylliodes attenuata*, Koch.—TAY, *East Perth*, Inchmichael, Errol (Power), Fowler (6).
- P. affinis*, Pk.—FORTH, *Haddington*, off *Solanum dulcamara*, near Longniddy, Beare (16).
- Cassida sanguinolenta*, F.—SOLWAY, *Wigtown*, near Corsemalzie, Gordon (1).
- C. nobilis*, L.—CLYDE, *Dumbarton*, five among stones under *Silene maritima*, shore of Loch Long, near Peaton, Evans (12).

TENEBRIONIDÆ.

Heledona agaricola, Hbst.—SOLWAY, *Dumfries*, four off old oaks, Carnsalloch Wood, Dumfries, Lennon and Douglas.

Gnathocerus cornutus, F.—FORTH, *Haddington*, one male found in bread, North Berwick, August 1897; *Edinburgh*, two in bread, Edinburgh, Evans (5, 7); CLYDE, *Renfrew*, in grain store, Paisley, Fergusson (7); *Lanark*, in a stable, Coatbridge, Brown (1).

Tribolium confusum, Duv.—CLYDE, *Lanark*, common in bakery refuse, Coatbridge, Fergusson (11).

CISTELIDÆ.

Cistela murina, L., var. *maura*, F.—ORKNEY, *Orkneys*, Mushalls, three specimens, July 1876, Poppius.

MELANDRYIDÆ.

Orchesia micans, Pz.—TWEED, *Roxburgh*, in polyporus within area of Roxburgh Castle, Hislop; TAY, *Mid Perth*, Rannoch, in decayed birch, Walker (3); MORAY, *Easternness*, Aviemore, Fowler (6).

Clinocara undulata, Kr.—MORAY, *North Aberdeen*, three specimens under bark of a decayed beech tree near Huntly, Lennon (6); CLYDE, *Lanark*, Braidwood, King (3); *Dumbarton*, in decaying wood, Dumfin, G. A. Hardy.

Abdera quadrifasciata, Curt.—TAY, *Mid Perth*, Rannoch Wood (2).

Carida affinis, Pk.—MORAY, *Easternness*, Strathspey, July 1906, D. Sharp (4), Aviemore, Beare (20).

PYTHIDÆ.

Salpingus ater, Payk.—MORAY, *Easternness*, one specimen, Aviemore, (Champion), Fowler (6). According to Fowler, all the records of *S. ater* in Dr Sharp's list refer to *S. æratus*, Muls. Lennon (10) records *S. ater* from near Dumfries.

S. foveolatus, Ljun.—TWEED, *Roxburgh*, Roxburghshire (Boyd), Fowler (6). Fowler (6) also gives a record for Cramond by Stephens, but Dr Sharp apparently was doubtful of this record, as he did not include the species in his list.

Rabocerus bishopi, Shp.—MORAY, *Elgin*, Grantown, fifteen specimens from branches of dead birch, Sharp (7).

CEDEMERIDÆ.

[*Cedemera lurida*, Marsh.—TAY, *East Perth*?, Pitlochry, Beaumont.]

MORDELLIDÆ.

Anaspis septentrionalis, Cham.—MORAY, *Easternness*, two at Aviemore, July 1876, Champion (7).

A. hudsoni, Donis.—MORAY, *Easternness*, Nethy Bridge, one male, September 1908, Donisthorpe (6), female bred from the inner bark of Scots fir obtained at Nethy Bridge in June 1911, Donisthorpe (*Ent. Rec.*, xxiii., p. 300).

ANTHICIDÆ.

Anthicus floralis, L., var. *quisquilius*, Th.—SOLWAY, *Wigtown*, hot-bed, Corsemalzie, Gordon (1); CLYDE, *Ayr*, in vegetable refuse, Shewalton, Fergusson (11).

CURCULIONIDÆ.

[*Rhynchites auratus*, Scop.—SOLWAY, *Dumfries*, found only at the Glen Mills on the common blackthorn, Lennon (2).]

R. nanus, Pk.—TWEED, *Berwick*, "more frequent in Berwickshire," Hardy (2); MORAY, *East Ross*, near Garve, Joy (5); CLYDE, *Renfrew*, off birches, Linwood, Paisley, and Bishopton, Fergusson (6).

Apion rubens, Steph.—FORTH, *Fife*, Balmuto (Power), Fowler (6); HEBRIDES, *Outer Hebrides*, St Kilda, Beare (25).

A. bohemani, Th.—SOLWAY, *Dumfries*, one by sweeping near Dalskairth, Lennon and Douglas; CLYDE, *Ayr*, by sweeping, Dunure, Fergusson (11).

A. scutellare, Kirb.—SOLWAY, *Kirkcudbright*, on whins, Orchardton, Douglas (4).

A. simile, Kirb.—SOLWAY, *Kirkcudbright*, rare on birch, Orchardton, Lennon and Douglas; MORAY, *Elgin*, in flood refuse, Culbin Sandhills, Chitty (1).

(To be continued.)

A FEW SPRING ODONATA, NEUROPTERA, AND TRICHOPTERA FROM THE NORTH OF SCOTLAND.

By W. J. LUCAS, B.A., F.E.S.

DURING the spring of 1913 Colonel J. W. Yerbury spent some weeks in the Spey area, and was good enough, in the intervals of the pursuit of Diptera, to capture for me a few examples of the Odonata, Neuroptera, and Trichoptera of the district. They are of sufficient interest to warrant being put on record.

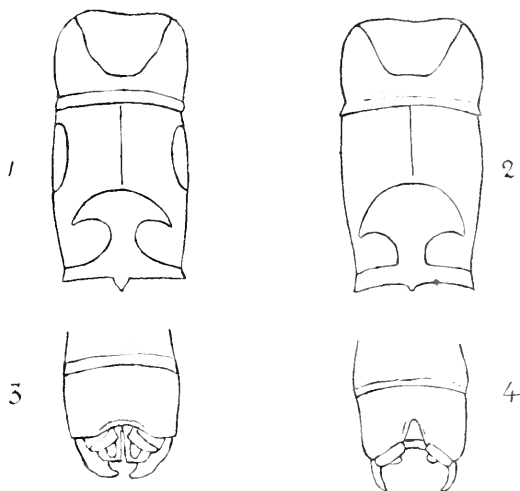


FIG. 1. 1st and 2nd Segments of Abdomen of *A. hastulatum*, Charp.
 ,, 2. 1st and 2nd Segments of Abdomen of *E. cyathigerum*, Charp.
 ,, 3. Appendages of 10th Segment of *A. hastulatum*.
 ,, 4. Appendages of 10th Segment of *E. cyathigerum* (Much magnified.)

Most of the insects were Dragon-flies (ODONATA). Of *Leucorrhinia dubia*, Lind., there was a single male taken on 3rd of June at Nethy Bridge. *Pyrrosoma nymphula*, Sulz., was also represented by one example, a female, captured at Aviemore on the 4th of June. The latter was feeding on a Caddis-fly, *Limnophilus centralis*, Curt., and so tenacious was it in its grasp that the prey was firmly held even after its captor's death, presumably in the cyanide-bottle. Of four examples of *Enallagma cyathigerum*, Charp., all from Avie-

more, three were males taken on the 6th and 16th of June, while one was a female, taken on the 13th. One of the males taken on the 16th had captured a small example of the moth, *Crambus pratellus*, Linn.

Most interesting and welcome, however, amongst the Dragon-flies were a number of specimens of *Agriou hastulatum*, Charp., taken at Aviemore from the 9th to the 16th of June. The collection consisted of nine males (one fragmentary) and two females (one teneral and the other fragmentary). At first sight there is a close resemblance between *A. hastulatum* and *E. cyathigerum*, although they belong to two different genera. Normal males are best distinguished by the black markings on the dorsal surface of the second abdominal segment, as will be seen on reference to Figs. 1 and 2. Not seldom, as in some of the present examples, the lateral spots in *A. hastulatum* become very small, or are even obliterated; while the distal spot in *E. cyathigerum* may become much like that of normal *A. hastulatum*. It, however, then often breaks away from the circlet, which I fancy seldom happens with *A. hastulatum*. The distal spot in neighbouring segments in *A. hastulatum* is longer and of a more graceful shape than in *E. cyathigerum*. Should modifications in the black markings of the second segment lead to confusion, a glance at the appendages of the distal abdominal segment will settle the matter (see Figs. 3 and 4). Females, which are much less frequently taken, should be identified by association with the males. It may be noted, however, that in females of *E. cyathigerum* there is a small distal apical ventral spine on the eighth segment.

All the NEUROPTERA were taken at Aviemore. They were represented by *Sialis lutaria*, Linn., two males 25th and 26th of May, and one female 29th of May; *Hemerobius nervosus*, Fab., two, 27th of May and 9th of June; *Hemerobius stigma*, Steph., three on the 31st of May, and one on the 11th of June.

Of the TRICHOPTERA there was but one species, *Neuronia ruficrus*, Scop., which was represented by two specimens from Aviemore, taken on the 25th of May and 1st of June. This is a fine dark insect having somewhat the appearance of one of the larger species of *Perla* (PLECOPTERA).

NOTES.

Bank Vole in the Clyde Area.—Mr Hall's observations (p. 19, *ante*) may be supplemented by other local records gathered since the date of the publication he refers to. Mr Norman B. Kinnear wrote me on 4th November 1905 that the species is very abundant round Blackwood, and does much damage in gardens; Mr J. G. Millais found it plentiful at Cadzow.

The important *History of British Mammals*, by Major Barrett-Hamilton, deals with the Bank Vole, called by him Bank Mouse, and ranked as a subspecies under the name of *Evotomys glareolus britannicus* (Miller), in the part last issued—XIV., August 1913. Among the island localities Bute is named, and in the lowlands of Scotland the distribution is given as common.—HUGH BOYD WATT.

The Birds of Tiree—Additional Records.—As I only spent the first two months of three consecutive winters on the Island of Tiree, I hope Mr Peter Anderson will not think it presumptuous of me if I make some additions to his list recently published, and also venture to criticise some of his statements, particularly so as his knowledge of the island is practically that of a lifetime. The additions are as follows:—1. GLOSSY IBIS: In February 1901, a bird described as a Black Curlew was seen on Tiree, and on the 21st of that month I was able to identify it as a Glossy Ibis; 2. GREAT SKUA: Middle of January 1902, one far out in Gott Bay; 3. SMEW: On 16th January 1901, I saw a female Smew on the sea between Coll and Tiree, which flew across the bows of the steamer *Fingal*; 4. GREENLAND FALCON: On 6th February 1901, whilst driving with the minister, we saw a fine adult Greenland Falcon in chase of a Green Plover, which saved its life by falling headlong into a ditch full of water; 5. LESSER REDPOLL: On 6th March 1903, a large flock of Lesser Redpolls with some Linnets came to roost among the whins near the entrance gate to Gott Manse, but were all gone next morning. My criticisms are as follows:—Mr Anderson only mentions the Whimbrel as passing in spring to autumn, but I several times saw single birds in January and February 1901 and 1902. The Storm Petrel not being mentioned as a winter visitor, it may be of interest to state that I saw one on 22nd January 1901, near Scarnish. Concerning the editorial *re* the Lesser Black-Back Gull, I do not ever remember seeing an adult in winter about the island. Concerning the Grey-

Lag Goose, I believe it was Mr Anderson who told me that there were three on the island well into the spring of 1902. One left, but the other two remained so long that he thought they might have nested. I have this in my notes, but cannot remember whether it was Mr Anderson who gave me the information or not.—H. W. ROBINSON, Lancaster.

The Birds of Tiree—Additional Records.—Thanks to the kind permission of Lord Elphinstone, I was enabled to spend the month of September in Tiree, for the purpose of witnessing the autumn passage of birds through that island. The most interesting bird obtained was a female Barred Warbler (*Sylvia nisoria*), which was flushed from a plot of cabbages in a garden on 9th September. On the 12th a male, and on the 27th a female Greenland Redpoll (*Carduelis linaria rostrata*) were procured. Both were discovered amongst the hordes of noisy Twites that frequented the tracts of stubble in the crofted area. Two Common Whitethroats (*Sylvia simplex*) were observed on the 5th, and single birds on the 6th, 9th, and 16th: one bird secured on the 5th proved to be in full wing moult, many of the primaries and secondaries being in quill, which suggests that it was not a migrant from afar, but had possibly bred on the island.—ANNIE C. JACKSON.

Some Bird Notes from Shetland.—The following records of birds procured in the vicinity of Lerwick during the year have at least local interest:—4th May, Wood Warbler; 31st May, Sedge Warbler; 3rd September, Pied Flycatcher; 19th September, Barred Warbler; 12th October, Sparrow Hawk; 25th and 26th October, Siberian Chiffchaff; 26th October, Garden Warbler. The identification of the Siberian Chiffchaffs has been confirmed by Mr Eagle Clarke. The others have been preserved, and are in the possession of Messrs S. Bruce and Theo. Kay, who have furnished the information contained in this note. Although it may seem strange in view of what Saxby says regarding the species, the Sparrow Hawk noted is the only one I have known of procured in Shetland; at least I do not recollect having seen another in Shetland except one which frequented the same neighbourhood for about a month in November 1910, but which, so far as I know, was not shot.—GEORGE W. RUSSELL, Lerwick.

Northern Bullfinches in Orkney.—*The Field* for 6th December 1913 contains a note on a pair of Bullfinches seen in a small plantation in the Island of Eday for some days at the end of November. Mention is also made of the occurrence of

Bullfinches in the Orcaades in 1809 and 1865. This was followed by a further note in the number for 13th December on the appearance of three in a garden at Kirkwall in March 1910. When at Stromness, on 1st September, I saw in the museum of that town an adult male of the Northern Bullfinch (*Pyrrhula pyrrhula*), which had been captured in the neighbourhood in October 1912. This race has not hitherto been recorded from the Orkneys, but to it most probably belong all the birds mentioned in this communication.—W. EAGLE CLARKE.

Woodchat Shrike in Orkney.—An adult male Woodchat Shrike (*Lanius pomeranus*) was captured on the Island of Aukerry on the 6th of June 1913, and is now in the collection of British birds in the Royal Scottish Museum at Edinburgh. Mr Eagle Clarke informs me that this species is new to the list of birds known to have occurred in the Orkney Islands, and that it is the third recorded Scottish specimen.—H. LAIDLAW, Aukerry.

Nesting of the Pintail in Moray Area.—In June 1913, a Pintail's (*Dafila acuta*) nest was located in the vicinity of a small loch in the above area. I believe this to be the first fully authenticated instance of the Pintail breeding in the Highlands, though there are records of its nesting in the Orkneys and Shetlands and the Outer Hebrides.—ANNIE C. JACKSON, Swordale, Ross-shire.

[There is a clutch of eggs from Cromlit, Inverness-shire (E. Hargitt), in the British Museum.—EDS.]

Probable Breeding of Tufted Duck in North Uist—A Tufted Duck (*Fuligula cristata*) was obtained on a fresh-water loch at Scolpaig, North Uist, as late as 22nd September 1913; this bird, which was a young ♂ flapper, was quite unable to fly, and this fact is an especially interesting one, as, to my knowledge, there has as yet been no occurrence of this duck as a breeding species in these islands. The preceding spring two pairs of Tufted Duck were observed on another loch quite close to the above-mentioned; taking these two facts into consideration, it seems highly probable that at least a pair remained in this portion of the Long Island for breeding purposes.—F. S. BEVERIDGE, Vallay, North Uist.

[The nesting of the Tufted Duck in the southern Outer Hebrides in 1903 and 1906 was recorded in the *Annals of Scottish Natural History* for 1903 and 1907. Mr Beveridge's note is a valuable addition to our information relating to this species in the Outer Hebrides.—EDS.]

The Great Skua in danger of extermination as a native of the British Islands.—We are informed that the Shetland County Council have passed a resolution that the Great Skua should be excluded from the list of protected birds. A similar attempt was made two years ago, on the allegation that goslings had been killed. The resolution is based on the old allegation. Under the new Grazing Regulations no geese are to be allowed on common pasture, so even supposing guilt had been proved against the Skua (and there was no proof), it could not happen again. It would be nothing short of a tragedy if protection were removed, as the Skua would be killed out in a year or two. We do not believe that the Great Skua is by any means the chief culprit, and we trust that those who are interested in Scottish ornithology will do all in their power to frustrate the attempt to deprive this bird of protection.

Nesting of Great Crested Grebe in Moray Area.—In 1912 a pair of Great Crested Grebes appeared on a certain loch and remained there during the summer months, but though search was made no nest was found, nor were young ones seen. Last May a pair (probably the identical pair) were again seen on the loch, and towards the end of the month a nest was found with one egg, which, most unfortunately, had been sucked. However, the Grebes nested again, and in July one young one was successfully hatched off and might be seen swimming about with its parents. This appears to be the first record of the Great Crested Grebes breeding north of the Grampians.—ANNIE C. JACKSON, Swordale, Ross-shire.

Scottish Records of Insects.—In the January number of the *Entomologist's Monthly Magazine* we note the following:—COLEOPTERA: *Amara alpina*, F., three specimens at Braemar, June 1913 (F. HUDSON BEARE, p. 14). *Trypodendron domesticum*, L., galleries in dead beach trees near Careston, Forfarshire; *Phyllophthorus rhododactylus*, Marsh., near Brechin, Forfarshire, and near Bieldside, Aberdeenshire; *Cryptorrhynchus lapathi*, L., near Stracathro, Forfarshire (J. W. MUNRO, p. 15). LEPIDOPTERA: *Tinea tedella*, Cl., noted as harmful to young spruce trees near Aberdeen (J. W. MUNRO, p. 15).

Thanasimus rufipes, Brahm, at Nethy Bridge.—When examining some of my 1911 captures at Nethy Bridge, I found three examples of this species. In 1913 I took other three at the same locality.—JAMES J. F. X. KING, Glasgow.

Leptura sanguinolenta, L., at Nethy Bridge.—I was

fortunate enough to take a fine female of this scarce species walking over a "stool" in the Burnt Wood at Nethy Bridge last summer; Colonel Yerbury and myself saw the species in the same locality in 1911.—JAMES J. F. X. KING, Glasgow.

Agrotis saucia, Hüb., and Cidaria associata, Bork., in Forth.—When on the Isle of May last autumn I received from Mr R. Wilson, lighthouse-keeper, a number of Moths taken at the lantern in the end of September. Among them were two specimens (♂ and ♀) of *Agrotis saucia* (Pearly Underwing) which had come to the light on the nights of the 26th and 27th respectively. This scarce Scottish Noctuid is, it would appear, unrecorded from the Forth area, but Miss Balfour has kindly shown me a specimen which was captured at Whittingehame, East Lothian, some years ago.

To Mr W. Thomson, junior, I am indebted for a specimen of *Cidaria associata*, Bork. (*dotata*, Gn., *non* L.), the "Spinach," taken at Tynninghame, where a few examples were captured by him in 1911 and 1913. If there has been no confusion of names, this Moth occurred near Paisley, in the Clyde area, many years ago (see Stainton's "Manual," under *C. dotata*). I can call to mind no other Scottish record for it.—WILLIAM EVANS, Edinburgh.

Myrmica lævinodis, Nyl., in West Lothian.—On the Riccarton Hills, on 17th July 1913, at an altitude of about 600 feet, I discovered three colonies of this Ant under stones on short turf. The nests struck me as considerably more populous than the average of the nearly related *M. ruginodis*, Nyl. The only other Ant found in the immediate vicinity was *Formica fusca*, Latr. On the 22nd of the same month, another colony of *M. lævinodis* was met with in a similar site on the Torphichen Hills, in the near neighbourhood of a *M. ruginodis* nest. Although not hitherto noticed in this county (v.c. 84), *M. lævinodis* has already been recorded from the Forth area—Dunbar (v.c. 82), and Isle of May (v.c. 85)—by Mr Wm. Evans (*Scot. Nat.*, 1912, p. 107), to whom I am indebted for kindly confirming my identification.—S. E. BROCK.

Eriophyes tristriatus, var. erineum, Nal., in Forfarshire.—The galls of this Mite were found by Mr J. W. Munro on the leaves of a walnut tree at Brechin in October last, and recorded by him in the *Entomologist's Monthly Magazine* (January 1914, p. 15).

BOOK NOTICE.

REPORT ON THE IMMIGRATION OF SUMMER RESIDENTS IN THE SPRING OF 1912: also NOTES ON THE MIGRATORY MOVEMENTS DURING THE AUTUMN OF 1911. *Bull. Brit. Orn. Club*, vol. xxxii., 6s. net.

This Report, which is the eighth published by the Committee appointed by the British Ornithologist's Club, again contains much valuable information. It is compiled on the same lines as those recently issued, and will be found of interest to all ornithologists, more particularly those whose special study is migration. The data given on summer residents in England are quite as valuable and interesting as heretofore, but we notice one serious blunder in this section. On page 152, under Little Tern, the Committee state that, "On comparing the records of the two species of Terns—*i.e.* Common and Little—it is obvious that they are unsatisfactory"; this is no doubt true, but the unsatisfactoriness is further increased by the chronological summaries of the two species being hopelessly muddled. All the Scottish February records given under Little Tern should, by rights, be under Common Tern, and of the other notes many under Little Tern refer to the Common Tern, and those under Common Tern belong largely to the smaller species. Rather misleading statements are made regarding the dates of appearance of spring migrants in Scotland, due, no doubt, to the very limited data at the disposal of the authors; for instance, on page 67, under Garden-warbler, we read: "As the result of these immigrations an increase in the number of birds throughout the country became apparent, particularly in the northern counties, Scotland being reached on the 12th and 14th" (May); from which one would conclude that these are the first dates on which this species was recorded in Scotland; this, however, is not the case, the first having been reported on 29th April. Turning to the autumn notes, we here find much that is of value, and the isolated records, chiefly taken from current literature, contain reports of many uncommon visitors as well as interesting notes on commoner species. The Scottish autumn records are again almost entirely taken from the *Scottish Naturalist* and the Report on Scottish Ornithology, and here also we must notice the inaccuracies which disfigure them; in this section alone, no fewer than twenty-two mistakes have obtruded themselves on our notice, these being chiefly errors in dates. As a Report such as this is largely a work for reference, and as such most, if not all, its value lies in its accuracy, it is a thousand pities that more care has not been taken to avoid the recurrence of these perfectly preventable mistakes. We fully realise the difficulties which beset those who compile migration reports, and the labour involved in getting together so much information; we wish the Committee continued success, and look forward with the greatest interest to their future publications.—E. V. B. and L. J. R.

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[MARCH

EDITORIAL.

WE regret to record the death, since our last issue, of Lieut.-Col. John Campbell, formerly Governor of Calton Prison, Edinburgh, an enthusiastic lover of birds, and an occasional contributor to our pages. He was born at Cawnpore, in India, and followed a military career, chiefly in the land of his birth. On leaving the army he came to this country as Deputy-Governor of H.M. General Prison at Perth, whence in 1900 he was promoted to Edinburgh.

British naturalists have also to mourn the loss of Major G. E. H. Barrett-Hamilton, one of our best authorities on the mammals of Europe. His untimely decease occurred quite suddenly on 17th January last, in South Georgia, where he had charge of the mission recently despatched by the Colonial Office and the British Museum to investigate the whales of the Antarctic region. Major Barrett-Hamilton was also engaged upon a masterly and exhaustive work (fourteen parts of which are already published) on British Mammals—probably the finest work on the subject ever attempted.

An article in *Country Life*,¹ signed "W. R. O. G.," gives an interesting account of the nesting of Wild Swans in the Shetland Islands. It is stated that in 1909 a pair of Whoopers were shot at and winged near Dunrossness. Their broken pinions were amputated and the birds allowed

¹ 24th January 1914, pp. 119-120.

to roam at will. During the ensuing spring they nested and reared a cygnet, while the two following years they reared three and four respectively. This year their breeding was interfered with, owing to the drying up of the marsh where they nested. People walked over the ground, and the birds, being continually disturbed, did not attempt to breed. Of the young birds born in the locality one disappeared, another was pinioned and sent away, but the remainder have settled down and so far have evinced no desire to migrate, beyond trumpeting and becoming restless as the time for wandering approaches.

It has long been known that the Gold-tail Moth (*Porthesia similis*) is liable to inflict upon a tender-skinned person handling it an intense irritation and even inflammation resembling nettle-rash. The caterpillar of this species is also possessed of severe urticating properties to such an extent that it is said to be risky to beat a hedge which has harboured a colony, since the irritating particles cast by the larva fly off, settle on the skin of hands and face, and cause much suffering. In a paper recently published on the subject by Dr Harry Eltringham,¹ much interesting detail is brought forward as to the structure and origin of the irritant particles both in the larva and the adult moth. It appears that in the former each segment bears large branched hairs, and at the bases of certain of these some masses of peculiar barbed spicules which are very easily detached, and appear to be then loosely retained by the branched hairs. These spicules are the cause of the irritation, but whether this is due to chemical or purely mechanical action (or both) appears to be yet uncertain. The most remarkable part of the paper is that dealing with the adult moth. The urticating properties (possessed by the female alone) are due to the presence, in the anal tuft of hair, of barbed spicules identical in structure with those found in the caterpillar. From the observations of the author it appears that the moth, by a remarkable instinct, actually collects, while emerging, these spicules from the inside lining

¹ *Trans. Ent. Soc.*, 1913, part 3, pp. 423-427, plate xxii.

of the cocoon, where they are left by the larva, arranged roughly in the form of a transverse belt just beyond the middle. The spicules are picked up by the anal tuft opening and closing, the abdomen of the moth being at the same time contorted so that the tuft moves round and round the cocoon. The eggs of this species are, as is well known, eventually covered by the detached anal tuft of hair for protective purposes, and the collection of the spicules for the purpose of increasing the protective qualities of this tuft is one of the most remarkable instincts that have been recently discovered in the great class of insects.

A paper of a very different character, but one of importance to the systematic worker, is that appearing in the same journal, by the Rev. F. D. Morice, on the specific differences in the saws of Female Dolerids,¹ a group of Sawflies in which the specific differences are admittedly difficult of comprehension. By the help of the beautiful photographic plates which illustrate this paper, and in which the saws of all the European species are represented, students of our British Hymenoptera will have their labours in identification materially lessened, especially when the accompanying text is studied at the same time.

Some few years ago Mosquitoes seemed to be the favourite subjects for study among economic entomologists, and naturally so, owing to their connection with malaria, but now-a-days the Common House-fly appears to have become the popular insect. Two contributions to the bionomics of this abundant Dipteron fall to be noticed this month. The first of these is a paper by Dr Edward Hindle, entitled "The Flight of the House-Fly,"² in which the results of experiments with over 25,000 specimens are recorded. The flies were first caught and fed for twenty-four hours to ensure the full development of their skeleton and consequent powers of flight. They were then counted,

¹ *Trans. Ent. Soc.*, 1913, part 3, pp. 428-435, plates xxiii.-xxv.

² *Proc. Cambridge Philosophical Society*, vol. xvii., part 4, pp. 310-313 (30th January 1914.)

dusted with coloured chalk, and liberated, being afterwards recovered at about fifty observation stations by means of fly-papers and traps. A summary of the results of these experiments shows that house-flies tend to travel either directly *against* or *across* the wind, and that their dispersal takes place more readily during the morning, in fine weather, and when the day is warm. Owing to abundance of food and shelter the distance traversed is less in the town than in open country, while the usual maximum flight in localities thickly housed appears to be about a quarter of a mile. The second contribution is in the form of a query, entitled "Do House-flies hibernate?" by the well-known dipterist, Ernest E. Austen, of the British Museum.¹ He states that definite proof of the actual hibernation of the house-fly in the adult state is still wanting. Flies of several species have been found in attics, etc., during winter months, but after careful examination it was ascertained that the true house-fly was not among them. Since exact knowledge on the point is desirable for the more effectual dealing with this pest, Mr Austen requests the assistance of his readers, who are asked to search for specimens and to forward them to him for examination.

We are glad to note that our scientific societies are now taking an interest in the protection of those native and exotic birds, which have been slaughtered in such vast numbers of late years for purposes of fashion or millinery. At recent meetings of the Royal Physical Society of Edinburgh, and the Edinburgh Field Naturalists' Society, resolutions were unanimously passed in support of the Importation of Plumage (Prohibition) Bill, at present before the Houses of Parliament. We learn also with great satisfaction that the passage and enforcement of a similar Bill in the United States has, according to a cable sent from the Zoological Society of New York to that of London, "created a sentiment for wild life protection in many quarters where it did not exist before."

¹ *Ent. Mo. Mag.*, February 1914, pp. 39-40, and *Entomologist*, February 1914, pp. 69-70.

ON SOME MIGRATORY BIRDS OBSERVED AT FAIR ISLE DURING THE SPRING AND AUTUMN OF 1913.

By WILLIAM EAGLE CLARKE.

FAIR ISLE still holds its own as the premier British observatory for witnessing the movements of the vast numbers of migratory birds which rush northwards in the spring, mostly to reach accustomed breeding-haunts in arctic and subarctic Europe; and southwards in the autumn, with their young, to seek winter-retreats in our isles, or in more genial climes often far beyond them.

During the past year no less than 146 species came under notice, of which seven were new to Fair Isle, bringing the total of the birds known to have visited this small island to the very remarkable figure of 220 species.

Mr Wilson, the bird-watcher, is again to be congratulated on his excellent work. The Duchess of Bedford kindly contributed a number of interesting observations; and the writer spent a short holiday on the island during the spring migratory period.

Here it is only possible to allude to the more interesting ornithological events during 1913; but the whole of the daily records for the year, which was one of unusual interest, have been placed at the disposal of the Misses Rintoul and Baxter, as a contribution to their most excellent and useful Report on Scottish Ornithology.

The species marked thus * are new to the avifauna of Fair Isle.

NORTHERN BULLFINCH (*Pyrrhula pyrrhula*).—There are two interesting records of the return passage of this bird to its native home in Northern Europe. Two males were observed respectively on 27th March and 30th April, and are the first spring records for the appearance of this species at the isle. In autumn a few arrived on 7th November, but only remained a couple of days.

SCARLET GROSBEAK (*Carpodacus erythrinus*).—Fair Isle participated in the unusual visitation of this species—once among the rarest of British birds—during the past autumn. Several were seen between 29th August and 18th September, all of which were in the green-grey dress of the female or young of the year.

RUSTIC BUNTING (*Emberiza rustica*).—An adult male on 30th May makes the second spring and fourth Fair Isle occurrence of this rare visitor to Britain.

NORTHERN TREE-CREEPER (*Certhia familiaris familiaris*).—A female appeared on 14th April. This is the second authentic record of this European and typical racial form of the Creeper in the British Islands. The first, also a Fair Isle example, was captured alive on 27th December 1906.

* LESSER GREY SHRIKE (*Lanius minor*).—An adult female was captured on 3rd June. This is the only known instance of the occurrence in Scotland of this beautiful summer visitor to Southern and Central Europe, and is the seventeenth appearance of the species in the British Isles.

* WOODCHAT-SHRIKE (*Lanius senator*).—An adult female occurred on 4th June, the fourth recorded instance of the appearance of this species in Scotland, but third in chronological sequence.

EVERSMANN'S WILLOW-WARBLER (*Phylloscopus borealis*).—The third British, and second Fair Isle example of this subarctic species was found on 18th October among a plot of turnips—a favourite resting-haunt of immigrants on passage. Unfortunately the sex could not be determined. The other, and first British, specimen was captured at the lantern of the lighthouse at Suleskerry, another remote Scottish island, on 5th September 1902.

MARSH-WARBLER (*Acrocephalus palustris*).—It is a singular fact that the only known instances of the visits of this species to Scotland should have been chronicled for our remotest isles—Fair Isle and St Kilda. The bird is a local summer visitor to the south of England, and has not been recorded for either its Midland or Northern counties. The third Scottish (the first for spring) and second Fair Isle specimen occurred on 7th June.

ICTERINE WARBLER (*Hypolais icterina*).—The fifth bird of this species detected in Fair Isle in spring appeared on 26th May, making five spring and five autumn instances of its visits at the station. There are only eleven Scottish records, all for Shetland.

WHITE-SPOTTED BLUE-THROAT (*Cyanecula cyanecula*).—The fourth instance of the occurrence of adult males of this species at Fair Isle is recorded for 9th May. It is not a little remarkable that nearly one-half of the known visits to the British Isles of this Central

European summer bird should have been recorded for this remote northern isle during the past five years.

* HOBBY (*Falco subbuteo*).—An adult male was captured on 7th May, and is an addition to the avifauna of the island.

* SPARROW-HAWK (*Accipiter nisus*).—An adult female obtained on 12th May may be regarded as the first authentic record since the days of Dr Saxby of the occurrence of this species in Shetland.

* BEAN-GOOSE (*Anser fabalis*).—A male of this species was shot on 10th January, and its head and feet sent to me for identification. Three White-fronted Geese were obtained at the same time. This species is new to the avifauna of the island. At the time of writing their *Fauna of Shetland* (1899) Messrs Evans and Buckley had no authentic information relating to the occurrence of this species in the northern archipelago, and none has been added since to the writer's knowledge.

* SMEW (*Mergus albellus*).—One, an adult female, obtained on 21st January, is new to the fauna of the island.

* STONE-CURLEW (*Ædicnemus ædicnemus*).—On 7th June an adult female visited the island, and was a novelty to its fauna. This species is only known to have twice visited Scotland, both to the mainland and far south (Fife and Stirlingshire).

RUFF (*Machetes pugnax*).—The first spring record of the appearance of this bird at the island is chronicled for 5th June.

LITTLE STINT (*Tringa minuta*).—One which appeared on 2nd June is the first known spring passage visit of this species to the island.

TEMMINCK'S STINT (*Tringa temmincki*).—A single bird appeared on 13th May and remained for several days. It proved to be a female in partial summer plumage.

BARTAILED GODWIT (*Limosa lapponica*).—The second known instance—the first for spring—of the visit of single birds of this species is chronicled for 20th May.

In addition to the birds specially treated of, the following uncommon species also occurred. In SPRING: Golden Oriole, Ortolan, Grey-headed Wagtail, Wood-Warbler, Grasshopper Warbler, Black Redstart, and Arctic Bluethroat. In AUTUMN: Greater Redpoll (*A. l. rostrata*), Little Bunting, Ortolan, Lapp Bunting, Shore - Lark, Barred Warbler, Siberian Chiffchaff, Yellow-browed Warbler, Black Redstart, and Arctic Bluethroat.

LEPIDOPTERA (MOTHS) AND OTHER INSECTS
AT SCOTTISH LIGHTHOUSES, CHIEFLY IN
THE FORTH AREA.

BY WILLIAM EVANS, F.R.S.E.

INTRODUCTORY.

THE old saying about the moth and the candle gives expression to a well-known fact in natural history, namely, that on dark nights moths and certain other insects are strongly attracted by artificial lights. If even the feeble light of a candle is capable of alluring them, how potent must be the attraction exercised by a many thousand candle-power light, such as nightly casts its beams from the tower of a modern "pharos"! Given moths to be attracted, the scene at a lighthouse tower on a favourable night is, indeed, one which an entomologist would not be likely soon to forget. Unfortunately, on our Scottish coasts neither moths in large numbers, nor suitable weather conditions are greatly to be depended upon. Nevertheless, as the sequel will show, they do occur, and that not rarely.

The present paper has its origin in a visit I made to the Isle of May, at the mouth of the Firth of Forth, in September 1885, in order to see migrating birds at the lighthouse lantern. Besides the birds, numbers of moths also came to the light, among them the Brindled Ochre (*Dasyptilia templi*), a species at that time looked upon as a rarity in Scotland. What I then saw, and still more what I heard about the great crowds of moths that occasionally besiege the lantern, impressed me with the desirability of obtaining a series of collections for identification from a number of the lighthouses on our coasts. The receipt, now and again, of a match-box filled with moths from the Isle of May or Barnsness, served to keep interest in the subject alive; but it is only during the last few years that circumstances have enabled me to obtain specimens with any degree of regularity,

or in sufficiently large numbers. The results thus far obtained are given in the list which follows.

As it is hoped that this paper may be the forerunner of a series of reports on the occurrence of Lepidoptera and other insects at Scottish lighthouses, some allusion to (1) insect "migration" in general, and (2) lighthouse records already published, may not be considered out of place. It should serve, at all events, to show that there are substantial grounds for anticipating many highly interesting and valuable results from an investigation such as I have here indicated. Ornithologists were quick to recognise the value of lighthouses in connection with the study of bird-migration, and for a number of years a committee of them was appointed by the British Association to investigate the matter by means of schedules and specimens sent in by the light-keepers. It is a matter for regret that insect-migration was not included in the scope of the enquiry, and a couple of entomologists put on the committee. The opportunity thus missed is not likely soon to recur.

The so-called migrations of locusts—Linnæus named one species *migratorius*, and Olivier called another *peregrinum*—are notorious; but it is not so generally known that similar movements are of frequent occurrence in other groups of insects as well. That butterflies and moths, not only the manifestly powerful-winged, can and do perform long journeys over land and sea is certainly surprising; when, however, the obstacle to be surmounted takes the form of a thousand miles or more of ocean, or a range of snowy mountains 10,000 to 15,000 feet in height, one is disposed to say, impossible! Yet there is the best of evidence that they do occasionally perform these astonishing feats. In a series of able articles on "The Migration and Dispersal of Insects," published in the *Entomologist's Record* for the years 1898 to 1902, the late J. W. Tutt has brought together and discussed a large amount of scattered literature and other information bearing on the subject, the result making a most engrossing story, in some respects as fascinating as anything that has been written on the migration of birds. To fully appreciate the wealth of records gathered together, and their significance,

readers must consult Tutt's articles themselves; brief references to a few illustrative examples are all that can be here attempted. The term migration as applied to the movements of insects is not, of course, used in the restricted sense in which it is now employed in the case of birds, that is, to denote those regular semi-annual comings and goings between their summer and winter haunts in widely separated countries. An insect's life, in the winged state, is altogether too short to admit of the evolution of so advanced a type of migratory habit, seeing it does not embrace even a single round of the seasons.¹ But in both cases the failure of food supply is doubtless, or at any rate presumably, directly or indirectly at the root of the phenomenon. The more or less irregular "migrations" of insects remind one rather of those so-called "eruptions" to which certain species of birds are from time to time liable. What have been thought to be return movements on the part of locusts, and even of butterflies, towards the country whence they or their parents emigrated are on record; but there is apparently no satisfactory evidence that, even assuming their nature to have been as supposed, they ever succeeded in their object.

The records of migratory flights and other wanderings on the part of insects are so numerous that it is difficult, when all are interesting, to make a selection. In what follows a bias is naturally shown for sea-flights, and cases in which species having at least a colourable connection with the British fauna are concerned. Many wonderful flights, startling for their magnitude, if for nothing else, that have been witnessed in the two Americas, Africa, and the East, are thus passed over.

Lepidoptera (butterflies and moths), being the group with which this paper has most to do, are taken first. It is now recognised that we have on the British list quite a number of species that are to all intents and purposes only periodical immigrants. Among the better known are the Painted Lady, Camberwell Beauty, two Clouded Yellows, Death's-head, Convolvulus, Madder and Humming-bird Hawk-moths.

¹ Scudder's assertion that in America the Milkweed Butterfly (*Anosia archifpus*) lives a full year, is discredited (*cf.* Tutt).

Others again, such as the Silver Y (*Plusia gamma*), while always with us, in some seasons unquestionably receive great additions to their numbers through immigration from abroad. The Painted Lady (*Pyramcis cardui*), whose metropolis in the Old World is in the sub-tropical regions, including the countries bordering the Mediterranean, is a notorious wanderer, and appears from time to time in lists of insects met with at sea. For instance, when crossing St George's Channel in June 1879—a year in which Europe was overrun by vast migratory swarms of this butterfly from North Africa—Professor Cockerell¹ observed it flying about the steamer, along with *Plusia gamma*, *Nomophila noctuella*, etc. In August 1898 the same three species, accompanied by Humming-bird Hawk-moths (*Macroglossa stellatarum*), and *Scopula ferrugalis*, visited H.M.S. "Hawke" when in the Mediterranean, some 80 miles from Sardinia. In 1903 Mr Eagle Clarke secured specimens of *P. cardui* on board the Kentish Knock lightship, "as they fluttered with others of their kind against the lantern," from 8.45 P.M. to midnight on 22nd September,² and a number were seen flying round the vessel the following day—wind south-easterly and light. On the 23rd there came, in addition, a number of Silver Gamma moths, a Tortrix and a Plume-moth, hundreds of Caddis-flies (*Limnophilus griseus* and *L. affinis*), and two species of Breeze-flies (Syrphidæ); and on the 28th he took specimens of other two moths (*Eunomos alniaria* and *Luperina testacea*) "at rest on the lee side of the deck house" (*Ent. Mo. Mag.*, 1903, p. 289). This lightship is situated in the North Sea, 21 and 48 miles from the nearest points of land on the coasts of England and the Continent respectively. That the insects were all "migrating" from the Continent to England there can be no doubt. To *cardui* the distance is probably not great, seeing it has, as quoted below, been recorded in the Atlantic at

¹ Citations for records are here given only for those not in Tutt's articles, where references for the others will be found.

² Instances of butterflies (including *P. cardui*) coming to light at night are given in Tutt's articles (*Ent. Rec.*, 1900, p. 69). Records of swarms of two species flying against lighthouse lanterns in America are quoted.

a point 200 miles from the Cape Verde Islands, and 600 from the coast of Africa. Allusion has been made above to the great "irruption" of this butterfly which took place in 1879, when multitudes appeared in this country, especially on the south coast. Their passage over the Alps was traced by the finding, on 5th June, of thousands of them on the snow around the hospice of St Gothard. At Geneva "the swarm was said to have obscured the sun for several minutes"; while at Angers, in the west of France, where on 10th June "myriads" were seen flying in a westerly direction *against* the wind, "it was estimated that the number passing along a single street in one hour was from 40,000 to 50,000" (*cf.* McLachlan, *Ent. Mo. Mag.*, xvi. p. 49). I well remember its abundance in Switzerland in September of that year, but these would probably be the progeny of some of the June migrating swarm. Other great irruptions of this species have from time to time been recorded. In 1842 an extraordinary flight passed the Ionian Islands. A fresh wind was blowing from the south-east, and great numbers perished in the sea; "for days afterwards they were to be seen drifting into the various bays in the Island of Corfu" (Drummond Hay, *Ent. Mo. Mag.*, 1872, p. 149). The above records give us, I think, the key to those periodical appearances of the Painted Lady on the east coast of Scotland, as in 1912, when numbers were observed on the Isle of May, and the coasts of Fife and East Lothian.

Another of our finest butterflies, the Red Admiral (*Vanessa atalanta*), and the two common "Whites" (*Pieris brassicæ* and *P. rapæ*) have been noted at sea, 18 miles from the Isle of Wight. But a much more extraordinary flight on the part of *Atalanta* is indicated by its appearance in the summer of 1899, in numbers on the deck of a ship proceeding to Hamburg from Valparaiso, whilst some 500 miles from the Lizard in Cornwall. These two Pierids have often been observed crossing the Channel to England in vast bodies. A very large flight which crossed to Dover was recorded in the *Zoologist* for 1846; it occurred on 5th July, and such was the density and extent of the cloud formed by the living mass, that it

completely obscured the sun from the people on board the Continental steamers, and the decks were strewn in all directions with the insects (Tutt). Another account says, "Every vessel that came into the harbour had the rigging and deck completely covered with them, and the pier was so thickly strewn with butterflies that you could not walk without treading on them."

Many similar immigrations of white butterflies—such as that at Hartlepool in June 1867, which lasted eight hours, or that at the mouth of the Humber in June 1874, described by Robson and Cordeaux respectively—might be quoted, but the above must suffice. One point, however, should be mentioned, namely, that on several occasions, in calm weather, numbers of the butterflies were observed to settle on the sea, and, after a short rest, rise again and resume their journey. It is further stated that a swarm on the North Sea was accompanied by dragon-flies "which evidently preyed upon them."

In the course of its recent remarkable colonising career, the famous "Milkweed" Butterfly of America, *Danais* (*Anosia*) *archippus*, must have made many long sea-flights, including the 2000 miles passage from California to the Sandwich Islands. For a series of years from 1876, it occurred with some frequency on the coast of Europe, from England to Gibraltar, Cornwall and Devon accounting for a goodly number of the records. Examples, moreover, have been taken in the Azores and the Canary Islands. Barrett (*Brit. Lepidoptera*) considers that they reached us directly from the other side of the Atlantic, by their own extraordinary power of flight. Having seen numbers of *D. archippus* on the wing—there are now before me specimens which I captured at Philadelphia, U.S.A., in July 1878—I can well believe that if any butterfly is capable of such a journey, it is. Its occurrence on the Atlantic far from land is vouched for by the following records. In or about the year 1880, specimens in King's collection were captured whilst flying about the rigging of an outward bound vessel at a distance of from 200 to 300 miles from the western shores of Britain, and about 1890 another was taken on board ship 60 miles from Cape

St Vincent, on the coast of Portugal. Its establishment in Bermuda not many years ago, implies a voyage of at least some 600 miles from the east coast of North America. Of another Danaid (*D. missippus*) it is recorded that in September 1865, during a cyclone, many (along with *P. cardui* and birds) came on board a ship 200 miles from the Cape Verde Islands, the nearest land, and 600 miles off the coast of Africa. Tutt had specimens of this same species, part of a great flight, taken in the Atlantic 500 miles from land, and Walker saw it 700 miles off the African coast. Many intensely interesting accounts of the periodical migrations of *D. archippus* and other butterflies on the Continent of America have been written; but these, and the no less marvellous migrations of various species in India, Ceylon, Java, etc., cannot be even touched upon here.

Large Hawk-moths have frequently been noted out at sea. Thus, we read of a Death's-head that flew on board a steamer 200 miles off the Cape Verde Islands, and of another that was captured 25 miles off the coast of Ireland; while quite a number have been taken far from land, on the North Sea. Besides occurrences of single specimens on board ship, it is recorded that about thirty years ago many *Convolvulus* Hawk-moths were washed up by the waves on the coast of Yorkshire, having no doubt perished in the sea when crossing from the Continent. Three specimens of another species (*Deilephila capensis*) once came on board a vessel when at sea some 470 miles from Gibraltar. Incidentally, reference has already been made to specific occurrences of several other kinds of moths at sea. In the case of the "Gamma" there is the further interesting record that, in September 1871, a flight settled on a steamer about 20 miles off Oporto, "clustering in masses all over the ship." Gätke's account of the "myriads" of this species that have been seen passing Heligoland in August, intermingled with migrating Plovers, Sandpipers, Redstarts, Willow-Warblers, and other small birds—all travelling from east to west—must be read to be fully appreciated. At a time corresponding to one of the vast flights over Heligoland, Cordeaux stated that an enormous immigration of *P. gamma* took

place in England. Tutt, commenting on a presumed immigration in May 1892, says, "we noticed then that many of the specimens were exceedingly pale, a striking characteristic of the south European examples which we have frequently observed." Two Geometers (*Hybernia defoliaria* and *H. aurantiaria*), both common here and in which the females are "wingless" (a curious fact in this connection), are also stated to pass over Heligoland in large numbers.

Two further examples, and I have done with the Lepidoptera. At daybreak on 27th June 1878, thousands of Satin Moths (*Liparis salicis*) were seen to arrive at Harwich, coming in from the sea; they "resembled a fall of snow, they were so numerous." On 27th March 1885, the sailing vessel "Pleione," which was homeward bound from New Zealand and had not touched at any port since leaving there, was surrounded in about mid-Atlantic by a swarm of moths—identified from a specimen brought home as *Deiopia pulchella*—many hundreds of which alighted on the ship. The ship's position at the time was 440 miles from the nearest point of the South American coast, and 960 miles from the Cape Verde Islands, the nearest land in which the species is known to occur (M'Lachlan, *Ent. Mo. Mag.*, 1885). Nearly related to our well-known Cinnabar, and like it usually looked upon as a weak flier, *D. pulchella* is nevertheless not an infrequent immigrant on the south coast of England, and has even been twice reported from Scotland.¹ It is common in the Mediterranean region (many years ago I had the pleasure of seeing it at Gibraltar), and with the above extraordinary flight on record, it is not so very surprising that a few occasionally manage to reach our shores.

¹ One near Aberdeen in 1840, and one near Kelso in 1876 (see *Scot. Nat.*, x., p. 262, 1890).

(To be continued.)

LIST OF CLYDE TENTHREDINIDÆ (SAWFLIES).

By J. R. MALLOCH.

(Concluded from page 19.)

- Dolerus pratensis*, Fall.—Common ('76); ('78); common and widely distributed ('01).
- „ *ariceps*, Thom.—Barr, A.F.; Giffnock, Irvine, King's Cross, A.A.D. ('01); Bonhill, J.R.M.
- „ *palustris*, Kl.—Common, Possil ('76); Paisley, Bishopton ('78); Cambuslang, Crookston, A.A.D. ('01); Bonhill, J.R.M.
- „ *madidus*, Kl. (= *lateritius*, Kl.)—Possil Marsh, Paisley ('76); Bonhill, J.R.M.; Bishopton, Milngavie, A.A.D. ('01).
- „ *thomsoni*, Knw.—Bowling, A.A.D. ('01); Bonhill, J.R.M.
- „ *dubius*, Kl.—Lunderston, R.H.; Irvine, A.A.D. ('01).
- „ *picipes*, Kl.—Crookston, Milngavie, Bowling, A.A.D. ('01); Bonhill, J.R.M.
- „ *nigratus*, Mull.—Cambuslang, Giffnock, Bishopton, Irvine, A.A.D.; Bonhill, J.R.M.
- „ *fumosus*, Zadd.—Bonhill, J.R.M. ('01).
- „ *rugulosus*, v. Dalla Torre—Luss, Irvine, A.A.D. ('01).
- „ *nitens*, Zadd. (= *coruscans*, Knw.)—Crookston, Irvine, Ayr, A.A.D. ('01); Bonhill, J.R.M.
- „ *hematodes*, Schr.—Rare, Kenmuir ('76); Possil, Giffnock, Cambuslang, Bishopton, Bowling, Ayr, A.A.D. ('01); Bonhill, J.R.M.
- „ *æneus*, Htg.—Common in all lists. In Cameron's collection there are several species mixed together as *æneus*.
- „ *oblongus*, Cam. (= *brevicornis*, Knw.)—Bonhill, J.R.M.
- „ *niger*, L.—Not common, Kenmuir ('76).
- „ *gessneri*, André—Bonhill, J.R.M.
- „ *gibbosus*, Htg.—Very common ('76); Kenmuir, Cadder, Milngavie ('78). This species is not in Cameron's Monograph though it is British.—See end of list.

- Dolerus palmatus*, Kl.—Cambuslang, A.A.D. ('01); Dalry, Sharp ('78).
- „ *vestigialis*, Kl.—Common, Cadder, etc. ('76); Kenmuir, Cambuslang, Milngavie ('78).
- Rhogogaster viridis*, L. (= *scalaris*, L.)—Common in all lists. Generally distributed.
- „ *punctulata*, Kl.—Common, Cadder, Clober ('76); Strathblane, Bishopton ('78); Lamington, Cambuslang, A.A.D. ('01); Bonhill, J.R.M.
- „ *fulvipes*, Scop.—Paisley, Bishopton ('78); Crookston, A.A.D. ('01); Bonhill, J.R.M. Recorded as *Tenthredo lateralis* in '76 list for Kelvin, Milngavie, and Cadder.
- „ *aucupariæ*, Kl. (= *gibbosa*, Fall.)—Common, Kelvin, Cadder ('76); Clober ('78); Bonhill, J.R.M.; Crookston, A.A.D. ('01).
- Tenthredopsis litterata*, Geoff.—Bonhill, J.R.M.; Blairskaithe Moor, G.W.O.; Pirmill, A.F.; Cambuslang, A.A.D. ('01). This is probably the *Perineura nassata*, Z., of Cameron's '76 list. Localities, Cadder, Strathblane, Kenmuir.
- „ *litterata*, var. *cerasi*, L.—Blairskaithe Moor, G.W.O. ('01).
- „ *gibberosa*, Knw.—Cambuslang, Dundonald, A.A.D. ('01).
- „ *tiliæ*, Fab.—Lamington, Cambuslang, Crookston, Dundonald, A.A.D. ('01); Bonhill, J.R.M.
- „ *tiliæ*, var. *inornata*, Knw.—Barr, A.F.; Dundonald, A.A.D. ('01).
- „ *dorsalis*, Lep.—Cadder, Luss, Glen Falloch, A.A.D. ('01); Bonhill, J.R.M. Probably the *sordida* of Cameron's lists. The true *sordida*, Kl., is not British. Recorded as abundant everywhere.
- „ *campestris*, Z.—Abundant and generally distributed ('01). Probably Cameron's *P. brevispina*.
- „ *spretæ*, Lep.—Cadder, Irvine, A.A.D. ('01); Bonhill, J.R.M.
- „ *fenestrata*, Knw.—Barr, A.F.; Cadder, Newton Mearns, A.A.D. ('01).
- „ *coqueberti*, Kl.—Milngavie, Crookston, A.A.D. ('01); Bonhill, J.R.M.

- Tenthredopsis tristis*, Cam.—Lamington, Ravenscraig, Crookston, A.A.D. ('01); Bonhill, J.R.M.
 „ *thornleyi*, Knw.—Milngavie, Cambuslang, A.A.D. ('01).
 „ *dorsivittata*, Cam.—Bonhill, J.R.M.
 „ *femorata*, Cam.—Bonhill, J.R.M.

(The determinations of the species in this genus are, according to Mr Morice, to be, except in a few cases, accepted as provisional. The specific distinctions are but imperfectly understood, and I have therefore decided that it would be better to leave Cameron's species as doubtful.)

- Perineura (Synairema) rubi*, Pz.—Rare, Cadder ('76); Cadder, A.A.D. ('01).
Pachyprotasis rapæ, L.—Common; in all lists; generally distributed.
 „ *simulans*, Kl.—Common, Cadder, ('76); Clober, J.J.K.
Macrophya albicincta, Kl.—Rare, Dalry ('76); Milngavie ('78).
 „ *rustica*, L.—Near Paisley, Dunsmore ('86).
Allantus temulus, Scop. (= *bicincta*, L.)—Not rare, Kenmuir ('76); Bonhill, J.R.M. ('01).
 „ *scrophulariæ*, L.—Bonhill, J.R.M. ('01).
 „ *arcuatus*, Forst. (= *nothus*, Kl.)—Common in all lists.
 „ *maculatus*, Fourc. (= *zonatus*, Kl.)—Rare, Kenmuir ('76); Cadder ('78).
 „ *tricinctus*, Fab.—Clober ('78).
Tenthredo ferruginea, Schr. (= *rufiventris*, Fab.)—Common, Cadder, etc. ('76); Milngavie, Kilsyth, Bishopton ('78); Shewalton, A.F.; Barr, A.A.D. ('01); Bonhill, Helensburgh, J.R.M.
 „ *balteata*, Kl.—Common, Cadder, etc. ('76); Clober, Kilsyth, Ardlui, Bishopton ('78); Bonhill, J.R.M.; Dundonald, A.A.D. ('01).
 „ *velox*, Fab.—Rare, Paisley ('76); Strathblane, G.W.O.; Lamington, Irvine, Barr, Dundonald, A.A.D. ('01).
 „ *atra*, L.—Bishopton, Kilsyth ('76); Kilsyth only ('78); Cadder, A.A.D. ('01); Bonhill, J.R.M.
 „ *atra*, var. *dispar*, Kl.—Common and generally distributed. In all lists.

- Tenthredo livida*, L.—Common and generally distributed. In all lists.
 „ *mesomelena*, L.—Common and generally distributed. In all lists.
 „ *olivacea*, Htg.—Common and generally distributed. In all lists.
 „ *obsoleta*, Kl.—Cadder ('76); Castlecary Glen ('86).

SPECIES I AM UNABLE TO TRACE IN CAMERON'S LISTS.

Cameron altered *gibbosus* to *elongatus*, Thom., in the errata to his '78 list.

- Nematus puncticeps*, Th.? ('76).
 „ *punctulatus*, Dbm. ('76). Not in '78 list. In two places in '76 list.
 „ *pallescens*, Htg. ('76), ('78).
 „ *dubius*, Cam. ('76).
Phænusa albipes, Cam. ('76).
 „ *pumilio*, Htg. ('76).
Blennocampa agrestis, Cam. MS. ('76).
Eriocampa conmixta, Cam. MS. ('76).
Perineura excisa, Thom. ('76).
Dolerus fuliginosus, Kl. ('76), (= *uliginosus*, Kl. amended) ('78).
Nematus oblongus, Cam. ('86).
Cryptocampus flavipes, Cam. ('86).
 „ *nigritarsis*, Cam. ('86).
Dolerus possilensis, Cam. ('86).
 „ *cenchris*, Htg. ('78).
 „ *liogaster*, Thom. ('86).
 „ *puncticollis*, Thom. ('86).
Tenthredopsis cordata, Four. ('86).
 „ *scutellaris*, Fab. ('86).
 „ *lividiventris*, Cam. ('86).
 „ *inornata*, Cam. ('86).
 „ *nassata*, L. ('86).
 „ *sordida*, Kl. ('86).

NOTES.

Yellow-browed Warbler in Berwickshire.—With reference to the note by Mr Bartholomew in the January number of the *Scottish Naturalist*, may I place on record that I saw a Yellow-browed Warbler last autumn in my Manse grounds. Strange to say, the date exactly coincides with that given for the Kirkcudbright record—the 15th October. The note, a nervous, plaintive weet! weet! heard through the open door was recognised at once as unfamiliar. On going outside I saw the bird flying about a clump of rhododendrons, and watched him later in some low trees through field glasses. There could be no doubt about the species, which was familiar from book plate and mounted specimen. The nervous, insistent note hardly ceased, and the bird itself was very restless, and very much from home. At last it rose into the higher trees still calling, and soon disappeared. No warblers had been in evidence for some time before this. The last of them, a male Blackcap, was seen on 26th September in an elder tree in front of one of the windows, busily devouring the berries.—WILLIAM MCCONACHIE, Manse of Lauder.

Arrival of the Pied Wagtail in Orkney.—In your last issue it is stated that the passage records of the Pied Wagtail for Orkney are few. Such being the case, perhaps the following records for the springs of 1908 and 1910 may be of interest. The Pied Wagtail is an early arrival in Orkney. In 1908 I saw the first in a yard in the middle of Stromness on 7th March, and another on the 9th, also in the town. On 11th March the first was seen in Shetland at Hayfield near Lerwick. From 15th March they were numerous in Orkney, particularly so on a ploughed field near Stromness on the 17th, among those being a pair of White Wagtails which I recorded in the *Annals of Scottish Natural History*. In March 1910 I was paying particular attention to Wagtails, in the hope of obtaining some more records of the White species—without any success, however. In this year I saw the first Pied Wagtail at the Ness, Stromness, on 13th March, and from the 21st onwards they were numerous round Lochs Stenness and Harray, not only on the ploughed land, but also on the roofs of the houses.—H. W. ROBINSON, Lancaster.

Honey Buzzard in Ross-shire.—A fine Honey Buzzard was sent to me in the flesh, which had been obtained on 18th September on the east coast of Ross-shire. The bird, which proved to be a young male, is a nice specimen with a very creamy crown and nape.—ANNIE C. JACKSON, Swordale.

Quails nesting in Renfrew and Bute.—In the summer of 1903, while the hay was being cut in a field in the parish of Kilmacolm, Renfrewshire, a Quail's nest was found containing nine eggs. Two years later, in July 1905, again when the hay was being cut, another Quail's nest was found with seven or eight eggs, at Knockinkelly, Whiting Bay, Arran, in the county of Bute. As these are both the first known nesting records of the Quail in these two counties, they are worthy of record.—T. THORNTON MACKEITH, Kilmacolm.

Ruff in the Outer Hebrides.—It may interest your readers to know that a Ruff was shot on the Island of Baleshare, on 25th September, 1912, by Mr John Irvine, head-keeper, Langass.—W. ANSTRUTHER GRAY, Kilmany, Fife.

Occurrence of Iceland Gulls in the North.—An immature Iceland Gull appeared on the Beaully Firth on 2nd December, but apparently did not remain, as it was not seen again. On 22nd December an immature bird of the same species was observed among Herring Gulls in Dunbeath Harbour, Caithness.—ANNIE C. JACKSON, Swordale.

Fork-tailed Petrel in Peeblesshire.—A Fork-tailed Petrel was picked up dead by John Howieson, rabbit-trapper, on Friday, 5th December 1913, on the left bank of Tweed, on the farm of Alterstone. Howieson had set a rabbit trap near the riverside on the previous day, and is certain the bird was not there then. On Friday forenoon when he went to examine this trap the bird was lying dead close to it.—THOMAS CURRIE, Peebles.

[We have seen the bird, and its identity has been correctly determined, EDS.]

Gnathoncus rotundatus, Kug., and Micrambe villosa, Heer, in Forth.—On 25th May 1911, whilst searching for ticks in pigeons' nests in the dovecot at Dumipace, Stirlingshire, I found two small Histerid beetles, which answered to the description of *Gnathoncus punctulatus*, Thoms., in the 3rd vol. of Fowler's *British*

Coleoptera. In the recently issued supplement to that work, *G. punctulatus*, Thoms., is (*teste* Lewis) referred to as apparently a synonym of *G. rotundatus*, Kug., and Dr Sharp, who has kindly examined my specimens, agrees with me in applying this name to them. In 1831, Duncan recorded (*Memoirs Wernerian N. H. Soc.*, vi., 487) *Hister rotundatus*, Steph., from "near Cramend." This record was repeated in Wilson and Duncan's *Entomologia Edinensis: Coleoptera*, 1834; and again, under the name *Saprinus rotundatus*, Ill., Steph., in Murray's Catalogue (1853), with the addition, "Edinburgh and Glasgow." Upon these records *Gnathoncus rotundatus*, Ill., is entered for the Forth and Clyde Areas in Sharp's Catalogue of Scottish Coleoptera. In Fowler's work (vol. iii.) we again recognise them under *G. nannctensis*, Mars., which according to Lewis does not occur in this country. Another form, *G. nidicola*, Joy, has, however, been recently described from England, but my specimens do not seem to be referable to it.

The publication of Fowler's Supplement enables me to record *Micrambe villosa*, Heer, from the Isle of May, where it occurs abundantly on thistles. Dr Sharp, who has recorded the form from Nethy Bridge, Inverness-shire, has seen some of my specimens and confirms the identification.—WILLIAM EVANS, Edinburgh.

Dolichopus caligatus, Wahlb., at Blairgowrie.—Since writing my note (*Ent. Mo. Mag.*, January 1914) recording the occurrence of *D. caligatus* at Aberfoyle, to which reference is made in the "Editorial" of last month's *Scottish Naturalist*, I have identified another male specimen taken at Blairgowrie on 8th July last. As this appears to be a rare species, Scottish Dipterists may be interested to hear of a second British example turning up in another locality.

I take the opportunity of recording two other species of *Dolichopus* which seem to be rare—at any rate I came across them for the first time last June at Blairgowrie, viz.: (1) *lepidus*, Staeg., 2 ♂♂, recorded by the late Mr Verrall from "south of England to north of Scotland," and also included in his list of Arran Diptera, 1883; (2) *linearis*, Mg., 1 ♂, a species of which I have not seen any Scottish record.—A. E. J. CARTER, Monifieth.

New British and Scottish species of Hydrachnids.—In the *Journal of the Quekett Microscopical Club* (Series 2, vol. xii., p. 141), William Williamson records from Oban the following interesting species of *Sperchon*: *S. clupeifer*, Piers, new to the Britannic area; *S. tenuabilis*, Koen.; and *S. papillosus*, Sig. Thor,

both new to Scotland and unknown in England, but recorded by J. N. Halbert for Ireland.

Annelida Polychæta in the North Sea and adjacent parts.—A paper on this subject, giving details of species recently collected by the Scotch Fishery Board Vessel "Goldseeker," is published by James W. Pryde in the February number of the *Annals and Magazine of Natural History* (pp. 266-275, Plate xi.). The families dealt with in this article, which is entitled "Part II.," are the Nephthydidæ, Phyllodocidæ, and Hesionidæ. In the first-named, five species of *Nephthys* are recorded, with full details of localities and depths; in the second we note one species, *Notophyllum foliosum*, Sars; and in the third, *Ophiodromus flexuosus*, Della Chiaje; and *Castalia fusca*, Johnston, are recorded, while *Megalia assimilis* is described as a new species from a fragment, consisting of head and seventeen segments, taken in the North Sea east of Aberdeen.

Agrotis saucia, Hüb., in Tweed.—In reference to Mr William Evans' note on this moth in the Forth area (*ante*, p. 47), it may be of interest to state that we used to regard it as not uncommon and well distributed in the Tweed area, though seldom more than one or two were taken at a time. Round Berwick, I have taken it in several places on both sides of the Tweed, and have had or seen examples from Ayton, Eyemouth, Cockburnspath, Hawick, Faldonside near Selkirk, and elsewhere.—GEORGE BOLAM, Alston, Cumberland.

Erratum.—In Miss Jackson's note on the Birds of Tiree (*ante*, p. 44) the scientific name of the Common Whitethroat should have been *Sylvia communis*.—EDS.

BOOK NOTICE.

THE LIFE OF THE MOLLUSCA. By B. B. Woodward, F.L.S. Methuen & Co., London. Pp. xi. + 158, with 32 plates and a map. 6s.

In no group of animals has more attention been paid to the inorganic armour of life—the shell—and in proportion less to life itself than in the great assemblage of shellfish or Mollusca. This interesting volume comes as a healthy reminder to collector and zoologist alike, that the living animal is the centre of the system, and that the full significance of the shells themselves can be grasped only as their structures are seen in relation to the varying necessities of life. Thus, we are shown, the life of the inmate is safeguarded from the force of breakers by extraordinary developments of shell substance, such as are absent from the sheltered inhabitants of the open or deep sea, or even of quiet coastal or fresh water; or it is protected from enemies by devices which block the entrance, by projecting teeth, internal spring doors, hinged trap doors, and such like. Yet, curiously enough, there is patent in the higher members of most Molluscan groups a progressive tendency to reduce or altogether discard the shell, the weight of which hinders locomotion and capture of live food. Admirable summaries are given of the classification, the geological and present-day history of Mollusca, of their general habits, growth, breeding, and uses; and a particularly suggestive chapter touches upon some interesting points in the evolution of the group. The lack of English names handicaps the unfamiliar reader, but this is a weakness of the subject and not of the author. The following trifles ought to be corrected in a future impression: superfluous parenthesis in bottom line, p. 56; printer's error in l. 15, p. 61; Fig. 1 to 6, l. 5, p. 96, should read Fig. 2 to 6. There is a good index, and a very large series of useful figures. The work is a concise summary, which ought to be in the hands of all naturalists, zoologists, and collectors.—J. R.

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[APRIL

EDITORIAL.

WE learn with sincere regret, as we go to press, of a serious motor-car accident, wherein Sir John Murray, K.C.B., F.R.S., has lost his life, and his daughter has received serious injury. The long life of the veteran scientist, devoted especially to the explorations of seas and of lakes, to the investigation of their physical conditions and animal inhabitants, has been filled with a record of scientific effort and achievement which redounds to the credit of the land of his adoption.

Still more and more must the lover of nature fight against the evils which follow in the train of civilisation. After forty long years of struggle he at last rejoices in the probability of seeing a Bill passed to prevent the importation into Britain of the plumage of such birds as have been slaughtered in their tens of thousands to gratify human vanity. The roll of death is heartrending. At single sales there have been sold 12,400 oz. of "Osprey" feathers, representing about 75,000 birds; 10,700 skins of Crowned Pigeons; 24,800 Humming Birds; 162,750 Smyrnian Kingfishers, and so on, in an unending tale of shame. The facts that the Government has adopted the Plumage (Prohibition) Bill, and that it has passed its second reading by a majority of 282 votes, point to the probability that London will soon cease to be the world's mart for this nefarious trade. It is encouraging also to know that should the British Bill succeed, Germany, Holland, and several other European nations are likely to follow the lead already given by the United States and many of our own colonies, and now likely to be shared in by ourselves.

In other directions efforts are being made towards the preservation of our own fauna. The existing legislation relating to the protection of wild birds in the British Isles is admittedly much in need of revision and consolidation. At the present time the Act of 1880 and no less than seven amending Acts are in force. This most unsatisfactory state of affairs has led the Home Secretary to appoint a committee "to enquire what action has been taken under the Wild Birds Protection Acts for the protection of wild birds, and to consider whether amendment of the law or improvement in its administration is required." The committee consists of the Hon. E. S. Montagu, Secretary to the Treasury; Lord Lucas, Parliamentary Secretary to the Board of Agriculture; and Messrs Frank Elliott, E. G. B. Meade-Waldo, W. R. Ogilvie Grant, Hugh S. Gladstone, and Wm. Eagle Clarke.

In the interests of bird preservation, we learn with sincere satisfaction that the Secretary for Scotland has not sanctioned the withdrawal of the protection afforded to the Great Skua and its eggs in Shetland, a measure recently sought by the local authorities.

A paper has just been published by Dr John Rennie entitled "Egg Coloration in the Cuckoo, *Cuculus canorus*, and its bearing upon the theory of Cuckoo sub-species."¹ This interesting paper embodies the results of a careful study of 300 Cuckoo's eggs and of the foster clutches with which they were found. Dr Rennie's studies have led him to the conclusion that "the assumed habit on the part of the Cuckoo of adhering to a particular species of foster bird is not in general agreement with fact." But he confirms the great variability of colour in Cuckoo's eggs in general, and the marked uniformity in the case of the individual bird. Summing up the evidence afforded by these clutches, Dr Rennie says, "Cuckoos laying in Sedge Warblers, Reed Warblers, Whitethroats, Lesser Whitethroats, Reed Buntings, Robins, Hedge Sparrows, and other named birds' nests do not in England form separate gentes, 'each with

¹ *Proc. Royal Physical Society*, vol. xix., No. 5, pp. 97-107 (February 1914).

its particular habits in respect of selecting a foster parent.'” He very pertinently remarks, too, that in forming a theory regarding the hereditary nature of the “foster-bias,” the polyandric habit and the influence of the *male* parent have hitherto been left out of account.

A small warbler, believed to be a Siberian Chiffchaff, inhabited a valley near Tunbridge Wells from 28th November to 17th December 1913, where it was seen by several observers. This species has till now not been recorded from south of the border.¹

A pair of Kites nested in Devonshire this year, and there are several other records of the occurrence of Kites in Somersetshire, Derbyshire, and Buckinghamshire. This increase in English counties is very gratifying, especially taken in conjunction with the fact that in Wales also the birds are becoming more numerous.²

The coming of spring on the land is publicly heralded by the voices of mating birds and the general awakening of life; but, though its progress is less apparent, the kalendar of the seasons is no less definite nor less interesting in the sea. There also the spring-time is a notable breeding period. During February the collections made by the Fishery Investigation research steamer “Goldseeker” were noteworthy on account of the large quantities of fish-eggs and young larvæ obtained in the North Sea. At almost every station the floating eggs of one or several of these common food fishes were collected—plaice, flounder, dab, long rough dab, cod, haddock, and saithe—the greatest numbers occurring in the seas north of Shetland (mostly saithe) and in the Moray Firth. As a result of the persistent Scottish investigations, there have recently been published a couple of interesting biological papers, which emphasise the importance of spring movements in the sea. The first discusses the “Distribution of the Larvæ of the Eel in Scottish Waters,” and shows how the curious larval forms (*leptocephali*) drift, gradually changing into glass-eel shape, from the west coast, where they are found in August, by way of the Orkneys and

¹ and ² *British Birds*, vol. vii., March 1914, pp. 296, etc.

Shetlands into the North Sea. Here, as glass-eels, they are generally distributed from December till February, more and more closely approaching the shore, until they finally forsake the sea for the spring migration—the “eel-fair”—up our streams and rivers.¹

The second pamphlet deals with the “Spawning Areas of Sand-eels in the North Sea.” Sand-eels are of considerable economic importance in that they form a permanent source of food for such fishes as cod, haddock, whiting, and herring. In January and February practically no larval sand-eels are to be found in Scottish waters, but in March they appear in countless thousands, especially in the Pentland Firth area, where as many as 19,860 individuals have been captured in a single haul of a tow net. The conclusion is reached that the spawning areas depend on a moderate depth of water, say 30 to 50 fathoms, and on the presence of a sandy bottom free from much mud. The chief spawning areas on the east coast are the mouth of the Firth of Forth and northwards within the 40 fathom line, the Moray Firth, and the area between Caithness and Fair Isle.²

The “largest known animal” forms always an object of special attention and of wonder. The famous American *Diplodocus carnegii*, with a length of 70 to 80 feet, stands almost at the limit, although its length has been frequently exceeded in Scottish waters by the finner whale commonly known as the Blue or Sibbald’s Rorqual (*Balenoptera sibbaldi*), which occasionally reaches a length of over 80 feet. But this record has been altogether outdone by Antarctic examples of the same whale, for the late Major Barrett-Hamilton is reported to have examined in South Georgia a specimen which exceeded in length 103 feet. And already this extraordinary creature must fall into second place in the race for size. There has just been discovered in the Cretaceous formation of German East Africa a dinosaur of enormous proportions. This reptile, to be known as

¹ A. Bowman, *Fisheries, Scotland, Sci. Invest.*, 1912, ii. (December 1913).

² A. Bowman, *Fisheries, Scotland, Sci. Invest.*, 1913, iii. (January 1914).

Tornieria, appears to have been about 150 feet long, almost twice the length of *Diplodocus carnegii*, and so enormous are its proportions that one is driven to the conclusion that it could have been no dweller on the land—that only the waters of the sea could have supported the monster's "weary length."¹

An important contribution to our knowledge of Scottish Spiders is published by Dr A. Randell Jackson.² This article contains full details of species collected during the summer of 1913 in the following localities:—Aberlady, The Trossachs, Rannoch, Schiehallion, Ben Nevis, Mallaig, and Crinan. Thirteen species are added to the Scottish list, and of these eight are new to Britain and two new to science. The two plates which accompany the paper contain carefully executed drawings of the details useful for purposes of identification, and several species are dealt with in these figures. The new species are designated *Leptyphantus cacuminum* and *Robertus scoticus*.

We learn from *Nature*³ that an account of some interesting experiments conducted by Dr von Fritsch and Herr Rupelwieser on the perception of colour by the Water-Flea (*Daphnia*) has been recently published in the *Biologisches Centralblatt*. By means of a powerful Osram electric lamp and fluid light-filters or coloured glass screens, it was ascertained that these little crustaceans remain evenly distributed under a medium intensity of white light, but when the intensity is increased they move away from the source of the light, and *vice versa*. They are attracted by red, yellow, and green rays, but repelled by blue-green, blue, and violet; hence the authors have come to the conclusion that *Daphnia* has a distinct colour-sense in addition to the perception of varying degrees of light intensity.

¹ *Field*, 14th March, p. 534.

² "A Contribution to the Spider Fauna of Scotland," *Proc. Royal Physical Society*, vol. xix., No. 5, pp. 108-128, pls. ii. and iii. (February 1914).

³ 26th February 1914, p. 726.

THE DISPLAY OF THE MALLARD IN RELATION TO PAIRING.

By S. E. BROCK.

THE display attitudes and actions of the Mallard which characterise the period preceding the break-up of the flocks into pairs, have been studied and described by Messrs J. G. Millais¹ and H. Wormald.² There seems, however, room for further observation with a view to tracing the relation, if any, which these curious performances bear to the securing of mates. The present contribution to the subject is based on a considerable number of notes collected during the past two or three years. Such conclusions as are arrived at are presented tentatively, without any intention of dogmatism. Bird-behaviour does not lend itself to measurement. "It is in his own mind alone that the observer has the constituent elements from which an interpretation can be framed"; and unbiassed interpretation is perhaps only relatively possible. An approach to a true analysis is reached in each case in proportion to the number of observers who are induced to attack independently the problems involved.

The attitudes adopted by the drake during display³ have been fully detailed and illustrated by H. Wormald (*loc. cit.*), but it may be convenient here to summarise them briefly.

¹ J. G. Millais, "The Natural History of British Surface-feeding Ducks" (1902).

² H. Wormald, "The Courtship of the Mallard and other Ducks," *Brit. Birds*, iv. (1910-11) pp. 2-7.

³ It seems preferable to avoid the word "courtship" as a general term for the activities connected with mating, both by reason of its implication and its ambiguity as frequently used. Apart from their material form, the phenomena involved—which Groos would include under the general designation of "love-play"—appear to fall into three series, according as to whether they are the expression of: (1) emotional overflow, spontaneous or responsive, without objective direction (display); (2) courtship proper, *i.e.*, definite courtship of individuals; (3) emotional relationships, nesting-formalities, etc., of paired birds. In some cases the behaviour may assume a similar expression in each class, but in most species there appears to be more or less definite distinction.

- No. 1. In this preliminary position the drake floats idly on the water, or swims restlessly to and fro in a constrained attitude, with neck retracted so that the head is sunk closely into the shoulders.
- No. 2. The bird raises itself abruptly in the water, at the same time lowering the bill to the surface, and then passing it rapidly up the breast. A low note, part whistle, part groan, accompanies the action.
- No. 3. The forepart of the body is depressed and the tail raised, the bill being simultaneously opened to the utterance of a short series of soft notes.
- No. 4. A simultaneous upward throw of head and tail, usually immediately followed by
- No. 5, in which the performer swims rapidly to and fro in various directions, with the head and neck outstretched horizontally just above the surface of the water.
- No. 6 (not described by Mr Wormald). The forepart of the body is raised rather slowly out of the water, the head and neck being extended upwards at an abrupt angle. A characteristic head-shake frequently precedes the action.

Mr Wormald has described these actions (1-5) in what he considers to be the normal order of occurrence, with the reservation that the sequence is by no means always constant or complete. On the whole I should be inclined to place them in the following order as perhaps the most characteristic—1, 6, 2, 3, 4, 5. There is some reason to believe that this order illustrates approximately a rising scale of nervous excitation.

Display in the female is, relatively speaking, feebly developed, and hardly exceeds a more or less imperfect reproduction of the more elaborate performances of the male. If it be permissible to assume that display, originating with the drake, is now in process of acquirement by the duck, then the relative inheritance intensity of the various actions in the latter might be expected to supply an approximate index to the racial sequence of acquirement in the male. It is

perhaps significant that action No. 5—which is the most frequent and developed of those shown by the duck—is invariably assumed by the drake immediately after coition. The other display-actions occasionally exhibited by the female include Nos. 1 and 6.

It is worthy of notice that the autumn development of “nuptial” plumage in the Mallard coincides with the inception of display and related behaviour; that is to say, the correlation of seasonal ornamental plumage with display, characteristic of birds in general, is not interfered with by the seasonal abnormality in the acquisition of the said plumage in the present species. True display is localised, being practically confined to water; it is entirely a social phenomenon, and (with the exception of No. 5) it is absent, so far as I have seen, in truly paired birds. Thus in the Mallard, contrary to what obtains in many species, there is a difference in kind between pre-pairing and nuptial “play.”¹

The general features of display are as follows:—A number of birds of both sexes swim restlessly to and fro within a circumscribed area, the drakes for the most part in attitude No. 1, from which they proceed from time to time to No. 6, and, perhaps less frequently, No. 2. Further development is largely, though not exclusively, dependent upon the behaviour of the ducks, tending to abeyance in face of indifference or lack of display in the latter sex. On any sign of excitation in the female, however, such as display-action No. 5, the drakes are instantly stimulated to respond by actions 2, 3, 4, and 5, and more especially the two last of these. Despite the extreme sensitiveness of the intersexual behaviour response, these displays, in either sex, have

¹ It might be of interest to discover how far display is maintained in artificial breeds of the Mallard. It remains complete, or almost so, in the Call-duck, which is chiefly monogamous. As to the polygamous farmyard varieties, I have noticed it in the Indian Runner, although it is, I think, of infrequent occurrence. I do not recollect ever seeing it in the Aylesbury. On the other hand, the side-dipping motion of the head in the female, which in the wild bird is common both to courtship proper and to the nuptial period, remains in full force in the domestic races, as do also the actions immediately related to coition, such as the head-bowing of both sexes.

rarely in the first instance more than a generalised aspect, having no necessary reference to individuals of the opposite sex. That is to say, they are primarily subjective and responsive, rather than objective and initiative, and are merely the outward expression of certain forms of nervous stimulus, apparently without definite relation to the specific desire of securing mates. Nevertheless it is already clear at this stage that the attraction which a duck exerts on the surrounding drakes is in direct proportion to her exhibition of display, and inverse to her indifference as shown in passivity of behaviour. During such moments of emotional stimulation the ducks pass rapidly in and out amongst the drakes, at first in an indeterminate fashion, but sooner or later the movement is terminated by courtship of individual drakes, whereby is introduced the second phase in the procedure; this courtship, however, may also be initiated without preliminary display. In courtship the duck singles out a drake from amongst those surrounding her, and pursues him for some distance, dipping the bill rapidly and repeatedly backwards and downwards to one or other side of the body, accompanying the movement with a short staccato note characteristic of the occasion. Other drakes who may come in the way she dismisses by sidethrusts of the bill as she passes them—a repulse unreservedly accepted by the drakes, who immediately give way before such demonstration. The behaviour of the courted drake is rather curious. In place of accepting with eagerness or gratification the advances of the duck, he invariably retires, and continues to retreat so long as the gesticulating female follows. On her desisting, however, he shows a tendency, varying in definiteness, to attend her as she turns aside to feed or otherwise employ herself. It may be that his object in retreating is less with the desire of avoiding what he considers a superfluous expression of affection, than with a view to withdrawing her from the flock, a feature of behaviour which seems to be paralleled in some degree in the Partridge covey, during the pairing season. The two birds involved—the retreating drake and the pursuing duck—are commonly attended and followed by one or several attracted drakes. It

is noteworthy that these latter, beyond such attendance, make no direct attempt to interfere with the course of events, and it is also interesting to find that the female very frequently pauses to repulse and drive them off, returning again to follow the original drake. On the conclusion of courtship the two birds may sooner or later drift apart; and this is particularly the case in the earlier part of the season. Later, the tendency of the courted drake to follow and remain in company with the duck grows more evident, and the connection becomes absolute by stages. It seems reasonable to assume that in these phenomena are witnessed the essential steps by which the segregation of the flock into pairs is attained. The extent to which pairing has gone by November is largely masked by the close packing of the birds during the daytime; it is more readily observed during the flight out to the feeding-grounds at dusk. While true display is normally absent amongst paired birds, its wide prevalence during early winter suggests that it may recur amongst these birds whilst flocked together during the daytime; and it is possible, or even probable, that a change of partners may take place more than once. Pairing is, in fact, of gradual growth, not a sudden transformation, and no precise moment can be pointed to for its inception or conclusion. The link connecting the couples is clearly weak during the earlier stages; its bonds strengthen with time, and towards early spring the pairs show an increasing tendency to separate even during daytime.

The comparative absence of rivalry or competition in the present species between individuals of the same sex is remarkable, considering the social relationships of pairing. What jealousy exists appears in occasional threatening motions, occasionally culminating in short pursuits, during which the birds sometimes dive to avoid each other. Anything in the nature of a fight is practically absent. Moreover, these suggestions of hostility occur chiefly during display, and are absent during the most important and critical moments when specific courtship is proceeding. If a true competition and struggle for mates exists, it takes some other form than physical force. It is also worth pointing out that, in the

existent sequence of events, any struggle for breeding territory which may take place in the Mallard must be *subsequent* to pairing.

To the question: does sexual selection exist in the Mallard? the appreciable facts seem to be sufficiently clear and specific to allow of a definite reply. What appears to the writer to be the leading points may be thus summarised:—

Courtship is social, and a choice of mates so far theoretically possible.

While rivalry is apparent between individuals of the same sex, its incidence is quite insufficient to prevent choice of mates.

The drake appears to respond equally to any duck, except in so far as display by the latter is an excitant. He accepts the attentions of any duck which may court him (during which display is absent in both, with the exception of the characteristic head-dipping of the duck), or at least discrimination is not apparent. True selection in his case is therefore doubtful. Once mated, however, he repulses other ducks who may approach him.

The female likewise responds indifferently to display before pairing; but the series of events through which pairing is attained is initiated by her courtship of an individual drake; and her choice is normally accepted. If this be so, then sexual selection in the Mallard is an actuality.

The secondary query: by what influences is the female's choice affected? is much more problematical; and here it seems almost hopeless to look for definite evidence in the field; one can only approach the subject indirectly. I suggest that the factors are to be sought in one or more of the following three positions, which perhaps represent the most generally held—though usually intended as mutually exclusive—views of the numerous writers who have discussed the general subject of sexual selection.

- I. The female's choice is "accidental," *i.e.*, when in the mood for pairing she accepts or selects any male who may chance to be in near proximity.

2. Her emotional responsiveness to display in the drake may result in selection of that drake whose display is the direct or immediate stimulus in arousing the pairing instinct.
3. She may select from amongst her possible mates the one whose external attributes possess prepotent attraction.

1. Observation goes to show that pairing depends immediately upon subjective nervous impulse, whether purely spontaneous, or brought to fruition by external stimulus in the form of the drake's display, or otherwise. If choice of mate is no more than "accidental," then on the mating-impulse being acquired, the female should mate with the nearest male, indifferent to individual display or other externals; that is to say, proximity should be the all-sufficient qualification in the drake, and all else be superfluous. The observable facts do not bear this out. It may not be easy to speak with absolute conviction, but the strong impression received is that choice does not necessarily fall upon any proximate drake. It is true that the female does not extend her field of operations beyond a certain radius; on the other hand, it is a common sight to see her push aside intervening birds in order to reach a more distant one, and during courtship of a particular male she frequently intermits her pursuit to repulse others who may follow. Such instances, and they are of frequent occurrence, do not tempt one to regard her choice as accidental.

2. Similar considerations incline one to reject the second hypothesis (as self-sufficient)—but with much less confidence. The essential question here is: what relation does display bear to courtship?

Love-play in the Mallard presents two phases previous to pairing: (1) *display*: emotional expression taking the form of certain elaborate bodily movements, common to both sexes, although more highly developed in the male; (2) *courtship*: emotional expression which takes a vigorous and characteristic form in the female, while the corresponding behaviour of the male is passive. The drake's behaviour is thus relatively active in the first phase, and relatively passive

in the second; and the spectacle may be witnessed of a duck courting, and persisting in the courtship of a non-displaying male amongst a crowd of displaying ones. Moreover, specific courtship is frequently initiated in absence of preliminary display. It is therefore doubtful if display is a necessary antecedent to courtship or pairing. It may be regarded as in essence and origin no more than the bodily expression of emotional overflow. But although it may not be in an absolute sense the product of sexual selection (supposing the latter a factor in evolution), it may yet conceivably be a correlate of such selection. While primarily merely an accompaniment of the pairing instinct, it may serve as an additional stimulus to further development. But apart from the question of origin, and granted selection on the part of the female, the practical point is: does display, in its present form, really count in the drake as a qualification or advantage in the securing of a mate? In birds in general, Groos holds that display is a necessary antecedent to pairing. But without assuming its necessity, it remains conceivable that display may count. The pairing instinct in birds is a seasonal phenomenon of gradual growth, spontaneous in the individual, but responsive to, and possibly accelerated by, environmental factors. If we take a female in which the pairing instinct is on the verge of final achievement, it seems not unreasonable, in view of the undoubted intersexual sensitiveness to display, that the display of a particular drake may be the final stimulus—the straw which turns the balance. If in this sense display is of value to the drake, then display is a factor in sexual selection; and so far as sexual selection has modified or expanded it, it is a product of sexual selection, whatever its origin. The missing link in the argument is that there is no evidence that such a stimulus, due to a particular male, necessarily results in his being chosen. The impression one receives, in fact, is otherwise. Nevertheless, in view of the difficulty or impossibility of accurate observation on such a nice point, it would be unjustifiable to deny its occurrence.

3. It is safe to assume that the apparent close similarity

in appearance amongst the individuals of a species exists only to human observation. The readiness with which birds recognise their mates from amongst others, even when at considerable distances, argues an individuality readily appreciable by the birds themselves. Leaving on one side the question of the factors originally determining choice, the fact that pairs remain in company for many weeks prior to the nesting season is proof of a mutual preference over other possible mates. If no such preference existed, then change of partners should be of constant occurrence, daily and hourly. Some mutual link exists between the paired birds, and one must assume that it is comprised by, or contained in, a group of visual perceptions, whether these relate to colour, movement, form, or attribute beyond human analysis. But if it be granted that the basis of union is represented by a preference due to certain visual perceptions, then it is theoretically credible, or even probable, that similar stimuli may be determining or guiding agents in the original choice.

Speaking of Mallards in confinement, Mr J. Lewis Bonhote says¹:—"There is no doubt that ducks choose their own drakes, and in this species at least it seems more than likely, that sexual selection plays a considerable part. In most cases birds once paired will, if opportunity occurs, mate again every year, although they may have been separated during the winter." If these remarks are justified, then the possibility of accidental mating is negatived, and selection is a certainty. Captivity frequently profoundly modifies the activities of a species, and it is unsafe to assume that what takes place in confinement necessarily represents the course of events in a state of freedom; but the theoretical possibility of choice receives confirmation.

To sum up: sexual selection occurs in the Mallard. Such selection is almost certainly not "accidental." The influences governing or directing the choice of the female appear to take the form of certain stimuli provided by the display of the male, the external attributes of the male, or the cumulative effect of both.

¹ J. Lewis Bonhote: *Avicult. Mag.*, 3rd series, i. (1909-10), p. 301.

SUPPLEMENT TO DR SHARP'S "COLEOPTERA
OF SCOTLAND."

By ANDERSON FERGUSON.

(Continued from page 40.)

- Otiorhynchus tenebricosus*, Hbst.—MORAY, *Elgin*, Culbin Sandhills, Chitty (3). This was recorded under *hematopus (fuscipes*, Walt.), but Commander Walker on examining the specimen in the Chitty Collection states that he has no hesitation in referring it to *tenebricosus*, which was recorded for Forth and Solway by Dr Sharp, on the authority of Murray's Catalogue. Fowler (6), however, was rather doubtful of the Scotch records.
- O. scabrosus*, Marsh.—FORTH, *Haddington*, under stones at base of Traprain Law, Hardy (3).
- Trachyphloeus squamulatus*, G.E.—TWEED, *Berwick*, on dry trap knolls near Girrick; MORAY, *Morayshire*, in moss amongst water, Hislop.
- T. alternans*, Gyll.—SOLWAY, *Dumfries*, one in flood refuse near Kelton, Lennon and Douglas.
- Caenopsis waltoni*, Boh.—SOLWAY, *Dumfries*, one in flood refuse, Kelton, Lennon and Douglas.
- Exomias araneiformis*, Schr.—TWEED, *Peebles*, Peebles, Beare (9); FORTH, *Edinburgh*, Colinton and Duddingston, Hawthornden, Logan (2), Beare (9); *Linlithgow*, Broxburn, Evans (5); *Stirling*, near Stirling, Evans (5); TAY, *Fife*, Drumcarrow Craig, Johnston; SOLWAY, *Ayr*, Barr; CLYDE, *Renfrew*, Paisley, Ferguson (3).
- Tropiphorus carinatus*, Mull.—TWEED, *Peebles*, near Peebles, in flood refuse, Black (3); ORKNEY, *Orkneys*, five specimens, Orkney; SHETLAND, *Shetlands*, Trebisterness, two specimens, Poppius.
- T. obtusus*, Bons.—TAY, *Mid Perth*, Rannoch, Beare (17), Donisthorpe (3); MORAY, *Elgin*, Forres, Chitty (7); SOLWAY, *Dumfries*, on banks of the Water of Cairn between Irongray and Dunscore (Dr Sharp), Fowler (6). It is thought, however, that *T. obtusus*, Bons, and *T. tomentosus*, Marsh., which is recorded in Dr Sharp's "Coleoptera of Scotland," are really one species. See report of discussion on this point, *Proc. Ent. Soc.*, 1904, p. vi.
- Phyllobius maculicornis*, Germ, var. *cinereus*, Fow.—FORTH, *Edinburgh*, Glen of North Esk, between Hawthornden and

- Roslin, Beare (8); MORAY, *Easternness*, Newtonmore, Beare (*E.M.M.*, xxxix., 206).
- P. viriditeris*, Laich., var. *griseus*, Fow. — SCOTLAND, Fowler (6); this variety was not included in Beare and Donisthorpe's Catalogue.
- Sitones griseus*, F.—MORAY, *Elgin*, Culbin Sandhills, immense numbers on broom, Chitty (1); CLYDE, *Ayr*, very local and rather scarce amongst bent grass, Irvine, Fergusson (7).
- Hypera pollux*, F.—SOLWAY, *Kirkcudbright*, rare, by sweeping, Orchardton, Lennon and Douglas; ARGYLE, *Westernness*, summit of Ben Nevis, one example, Thornley (1).
- H. alternans*, Steph.—SOLWAY, *Kirkcudbright*, very rare, by sweeping, Orchardton, Lennon and Douglas.
- H. elongata* Pk.—FORTH, *Edinburgh*, one under stone in grassy place near Edinburgh, Beare (2).
- Liosoma ovatum*, Clair, var. *collaris*, Rye.—FORTH, *Fife*, Balmuto (Power), Fowler (6); CLYDE, *Renfrew*, Renfrew, Rye (2); *Cantyre*, rare, in flood refuse, Macrihanish, Walker (2).
- Thryogenes nereis*, Pk.—SOLWAY, *Kirkcudbright*, Maxwelltown Loch, Lennon and Douglas.
- Dorytomus maculatus*, Marsh., var. *costirostris*, Gyll.—TAY, *Mid Perth*, Rannoch, on aspen, Walker (3); SUTHERLAND?, *Sutherlandshire*, Cruttwell (1).
- Bagous frit*, Hbst.—SOLWAY, *Kirkcudbright*, rare and very local, by sweeping, Maxwelltown Loch, Lennon and Douglas; CLYDE, *Cantyre*, one in Aucha Lochy, near Campbeltown, Walker (2).
- Miarus plantarum*, Germ.—DEE, *South Aberdeen*, Braemar, Cruttwell (2).
- A. pomorum*, L.—SOLWAY, *Kirkcudbright*, not infrequent on wild crab-apple trees, Orchardton and Almorness, Lennon and Douglas. [CLYDE, *Clyde Islands*, south end of Arran, Billups.]
- Cionus tuberosus*, Scop.—ARGYLE, *Main Argyll*, on shores of Loch Feochan, near Oban, Grimshaw (1). This confirms the Scotch record of this species which Fowler (6) doubted.
- Acalles turbatus*, Boh.—TWEED, *Berwick*, one, decaying bark of ivy, Girrick Braes, Hislop.
- Ceuthorhynchus setosus*, Boh.—SOLWAY, *Kirkcudbright*, rare, Orchardton, Lennon and Douglas.
- C. marginatus*, Pk.—TWEED, *Roxburgh?*, one near Lurgie, in meadow hay, Hislop; FORTH, *Fife*, Balmuto (Power), Fowler (6).
- Ceuthorhynchidius nigrinus*, Marsh.—MORAY, *Elgin*, Culbin Sandhills, Chitty (1).

- Rhinoncus perpendicularis*, Reich.—SOLWAY, *Kirkcudbright*, not common, Orchardton, Lennon and Douglas.
- Balaninus betulae*, Steph.—MORAY, *Elgin*, in flood refuse, Culbin Sandhills, Chitty (1).
- B. rubidus*, Gyll.—CLYDE, *Lanark*, by sweeping, Coatbridge, Fergusson (11).
- B. villosus*, F.—CLYDE, *Main Argyll*, north side of Holy Loch, one in 1860, Fergusson (7).
- B. pyrrhoceras*, Marsh.—SOLWAY, *Kirkcudbright*, rare, Orchardton, Lennon and Douglas.

SCOLYTIDÆ.

- Cryphalus abietis*, Ratz.—FORTH, *Edinburgh*, one beaten off shrub alongside grove of Scots fir at Gorebridge, near Edinburgh, Beare (28).
- Pityophthorus lichtensteini*, Ratz.—The records of *P. micrographus*, Gyll., for DEE and MORAY, in Dr Sharp's "Coleoptera of Scotland" are, according to Fowler (6), to be referred to this species, the true *micrographus*, Gyll., not yet having occurred in Britain.
- P. pubescens*, Marsh.—TAY, *Mid Perth*, Rannoch, beat from top of felled fir, Beare (6).
- Xylocleptes bispinus*, Duft.—SOLWAY, *Dumfries*, very rare, a few at Carnsalloch, Lennon and Douglas.
- Dyrocatetes autographus*, Ratz.—FORTH, *Edinburgh*, by sweeping under fir trees, Hawthornden, and in flood refuse, Harperrig Reservoir, Beare (9, 14).
- Tomicus typographus*, L.—SOLWAY, *Dumfries*, very rare, by beating old trees, Carnsalloch, Lennon and Douglas.
- Pityogenes trepanatus*, Nœrdl.—TAY, *East Perth*, one male, Blair Atholl, Joy (4).

INTRODUCED SPECIES.

- Stenolophus plagiatus*, Gorham.—CLYDE, *Renfrew*, two specimens, near Gourock, Gorham.
- Anchomenus sahlbergi*, Chand.—CLYDE, *Dumbarton*, Bowling, Fowler (3).
- Anthrenus scrophulariæ*, L.—FORTH, *Edinburgh*, *Edinburgh* (Stephens), Fowler (6).
- Oonthophagus taurus*, L.—SHETLAND, *Shetlands*, Shetland, Nilis.
- Oryctes nasicornis*, L.—SUTHERLAND, *Caithness*, one female crawling on South Head Braes, Wick, "probably introduced with ballast from Baltic Ports," Dunbar.

- Bupestria (Ancylochira) hæmorrhoidalis*, Hbst.—CLYDE, *Ayr*, in a house in *Ayr*, Fergusson (7).
- Cryptamorpha desjardinsi*, Guér.—CLYDE, *Lanark*, Glasgow, one in a house, Fergusson (10).
- Ptinus tectus*, Boield.—FORTH, *Fife*, in a meal mill, Dunfermline, Beare (21), Evans (9); ORKNEY, *Orkneys*, among hops in a bakehouse, Stromness, Beare (21) and Ellison; CLYDE, *Lanark*, in a stable, Coatbridge, Brown (1).
- Callidium pusillus*, Schön.—FORTH, *Edinburgh*, in a woodyard, Edinburgh, Paterson.
- Monochammus sutor*, L.—FORTH, *Edinburgh*, one, Colinton Dell, Edinburgh, Evans (1).
- Arhopalus speciosus*, Say.—CLYDE, taken in the district, Fergusson (7).
- Aræocerus fasciculatus*, DeG.—FORTH, *Edinburgh*, one in herbarium, Royal Botanic Gardens, Edinburgh, Evans (11).

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(To be continued.)

NOTES.

Pine Marten in Argyll.—On 19th February 1914 my head keeper trapped a Marten Cat (*Martes martes*) on the hillside just above this house. The trap was set for foxes. The specimen is an adult male, 33 inches in length from point of nose to tip of tail. I have never heard of an instance of this mammal being seen or heard of in this district before.—H. BURNLEY CAMPBELL, Lt.-Col., Ormidale, Colintraive, Argyll.

White Wagtail in the Orkneys—This common bird of double passage in the northern islands of Scotland appears to have hitherto very largely escaped notice in the Orkneys. It is, however, quite common there in both spring and autumn, when *en route* between its northern European summer haunts and its southern winter retreats. At Auskerry last autumn, this bird came under my notice on fourteen days between 4th September and 2nd October. On 6th September many were seen which had arrived overnight, and a party of forty were observed on the wing simultaneously.—WM. EAGLE CLARKE.

Redbreasts in Shetland.—Redbreasts have been more numerous than usual in Shetland this winter. I saw the first on 19th November, but from 3rd December on I have seen a cock in the garden daily, and in the garden next ours there have been two for a considerable time back, and I have heard of others. On 15th February I saw what I was certain was a hen Robin flying over the garden fence, and on looking I found her in company with a cock. I have seen them in company since, and am hopeful they may nest.—J. S. TULLOCH, Lerwick.

Siberian Chiffchaff in Shetland in Winter.—With reference to the note published in the *Scottish Naturalist* for February last, in which two Siberian Chiffchaffs (*Phylloscopus tristis*) are mentioned as having been obtained on 25th and 26th October last, may I put on record a more interesting occurrence of the species? One was procured by me here on 27th December last. The morning was fine, one of the few touches of frost we have had this winter having subdued the wind, and the little warbler was searching for food in quite a lively way over an open ditch which runs along the side of a stone wall, sometimes springing into the branches of overhanging bushes, then dropping again to the grassy sides of

the ditch. Where this belated traveller had come from it would be impossible to say, but it seems unlikely that it had been for any length of time in the immediate neighbourhood of the spot where it was found, which had been frequently visited by some ornithological friends and myself, and does not in winter afford a superabundance of cover. Possibly it had been somewhere else in the district until a change of quarters in the frosty weather brought it to notice. If the weather records between October and the end of December were examined, I believe it would be found that the weather was continuously unsettled, and gave little opportunity for so small a passenger to continue on migration. The identification has been confirmed by Mr Eagle Clarke, who examined the skin.—GEORGE W. RUSSELL, Lerwick.

Grey Shrike in Shetland.—On 22nd February I saw a Grey Shrike chasing some Twites across a stubble field near the Knab, Lerwick. On 26th I flushed one, probably the same bird, from the foot of our garden in Lerwick. He rose and hovered in a hawklike fashion for a time, giving me an excellent view, and then flew away very leisurely.—J. S. TULLOCH, Lerwick.

[The dates are interesting for the occurrence of this bird in Shetland.—EDS.]

Ringed Grouse.—With reference to Mr Cowan's letter about the Ringed Grouse in your last number, I may say that the letters R.P. stand for Racing Pigeon. I wrote to the manager of *The Racing Pigeon*, who kindly replied that he had written to the owner of R.P. × 093218, from whom I would likely hear in a day or two, but so far I have not heard from him. If Mr Cowan would make enquiry among the children of local shepherds or farmers he might find who took a ring off a dead pigeon and put it on a grouse. I know of such a case in Dumfriesshire.—JAMES BARTHOLOMEW, Torrance.

Lesser Black-backed Gull in Orkney.—The Lesser Black-backed Gull (*Larus fuscus affinis*) leaves Orkney altogether during the winter, arriving back usually early in March, this fact being well known to the Orcadians. In 1904, however, it is very probable that some wintered there, for they were to be seen about Stromness when I arrived there in the middle of January. Whether these were the Scandinavian sub-species *Larus fuscus fuscus* or the British breeding species *Larus fuscus affinis*, I cannot say. In 1905 I saw the first two on 16th February, and in 1906 a flock on 9th March in the Pentland Firth. In 1908 the first I saw

were on 15th March, but in 1907, 1909, and 1910 I did not observe any until early in April.—H. W. ROBINSON, Lancaster.

Whimbrel in the Forth District in January.—I examined one of a pair of Whimbrel (*Numenius phaeopus*) which had been shot from among a flock of Curlews, at Long Green Bay, to the west of Cramond, on the 28th of January last.—BRUCE CAMPBELL, Edinburgh.

Seal Louse (*Echinophthirius phocæ*) from a Common Seal in the West of Scotland.—In 1886 I found numbers of this parasite on a Common Seal which died in the Rothesay aquarium, where it had been kept in captivity for some time. The specimens were laid aside unnamed, and more or less forgotten, till I saw Mr Evans's recent paper on Anoplura in the "Proceedings" of the Royal Physical Society, when the creature was at once recognised from the figure there given. I have looked out the specimens, and send one or two of them with this note.—THOMAS SCOTT, Aberdeen.

[The examples sent by Dr Scott, though immature, undoubtedly belong to this species.—EDS.]

Two rare Annelids (*Helodrilus oculatus*, Hoffm., and *Fridericia polychæta*, Bret.) from Linlithgowshire.—On 14th February last I found *Helodrilus oculatus* in considerable numbers in the mud of a small ditch on the Linlithgowshire side of the river Almond above Cramond ferry. Among those taken and sent to the Rev. Hilderic Friend there was, he tells me, one adult example. In my paper on the Oligochæta (Earth-worms and their allies) of the Forth Area, published in *Proc. Roy. Phys. Soc.*, 1910, the species was recorded from one or two localities in Mid-Lothian only, and since then it has been discovered in England and Ireland.

Besides the above, I sent to Mr Friend a number of other Oligochætes collected the same day, also on the west bank of the Almond, but chiefly under the bark on very rotten trees and in damp leaf mould. Among them he identified eight examples of *Fridericia polychæta* var. *robusta*, Fr., an addition, it would appear, to the list of Scottish species.—WILLIAM EVANS, Edinburgh.



BOOK NOTICES.

COLOR STANDARDS AND COLOR NOMENCLATURE. By Robert Ridgway, M.S., C.M.Z.S., Curator of the Division Birds, United States National Museum. With 53 colored plates and 1115 named colors. Washington, 1912. London: Wesley & Son. Price, £1, 10s.

The colours of animals and plants play an important part in their scientific description, yet, strange to say, in spite of their wide range and great variety of tints, there has never been an accepted standard of colour nomenclature. All systematic naturalists sooner or later realise how very difficult it is to express in words the precise colours of the great majority of specimens under diagnosis. But this is not all, for though the author may be satisfied on the nomenclature question, it is more than doubtful if his word-painting conveys to others the exact impression he means it to convey; in most cases, probably, it does not. Mr Ridgway's book removes this difficulty most effectually. Owing to the recognition of racial forms, with the subtle differences in shades of colour on which they are so largely based, such a work, at all times a desideratum, has become absolutely indispensable. In this book we have depicted no less than 1115 named tints, and it would, indeed, be difficult with it in one's hands not to find any shade, however subtle, that one might be in search of. The treatment of the subject is on scientific lines, which are fully explained and easily mastered. It is the result of twenty years' study by one who is eminently fitted for its authorship by reason of intimate practical knowledge of what is required.

THE BRITISH WARBLERS; A HISTORY WITH PROBLEMS OF THEIR LIVES. By H. Eliot Howard, F.Z.S., M.B.O.U. Illustrated by Henrik Grönvold. London: R. H. Porter. Part 8. Price, £1, 1s. net.

In this part of Mr Eliot Howard's monograph we have a detailed account of the life and habits of the Garden Warbler, the Wood Warbler, the Barred Warbler, and the Subalpine Warbler. The life-histories of the birds mentioned are treated with fullest detail, and the author's observations are as usual full of interest and suggestion. We have already complimented Mr Howard on his work, so thorough and original, and the part under consideration is equal to former histories. Mr Grönvold's illustrations include coloured plates of the Dartford, Barred, and Wood Warblers. They are particularly charming and very life-like. Besides these coloured plates there are five photogravures showing the various attitudes which are assumed during the courting season. These plates are clever and original drawings by the author, and greatly contribute to the value of a book that is indispensable to all who desire to study the ways and habits of the British Warblers. A word of praise is due to the publisher for the general excellence displayed.—G. E. G. M.

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[MAY

EDITORIAL.

THE scientific papers demanding our attention this month, are mainly devoted to the lower animals, but there is one item of interest to ichthyologists and sportsmen to which we may refer. From the Deveron in October last a salmon of at least 49 lb. weight was safely landed, and this monster is noteworthy, not only as the record for the river, but also because its scale-rings, read according to recognised methods, apparently indicate that this creature of 53 inches length and 27 inches girth had spent less than three full years in the sea after a three-year parr stage. As this result obviously falls short of the true period, it has been surmised that some skin disease must have limited the normal growth of the scales.¹

R. W. Pocock, of H.M. Geological Survey, publishes an interesting letter² recording the finding of oysters in an excavation made in a street at Beckenham. The specimens were obtained in a bed composed of bluish grey sandstone and muddy sand slightly cemented, and lying 16 feet 6 inches below the surface of the street. The main point of interest in the discovery is that in the two specimens examined, which are of Eocene age, the ligament was in a remarkably fresh condition, only differing from that in a recent oyster in being somewhat softer, with the fibres less coherent. The preservation of organic tissue in fossils is of

¹ J. A. Milne, *The Field*, 7th March 1914, p. 475.

² *Nature*, 19th March 1914, p. 59.

such rare occurrence that we shall look forward with interest to the results of the microscopical examination of the specimens in question. The ligament has been carefully removed from one of them and preserved in spirit, with a view to its being embedded later in paraffin and cut into sections for the microscope.

An interesting and detailed account of the nests and nest-building of False-Scorpions has been recently published by H. Wallis Kerr, a recognised authority on these tiny creatures.¹ It appears that the nests, which are used for the protection of the inmate during the period of moulting for brood-purposes, or as shelters during hibernation, are constructed partly or wholly of silk from their own bodies. They have sometimes an external covering of extraneous substances, such as sawdust or fragments of cork, and are roughly circular in form, although the shape varies somewhat in accordance with the build of the inmate. The internal lining is smooth and composed purely of silk. The spinning is done by the chelicerae, and the work is all done from within, while the silk itself is a product of certain glands in the cephalothorax. Many other interesting details are recorded in this valuable paper, to which a full bibliography is appended.

An account of the love-song, and of the prolonged, patient, and ineffective attempts of several males of a familiar Grasshopper, *Gomphocerus maculatus*, to woo an unwilling female, is given in the *Entomologist* by S. E. Brock from observations made at Kirkliston;² and in the same magazine (p. 80) is to be found a careful description of the larval development of the common Dragon-Fly, *Sympetrum striolatum*. With the voracity of the nymphs everyone is familiar, but it is amazing, nevertheless, to find that although they were fed on bloodworms almost daily, they "would sometimes eat as many as eight in succession, though each was as long as the nymph itself."

The study of the "lesser fleas" proceeds apace. No fewer than thirteen different species of protozoa have been

¹ *Proc. Zool. Soc.*, 1914, part i., pp. 93-111.

² *Entomologist*, March 1914, p. 104.

identified by Doris L. Mackinnon from the food canal of the larvæ ("leather-jackets") of Scottish Crane-Flies, and in a recent paper the authoress draws attention to a new species of *Amœba*, *Löschia hartmanni*, discovered in this limited field.¹

Naturalists who are interested in worms will find in the February journals two papers worthy of perusal. The first is a very readable account of the natural history of Planarians by R. H. Whitehouse.² Many interesting details are given of the habits and habitats of these lowly organised, creatures, which seldom measure in this country an inch in length. The second paper we refer to is an account of the Leeches of the Glasgow district, by L. A. L. King.³ Seven species are here recorded, of which two are marine and five fresh-water. Each species is briefly described, and an outline given of its habits.

Entomologists, as usual, have many papers to consult. Perhaps the most important of these, from a general point of view, is the third part of the "Preliminary Studies on the Biology of the Bed-Bug, *Cimex lectularius*, Linn," by A. A. Girault, of the University of Illinois.⁴ This article is in the main devoted to observations made upon several mating pairs kept in confinement, and contains many interesting details as to the number of eggs laid by different individuals, with full particulars concerning the times of deposition. Another paper of importance to students of parasitic insects is one published by James Waterston, entitled "Some Records of Scottish Siphonaptera."⁵ In the first instalment (all that has yet appeared) four species are recorded, from many localities, with full particulars regarding the hosts upon which the various specimens were found.

¹ *Archiv f. Protistenkunde*, vol. xxxii., 1914, 267.

² *Irish Naturalist*, February 1914, pp. 41-47.

³ *Glasgow Naturalist*, February 1914, pp. 39-47.

⁴ *Journ. Economic Biology*, March 1914, pp. 25-45.

⁵ *Ent. Mo. Mag.*, April 1914, pp. 88-91.

SOME EARLY REFERENCES TO FOUR-HORNED SHEEP IN SCOTLAND.

By JAMES RITCHIE, M.A., D.Sc., Royal Scottish Museum.

ANY sport of nature arouses a passing interest. Therefore, when the sport is a marked one, when it is insistent in succeeding generations, and persistent through the centuries, when, besides, it is associated with distinctive qualities of commercial value, one anticipates little difficulty in tracing its existence and distribution in the written records of history. Notwithstanding that four-horned sheep fulfil all the above conditions of notoriety, the historical information regarding their occurrence in Scotland seems to be of the scantiest. On this account a few early references, stumbled upon by the writer in the course of miscellaneous reading, may prove of interest, the more so as they do not appear to have found a place in the recent literature of the subject.

The origin of four-horned sheep is of so great antiquity that no direct evidence regarding it is available. From a consideration of the characteristics of the animals themselves, however, Professor Cossar Ewart¹ regards them as belonging to a hybrid race which has arisen from the mating of ancestors belonging to the wild urial and mouflon types of sheep, the former of which is still found from Eastern Persia to Tibet, while the latter appears to be confined at the present day to Western Asia, Corsica, Sardinia, and Sicily. Whatever their origin may have been, two facts stand clearly forth. First, that four-horned sheep belong to an exceedingly old type, for their remains have been recovered from deposits of the Bronze Age; and, secondly, that the type has been a stable and predominant one, for nowadays it is to be found scattered over most parts of the world, and recent experiments in crossing show that the progeny of a four-horned ram is almost certain, in one generation or another, to exhibit this parental peculiarity.

¹ Ewart, "Domestic Sheep and their Wild Ancestors," part i., *Trans. Highland and Agricultural Society of Scotland*, Ser. 5, vol. xxv., 1913, p. 160 *et seq.*

Although in Scotland itself four-horned sheep are to be found in a considerable number of areas, the native regions in which they still survive, and from which the park flocks have been recruited, are exceedingly limited. They comprise only the Shetland Islands and the Outer Hebrides, especially the islands of Harris and North Uist, and St Kilda. But even in these scattered outposts it cannot be said that a four-horned "breed" exists, for polycerate sheep not only do not form the main constituents of the flocks, but they occur sporadically, and probably most often are the result of the crossing of native sheep with a strong-horned breed, such as black-faces. Indeed, on account of their sporadic occurrence at the present day, at least one authority, Mr H. J. Elwes,¹ is inclined to doubt whether a four-horned breed as such does or ever did exist. Certainly no race of sheep living or extinct is known in which all the individuals, male and female alike, possessed four or more horns. Nevertheless, it seems legitimate to describe as a race British four-horned sheep, since they exhibit clear characters of build and of fleece, as well as the remarkably frequent occurrence of four or more horns (the particular item in their composite character to which their name is due); and since, moreover, as the quotations given below show, these characters have been associated and have persisted together through at least three and a quarter centuries.

The significance of the old descriptions will be more readily understood if we set against them recent accounts of those remnants of the race of four-horned sheep which still exist in Britain. In the words of Professor R. Wallace:² "It was small, hardy, and like (probably) all the aboriginal sheep of the British Isles, covered with a small fleece of very fine wool." Of a small flock in the Isle of Man,³ belong-

¹ Elwes, in *Nature*, vol. 91, 1913, p. 86.

² Wallace, *Farm Live Stock of Great Britain*, ed. iv., 1907, p. 521, Edinburgh.

³ In his interesting account of the "Primitive Breeds of Sheep in Scotland," which appeared in the *Scottish Naturalist* in 1912, Mr H. J. Elwes states (p. 49) that the earliest reference to Manx sheep known to

ing to a breed probably descended from the same stock, and at any rate so closely related and so similar to the Scottish remnant that the description will stand, Professor Wallace says: "The wool was of many colours—white, brown, black, and black and white—of very fine quality, but only about one and a half pounds per sheep. The animals weighed only five or six pounds per quarter, and they proved to be such indifferent nurses that they were eventually put away, after producing, by Border Leicester rams, lambs that ranked only as shots." Wallace goes on to describe the persistence of the four-horned character in progeny which is the result of crossing.

The earliest reference to Scottish four-horned sheep which fortune has placed in my way occurs in an account of Scottish affairs by Bishop John Lesley, published in Rome in 1578. The title of the Latin quarto runs: *Joannus Leslaeus: De origine, moribus, et rebus gestis*

him is that of Parkinson, 1810. That primitive breed was, however, known to earlier agriculturists. In his *Essays relating to Agriculture and Rural Affairs*, Edinburgh, 1777, where much interesting information is to be found, Dr James Anderson (vol. ii., p. 165) says of Manx sheep: "In the Isle of Man there is said to be another breed that carries wool of a light buff"—a clear reference to the peculiar snuff colour known locally as "loaghtan." Again, in a footnote to a translation of Pallas's description of Russian sheep published in *The Bee*, and some years later reprinted separately under the title of *An Account of the Different Kinds of Sheep found in the Russian Dominions, etc., with five Appendixes tending to illustrate the Natural and Economic History of Sheep and other Domestic Animals*, by James Anderson, Edinburgh, 1794; the same writer remarks in a discussion of "yellow" sheep (p. 63 of separate publication): "In all the remote parts of Scotland and the isles, where sheep have been in a great measure neglected, and allowed to breed promiscuously, without any selection, there is to be found a prodigious diversity of colours; and, among others, dun sheep, or those of a brownish colour tending to an obscure yellow, are not infrequent. . . . It is for this reason, and to save the trouble of dyeing, that the poor people in the Highlands propagate black, and russet, and brown and other coloured sheep, more than in any country where the wool is regularly brought to market. In the Isle of Man a breed of dun sheep is very common till this hour." I have little doubt that the dun sheep of the "remote parts of Scotland and the isles" were essentially of the same race as the dun sheep of the Isle of Man.

Scotorum, libri decem, Romæ. In ædibus populi Romani, MDLXXVIII. In this very interesting volume, in a chapter headed "Regionum et Insularum Scotiæ descriptio," occurs (p. 12) the passage which I have translated as follows:—"In my accompt of Scotland, its districts and islands, it may not be that the vale of Tweed should be wrapt, as it were, in silence; and this because of the very excellent wool which, above all else, doth there abound. As in neighbouring parts, so in that country, men are met with who are known to have sheep, some four or five, others eight, nay even on occasion, ten thousand in number. The ewes truly are small, and the great part bear horns as do rams, but the ewes only a couple, three or four apiece, and the rams at times six apiece. They wear their tails of the shortest, like to young deer. As the sheep reared in the other southerly provinces of the kingdom, in tenderness of flesh they much surpass such as are nourished on the pastures of the neighbouring parts [apparently the regions to the north]; the cause whereof, it is reputed, being that a certain short fine grass wherein sheep in especial delight, abounds on the hillocks of that region."¹

Here we have clearly outlined certain definite characters, which leave us in little doubt as to the present relatives of this early stock: these are smallness of body, fineness of wool, shortness of tail, horned character of ewes, and the frequent presence of supernumerary horns.

Many years passed before my next reference to Scottish

¹ As the first edition of Bishop Lesley's work is of some rarity, I transcribe here, for the convenience of readers interested in the original, the passage as it appears in that edition: "Caput—*Regionum et Insularum Scotiæ descriptio* . . . *Tuedalia*—*Tuedalia* tamen propter optimam lanam, qua præ ceteris omnibus abundat, silentio inuolui non debet, inueniuntur in illa sicut in vicinia, quorum alii quatuor aut quinque, alii octo aut decem nonnunquam millia onium habere noscantur: oves paruæ quidem sunt, & pleræque ut arietes cornua ferunt: sed oves, bina, terna, quaternæ, & arietes nonnunquam sena: caudas brevissimas instar hinnulorum gestant. Carnium teneritudine sicut & quæ in ceteris meridionalibus regni prouinciis aluntur, alias, quæ in uicinarum regionum pascuis nutriuntur longe superant. In causa esse existimant quod breui, tenui que herba quadam, qua peculiariter oves delectantur, illarum regionum colliculi exuberant."

four-horned sheep was published; but curiously enough it also refers to the same lowland area, wherein for a hundred years and more from our own day no four-horned sheep have been known. In 1792 Rev. Alex. Brown, in his account of the parish of Moffat in the lowland counties of Dumfries and Lanark, published in Sir John Sinclair's *Statistical Account of Scotland*, vol. ii., p. 292, says: "It is not long since the sheep in this part of the country were of the four-horned kind, a few of which, it is said, remain still in some parts of Nithsdale. Their body is smaller, but their wool finer than those of the present breed. Their want of weight for the butcher, and greater difficulty and danger in lambing have banished them from this place."

Still the physical characters, so far as they are detailed, agree with those of the primitive sheep which to-day are confined to our remote islands. But another curious resemblance appears when we compare the statement, made in 1792, of the maternal inefficiency which led to the banishment of the flocks from the Scottish lowlands, with the statement already quoted from Prof. Wallace regarding modern Manx four-horned sheep, which "proved to be such indifferent nurses that they were eventually put away."

Sixteen years later, a posthumous volume by Dr John Walker, Professor of Natural History in Edinburgh University, was published, entitled *Essays on Natural History and Rural Economy*, Edinburgh, 1808, one essay written between 1764 and 1774, consisting of a list of Scottish mammals—"Mammalia Scotica." In this, amongst the varieties of sheep, he describes (pp. 522 and 523), "*Ovis polycerata, cornibus pluribus. . . . Minima alpina, cauda brevissima, quatuor et etiam sex cornibus interdum donata. Caput, pedes, nigro-alba. Lana brevissima, pilosissima.*"

"Habitat in insula Vista australi. Anno 1578 oves in Tuedia, cornibus ternis, quaternis, et etiam senis, instructæ fuerunt. . . . Res hodie in illa regione penitus incognita."

Here recurs the reference to the early Tweeddale flocks, based upon Bishop Lesley's statement, though it is interesting to find that even about 1770 the presence of four-horned sheep can be described as "utterly unknown" in the lowland

district. But, in addition, a new area creeps into the statement; and Prof. Walker, in recording them for South Uist, mentions Hebridean four-horned sheep, so far as I know, for the first time.

A last quotation must complete this slender collection. It is contained in a detailed and excellent paper, "Observations on the Natural and Medical History of the Zetland Sheep," read by Dr Arthur Edmonston before the Wernerian Natural History Society of Edinburgh in 1810, and published in the *Memoirs* of that Society in the following year.

In this, the earliest detailed account of the Shetland breed, Dr Edmonston says: "The native Zetland sheep is very small, compared with those of the southern parts of Scotland and England, the carcass not weighing more, on an average, than thirty pounds. It is of a handsome shape, hardy, and very swift and agile. The general length from the tip of the nose to the root of the tail is about thirty-eight inches, and the height from the top of the shoulder to the sole of the foot, fourteen inches. The tail seldom exceeds three inches in length. The horns are small and the ears stand erect. The ram has sometimes four large and beautiful horns. The upper pair gradually diverge a little backwards, and then curve in towards the ears and sides of the head, in a spiral form, somewhat like those on the head of a black-faced heath ram of Yorkshire. The lower pair are nearly of a semi-circular shape, with the extremities almost meeting under the throat. . . . Generally speaking, softness and fineness are characteristic properties of Zetland wool, in which respects it is not surpassed even by the merino wool."

From these quotations, then, it would appear that an early breed of Scottish sheep was distinguished by its small size of body, by the fineness of its wool and the shortness of its tail, by its horned ewes, and the frequent occurrence, especially amongst the rams, of horns in groups of four or more. These characters have persisted in common since at latest the middle of the sixteenth century till the present day. But whereas to-day a mere remnant of the breed is to be found, isolated on the outlying islands of Scotland,

at an earlier period it was represented on the mainland, and that in flocks sometimes ten thousand strong. The conclusion seems obvious that improved breeds, with larger body and greater quantity of wool, and perchance more capable mothers, have gradually usurped the place of the more primitive race, driving it, as they advanced, into more and more remote fastnesses.

BIRD NOTES FROM THE ISLE OF MAY
IN 1913.

By EVELYN V. BAXTER, H.M.B.O.U., F.Z.S., and LEONORA JEFFREY
RINTOUL, H.M.B.O.U., F.Z.S.

THE year of grace 1913 was one of much interest to us on the Isle of May, it brought us ten birds which were new to the island list; three of these had not before been recorded in the Forth area, and two were new to Scotland. Permission was kindly granted us by the Commissioners of Northern Lights to visit the island again in spring and autumn, and we stayed there from the 2nd to the 19th of May, and from the 12th of September to the 28th of October. We were fortunate in the weather conditions during our visits, these being largely of the type which brings the greatest number of species to this station; our spring list numbered 89, our autumn one 111. For the first few days after our arrival in May small numbers of summer visitors were coming in, a few winter visitors were still present, and transient migrants were represented by Greater Wheatears and White Wagtails. On the 4th, seven or eight Lesser Whitethroats put in an appearance, and a Red-throated Diver flew in and settled on the sea close to the island. Next day there were more arrivals of summer migrants, and a Black Redstart had also come

in; this was a great spring for Black Redstarts, we saw one or two constantly from this date up to 14th May. Some immigrant Starlings appeared on 6th May and a lot of the same species on the 13th, but these passed on quickly, and by the 15th only the breeding birds were left. On 6th May a Pied Flycatcher, a good many Fieldfares, and a Robin (continental) were among the birds noticed; after this small movements only took place up to 10th May, on which day there were many arrivals; these comprised a Linnet, a good many Skylarks and Tree-pipits, a lot of Meadow-pipits, a male Yellow Wagtail, Willow-warblers and a Sedge-warbler, a lot of Fieldfares, a Wren, several Swallows and a Cuckoo, while Sandwich and Common Terns were fishing close inshore. On the 11th the first Reed-bunting of the season appeared, and there were about 200 Fieldfares and a Robin (British), a Wigeon, and two Black Guillemots in full plumage. The 12th was a fairly good day, it brought a Chiffchaff (*Phylloscopus collybita collybita*) and a Garden-warbler, as well as a beautiful immature Glaucous Gull. The 13th was *the* day of our spring visit; the island fairly swarmed with migrants, Willow-warblers were everywhere, while there were lesser numbers of Carrion and Hoodie Crows, Skylarks and Tree-pipits, Spotted Flycatchers, Sedge-warblers, Garden-warblers, Lesser Whitethroats, White-throats, Redstarts, Swallows and House-martins, and single birds were noted as follows:—Siskin, Mealy Redpoll, Blue-headed Wagtail (a first record for the island), a Yellow Wagtail, a Chiffchaff, a Blackcap, a Robin, a Wryneck, a Cuckoo, a Stockdove, and a Lapwing. By next day almost all the Warblers had gone, but there were a Grasshopper-warbler, several Cuckoos, Swallows, House-martins, and a Swift. There was a fresh arrival on 15th May, the chief feature being the number of Garden-warblers; next day there were many departures, but a Grey-headed Wagtail was procured and so added to the Forth list (*Scot. Nat.*, 1913, p. 160). From the 17th to the 19th, when we regretfully brought our pleasant visit to an end, little movement was observed. In our opinion there were

distinctly fewer Rock-pipits nesting on the island than in 1912, but there were five instead of two Tree-sparrows and more Eider, Razorbills, Guillemots, Puffins, and Herring-gulls than last year.

When we returned to the May on 12th September there were a few birds on the island, the most interesting being a Lesser Whitethroat. From this time till the 30th September a large proportion of the days were characterised by light southerly and easterly winds, and there were constant small movements. Although a good list of birds was compiled, there was never any very large number of one species, the most notable birds recorded during the period being a Golden Oriole on the 13th and 14th September (first for the Isle of May), Red-spotted Bluethroats on the 14th and 26th, a Scarlet Grosbeak on 20th and 21st September, a Lapland Bunting on the 24th, a Yellow-browed Warbler and a Turtle-dove on the 25th, and on the 27th a Melodious Warbler, an addition to the Scottish avifauna (*Scot. Nat.*, 1913, p. 273). On the 22nd a party of eight Velvet Scoter were seen, these being new to the island list, and on the 29th a flock of forty to fifty Siskins besides some smaller detachments, arrived. There were the usual September movements of Lesser Whitethroats, Greater Wheatears, Pied Flycatchers, continental Robins and Goldcrests and smaller numbers of many other species, of which details will be given in the Report on Scottish Ornithology for 1913. On the night of the 29th-30th there were two Starlings, three Skylarks, two Goldcrests (continental), a Whitethroat, two Redwings, a Thrush, and eight Wheatears at the lantern. One of the Wheatears was still in moult, the tail feathers being only half the full length and one of the old feathers still remaining. Golden Plover were calling at the light, and Terns were circling above the rays. The 30th was the best day of our visit; the arrivals comprised Chaffinches, Bramblings, a good many Skylarks, of which we saw several small flocks coming in from the south-east; crowds of Goldcrests had come in, the great majority being continental immigrants, two Chiffchaffs, one at least being *Ph. c. abietina*, a Willow-

warbler—*Ph. t. trochilus*—three Yellow-browed Warblers, a Garden-warbler, several Blackcaps, a Whitethroat, a good many Redwings, several Redstarts, a good many Robins, a Hedge-sparrow (*Prunella modularis occidentalis*), and a Woodcock. By next day a Hoodie, a Red-breasted Flycatcher, more Chiffchaffs, and a Ring Ouzel had come in. Throughout October till our departure on the 28th there were always a good many birds on the island; we never had what could be called a really poor day, there was always something to be seen, but there was never any big rush. The most uncommon visitors to the island were a Little Bunting on the 8th October, four Shore-larks on the 9th, an Indian Stonechat on the 10th, new to Scotland (*Scot. Nat.*, 1913, p. 273), one or two Black Redstarts from the 11th to the 17th, a Little Gull on the latter date, new to the island list, a Sooty Shearwater on the 20th, six Long-tailed Tits on the 26th and 27th (*Egithalos caudatus roseus*), and on the 27th a White-fronted Goose, both new to the island list. Several Mealy Redpolls were seen, the first being on the 6th October, on which day the first Long-tailed Duck of the season also arrived, and on the 9th a Nightjar and a Long-eared Owl were recorded. A daylight arrival of Chaffinches, Bramblings, and Chiffchaffs took place on the 11th; the abundance of the last-named was a feature of the autumn of 1913, both *Phylloscopus collybita collybita* and *Ph. c. abietina* being represented. On the 13th and 16th there were passages of Redwings, flocks of varying size passing to the south-west. The last Spotted Flycatcher was seen on the 16th, a late date for this species. A Lesser Black-backed Gull and four Puffins were seen on the 20th, and on the 22nd six Snow-buntings passed over going south, and a Little Auk was diving about off the east of the island. On the 24th a good many Fieldfares passed going south-west, making their way with difficulty against a strong wind which was blowing from the west; the flocks varied in size from nine to thirty; occasionally some lit on the island, but soon went on. Two Storm-petrels came to the lantern on the night of the 25th-26th; and two nights later there were quantities of

Starlings at the light, they were thick on the grating, the hand-rails, astragals, and dome, and many were flying in the rays; we ringed forty in quite a short time, and then had to stop for want of rings. Thrushes and Redwings were calling in the rays, and Lapwings were circling round the lantern.

On the 22nd October, as we were standing by the monastery we heard a wild mewling cry above our heads, and mingled with it the shrill chattering call of the Peregrine. On looking up we saw a Buzzard being furiously pursued by a Peregrine; the Buzzard with its heavy lumbering flight was no match for the more agile Falcon, which with determined attacks drove it away over the Firth to the south and they disappeared in the distance, the Peregrine still continuing the pursuit as far as our eyes and glasses could follow.

A good many Short-eared Owls visited the island this autumn and preyed upon the migrants: we made some observations on their habits, which we append below. "We notice that on the north plateau, where the Short-eared Owls have been living, they had regular larders where they hid birds in a tuft of grass and kept them till they were ready for them. Often these birds were minus the primaries of one or both wings, and sometimes the rectrices had been plucked out too. Thrushes seemed to be their chief fare, but we also found the remains of Redwings, Chaffinches, Spotted Flycatchers, Meadow-pipits, Skylarks, Wheatears, a Bunting, probably a Reed, Goldcrests, a Turnstone, and Common Terns. In all probability many of these birds were caught in the rays, when dazzled by the light, as the Owls were frequently seen chasing the migrants that were flying round the light."

The mortality among the migrants this year was greatly in excess of anything we have ever seen before, many Redwings, Thrushes, and Goldcrests were literally starved to death. We sent several of these to Professor Sutherland, who kindly examined them for us and told us that we were correct in attributing their death to starvation. Besides

these we found many others too weak to fly, and nothing but skin and bone.

We again tender our most heartfelt thanks to the Commissioners of Northern Lights for so kindly permitting us to return to the Isle of May. The observations made there prove it to be an excellent migration station, and we are deeply indebted to the Commissioners for their courtesy in permitting us to pursue our researches on the island. All our dear friends on the May were again more than good to us; we do not think there was a kind act they could do which was left undone, nor any help they could give us which we did not receive. Special mention should be made of Mr Baigrie's help in our ornithological work; he has also made excellent notes while we were not on the island, which will be incorporated in the next Report. To Mrs Baigrie and to Mr and Mrs Ross grateful thanks for much kindness and hospitality are also due.

SCOTTISH HERONRIES.

FOURTH PAPER, WITH STATISTICAL SUMMARY.

By HUGH BOYD WATT, M.B.O.U., F.Z.S.

THE following notes supplement three earlier communications by the writer to the *Annals of Scot. Nat. Hist.*, viz., October 1908, pp. 218-223; April 1910, pp. 68-70; and April 1911, pp. 72-75; and, as before, the additional records now given are arranged under the faunal divisions, with the names of the authorities attached. In some cases no details are available, and information as to these and other places would be welcome.

THIRD SUPPLEMENTARY LIST.

* = Extinct.

ORKNEY.

Hoy, named in first list, nests at several different places.—H. W. Robinson.

MORAY.

Arndilly, Speyside; 5 or 6 nests.—F. Bonnett.

Balblair, Invershin.—J. A. Harvie-Brown (1876).

Heldon Wood, Elgin; about 12 nests.—F. Bonnett.

Loch Ailort, on neighbouring small loch; 15 to 20 nests.—F. Bonnett.

Ordigar, Gordon Castle; 35 to 40 nests; till within a few years ago the heronry was in the deer-park, but it is now outside.—D. Mackenzie.

Pitgavenny; one pair built in 1909; nine nests in 1911.

Pluscardine, Elgin; small.—F. Bonnett.

DEE.

Culquoich, Strathdon; 6 nests or more in 1912.—A. Landsborough Thomson.

In 1912 verbal reports were made to me on the spot of odd nests in Abergeldie, Birkhall, Crathes, and Forest of Birse.

FORTH.

Blaircastle, Culross.—F. Bonnett, status?

Cardross, Port of Menteith.—F. Bonnett, status?

Menteith, Lake of (near), named in first list, now confirmed;
20 nests in 1911, probably only about half of these occupied.
—T. Thornton MacKeith.

Penicuik House; 1 nest in 1911, but probably more.—John Laidlaw.

Sauchie, shifted from Old Polmaise, named in first list; said to have increased in numbers.—J. A. Harvie-Brown.

Mr William Evans writes that his census of seven Forth heronries in 1911 gave a total of 75 to 80 occupied nests, and in addition there were a few odd nests in other localities in the district.

TWEED.

This district is now ranked amongst those fully reported on; see Mr A. H. Evans' *A Fauna of the Tweed Area*, 1911, pp. 140-41. This work should be consulted for information on the localities named in my two first lists. These are not repeated here, but the following are additional places:—

Ayton Castle.—F. Bonnett.

Crookston, Gala Water; some 6 nests in 1906-7, but only 1 tenanted in 1910.—A. H. Evans.

St Mary's Loch; single nests.—A. H. Evans.

West Linton (near); 4 or 5 occupied nests in 1912.—Wm. Evans.

*Scotch Belford

*Towford, Kale Water

*Westruther

} abandoned sites.—A. H. Evans.

OUTER HERRIDES.

Lewis, named in first list, earliest record is 1902; increased in number up to 1910, when ravens ousted the herons from their original place, but they still nest in the neighbourhood.—D. MacDonald.

Stornoway Castle; nest found in 1907; 2 nests, 1910; 1, 1912.—D. MacDonald.

NORTH-WEST HIGHLANDS AND SKYE.

Loch Carron, island off Duncraig; said to have shifted from the mainland when the railway was constructed.—Miss J. K. Watt.

Scourie : about 20 nests.—F. Bonnett.

Skye, Dunvegan, named in first list ; now 200 nests.—F. Bonnett, *vide* Capt. Norman M. MacLeod, C.M.G.

Obs.—This is a remarkable increase, as the Rev. H. A. Macpherson found only 30 to 40 nests in 1888—*Fauna of the North-West Highlands and Skye*, 1904, p. 215. So far as my knowledge goes, no other colony in Scotland approaches this in numbers.

ARGYLL AND THE INNER HEBRIDES.

Ardnamurchan, named in first list ; from 60 to 70 nests each year in sea-cliffs Stron-bheag, Ormsaigbeg, and Kilchoan. About a dozen nests on Carna Island, Loch Sunart.—Angus Henderson. Kildalton, Islay ; three small heronries.—Alexander Ross.

Lossett House, Machrihanish ; 1 nest in 1910, 2 in 1911, none in 1912.—H. P. O. Cleave.

Riska Isle, Loch Moidart ; 80 to 100 nests, but it is difficult to state the number definitely.—F. Bonnett.

Obs.—Loch Awe, Argyllshire, is included in a recent list in error for the loch of the same name in Assynt.

CLYDE.

Balnacailly, North Bute, some years ago ; Rhunabodach Wood, 9 or 10 nests in 1912.—D. Mackenzie.

Douglas Castle, named in first list : in 1913 the nests were fewer than usual, but at least 6 were noted.—*Glasgow Naturalist*, v., 1913, p. 129.

Duchal, Renfrewshire ; 1 pair in 1912.—T. Thornton MacKeith.

Ellary, Ardrishaig ; 4 or 5 nests.—F. Bonnett.

*Kintyre, Mull of, named in first list with a query ; no nests now, and no evidence of nesting there at any time.—H. P. O. Cleave.

Killellan, Campbeltown ; single nest and 3 nests at two separate places in 1912.—H. P. O. Cleave.

Rosneath, named in first list ; greatly reduced in numbers ; twenty years ago there were 60 nests.—W. C. Maughan.

Stonefield, Kilmalmonell ; about 6 nests.—H. P. O. Cleave.

Obs.—Kilmory, named in first list, is stated in Mr Bonnett's list (1912) to have 100 nests, but this is due to a mistaken reading of a sentence repeated in a recent edition of Johns' *British Birds in their Haunts*, to the effect that there is a heronry "within a hundred yards of the house." Not a hundred nests in any case, although there may be a few still about.

SOLWAY.

Chapel Farm, Moffat : 3 or 4 nests, recent colony from Dumerieff Wood.—F. Bonnett.

Galloway House, Garlieston ; probably ceased to exist.—F. Bonnett.

Kirkconnell ; 12 to 14 nests.—F. Bonnett.

Skage ; 1 nest has been found.—W. C. S. Fergusson.

A correspondent has asked, "How many nests constitute a herony?" but I am not aware of any authoritative definition. Prof. Newton (*Dictionary of Birds*) thought that only large settlements were entitled to the name of "herony," and if that is accepted, there are very few heronries in this country. Based upon what we have, however, a venture may now be made to estimate the total number of present day nesting sites, but in the appended table only places where four or more nests are found together have been taken into account. The numerous places with smaller numbers are ignored as difficult to reckon on, but taken altogether they must represent a considerable additional number of breeding birds.

SUMMARY OF EXISTING HERONRIES IN SCOTLAND

(4 nests or more).

Orkney . . .	10 places*	N.-W. Highlands	
Shetland . . .	4 „ *	and Skye . . .	21 places
Moray . . .	36 „	Argyll and Inner	
Dee . . .	9 „	Hebrides . . .	30 „
Tay . . .	16 „	Clyde . . .	17 „
Forth . . .	7 „	Solway . . .	15 „
Tweed . . .	24 „	Total . . .	<u>190</u> „
Outer Hebrides . . .	1 „ (?)		

* Considerable uncertainty as to these figures.

I feel confident that the total is not an over-estimate, and it compares with 330 places with 4 nests or more known in Ireland—see Ussher and Warren's *Birds of Ireland*, 1900, pp. 160-61. In England there are about 200 reputed heronries, and in Wales about 40, but both these figures are subject to revision. In the whole United Kingdom it would seem that there are not fewer than 760 nesting-places at the present time.

SUPPLEMENT TO DR SHARP'S "COLEOPTERA OF SCOTLAND."

By ANDERSON FERGUSSON.

(Continued from page 92.)

DONISTHORPE, H. ST J. K. :—

- (1) "Additions to the British List," *Ent. Rec.* xi. 137 *et seq.*
- (2) "Synonymical Note on the *Lathrobium atripalpe* and *L. punctatum* of the British List," *Ent. Rec.* xv. 180.
- (3) "A Fortnight in the Highlands," *Ent. Rec.* xix. 229.
- (4) "*Ocypus cyaneus*, Payk., in Scotland," *E.M.M.* xliii. 275.
- (5) "*Trichopteryx intermedia*, Gillm., var. *Thomsoni*, I. B. Erichson, a British Species," *Ent. Rec.* xxi. 58.
- (6) "A Coleopteron New to Science—*Anaspis hudsoni*, nov. spec.," *Ent. Rec.* xxi. 60.
- (7) "Coleoptera at Braemar in June," *Ent. Rec.* xxii. 202.
- (8) "*Lesteva lactuosa*, Fauv., a Species of Coleoptera new to Britain," *Ent. Rec.* xxiii. 301.
- (9) "Coleoptera in the Highlands in June 1911," *Ent. Rec.* xxiii. 309.
- (10) "Coleoptera on the Isle of Eigg," *Ent. Rec.* xxiv. 13.
- (11) "*Cutops montivagus*, Heer., a British Insect," *Ent. Rec.* xxiv. 71.

DOUGLAS, W. D. R. :—

- (1) "Notes on an Entomological Visit to Braemar," *E.M.M.* viii. 185.
- (2) "*Oxyporus rufus* in Scotland," *E.M.M.* xxv. 37.
- (3) "Notes on some Scottish Coleoptera," *E.M.M.* xxvii. 305.
- (4) "A Note on the Genus *Apion*," *Trans. D. and G.N.H.S.* ix. (N.S.), 126.

DUNBAR, L. D. :—"Oryctes nasicornis at Wick," *E.M.M.* xviii. 262.

EDWARDS, J. :—

- (1) "On the British Species of *Helophorus*, Fab.," *E.M.M.* xlv. 218.
- (2) "A Revision of the British Species of *Haliphys* Latreille," *E.M.M.* xlvii. 1.

ELLIMAN, E. G. :—"A New Coleopteron—*Homalota scotica*, nov. sp.," *Ent. Rec.* xxi. 33.

ELLISON, G. :—Exhibit to Lancashire and Cheshire Entomological Society of *Ptinus tectus*, Boield, from Stromness, *Ent.* xxxviii. 287.

EVANS, W. :—

- (1) "*Monochamus sutor*, L., in Midlothian," *A.S.N.H.* 1892, 78.
- (2) "*Geotrupes typhus*, L., in Arran," *A.S.N.H.* 1895, 198.
- (3) "*Geotrupes typhus*, L., in Forfarshire," *A.S.N.H.* 1895, 254.
- (4) "*Quedius tristis*, Grav., in Scotland," *Ent. Rec.* xii. 338.
- (5) "Some Records of Scottish Coleoptera," *A.S.N.H.* 1900, 91.
- (6) "Additions to the List of Scottish Coleoptera," *A.S.N.H.* 1901, 183.
- (7) "Some more Records of Coleoptera taken in Scotland, chiefly in the Edinburgh (or 'Forth') District," *A.S.N.H.* 1903, 89.
- (8) "*Lochmura suturalis*, Thoms., var. *nigrita*, Weise," *E.M.M.* xl. 238.

- (9) "*Ptinus tectus*, Boield, in Scotland," *A.S.N.H.* 1906, 56.
- (10) "*Aleochara spatulica*, Er., in Scotland," *A.S.N.H.* 1908, 120.
- (11) "*Arvicoccus fasciculatus*, De Geer, in Scotland," *E.M.M.* xlv. 15.
- (12) "*Cassida nobilis*, L., in Dumbartonshire," *E.M.M.* xlvii. 90.
- (13) "*Tychus niger*, Payk., in East Lothian," *Scot. Nat.* 1912, 17.

FERGUSSON, A. :—

- (1) "*Tychus niger* and *Cryptocephalus moraei*, in Ayrshire," *A.S.N.H.* 1896, 61.
- (2) "*Geotrupes typhaeus*, L., in Ayrshire," *A.S.N.H.* 1897, 47.
- (3) "*Exomias araneiformis*, Schrank., in Clyde and Solway," *A.S.N.H.* 1897, 48.
- (4) "*Carabus monilis*, F., in Clyde," *A.S.N.H.* 1900, 53.
- (5) "*Xantholinus fulgidus*, F., in Clyde," *A.S.N.H.* 1900, 53.
- (6) "Additions to the List of Scottish Coleoptera," *Trans. N.H.S. Glasg.* vi. (N.S.), 214.
- (7) "List of the Coleoptera of the Clyde Area in Natural History of Glasgow and the West of Scotland," (*British Association Handbook*), 1901.
- (8) "Coleoptera at Luss, 22nd May 1901," *Trans. N.H.S. Glasg.* vi. (N.S.), 345.
- (9) "Additions to the List of Clyde Coleoptera" (First Paper), *Glasg. Nat.* ii. 83.
- (10) "*Cryptomorpha desjardinsi*, Guér., in Glasgow," *E.M.M.* xlvii. 228.
- (11) "Additions to the List of Clyde Coleoptera" (Second Paper), *Glasg. Nat.* iv. 70.
- (12) "*Philonthus thermarum*, Aub., at Rowardennan, a correction," *Glasg. Nat.* iv. 137.

FORBES, W. A. :—"Additional Localities for Scottish Coleoptera," *Scot. Nat.* iii. 316.

(To be continued.)

NOTES.

Supposed hybrid between Mallard and Wigeon in Berwickshire.—During the latter part of the present month (March) a peculiar duck has been frequenting the Duns Castle lake. It is usually found associating with the Mallards, of which there is a considerable number swimming about in pairs, and in small parties composed mostly of drakes. The bird, which is a male, does not seem to be paired, and it takes no part in the display of the Mallard drakes, which is such a conspicuous feature in their habits at this season of the year. The following description of the bird under notice has been written, after frequent examinations made through powerful binoculars, at ranges between 50 and 100 yards. The head above the eyes and back of the

neck green as in the Mallard drake. The cheeks, front and sides of the neck, and breast, rich chestnut, much lighter than the brown of the male Mallard's breast. No white ring round neck. The scapulars and sides below the wings uniformly grey, of a slightly darker shade than the similar parts in the Mallard, and the wing is not conspicuous as a dark line along the side, as it is in the latter bird. There is a broad white crescentic patch on either side, between the grey of the sides and the black feathers surrounding the tail and vent. Outer tail feathers white, but no curled feathers above the tail. The bill is a light bluish lead colour, very different from the yellowish bill of the Mallard. There has been no opportunity for observing the colour of the feet, and the bird has not been heard to utter any note. As the bird seems to combine some of the features of the Mallard and the Wigeon, it is considered to be a hybrid between these species; but of course it is impossible to be sure as to this, seeing that no minute examination can be made. Mr Eagle Clarke has seen the bird, and agrees as to the probability of the cross mentioned. There are no tame or pinioned wildfowl on the lake.—T. G. LAIDLAW, Duns.

Smew on Duddingston Loch.—An adult male Smew (*Mergus albellus*), in perfect plumage, appeared on the loch on the 20th March, and has been there for a considerable time each day till to-day, the 29th. It has done all its feeding in shallow water within an area of about 20 square yards. It has made its resting-place mostly on a stone standing in the water, sometimes in a nest that a Coot is busy building. Here it has regularly preened its feathers and laid its head along its back to rest. It has kept by itself, taking no notice of the Coots or the Tufted Ducks that are swimming about. This is the first Smew I have seen on the loch during a residence of eleven years.—WILLIAM SERLE, Duddingston.

Woodcock in the city of Edinburgh.—On 21st October last I observed a Woodcock in the herbaceous border at the Royal Botanic Garden, Edinburgh. It remained in the garden for about a fortnight. I think it very remarkable that the Woodcock should appear so near the heart of the city.—ANDREW M'L. MAY, Royal Botanic Garden, Edinburgh.

Scarcity of Frogs and Toads near Perth.—There is a great absence of Frogs and Toads, and consequently of spawn, this year around Perth. It would be well to know if this condition is local or general. I am afraid it will prove general, and that by reason of last summer's drought.—A. M. RODGER, Perth.

Scottish Records of Marine Mollusca.—In a further instalment of J. T. Marshall's "Additions to 'British Conchology'" (*Journ. of Conchology*, April 1914, pp. 182-190), the following species are recorded from various localities off the Scottish coasts: *Adula (Myrina) simpsoni*, Marsh.; *Lepton squamosum*, Mont.; *L. nitidum*, Turt., and var. *psidialis*, Jeff.; *L. sulcatulum*, Jeff.; *L. clarkie*, Clark; *Montacuta bidentata* var. *triangularis*, Jeff.; *M. ferruginosa*, Mont. var. *oblonga* Turt.; *M. dawsoni*, Jeff.; *Kellia suborbicularis*, Mont.; *K. miliaris*, Phil.; *Loripes lacteus*, L.; *Lucina borealis*, L. var. *gibba*, Jeff.; *Ascinus croulinensis*, Jeff., and var. *truncatus*, Marsh.; *A. incrassatus*, Jeff.; *A. ferruginosus*, Forb.; *Diplodonta rotundata*, Mont.; *Cardium tuberculatum*, L. (? doubtful); *C. nodosum*, Turt.; *C. minimum*, Phil.; *Isocardia cor*, L.; *Astarte sulcata* var. *paucicostata*, Jeff., and vars. *trigona*, Jeff., and *fusca*, Poli; and *A. compressa*, Mont. var. *globosa*, Möll.

Scottish Records of Land and Fresh-water Mollusca.—In a paper published in the *Journal of Conchology* for April 1914, by W. Denison Roebuck, entitled "Census Authentications from the Kelvingrove Museum, Glasgow," the following species are recorded: AYRSHIRE, *Helicella itala* (Troon); CANTIRE, *Pisidium milium* (Crinan); CLYDE ISLANDS AND WIGTOWNSHIRE, *Helix acuta* and var. *strigata* (Millport and Port Logan); DUMBARTONSHIRE, *Acanthinula lamellata* (no locality), *Pisidium obtusale*, *P. pusillum*, *Succinea putris*, and *S. elegans* (Loch Lomond); EBUDES NORTH, *Pisidium obtusale* and *P. pulchellum* (Skye); LANARKSHIRE, *Planorbis albus*, *Pisidium obtusale*, *Sphaerium corneum*, and *S. lacustre* (Possil Marsh), *Valvata piscinalis* (Uddingston), *Punctum pygmaeum*, *Vertigo pygmaea*, *Pisidium fontinale*, *P. pulchellum*, and *P. milium* (Hairmyres); MAIN ARGYLL, *Planorbis contortus*, *Pisidium obtusale*, and *Paludestrina stagnalis* (Lochgilp); RENFREWSHIRE, *Valvata cristata* and *Pisidium henslowianum* (Paisley canal), *Pisidium fontinale* (Houston); ROSS WEST, *Helicella itala* (Loch Carron).

Fresh-water Shells from Tiree, Inner Hebrides.—In his paper on the birds of Tiree, published in this magazine last year, Mr Peter Anderson mentioned that the wild Swans which annually visit the island feed greatly on small molluscs, which are abundant in the fresh-water lochs and pools. In November Mr Anderson sent a boxful of the shells, gathered on the margin of one of the lochs, to Dr Harvie-Brown, to whom I am indebted for the opportunity of examining them. The species represented in the

gathering are as follows:—*Sphærium corneum* (a small bivalve), many examples; *Valvata piscinalis* and *Limnea peregra*, both also plentiful; *Planorbis parvus*, and *Succinea putris*, two examples and one respectively. In connection with the Conchological Society's scheme of authentication, specimens have been shown to Mr J. W. Taylor, Leeds, who confirms my identifications. The *Planorbis* and the *Succinea* appear to be additions to the "Mid-Ebudes" (vice-county 103) list.—WILLIAM EVANS, Edinburgh.

An additional locality for *Succinea oblonga* in the Forth Area.—From flood refuse on the north bank of the Forth opposite Craigforth, above Stirling, I was fortunate enough to shake out a specimen of *Succinea oblonga*, Drap., on the 28th of March last. The shell has been submitted to Mr J. W. Taylor, who is of opinion that it is really *S. oblonga* as I surmised. The spot where it was found being on the north bank of the river, which there forms the boundary between the counties of Stirling and Perth, the record must be assigned to the latter (vice-county 87). There are very few recorded localities for this rare species in Scotland, and it is of interest to note that one of them is eight or nine miles farther west in the same vice-county.—WILLIAM EVANS, Edinburgh.

BOOK NOTICE.

ANIMAL LIFE BY THE SEA-SHORE. By G. A. Boulenger, LL.D., D.Sc., etc., and C. L. Boulenger, M.A., D.Sc. London: *Country Life*, Ltd. Price, 5s. net.

In this volume of eighty-three pages the authors have succeeded in giving a clear and accurate account of the animal life likely to be met with by the amateur naturalist during his rambles along the sea-shore. With this book in hand he will experience little difficulty in referring the majority of the creatures he sees or captures to their proper class and order, while in some cases even the genus and species may be ascertained. Over ninety illustrations are given, the majority of which are excellent, and these will prove of the greatest service to the novice, assisting him to understand the characters of the various groups as given in the text, which is of necessity written in a concise and unembellished style.

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[JUNE

EDITORIAL.

A RECENT publication by Dr S. F. Harmer, issued officially by the British Museum, is devoted to a *Report on Cetacea stranded on the British Coasts during 1913*. At the request of the Trustees of the Museum the Board of Trade issued, in 1912, instructions to receivers of wrecks to report at once by telegraph to the Museum any stranding of whales which came under their notice, and the present interesting report owes its origin to the scheme which was thus inaugurated. The number of specimens reported during the year in question was seventy-six, and of these a dozen were from the Scottish coasts. The largest number of records was from the North Sea, and of these the majority occurred on the coast of Lincolnshire and Norfolk. The Lesser Rorqual (*Balenopectera acutorostrata*) is recorded from Collieston (Aberdeen), Arbroath (Forfar), Crail (Fife), and probably Tarbat Ness (Ross and Cromarty); a Common Rorqual (*Balenopectera physalus*) occurred at Dunnet Head (Caithness), on 8th July. Full details of all the occurrences are shown on three maps (England and Wales, Scotland, and Ireland), which accompany the Report.

A paper by Herbert Campion, on "Some Dragon-flies and their Prey,"¹ is one of the most interesting entomological contributions of the month. These fine insects are well

¹ *Ann. and Mag. Nat. Hist.*, May 1914, pp. 495-504.

known to be predaceous in both the nymphal and mature stages, but the paper under review only deals with the latter. Thirty-six specimens were examined and the results tabulated, some of these having been previously recorded as isolated examples. Exotic as well as British species are dealt with, and a general summary of the prey given. It is interesting to learn that these insects, whose destructive capacity is very great, possess a considerable power of resisting famine. They rarely fly during dull weather, and therefore in this country, where we experience many successive days without sunshine, they must fast for a considerable period. Their tastes appear to be omnivorous, without any predilection for a particular order of insects, but, as the author remarks, "there is necessarily some correspondence between the size of the captor and the size of the prey." The observations as yet made are, of course, too limited in number to admit of general conclusions being safely drawn, and we should much like to hear of more work being done in this fascinating subject. It is interesting to note that in Africa, tsetse flies often form the prey of Dragon-flies; perhaps at some future date this knowledge may be turned to useful practical account. Who knows?

Other entomological papers worthy of note include one by Claude Morley, on the distribution in Britain of the handsome beetle *Carabus clathratus*,¹ in which Scottish localities are mentioned; the description by Dr Sharp of *Helophorus ytcnensis*, a beetle new to science,² which was first obtained in 1869 at Cairn Water, Dumfriesshire; and a synopsis of the bees of the *Andrena minutula* group, notoriously difficult of determination, by R. C. L. Perkins.³

In the April number of the *Journal of the Board of Agriculture* (pp. 46-49) a short popular article is given on Millipedes and Centipedes, which gives just that amount of elementary information which all should possess. A clear distinction is drawn between Centipedes, which are carnivorous, and hence useful in the garden; and Millipedes,

¹ *Ent. Mo. Mag.*, May 1914, pp. 101-103.

² *Ibid.*, pp. 103-104.

³ *Ibid.*, pp. 112-115.

which feed on roots, bulbs, and tubers of all kinds, and are therefore to be classed as pests. The two groups, which are indeed very distinct, zoologically speaking, may be distinguished by the fact that Millipedes have two pairs of legs on each segment of the body, while Centipedes have only one pair to each. The body in the latter, too, is considerably flattened, which is never the case in their vegetarian relatives. Several remedies against Millipedes are suggested in this useful paper, such as trapping by means of scooped-out pieces of beet or turnip, or the use of poisoned bits of potato, etc. Lime and soot, spread upon or dug into the soil, are also recommended.

Harold Russell publishes¹ some "Notes on a Small Collection of Earthworms (Lumbricidæ) from the Island of Islay." The specimens, collected in the month of August 1913, were identified by the Rev. Hilderic Friend, and belong to the following eight species: *Dendrobæna subrubicunda*, Eisen; *Allolobophora longa*, Ude; *A. caliginosa*, Sav.; *Aporrectodea chlorotica*, Sav.; *Octolasion studiosum*, Rosa (= *O. cyaneum*, Sav.); *Lumbricus rubellus*, Hoffmeister; *L. castaneus*, Sav.; and *L. terrestris*, Linn. It is always interesting to see records of island faunas, especially in groups like Earthworms, which have limited facilities for dispersion.

¹ *Zoologist*, April 1914, p. 155.

NOTES ON THE MICE OF ST KILDA.

By W. EAGLE CLARKE.

IN the autumns (September and October) of 1910 and 1911, I spent nearly twelve weeks at St Kilda, devoting my time to investigations on the migratory movements of birds and on the fauna of the island generally. Among other material obtained was a series of specimens of the two peculiar mice—the only indigenous terrestrial mammals found there. These mice were described by my, alas, late friend, Barrett-Hamilton in the *Proceedings of the Zoological Society* for 1899. One of them is the finest British form of the Long-tailed Field Mouse, and is known as *Apodemus hirtensis*; while the other is a pretty House Mouse, whose scientific name is *Mus muralis*. Of these little animals, which are both very common and to some extent harmful, a large collection of carefully prepared specimens measured in the flesh was made by myself and George Stout, who accompanied me as my assistant. I mention this because the material hitherto available for examination has been very slight, and, moreover, chiefly preserved in alcohol.

APODEMUS HIRTENSIS.

Mus hirtensis, Barrett-Hamilton, *P.Z.S.*, 1899, p. 81, pl. ix., fig. 1.

Mus sylvaticus hirtensis, Barrett-Hamilton, *P.Z.S.*, 1900, p. 404.

The St Kilda Field Mouse is confined to the main island, Hirta, and to the adjacent uninhabited isles of Soay and Dun. It is most abundant where coarse grass prevails, but is to be found almost everywhere—in the crofted area, in the neighbourhood of the houses, on the faces of cliffs, and on the sides and hill-tops; finding congenial retreats in the rough stone-built “cleits” (which are such a feature in the St Kilda landscape), and in the walls surrounding the crofts. Some fine specimens were even captured in the store, which is situated close to the water’s edge, and is used for housing the feathers of the Fulmar and other sea-fowl with which the natives pay their rents to their generous Laird—The

Macleod. On the island of Dun, where the grass is very luxuriant, *hirtensis* was found dwelling in fissures and holes in the face of rocks, where grass was growing close by on ledges or at the foot of the crags. Here signs of their presence were manifest in the shape of the seeds of grass on which they feed, and in their numerous runs. The seeds of *Carex flava* were found in a hole a few inches deep on a hillside in Hirta, and perhaps forms the chief food. This mouse is much addicted to cannibalism, and this led to many specimens being completely destroyed before the traps could be visited. So far as our observations were concerned, this animal appeared to be entirely nocturnal in its habits, no examples being seen abroad during the daytime.

No young were secured during September 1910 which were less than half-grown, and no pregnant females were obtained. In September 1911, however, several quite young examples were taken, and on the 14th a gravid female—the first captured—was trapped and found to contain seven foetuses. Another, and younger female, with six less-developed foetuses, was captured on the 18th. The females in milk obtained during both visits varied a great deal in size, some being evidently quite young creatures.

The collection contains sixty specimens (males and females) of this species, and as a result of the examination of these, it becomes necessary to make some modifications in the description of the animal. That the underparts of *hirtensis* are heavily washed with yellowish brown has hitherto been deemed an important characteristic of the species. This is not the case, however, for in the majority of adult specimens, and many of the immature ones, the throat, chest, and abdomen are white, and only washed with brown along the narrow median ventral line. As a result, the demarcation between the peppery reddish brown upper, and the pale under surface is pronounced in most examples, and renders the species very similar to the familiar Long-tailed Field Mouse (*Apodemus sylvaticus*). About one-third of the adults and the majority of the younger specimens have the under surface more or less strongly washed with yellowish brown.

The sexes are alike in colour, but the young are darker (greyer) on the upper surface—the fur being less admixed

No. of Specimen.	Sex.	Head and Body.	Tail.	Hind Foot.	Ear.
1.	Male	129	100	26.5	17.5
2.	Male	128	98	26.5	17.5
3.	Female	126	110	25.5	19.5
4.	Female	124	100	25.5	18
5.	Female	121.5	95	24.5	17.5
6.	Female	121	110.5	25	17
7.	Female	121	98	25	18
8.	Male	121	93.5	25.5	19.5
9.	Female	120	99.5	25	18
10.	Female	119.5	106	23.7	17.5
11.	Female	118	107.5	25	17.5
12.	Female	117.5	99.5	24.5	17
13.	Male	116.5	97	25.5	17.5
14.	Female	116.5	97	25.5	17.5
15.	Male	114	103	25.5	17.5
16.	Male	114	100	25	17
17.	Male	113	94	26	16
18.	Female	110.5	92	24	16
19.	Female	110	94	24	17
20.	Male	110	90	25	17.5
21.	Male	109.5	95	25.5	17
22.	Female	109	103.5	25.5	17
23.	Female	109	91	24.7	17
24.	Male	107.5	92	27	16
25.	Male	106.5	101	25	17.5
26.	Male	106	92.5	24	16
27.	Female	105	92	24.5	18
28.	Male	104.5	105	24	17
29.	Female	104.5	94.5	27	17
30.	Male	104.5	92.5	24	17
31.	Male	104	91	25	17
32.	Female	103	92	25.5	16.5
33.	Male	103	87	24.5	16
34.	Male	103	82.5	22.7	17
35.	Female	102.5	(?)	25	17.5
36.	Female	102	92.5	23.5	17
37.	Male	102	90	25	17
38.	Female	102	87	25	16.5
39.	Female	101.5	87	25	16
40.	Female	100.5	88.5	25	16
41.	Male	100	89.5	25.5	16.7
42.	Male	100	87.5	25	16.7
Averages—20 Males		109.8	94	25.1	17.5
Averages—22 Females		112	107	24.9	17.2

The condylobasal measurement of the skull of adults varies from 25.5 to 27.0 mm.

with reddish brown. I am also enabled to state that the dark dorsal line is well developed. This mouse attains far

greater dimensions than has previously been supposed, specimens over 120 millimetres in length of head and body being not uncommon, while some attain as much as 129, and it is quite possible that larger examples may yet be obtained. The varying colour of the under surface is interesting, for it affords an intermediate form between the white-bellied *Apodemus sylvaticus* of the mainland and the rufous-bellied *A. hebridensis* of the intervening Outer Hebridean islands. It is difficult to understand on what grounds these two mice have been given full specific rank by Miller in his recent great work on the *Mammals of Western Europe*.

As data hitherto published on the measurements of this species are of a meagre description, it is desirable to publish the following details relating to the mature specimens obtained during these visits to St Kilda, most of which I have presented to the collections in the Royal Scottish Museum. The dimensions are in millimetres; and only specimens having the Head and Body measurement 100 millimetres or more are included in the tabulation on p. 126.

MUS MURALIS.

Mus muralis, Barrett-Hamilton, *P.Z.S.*, 1899, p. 81.

Mus musculus muralis, Trouessart, *Faune mamm. d'Europe*, p. 146 (1910).

This is the house mouse of St Kilda, and being such is not found out of Hirta—the only inhabited isle of the group. On this island, however, it is not confined to the houses, where it is very abundant, but occurs in the crofts, finding shelter in the walls and cleits. Forty specimens were prepared, chiefly females, one of them being pregnant and containing nine fœtuses. A number of young were also trapped. Here again some of the examples in the collection greatly exceed in their measurements previous records. I did not obtain any specimens in which the under surface was smoky, and am very doubtful if such occur. In general colour the upper surface of all the adults resembles that of a rather light-coloured example of the ordinary House Mouse; but the coloration of the under surface presents a remarkable departure from that species,

being of a bright buff and clearly separated from the upper surface by a well-marked line of demarcation. The hind foot is broader and more robust than in *Mus musculus*.

The nature of the fur of these two St Kilda mice is different. That of *hirtensis* is long, soft, and fluffy, like that of a Vole; while that of *muralis* is hair-like and short.

In the following tabulation of measurements only examples with Head and Body over 90 millimetres have been included, the rest of the specimens being immature.

No. of Specimen.	Sex.	Head and Body.	Tail.	Hind Foot.	Ear.
1.	Female	111	90.5	20	16
2.	Female	105.5	82	18	14.5
3.	Female	105	87	19	14
4.	Female	104.5	81	18.5	13.7
5.	Male	104.5	74	16.7	13
6.	Female	104	87	17	13.7
7.	Female	103.5	86.5	18.5	14.5
8.	Female	103.5	76	19	18
9.	Female	103.5	76	19	18
10.	Male	103	95.5	18.5	14
11.	Female	103	86.5	18.5	14.5
12.	Male	102	88	19	13.5
13.	Female	102	81.5	19.5	15
14.	Male	101	85	18	15
15.	Male	100	86	20	15
16.	Female	100	85	17.5	14.5
17.	Female	100	82	17.5	14.5
18.	Male	100	78	17.7	13.5
19.	Female	99.5	78	17	14
20.	Male	99	85	18.5	14
21.	Male	99	82	19	14
22.	Male	98	87	21	14
23.	Male	97	82	18	14
24.	Female	96.5	79	17.5	13
25.	Male	95	78	18.5	15
26.	Female	94.5	79	17	13
27.	Male	94	81	17	14
28.	Female	94	79	19	14
29.	Female	94	77.5	19	14
Averages—12 Males		99.3	83.4	18.5	14
Averages—17 Females		101.4	81.9	18.3	14.6

LEPIDOPTERA (MOTHS) AND OTHER INSECTS
AT SCOTTISH LIGHTHOUSES, CHIEFLY IN
THE FORTH AREA.

By WILLIAM EVANS, F.R.S.E.

(Continued from page 63.)

Among Dragon-flies similar migratory movements are of frequent occurrence. Two British species, *Libellula depressa* and *L. quadrimaculata*, furnish notable instances. We read, for example, of "cloud-like swarms" of Dragon-flies—chiefly of the former species—that occurred over a large area in Germany in the end of May 1839; of a column of the former about 60 ft. wide and 10 ft. deep that, moving with the speed of a trotting horse, took the greater part of a day in June 1852 to pass over Königsberg; and of an "extraordinary flight" of the latter which was witnessed at Malmö, in Sweden, on 24th to 26th June 1883. *L. quadrimaculata* is a frequent visitor to the island of Heligoland, "millions" making their appearance all of a sudden, and as suddenly taking their departure (Gätke). As regards our own coasts, mention should be made of the "flock" of this same species that settled on the Swin Middle light-vessel, off the mouth of the Thames, late in the afternoon on 28th June 1888; of the hundreds seen flying around Dover pier on 6th June 1889; of the immigration observed at Berwick in June 1900; and of the "extraordinary migration" observed in North Wales on 1st and 2nd June 1911.¹ In the last-mentioned year Britain was visited (not, however, for the first time) by another migratory Dragon-fly, *Sympetrum fonscolombii*, some of the individuals of the flight reaching the Forth (Isle of May, etc.²) on the east, and the Clyde (Arran³) on the west; while so recently as 12th October last a specimen of the far-

¹ *Manchester Guardian* of 16th June 1911.² W. Evans, *Scot. Nat.*, January 1912, p. 12.³ K. J. Morton, *ibid.*, January 1914, p. 22.

ranging *Hemianax cphippiger*—a native of Africa—was taken in a Dublin park, the occurrence, according to Mr K. J. Morton who records it,¹ being but the second for the British Isles.

In other parts of the world remarkable flights of Dragon-flies have also been witnessed, such as that encountered by the P. & O. steamer *Victoria* in the Indian Ocean, hundreds of miles from land, on 11th April 1896, when numerous examples of *Pantala flavescens* entered the chart-room and cabins at night; and the huge "flocks" of *Æschna bonariensis* that are seen speeding across the South American pampas in advance of the violent storm-wind known as the "pampero." But the occurrences already cited are ample enough for our purpose. Strong of wing as they are—they have been observed in "countless numbers" flying steadily up a valley in the Alps against the wind—disaster at times overtakes these migrating Dragon-flies, in common with other insects, when crossing the sea. In the *Entomologist* (vol. vi., p. 457) it is related by Walker that in the Mediterranean in April 1873 the yacht *Aline* sailed through many miles of dead insects—from the time of leaving Tunis, all along the Malta Channel, and on to Italy, the sea was covered with large brown butterflies, moths of all sizes, and dragon-flies, evidently just dead, as they had apparently not been long in the water.

The migrations of Locusts are, as has already been remarked, events of which every one has heard, and that therefore need not be illustrated by quotations here. Their magnitude is often such as completely to transcend our powers of conception. Think of a flight 2000 sq. miles in extent, and composed of such a multitude of locusts that, assuming each to weigh only the sixteenth of an ounce, their combined weight would amount to 42,850,000,000 tons! These are actual estimates that have been published regarding a swarm which passed over the Red Sea in November 1889. Official accounts from both the Old and the New World furnish most interesting and astonishing data. The graphic description given by Darwin, whom one does not

¹ *Ent. Mo. Mag.*, January 1914, p. 16.

readily suspect of exaggeration, of a great flight he witnessed at Luxan, La Plata, during the voyage of the *Beagle*, must be familiar to most of my readers. From time to time a few locusts, probably in most cases belonging to the species *Pachytylus cinerascens*, though usually recorded as *P. migratorius*, reach the British Islands in the course of their travels. In Scotland specimens have been got in the Border counties, in the neighbourhood of Edinburgh, and as far north as Aberdeen, Wick, and even Orkney.¹

In other groups of insects manifestations of a migratory impulse, though less frequently observed, are not wanting. Among Coleoptera (Beetles) the Coccinellids or Ladybirds supply some interesting examples, and it is possible to argue that the vast "visitations" of these pretty little insects, which are occasionally reported from the south-eastern counties of England, are to be explained as immigrations from the Continent. Some particulars of two of these visitations, taken from accounts sent to *The Times*, will be found in Staveley's *British Insects*, 1871, pp. 95-97. The first took place in August 1847, when the Beetles "more or less covered miles of ground in Romney Marsh, and a cloud of them, miles in extent, resembling a long column of smoke from a steamer, was, from the heights of Ramsgate and Margate, seen hanging over the sea." Next morning the coast was covered with them; "five bushels were swept from Margate pier, and Ramsgate harbour was in nearly the same state," as was also Brighton during the two following days. The other visitation occurred in August 1869, when "countless multitudes of the little red beetles" appeared upon the coasts of Kent and Sussex. The numbers composing this flight are described as "utterly inconceivable to those who did not see them. They were most numerous close to the shore—tens of thousands perished in the sea near the land. The beaches, piers, and houses near the shore were covered by the swarms, and in many places the streets and roads looked as if strewn by dark red gravel." Aphides or "Greenflies," which are themselves subject to migratory movements on a large scale, are the natural food of ladybirds, and it is

¹ Cf. *Ann. Scot. Nat. Hist.*, 1901, p. 28.

interesting to note that the hop-aphis did much damage in the south of England in 1869. What appears to have been an immigration of another small beetle—a species of *Galleruca*—on the north coast of Scotland was noted by Romanes in April 1870. The Moray and Cromarty Firths were, he states, covered with the beetles; they were seen floating by millions on the sea, and were afterwards cast upon the shore in heaps by every tide.

Instances of Diptera (two-winged flies) appearing in vast swarms are also on record. Curtis observed that certain Syrphids (*S. ribesii*, *S. pyrastris*, and *S. selenitica* were named) sometimes make their appearance in myriads on the sea-coast, all flying in one direction. On one occasion “they quite covered the fishermen’s boats at sea off Broadstairs.” The “swarming” habits of Ants and certain other social Hymenoptera are well-known, while on the coast at Deal, etc., immense flights of a species of Sawfly have been recorded.

Allusion should be made to the great numbers of insects largely belonging to lowland species, met with by Dr Bruce on the snow-covered plateau at the top of Ben Nevis (see papers by Thornley in *Ann. Scot. Nat. Hist.* for 1896). In North America the congregating of insects on the summits of lofty mountains has also been remarked upon.

Having shown that many moths and other insects possess migratory propensities, and as a matter of fact do make migratory flights often of great extent, references may now be given to published records of occurrences at lighthouses on the coasts of Great Britain and Ireland. No systematic observations have, so far as I am aware, ever been published—only scattered records, and few even of these, based on captures of a more or less casual nature. The few allusions to insects contained in the British Association reports on the migration of birds, have been referred to by Canon Fowler in the *Ent. Mo. Mag.* for 1888 (vol. xxiv., p. 204). What value they possess lies rather in what they suggest than in any data they supply. Only two species are definitely named, the Death’s-head, of which one was caught at Hasbro’ Light-vessel, off the coast of Norfolk, on 7th June

1885, and the Silver Gamma, of which one was taken at Skerryvore Lighthouse on 7th October 1885. Other entries are :—

Langard Point Lighthouse (coast of Suffolk).—4th July 1885, at 9.35 P.M. “Millions of very small brown-coloured flies pitched on lantern glass, and to keep the glass clear they had to be washed off. They sting like a mosquito. Wind S.”

Rhinns of Islay Lighthouse.—“Hundreds of moths of various sizes flying about the lantern on 7th Sept.” (1885); and, “we have had enormous numbers of what is locally called ‘Jenny-long-legs’ about the station for the past three or four weeks.” 2nd Aug. (1887)—“Clouds of midges round the lantern, and on 13th, from twenty to thirty Daddy-long-legs were captured.”

Fidra Lighthouse (off the coast of East Lothian).—“Last month (August 1886) it was moths everywhere, after dark set in. Had to sweep them down with a towel; some very large and beautiful.”

Tees 5 Buoy Light-vessel.—30th April 1886; wind E., light. “A great many humble-bees and a few wasps during day, flying to N.W.; several remained on board.”

Coquet Island Lighthouse.—12th September 1886; wind W. “Hundreds of small flies all night in lantern.”

Cockle Light-vessel (off the coast of Norfolk).—14th September 1886; 11 A.M., calm. “Great quantities of small bluish coloured flies; left at 1 P.M.”

Langard Light-vessel.—“The mosquitoes have been very numerous throughout the months of July, August, and September (1886). They have been very troublesome; many people have had swelled hands, puffed faces, and even black eyes, from their stings.” 4th Oct.—“Ladybirds in large numbers on the break-water at noon, and up to sunset. At 3 P.M. they were in thousands.”

The only reference to insects in Barrington’s volume on *The Migration of Birds at Irish Light-stations* (1900, p. 284) is in the following terms :—

“Among insects forwarded, the most interesting was a Locust (*Locusta cinerascens*), caught at South Arran Island in August 1898 (see *Irish Naturalist*, 1899, p. 249). The Death’s Head Moth (*Acherontia atropos*) has been received from Coningbeg Lightship, ten miles from shore, and about a dozen times from mainland stations.”

In the *Scottish Naturalist* for 1891 (p. 40), I recorded a

specimen of *Dasyptilia templi* (Brindled Ochre Moth) taken by me at the lighthouse lantern, Isle of May, on the night of 17th Sept. 1885. Other moths—*Triphaena pronuba*, *Xylophasia polyodon*, *Plusia gamma*, etc.—were obtained at same time. A few recent lighthouse records, including *Calamia lutosa*, from Bass Rock, and *Agrotis saucia*, from Isle of May, have also appeared in this magazine over my name.¹

In a note on insects observed by him at the Eddystone Lighthouse in the autumn of 1901, W. Eagle Clarke² has recorded the following moths:—*Macroglossa stellatarum*, *Agrotis segetum*, *A. suffusa*, *Phlogophora meticulosa*, and *Plusia gamma*; also the Syrphid fly, *Catabomba pyrastris*. His records from the Kentish Knock Lightship in the autumn of 1903 have already been quoted (*ante*, p. 59). *P. meticulosa* and a Hemipteron, undetermined, are also recorded from the latter station in these notes.

“A contribution to the Insect Fauna of the Isle of May,” by P. H. Grimshaw,³ based on specimens collected on the island by the Misses Baxter and Rintoul, in the autumn of 1907, contains records of thirteen species of moths, a beetle (*Serica brunnea*), and a fly (*Tipula confusa*), captured at the lantern of the lighthouse.

In Miss Dorothy Jackson’s “Lepidoptera captured recently in Ross-shire”—published in the *Entomologist’s Record* for 1909—twelve species are recorded from Tarbat Ness Lighthouse, Moray Firth.

The following records have been culled from Barrett’s *British Lepidoptera*. They mostly relate to rare species, and afford a good indication of the valuable results which a systematic investigation of insects attracted to the lighthouses on the British coasts might be expected to yield.

Macroglossa stellatarum, L.—Is found occasionally at midnight at lighthouses, “possibly passing from one country to another.”

Luperina Dumerili, Dup.—Three specimens in Sept. 1858,

¹ *Scot. Nat.*, 1913, p. 93, and 1914, p. 47.

² *Ent. Mo. Mag.*, 1904, p. 9.

³ *Ann. Soc. Nat. Hist.*, 1908, p. 89.

and three the following year were, according to "common report," taken at a lighthouse, either in the Isle of Wight or the Isle of Portland.

Agrotis obelisca, Hub.—Barrett once took several specimens on the railings of the balcony surrounding the lantern of a lighthouse (in Wales?).

Noctua flammata, Fab.—In 1875 a specimen was secured at light at Cromer Lighthouse, Norfolk, and sent on with other insects to W. H. Thornthwaite, for whom the captor was then collecting. The third British record.

Dianthæcia luteago v. *Barrettii*, Dbld.—The first specimen of which there is any record was taken by Barrett on 10th June 1861, as it was flying wildly round the lantern of the Bailey Lighthouse, Hill of Howth, near Dublin.

Dianthæcia capsophila, Dup.—Taken by Barrett at the Bailey Lighthouse, near Dublin, in July 1860.

Polia xanthomista, Hub. (*nigrocincta*, Tr.).—The first specimen known to have been found in these islands was captured at a lighthouse near Padstow, Cornwall, in August 1862.

Dasypolia templi, Thnb.—Many years ago Barrett obtained six specimens from the lighthouse at Howth, near Dublin.

Heliothis scutosa, Schiff.—In 1875 and 1876 two specimens were secured at the lighthouse at Cromer, Norfolk, by the son of the lightkeeper, and sent with numerous other species to W. H. Thornthwaite, for whom the captor was collecting such insects as came to the light.¹ This species is very rare in this country.

Heliothis armigera, Hub.—No less than twenty specimens of this rare moth were obtained from Cromer Lighthouse in 1875 and 1876 by Mr Thornthwaite.

Ophiodes lunaris, Schiff.—The first specimen recorded in this country seems to have been taken in 1882 at the lighthouse at Lowestoft, Suffolk, by Capt. Chawner.

¹ I cannot find that any list of these captures was ever published.

(To be continued.)

NOTES ON CLYDE TENTHREDINIDÆ
(SAWFLIES).

By AND. ADIE DALGLISH, F.E.S.

IN the January and March (1914) numbers of this magazine there appeared a list of Clyde Tenthredinidæ, by J. R. Malloch. In his introduction the writer states that he is of the opinion that we are now as near finality with regard to the elucidation of Cameron's records as we are ever likely to be. That I think is a very sweeping statement, and I doubt if it can be substantiated. I am fully convinced, that for more than a century to come, Cameron's Monograph on the Tenthredinidæ will absorb the attention, and be food for investigation for entomologists who may take up the study of this interesting sub-order of insects, and that the great majority of Cameron's doubtful records will be fully dealt with and explained.

It was not my intention to take notice of this list, but on looking over it I find so many omissions and inaccuracies that I feel compelled to point these out.

Lyda stellata, Chr.—Cameron sank his *nemoralis* in this species in his *Monograph*, vol. iii., p. 94.

Abia candens, Konow.—Cameron, though he evidently doubted the specific validity of this species, mentions that the two forms, *sericea*, L., and *candens*, Konow, occur together in Scotland, and are equally common (vol. iii., p. 33): and as Cameron did most of his collecting in Clydesdale, I presume he took both species there. I have *candens*, Konow, from several localities in Clydesdale, the identification of which has been confirmed by Dr Enslin.

The following three species of *Pteronus* are omitted:—

Pteronus strongylogaster, Cam.—Recorded by Cameron in his 1878 list for Kilsyth and Cannisburn. Konow refers this to *Pteronus fuscomaculatus*, Forst. (*Genera Insectorum*, 1905, p. 55); followed by Morice (*Ent. Mo. Mag.*, 1906, p. 131).

- Pteronus monticola*, Thoms.—Recorded by Cameron as rare in Clydesdale (vol. ii., p. 133). Referred by Konow to *Pteronus similator*, Forst. (*Gen. Insectorum*, 1905, p. 58); and followed by Morice as *similator*, Forst. = *monticola*, C. (*Ent. Mo. Mag.*, 1906, p. 132).
- Pteronus glottianus*, Cam.—Larvæ recorded by Cameron from Port-Glasgow (1886). By Konow referred to *Pteronus fagi*, Zaddach (*Gen. Insectorum*, 1905, p. 55); and followed doubtfully by Morice (*Ent. Mo. Mag.*, June 1906, p. 134).
- Cresus latipes*, Vill.—Malloch, under *Cresus varus*, Vill., points out that Cameron records the larva of *C. latipes*, Vill., doubtfully from Clober in 1878. Cameron (vol. ii., p. 40; issued to the Ray Society in the year 1884) gives Clober Wood as a locality for the species.
- Fenella Westwoodi*, Cam.—Recorded by Cameron, and described (*Mon.*, vol. i., p. 289) rare, Bishopton, on birch. Not taken notice of by Malloch. Konow was inclined to refer this species to the genus *Fenusa*, teste Morice (*Ent. Mo. Mag.*, 1907, p. 249).
- Hoplocampa alpina*, Thoms.—Was recorded by Cameron as occurring in Clydesdale (vol. i., p. 262), so that Malloch's is not the first record.
- Pseudodineura fuscata*, Kl. (= *parvula*, Thoms.)—Cameron, in his 1886 list, altered this to *Dineura despecta*, Kl., and as such it appears in his *Mon.* (vol. ii., p. 19); see also vol. iv., p. 187, and Morice, *Ent. Mo. Mag.*, 1907, p. 248. Malloch takes no notice of Cameron's *D. despecta*.
- Fenusa albipes*, Cam.—Konow (*Gen. Insectorum*, 1905, p. 90) evidently considers this a good species. Taken by Cameron on a rose bush in Cadder on 20th August, and included in his 1876 list (*Mon.*, vol. i., p. 298).
- Entodecta pumila*, Kl.—If Malloch is correct as to the genus, it should read *pumilus*, Kl. It is equal to *F. pumilis*, Htg.—which should read *pumilio*, Htg., in the paragraph below—which Malloch mentions he cannot place; and also = *Phænusa pumilio*, Htg., at the end of the list, which he mentions he cannot trace. According to Konow (*Gen. Insectorum*, 1905, p. 85), *pumilus*, Kl. = *pumilio*, Htg.; see also *Mon.*, vol. iv., p. 186. Malloch's *Entodecta pumila*, Kl., may be a *Kaliosphinga*, i.e., *Kaliosphinga pumila*, Kl., as he quotes Cameron's 1876 record for *pumila*, Kl., "common among birch." I have *Kaliosphinga pumila*, Kl., from Luss and Irvine, identified for me by Dr Enslin.

Dolerus gibbosus, Htg., which Cameron recorded as very common ('76), and altered to *elongatus*, Thoms., in '78. I cannot understand how Malloch, on the strength of *gibbosus* being a British species, should reinstate it as *gibbosus*. Cameron's 1876 record for *gibbosus* should, I think, be referable to *æneus*, Htg.

Dolerus Thomsoni, Konow, has now been identified by Dr Enslin as *ferrugatus*, Lep. See also *Ent. Mo. Mag.*, 1910, p. 154.

Dolerus gonager, F.—One of our commonest Clydesdale species, which Malloch has omitted. Recorded by Cameron from Kenmuir ('76) ('78), and as very common in *Monograph* (vol. i., p. 170)—widely distributed and abundant, May and June ('01).

Dolerus palmatus, Kl., and *vestigialis*, Kl., belong to the genus *Loderus*, species with oblong eyes, with a slightly concave inner margin. See Morice, *Ent. Mo. Mag.*, 1909, p. 204; also, Cameron, *Monograph*, vol. iv., p. 161.¹

Tenthredopsis gynandromorpha, Rudow.—Cameron (vol. iv., p. 152) records a single specimen from Clydesdale; see also Morice, *Ent. Mo. Mag.*, 1912, p. 236. Malloch omits it.

Pachyprotasis antennata, Klug.—Recorded by Cameron in 1878 from Cadder. Malloch also omits this. I have several from Luss, Loch Lomond; identification confirmed by Dr Enslin.

At the end of the list, Malloch gives a list of species he cannot trace. One species in particular, *Nematus punctulatus*, Dbm., was recorded by Cameron in 1876 from Cadder, altered by him from *punctulatus* (Dbm.), Thoms., to *leucotrochus*, Htg., in 1878, and to *leucogaster*, Htg., in 1886. Now identified as *Pachynematus vagus*, Fab. Malloch places this in the body of his list as *Pachynematus vagus*, Fab., a species he has identified; and at the end of the list as *punctulatus*, Dbm., a species he cannot trace. *Leucotrochus*, Htg., according to Konow (*Gen. Insectorum*, p. 56), is a good species, and is a *Pteronus* which Malloch has evidently taken (see p. 13 in his list; also Morice's tables, *Ent. Mo. Mag.*, 1906, p. 131). Malloch has therefore *Pteronus leucotrochus*, Htg., as a good species, and also as a synonym under *Pachynematus vagus*, Fab. (p. 14, Malloch's list).

The Dalry records in the list are, I think, entirely

¹ [These species stood correctly under *Loderus* in the MS. and final proofs of Mr Malloch's article; the letters were evidently transposed afterwards by the printers.—EDS.]

referable to Dr Sharp's insects from Dalry, Galloway, not in Clydesdale.¹

Lastly, many of Malloch's synonyms were sunk by Cameron in his *Monograph* under the same species as given by Malloch.

SUPPLEMENT TO DR SHARP'S "COLEOPTERA OF SCOTLAND."

By ANDERSON FERGUSSON.

(Concluded from page 117.)

FOWLER, W. W. :—

- (1) "Notes on new British Coleoptera since 1871; with notices of doubtful species and of those that require to be omitted from the British List," *E.M.M.* xix. 121.
- (2) "The Nitidulidæ of Great Britain," *E.M.M.* xxii. 69.
- (3) "*Anchomenus sahlbergi*, Chaud., a Species new to Europe," *E.M.M.* xxii. 264.
- (4) "On Certain Species of Coleoptera new to Britain or reinstated," *E.M.M.* xxiv. 49.
- (5) "*Heterocerus britannicus*, Kuwert., a new Species described from Britain," *E.M.M.* xxvii. 132.
- (6) "The Coleoptera of the British Islands," vols. i. to v. 1887-1891.
- (7) "Description of a new Species of *Galerucella*," *E.M.M.* xlvi. 228.

FRYER, H. F. :—" *Bledius denticollis*, Fauv., a British Insect," *E.M.M.* xlv. 6.

GORDON, J. G. :—

- (1) "Notes on Coleoptera taken in Wigtownshire," *Ent. Rec.* xv. 46.
- (2) "Notes on Wigtownshire Coleoptera," *Ent. Rec.* xvi. 78.

GORHAM, H. S. :—"On a Species of *Stenolophus* apparently New to Britain and to Science," *A.S.N.H.* 1901, 24.

GRIMSHAW, P. H. :—

- (1) "*Cionus tuberculatus*, Scop., in Argyllshire," *A.S.N.H.* 1905, 56.
- (2) "The Insect Fauna of Grouse Moors," *A.S.N.H.* 1910, 149.

HARDY, G. A. :—" *Clinocara undulata*, Kr., in Dumbartonshire," *Glasg. Nat.* i. 58.

HARDY, JAMES :—

- (1) "On Insects of the East of Berwickshire taken in Autumn and Winter," *Proc. Ber. Nat. Club*, vi. 421.

¹ Neither do the Glen Moriston records belong to Clyde (?78). We were aware of these localities not being in the Clyde area, but allowed them to stand owing to their interest.—EDS.

- (2) "Contributions to the Entomology of the Cheviot Hills," *Proc. Ber. Nat. Club*, vii. 378.
 (3) "Coleoptera at Traprain Law and Stenton," *Proc. Ber. Nat. Club*, x. 462.

HEPBURN, A. B. :—

- (1) "Additional Localities of Scotch Coleoptera," *Scot. Nat.* iv. 248.
 (2) "List of a few captures of Coleoptera in East Lothian," *Proc. Ber. Nat. Club*, viii. 132.
 (3) "Notes of some captures of Coleoptera in East Lothian" (Part II). *Proc. Ber. Nat. Club*, viii. 314.

HISLOP, ROBERT :—"List of the rarer Coleoptera occurring chiefly in the Parish and neighbourhood of Nenthorn," *Proc. Ber. Nat. Club*, vi. 335.

HODGSON, A. E. :—"Rare Coleoptera in Scotland," *E.M.M.* xviii. 188.

JOHNSTON, J. H. :—"Rare Scottish Beetles," *A.S.N.H.* 1905, 184.

JOLLY, W. A. :—

- (1) "Addition to the List of Scottish Coleoptera," *A.S.N.H.* 1902, 56.
 (2) "Some Aspects of Insect Life in the Forth Valley," *Trans. Stirling N.H.S.* xxv. 134.

JOY, N. H. :—

- (1) "*Cryptophagus subdepressus*, Gyll., a new British Beetle," *E.M.M.* xliii. 225.
 (2) "Notes on Coleoptera from St Kilda mainly collected from Birds' Nests," *A.S.N.H.* 1908, 33.
 (3) "A new method of collecting Coleoptera," *E.M.M.* xlv. 1.
 (4) "Three new British Coleoptera," *E.M.M.* xlv. 268.
 (5) "Coleoptera from near Garve, Ross-shire," *Ent. Rec.* xix. 288.
 (6) "*Atheta (Homalota) picipennis*, Mannh., a new British Beetle," *E.M.M.* xlvi. 252.
 (7) "Two Species of Coleoptera new to Science," *E.M.M.* xlvii. 10.
 (8) "Further records of *Bledius anne*, etc.," *E.M.M.* xlvii. 65.
 (9) "A Note on Dr Sharp's new Species of *Gabrius*," *E.M.M.* xlvii. 80.
 (10) "*Eptepeda nigricans* : a correction," *E.M.M.* xlvii. 111.
 (11) "A Note on *Quedius attenuatus*, Gyll., var. *picipennis*, Heer.," *E.M.M.* xlvii. 132.
 (12) "A Revision of the British Species of *Liodes*, Latreille (*Anisotoma*, Brit. Cat.)," *E.M.M.* xlvii. 166.
 (13) "*Olophrum nicholsoni*, Donis, in Scotland," *E.M.M.* xlviii. 12.
 (14) "*Bledius arenarius*, var. *fergussoni*, var. *nov.*," *E.M.M.* xlviii. 44.

KING, J. J. F. N. :—

- (1) "Coleoptera not previously recorded from the Clyde District," *Trans. N.H.S. Glasg.* ii. 217.
 (2) "Exhibition of Coleoptera from Various Localities," *Trans. N.H.S. Glasg.* ii. 254.
 (3) "*Chnoscara undulata*, Kr., from Braidwood," *Glasg. Nat.* iv. 132.
 (4) "Exhibition of *Megarcthrus affinis*, Müll., and other Coleoptera from Clyde," *Glasg. Nat.* iv. 133.

KING, L. A. L., and RUSSELL, E. S. :—"A Method for the Study of the Animal Ecology of the Shore," *Proc. Roy. Phys. Soc. Edin.* xvii. 225.

LENNON, W. :—

- (1) "Coleoptera captured at Dalswinton," *Trans. D. and G.N.H.S.* 1879, p. 34.
- (2) "The Rarer Coleoptera of the Dumfries District," *Trans. D. and G.N.H.S.* 1879, p. 74.
- (3) "Notes on Rare Beetles," No. 11. *Trans. D. and G.N.H.S.* 1881, p. 77.
- (4) "*Helophorus tuberculatus* in Scotland," *E.M.M.* xvi. 134.
- (5) "Coleoptera captured on Queensberry Hill," *Trans. D. and G.N.H.S.* iii. (N.S.), 64.
- (6) "Coleoptera at Durisdeer," *Trans. D. and G.N.H.S.* iii. (N.S.), 85.
- (7) "Coleoptera at Southwark Glen (near Douglashall)," *Trans. D. and G.N.H.S.* iv. (N.S.), 160.
- (8) "Coleoptera at Lochmaben," *Trans. D. and G.N.H.S.* iv. (N.S.), 182.
- (9) "Note on Species of Coleoptera taken in the Moray District near Huntly," *A.S.N.H.* 1892, 115.
- (10) "Coleoptera near Dumfries," *E.M.M.* xxxi. 174.

LENNON, W., and DOUGLAS, W. D. R. :— "Some Additions to Scottish Coleoptera, with notes on species new or rare in the Solway District," *A.S.N.H.* 1892, 107.

LOGAN, R. F. :—

- (1) "*Cafius fucicola* in Scotland," *E.M.M.* xxiii. 161.
- (2) "Scottish Coleoptera," *E.M.M.* xxiii. 189.

M'GOWAN, BERTRAM :— "A List of the Coleoptera of the Solway District," *Trans. D. and G.N.H.S.* xxiv. (N.S.), 271.

MAITLAND-DOUGALL, E. C. :— "*Cryptocephalus aureolus*, Suf., in Strathspey," *A.S.N.H.* 1909, 248.

NEWBERY, E. A. :—

- (1) "*Hydrena longior*, Rey., and *Octhelius viridis*, Peyron, additions to the British List of Coleoptera," *E.M.M.* xiii. 172.
- (2) "*Helophorus porculus*, Bedel., an addition to the British List of Coleoptera," *E.M.M.* xlii. 88.

NILIS :— "Coléoptères recueillis aux Iles Shetland," *Annales de la Société Entomologique de Belgique*, xxi. 1878, xii.

PATERSON, A. :— "*Callidium sanguineum*, L., in Edinburgh," *A.S.N.H.* 1903, 121.

POPPIUS, B. :— "Contributions to the Knowledge of the Coleopterous Fauna of the Shetland and Orkney Islands," *Öfversigt af Finska Vetenskaps-Societetens Förhandlingar*, xlii. (1904-5), No. 18, pp. 1-19.

RYE, E. C. —

- (1) "Notes on the British Species of *Meligethes*," *E.M.M.* viii. 267.
- (2) "Note on a second species of *Liosomus*," *E.M.M.* ix. 242.
- (3) "Notes on Anisotomidæ, with descriptions of three new species," *E.M.M.* xii. 149.

SERVICE, R. :— "The Occurrence of *Timarcha levigata* in S.-W. Scotland," *Scot. Nat.* v. 2nd S. 193.

SHARP, D. :—

- (1) "Notes on the Catalogue of British Coleoptera," *E.M.M.* viii. 82.
- (2) "Note on the British Species of *Laccobius*," *E.M.M.* xxi. 85.
- (3) "The Genus *Criocephalus*," *Trans. Ent. Soc.* 1905, 145.
- (4) "*Carida affinis*, Payk., a Beetle new to Britain," *E.M.M.* xlii. 220.

- (5) "*Omalius foraminosum*, Mäklin, in Scotland," *E.M.M.* xlv. 135.
- (6) "Note on *Omalius brevicolle*, Th.," *E.M.M.* xlv. 214.
- (7) "Some Critical Remarks on the Genus *Rabocerus*, Mulsant, with Descriptions of two new species," *E.M.M.* xlv. 245.
- (8) "A Fifth *Proteinus* in Britain," *E.M.M.* xlv. 267.
- (9) "*Galerucella nymphææ* and *sagittariæ*," *E.M.M.* xlvi. 89.
- (10) "Notes on *Corticaria*, with descriptions of two new species," *E.M.M.* xlvi. 105.
- (11) "Diagnosis of Some New Species of *Gabrius*," *E.M.M.* xlvi. 129.
- (12) "*Bledius pallipes* and its allies in Britain," *E.M.M.* xlvi. 31.
- (13) "A New Species of *Oligota*," *E.M.M.* xlviii. 124.
- (14) "Notes on the British Species of *Ophonus*," *E.M.M.* xlviii. 181.
- (15) "Some Records of Coleoptera from Northern Scotland," *Scot. Nat.* 1912, 86.

SHARP, W. F. :—

- (1) "*Silpha atrata* and its Varieties," *E.M.M.* xxix. 144.
- (2) "Coleoptera from Hoy, Orkney, collected by Mr W. L. Greening in summer 1895," *E.M.M.* xxxiii. 236.
- (3) "Some Coleoptera of Kinnoul Hill," *Trans. Perthsh. Soc.* N.S., v. 46.

THORNLEY, A. :—

- (1) "On Some Coleoptera from the Summit of Ben Nevis collected by Mr W. S. Bruce," *A.S.N.H.* 1896, 28.
- (2) "Records of Coleoptera collected in Scotland," *A.S.N.H.* 1896, 220.

TOMLIN, J. R. le B., and SHARP, W. F. :—"Notes on the British Species of *Longitarsus*, Latr.," *E.M.M.* xlvi. 241.

WALKER, J. J. :—

- (1) "Coleoptera at Stornoway, N.B.," *E.M.M.* xxxi. 182.
- (2) "Coleoptera at Campbeltown, N.B.," *E.M.M.* xxxii. 110.
- (3) "Coleoptera and Lepidoptera at Rannoch," *E.M.M.* xxxvi. 21.

WHITEHEAD, J. M. and others :—"List of Coleoptera captured in Galashiels and District," *Proc. Ber. Nat. Club*, xix. 194.

WOOD, T. :—

- (1) "Coleoptera at Rannoch," *E.M.M.* xxxix. 253.
- (2) "Coleoptera in Scotland," *E.M.M.* xl. 260.

NOTES.

Goldfinch in the Moray area.—In view of the scarcity of the Goldfinch in Moray, it may be worth while to record that on 9th October 1912 I watched a "charm" of half a dozen birds feeding off seeding sow-thistles in a garden on the outskirts of Cromarty. In Dr Harvie-Brown's *Fauna of Moray* (1895) the Goldfinch is stated to be probably extinct in the northern portion, and south of the Ness resident but extremely local. In the Dee area Geo. Sim looks upon it also as extinct.—CHAS. OLDHAM, Berkhamsted, Herts.

Migratory Blackcap in song in Shetland.—As a rule most song-birds when on passage are silent—silent inasmuch as they do not sing. I think the following experience may be of interest and worth recording. On the 12th of May I was greeted, on opening the door, with the song of a Blackcap, the first time I have heard its song in Shetland. I went down the garden and watched him for some time, and saw him again in the afternoon, when he was busily engaged feeding.—JOHN S. TULLOCH, Lerwick.

Swift in Dumfriesshire.—It may be of interest to note that I saw a Swift here on 25th April. This is very early for this locality. Last year I did not see the species here till 1st May, and in 1912 not till 5th May. —HUGH S. GLADSTONE, Thornhill, Dumfriesshire.

Scottish Heronries—*Correction of name.*—In the summary on page 115 of the May number of the *Scottish Naturalist* the name Shetland should be Pentland. This is correctly given in my MS., and also in my original list—see *Ann. Scot. Nat. Hist.*, 1908, p. 220. I know of no heronries in Shetland at present.

The name "Pentland" is Dr Harvie-Brown's designation for a portion of the area originally called Sutherland, Caithness, and West Cromarty, which was covered by the first volume (1887) of his Vertebrate Fauna series.—HUGH BOYD WATT, London.

Nesting of the Dunlin in Berwickshire.—Under this heading a note was sent to the *Scottish Naturalist* in July of 1913. Mr Hunter, Shepherd, Glenburnie, was mentioned there as having found a newly hatched chick and part of the shell of the egg of a

Dunlin. This spring evidence of their nesting in Berwickshire has gone as far as it can well go. On 18th May Lord Dunglass and I visited the Dunlin ground. Some distance from the reach of the moors where they have generally shown themselves, a bird rose quite close to us. On approaching the place we found the nest among white bent grasses, a shallow hollow in the ground lined with bents, and not in any way concealed above. There were three eggs in it which resembled miniature Curlew's—an olive green ground colour, heavily blotched towards the larger end with purplish brown markings. The bird left the nest silently, and everything pointed to the clutch being incomplete. In the course of our walk we saw several other Dunlins, some of whom seemed to be nesting.—W. McCONACHIE, Lauder.

Trout feeding on the Heather Beetle.—On examining some trout caught in Loch Awe on 21st and 22nd April last, it was found that their mouths and throats were crammed with small dark-coloured beetles. On the first of these days trout were seen rising in large numbers, but very few were induced to take any artificial fly; on the following day hardly a trout was seen to move, but the few that were taken were again found to have been feeding on these beetles. It seemed as if on the first day they were taking them largely on the surface, and, on the next day, below. The circumstances were quite novel to me, although a fisherman of many years' experience; but a boatman asserted that it had happened before, and that he had known experienced fisherman to say that it was time to go home when these beetles were present in numbers. Being doubtful as to whether the beetles were of an aquatic or of a land species, a number of them taken from a trout were sent to Mr Percy H. Grimshaw, of the Royal Scottish Museum, for identification. The result is of some interest, as they were found to be the Heather Beetle, *Lochmæa suturalis*. Mr Grimshaw's surmise is that they were washed into the hill-streams, and so down into the loch by the recent heavy rains, alive or dead. They would thus be found by the trout at first floating, and afterwards when water-logged, submerged. As they were present in such large numbers far out in the loch, it does not appear likely that they had got there by flight; nor did my informant observe any of them on the wing.—CHAS. H. ALSTON, Letterawe, Loch Awe.

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[JULY

EDITORIAL.

FROM the pages of the *The Field*¹ we learn that two portraits of Gilbert White, the famous author of *The Natural History of Selborne*, have recently been discovered. A bookseller in Winchester recently purchased in Alton, near Selborne, a copy of Pope's translation of the *Iliad*, first edition, dated 1720. The work is in six volumes, and from an inscription on the flyleaf of the first volume it appears that this particular copy was presented to the naturalist by the author himself on his taking his B.A. degree in 1743. This fact in itself is interesting, but, more important still, in vols. iii. and v. there are to be found on the flyleaves two pen-and-ink portraits, the first authentic ones known, of the Selborne naturalist himself. The earlier one, in vol. iii., is that of a young man with hair tied back with a ribbon, while the later one shows White in a wig and proctor's velvet cap. Both these are reproduced in *The Field*, and will, no doubt, be often copied in the future.

We are pleased to learn from several sources that the Grey Seal, *Halichærus grypus*, is shortly to be protected by Act of Parliament. A Bill has been introduced in the

¹ 6th June 1914, p. 1213.

House of Lords, and has recently passed the third reading there, fixing an annual close time from 1st October to 15th December, a period corresponding to the breeding season of this interesting animal. The Grey Seal differs from its congeners in the fact that its young are not able to swim until they are a fortnight or three weeks old. They are born well above high-water mark, and hence become an easy prey to destruction. Of late years the number of these animals has been seriously reduced, and Scottish naturalists must feel grateful to the promoters of this Bill, which has come just in time to save one of our most interesting native mammals from extinction.

The bird-life of the island of Eigg forms the subject of an article by J. Kirke Nash.¹ Fifty-three species are recorded, five of which are stated to be new to the island, namely—the Mistle-thrush, the Pheasant, the Common Tern, and the Red-throated and Black-throated Divers. Several Swallows were observed and found nesting, and the Great Black-backed Gull and Oystercatcher stated to breed on the island. The presence of the Common Tern and the breeding of the two species last mentioned were recorded, however, by Messrs A. H. and H. A. Macpherson in the *Zoologist* for 1888.

We cordially congratulate the editors of the *Entomologist's Monthly Magazine* upon the publication, on the 1st June, of their "Jubilee Number." The four pages of "Editorial" which form a preface to the number are interesting reading, and are embellished by a plate, giving portraits of eight past editors, all of whom were well-known specialists in various orders of insects, and five of them founders of the journal. Unfortunately all are gone from our midst, but their splendid work remains, and when it is realised that during the past fifty years no fewer than 2992 species of insects have been recorded as new to Britain in the pages of this magazine, the value of their labours will be appreciated. We cordially wish our entomological contemporary a long continuance of this splendid record.

A well-written paper by T. E. Lones, entitled "Notes

¹ *Zoologist*, June 1914, pp. 226-234.

on the Fauna of the Country of the Chess and Gade,"¹ is better worth reading than its title would imply. Two questions present themselves at the outset, the first of which asks the whereabouts of the country dealt with, and the second very naturally enquires what sections of the Animal Kingdom are concerned in the article, which, although 'to be continued,' obviously cannot deal with the whole of the fauna of this particular area, however small it be! Our geographical curiosity is soon satisfied when we read on the first page that the "country" in question is a triangular patch of land about 20 miles in length, lying on the southern side of the Chiltern Hills, in the county of Buckinghamshire. And even before this item of information is gleaned we learn that this first instalment is entirely devoted to Rotifers! It seems to us a pity that the title of this really interesting paper is not more explicit, for its own sake, since it is liable to be overlooked by just that class of naturalists to whom it would be of value. Many useful notes are given on the habits of these curious little animals, ten species of which are identified and dealt with, while eight figures are given in illustration of various points.

Students of our native Water-beetles will find Dr Sharp's recent paper, entitled "The British Species of *Gyrinus*,"² of great service. The eleven species recognised as belonging to our fauna are carefully described and contrasted, and a useful table provided for the determination of specimens. One species, *G. opacus*, Sahlb., is introduced as new to Britain, on the strength of specimens taken at Invercannich so long ago as 1866, and at Braemar in 1871 and 1909. In the same journal (pp. 145-152) the Rev. F. D. Morice publishes a further instalment of his valuable "Help-Notes towards the Determination of British *Tenthredinidae*, etc." This is the 32nd paper of the series, and is principally occupied with a synoptic table of the females of the difficult genus *Tenthredopsis*. Two other papers must be alluded to before dismissing the June number of the *Ent. Mo. Mag.* These are a paper

¹ *Zoologist*, June, pp. 201-212.

² *Ent. Mo. Mag.*, June 1914, pp. 128-138, plates ix. and x.

on the Dipterous genus *Phora*, by Dr John H. Wood (pp. 152-154), and the continuation of the Rev. James Waterston's records of Scottish Siphonaptera, to which we alluded in our May issue. In the former of these papers four species are added to the British list.

An interesting paper by H. W. Andrews,¹ entitled "Notes on some Diptera taken in the South of Ireland," records the results of several collecting trips in the counties of Waterford, Kerry, and Cork, dating from 3rd August 1906 to 26th May 1911. Over 300 species are recorded, belonging to the more conspicuous groups. In the introductory remarks the influence of the weather upon the results of collecting is commented upon, and the absence of the genus *Syrphus* and the members of the *Tabanidae* or Gadflies during showery weather alluded to. The *Anthomyidae* and *Dolichopodidae* are reported to be less susceptible than other groups.

A paper is published² by Alfred O. Walker on the "Species of Amphipoda taken by 'Runa,' July and August 1913, not in Norman's Final Shetland Dredging Report 1868." Eighteen species are recorded, some of which, in spite of the title, are not Amphipods. This paper is a useful contribution to our knowledge of the Crustaceans of Shetland waters.

Many interesting observations have been made by Professor W. A. Herdman during his summer cruise of 1913 amongst the Western Scottish Islands.³ The variation in Sea Squirts, the colour-changes in preserved specimens of one of them (*Diazona violacea*), the phosphorescence and distribution of the Alcyonarian *Funiculina quadrangularis*, are all subjects of lengthy notes founded upon examples dredged in living condition. Amongst new and interesting records of Foraminifera, Sponges, Sea Anemones, Alcyonaria, Crustacea, Polyzoa, and Echinoderms, the following are probably new to the British fauna:—the starfish *Pteraster militaris* from Raasay, hitherto found not nearer than the Farøe Channel; and the degenerate crustacean *Triangulus*

¹ *Irish Naturalist*, June 1914, pp. 136-143.

² *Ann. and Mag. Nat. Hist.*, June 1914, pp. 558-561.

³ *Journ. Linnean Soc. Zool.*, vol. xxxii., May 1914, p. 269.

munida, parasitic on a *Munida bamffica* dredged in the Minch. Other records add considerably to our knowledge of the range of distribution of well-known species.

HISTORY OF THE LOCH AN EILEIN OSPREYS.¹

By C. G. CASH, F.R.S.G.S.

IN July 1903 I had articles in the *Annals of Scottish Natural History* and in the *Cairngorm Club Journal*, giving an account of my observations of the Loch an Eilein Ospreys from 1894 to 1903. I little thought then that I was perhaps writing the requiem of these noble birds, but it is the regrettable fact that Ospreys have not revisited Loch an Eilein since that time, and some of our best ornithologists are beginning to fear that the bird may be lost to our fauna. There was a vague rumour, which I have not been able to trace to any definite source, that Ospreys were somewhere in the neighbourhood of the Cairngorms in 1906, and that their nest was robbed; but enquiries made then and since have quite failed to bring me any confirmation of the story.

The early history of the Loch an Eilein Ospreys is mainly contained in Harvie-Brown's *Vertebrate Fauna of the Moray Basin*, 1895, but there are also occasional references to the birds in other published writings. Unfortunately, not a little of the information supplied to Harvie-Brown suffers from vagueness, inaccuracy, and confusion, and so his story is not as satisfactory as could be wished. I propose to attempt here a chronological analysis of what is known as to the

¹ This is a reprint, with slight additions, of an Article by the Author which appeared in the *Cairngorm Journal* for July 1907. It seems desirable to give it a wider circulation in view of correspondence which has recently taken place in the *Zoologist* and elsewhere as to the causes which have led to the disappearance of the Osprey from its breeding haunts in Scotland.—EDS.

history of the Loch an Eilein Ospreys, with occasional references to their neighbours in Glenmore, drawing my information from Harvie-Brown's book, from my own observation, and from other available sources.

It may be noted as somewhat curious that Lachlan Shaw's *History of the Province of Moray*, 1775, has no mention of the Osprey, though it contains a special chapter on the Fauna. Also, in Sir John Sinclair's (old) *Statistical Account of Scotland*, 1791-9, there is no mention of Ospreys, though other birds are named. Much of Harvie-Brown's information was obtained from Lewis Dunbar, who several times took Ospreys' eggs at Loch an Eilein and at Glenmore. Dunbar gave his information partly by word of mouth to Harvie-Brown at Loch an Eilein in 1892, and partly in two manuscript reports written in 1886 and in 1892; his statements, however, are not uniformly consistent among themselves, nor do they always agree with written contemporary records elsewhere; it was, indeed, scarcely to be expected that he would have precise and accurate recollection of all his nest riflings.

1804. The earliest record that I know of is in Colonel Thornton's *Sporting Tour*; he heard of Ospreys at "Loch Morlaix," in Glenmore, but apparently did not hear of them at Loch an Eilein.

1803. Mrs Smith (Elizabeth Grant), in *Memoirs of a Highland Lady*, 1898, writes: "A low square tower at the end of the ruin supported an eagle's nest. Often the birds rose as we were watching their eyrie, and wheeled skimming over the loch in search of the food required by the young eaglets, who could be seen peeping over the pile of sticks that formed their home."

1824. John MacCulloch, the geologist, writing of the Castle of Loch an Eilein, says, "The eagle has built his eyrie on its walls."

1842-8. Ospreys built on the ruined lodge at Loch Morlich, seemingly the lodge on the south side of the Allt Mor; its ruins, or those of its successor, were cleared away in 1906.

1843. In this year Roualeyn Gordon-Cumming went to

South Africa. Before this time—years uncertain, probably not long before—he had taken Ospreys' eggs at Loch an Eilein.

In this year R. Carruthers, in his *Highland Note Book*, says of the Osprey and the castle, "She has long been a denizen of the ruined tower, and still remains."

1844. Thos. Macpherson Grant wrote to Dr Gordon reporting Ospreys at Loch an Eilein, and at other lochs in Badenoch, specially mentioning Loch Insh, and also saying that there were several pairs in Abernethy Forest.

1845. *The New Statistical Account* says, "The Osprey builds her nest and nurtures her young on the top of one of the turrets of Loch an Eilein Castle, and supplies herself with food from the neighbouring lakes and streams."

1846. Lewis Dunbar said that in this year he first took eggs from the Loch an Eilein nest. It seems, however, that this really occurred in 1848, as Dunbar's reported dates are all two years wrong.

1846-7. There are no records for these two seasons.

1848-52. For these years some of the information is chronologically uncertain, and the different statements irreconcilable. One year the Ospreys deserted Loch an Eilein because of timber-floating, went to Loch Morlich, and built there, and had their nest robbed by Dunbar. But Harvie-Brown also says that the birds went to Loch Gamhna, and built on a tree by its south-east shore, a tree that was blown down about 1879. In another of these years, or more probably in each of two or three other years, perhaps 1849, 1850, 1851, both the Loch an Eilein and the Loch Morlich nests were occupied, and Dunbar took the first clutch from each nest. At this period it is said that there were no Jackdaws at the castle, though many occupied the neighbouring cliffs. It is quite doubtful whether the Loch an Eilein Ospreys and the Loch Morlich Ospreys were ever the same pair.

1848. Dunbar's first harrying of the Loch an Eilein nest really took place in this year. He swam across to the castle, and carried off the eggs in his bonnet. The woman living at the neighbouring cottage saw him come from the water, and fled. The eggs were sent to Charles St John.

The same year Dunbar made his first harrying of the nest on the ruined lodge at Loch Morlich. In this year died the first Sir John Peter Grant of Rothiemurchus.

1849. In May of this year Dunbar took three eggs from a nest in an old fir-tree at Loch Morlich. According to a statement to Harvie-Brown by the custodian of the Natural History Museum at Newcastle, there were also two young birds just hatched in the same nest. It seems unlikely that five eggs would be in the one clutch, but Harvie-Brown, while reporting these two statements in different parts of his book, makes no remark as to the improbability, apparently not recognising that the two statements refer to the same year. The eggs were sent to St John, in Sutherland, and he sent one to Hancock of Newcastle, from whom it passed to the Newcastle Museum. Dunbar says that the Ospreys moved their young to the nest on the ruined lodge, though he does not definitely say that he is referring to this same year. He climbed up to the nest, though he does not say why, and then the birds removed their young to some place unknown.

In the same month Dunbar made his second harrying of the Loch an Eilein nest, getting three eggs, and sending them to Hancock. He also visited an old breeding site, apparently near Loch Gamhna, in a tree that Harvie-Brown says has since been cut down.

1850. Dunbar with Mr Hancock and Dunbar's brother or cousin visited old breeding sites near the Nethy, and then went on to the Loch Morlich Lodge. Here they shot the female bird, and took two eggs from the nest, and apparently carried off the nest also. On dissection, the bird was found to contain another egg, Dunbar says "beautifully marked," but Hancock says "not shelled."

In this year also Dunbar made his third harrying of the Loch an Eilein nest, getting three eggs, which were sent to Hancock.

1851. Dunbar made his fourth harrying of the Loch an Eilein nest, getting two eggs, which were given to Mr Wolley, who apparently was staying in the neighbourhood, but declined to accompany Dunbar in his visit to the

loch. Wolley says in his "*Ootheca Wolleyana*" that he refused, "considering my position there . . . the more so as I suspected the proprietress protected the birds, and I have been since assured that there was a man appointed on purpose to take care of them." Dunbar's visit on this occasion was at 3 A.M., and in a snowstorm.

There is some confusion in the records of the Loch Morlich nesting and harrying of this year. Wolley certainly had one egg from Loch Morlich, got by a shepherd, and sent to Wolley apparently by Dunbar's brother or cousin, but Harvie-Brown's accounts leave it doubtful whether, besides this, Dunbar also sent to Wolley eggs, or even two clutches of eggs from Loch Morlich.

In this year a new lodge was built at Loch Morlich against the old one.

1852. Dunbar made his fifth and last harrying of the Loch an Eilein nest, getting three eggs, and sending them to Wolley. He went to the nest at night; Wolley writes, "At 11.35 P.M., very dark, and no moon. Had cramp in return, and was hauled out by his cousin," who had accompanied him. Dunbar wrote to Wolley, "The cock bird flew away before I reached the island; and after I climbed up to the top of the ruin, and was just at the nest, I put out my hand to catch the hen, but when she felt me she gave a loud scream, and flew away also."

Gordon-Cumming also robbed the nest this same year, and this severe treatment probably deterred the Ospreys from returning the next year.

Wolley also received a single egg this year from Dunbar's brother William, but there is no record of where it was obtained.

1853-62. There is no record for these years.

1863. Peter Anderson, the joint-author of the classic *Guide to the Highlands*, in his "Memoranda of an Excursion to the Grampians and Strathspey in July 1863," published in the *Cairngorm Club Journal* in July 1903, writes thus of Loch an Eilein Castle: "The little islet, with the most picturesque tree-filled shell of its old castle, the walls tenanted by a couple of small eagles, which to a day every year—1st to 3rd April—return to hatch their brood in their

insular cyrie. I accordingly saw a fledgling keep a dignified state on the ruined wall."

1864-71. There is no record for these years.

1872. Lord Stamford, then the sporting tenant of Rothiemurchus, shot one of the birds, but, according to Harvie-Brown, without knowing what bird he was shooting; the bird rose suddenly from the hollow of a mountain stream among trees, and was shot at sight without recognition; the sportsman regretted the result of his hasty shot.

1873-8. There is no record for these years.

1879. In *The Scotsman* of 9th June 1879 there appeared an article, unsigned, but quite obviously written by Mr Jolly, H.M. Inspector of Schools, giving an account of a visit to Loch an Eilein, where the Ospreys had that season hatched two young, one of which, however, was later found dead on the shore. On 12th June, in the same paper, appeared a letter to the editor, protesting against the publication of information as to the breeding place of the Ospreys, lest mischief should ensue. In *Good Words* for April 1880, Mr Jolly gave, under his own name, an extended account of the visit previously reported in *The Scotsman*. It may fairly be said that Mr Jolly's article first made the Loch an Eilein Ospreys known to the general public, but it is a moot point whether the Ospreys have or have not benefited by the publicity.

1880. In August 1880 Mr Jolly again saw the Ospreys at Loch an Eilein, where they had reared two young. Of this second visit Mr Jolly gave an account in *Good Words* for May 1881 (Harvie-Brown by some curious error says September 1880), with an excellent drawing by Mrs Blackburn, showing the "fore and aft" manner in which the bird carries a fish.

1881. The Ospreys were at Loch an Eilein, but I do not know whether they reared any young.

1882-4. There is no record for these seasons, but in 1892 Mr Charles Grant, younger son of the second Sir John Peter Grant, in a letter to Harvie-Brown, said in somewhat vague terms that about this time the Loch an Eilein nest was deserted for some few years.

1885 or 1886. There is reason to believe that in one of these years the birds nested near the north-west corner of Loch Gamhna, but did not breed. Harvie-Brown and Norrie photographed the remains of this nest in 1893.

The Rev. Dr Forsyth, the minister of Abernethy, who died in 1907, and who had great knowledge of and interest in the district, in 1885 wrote to Harvie-Brown that until just before the time of writing Ospreys had bred in the Abernethy forests, and that even then he doubted whether the Loch an Eilein birds were the only ones in the district.

1887. The Ospreys bred at Loch an Eilein, and the eggs were taken. Harvie-Brown seems to suggest that the birds then went to Loch Gamhna, and that their eggs were taken there also.

1888. The story of this year is specially interesting, and was reported, but not quite accurately, to Harvie-Brown by Mr Chas. Grant in 1892, in the letter already mentioned. Two female birds came on 7th April, and fought till one was killed. The dead bird was picked up, according to Mr Grant, by William Grant, a local tailor, and is now preserved as a mounted specimen in The Doune. The same day a male bird arrived, and the next day another male. The progress and end of the combat between the two males seems unknown, but the surviving pair after a few days deserted Loch an Eilein, and bred at Loch Gamhna, rearing three young. One little point may be corrected in this account: the man that got the body of the slain hen-bird was Peter Grant, mason, son of old Mrs Grant, then and for some years later resident at the Tea Cottage. This information I had from those who saw him carrying the bird to the Doune.

1889. The Ospreys were seen at Loch an Eilein and at Loch Insh; they nested at Loch Gamhna, and the eggs were taken. In August a pair were daily seen by W. Evans up to the 20th, fishing at Loch Insh, and he was told they had a nest in a tree near Kinrara dam.

In August of this year an Osprey was shot at Lower Cabrach, on the Deveron.

1890. According to Mr Chas. Grant, the Ospreys bred in Rothiemurchus, but not at Loch an Eilein. According to

a statement in the *Elgin Courant* of 24th May 1892, three birds came, and one was killed in fight. I do not know what authority there is for this.

This year an Osprey was shot at Meyen, on Lower Deveron.

1891. The birds were not at Loch an Eilein; they bred, presumably at Loch Gamhna, and the eggs were taken.

1892. The birds came to Loch an Eilein, but were "disturbed," and left again. Harvie-Brown's statements about this year are not clear. Apparently he says both that the birds bred at Loch Gamhna, and also that he was told there that the birds had not used the Loch Gamhna nest for ten years. The same year also he was told by the keeper that the Loch an Eilein nest was blown down, and yet the same day he and Dunbar saw "plenty of nest," and an Osprey flying there. The same month he saw evidence of the shooting of an Osprey in that neighbourhood; his text does not say where, but his illustration places it in the Richmond and Gordon property. He saw also another nest in the middle of the Rothiemurchus forest.

1893. The Osprey returned to Loch an Eilein at what Harvie-Brown calls "their usual time, *i.e.*, between the 15th and 16th of April." Hinxman, however, writing to Harvie-Brown, says, "their first appearance in spring is very regular—between 4th and 6th April." According to Hinxman, only one bird came in 1893, and it stayed but a short time.¹

In April 1893 the Zoological Society of London awarded silver medals to Donald Cameron of Lochiel, and John Peter Grant of Rothiemurchus, "in recognition of the efforts made to protect the Osprey in their respective districts." The John Peter Grant here referred to was the son of the second Sir John Peter Grant, who had died in the preceding January. The medals were to be presented on 22nd June, but the laird died on 11th June, and the present laird, also John Peter, succeeded in the estate, and received the medal.

1894. In August of this year my original set of notes began. The birds had been seen in the spring, and reported

¹ W. Evans, who spent May and half of June at Aviemore, only once saw an Osprey during that time.

to Harvie-Brown by Hinxman, William Douglas, and Colin Phillip. Two young ones were hatched at the castle nest.

1895. This year the Ospreys hatched at the castle nest in June. They were photographed by O. A. J. Lee. Apparently there were again two young birds.

1896. The Ospreys hatched at the castle nest. W. Evans says they were first seen on 8th April, and the female was "sitting" on the 26th. There were two young birds.

1897. The two birds arrived on 29th March, and hatched at the castle nest; probably there were two young birds.

1898. The two birds arrived at the castle nest on 29th March, but apparently they had no young there this year! Four Ospreys were seen flying together near Glen Feshie, but their place of breeding seemed unknown.

1899—the year of the Rothiemurchus forest fire. Two birds arrived on 3rd April and nested. A third bird arrived, and there was much fighting, in the course of which the nest was damaged and the eggs were smashed. It is not known whether the birds nested elsewhere. In May of this year an Osprey was shot at Knockespock.

1900. Two Ospreys came to Rothiemurchus, and one of them visited the castle nest several times. They did not breed there, nor, so far as is known, anywhere else in the district. They nested elsewhere, as I have told at some length in my previous article.

1901. Apparently only one bird came to the castle nest, arriving on 1st April, but seemed to be mateless. It was seen fighting with a golden eagle.

1902. A single Osprey came to the castle nest on 4th April, and apparently remained mateless.

Since 1902 no Osprey has, so far as I know, been seen at Rothiemurchus, though there was a vague rumour that one was seen in the neighbourhood in 1906.

This finishes my story—a story of such ruthless persecution and of such altogether inadequate protection that the wonder is that the Ospreys survived so long. It will be a matter for serious regret if we permanently lose these birds, but lose them we shall—even if we have not already lost them—unless this persecution is prevented, and the birds,

should they return, are given a fair chance to continue the course of life that adds such a charm to that most beautiful of Highland beauty-spots—Loch an Eilein.

THE FAUNA OF A COAL-PIT AT GREAT DEPTHS.

By JAMES RITCHIE, M.A., D.Sc., The Royal Scottish Museum.

To one unacquainted with the extraordinary adaptive powers of most animals, it must seem a strange thing that in the peculiar conditions of a coal-pit a regular fauna should exist. Yet the thirteen different species of animals mentioned below, all discovered at a great distance from the surface, probably represent only a fraction of the denizens of the pit, and the majority of these appear to be well established, living and breeding in the workings in considerable numbers. Obviously the fauna is an introduced one, for a coal-pit is a very recent earth cavern, and could scarcely have become stocked with a fauna evolved through a long period to suit its peculiar conditions. Nevertheless it bears some relationship to a true cave fauna, the original members of which also at one period migrated, by chance, force, or preference, from the outer air, and under peculiar conditions either succumbed or adapted themselves to a new environment. The coal-pit fauna typifies early stages in the formation of a cave fauna. It is indeed an incipient cave fauna, in which we see three distinct processes: the introduction of a miscellaneous set of animals; the weeding out of such as are quite unsuited or inadaptable to the underground life; and the establishment and spread of more adaptable forms. In this lies the chief interest of the inhabitants of the coal-pit—that they illustrate the first effects of a peculiarly stringent process of selection.

DESCRIPTION OF PIT AND CONDITIONS OF LIFE.—All the animals were collected in a limited area in one of the pits in the Midlothian coalfield at Niddrie. The actual collecting ground was in an incline opening off the horse-road of No. 13 pit, roughly a quarter of a mile from the shaft. The shaft is perpendicular, and to this point 750 feet deep. The incline also connects with the oblique shaft of No. 12 pit, but by a complicated series of passages at different levels. It penetrates the Peacock seam of coal, and is a comparatively recent working, having been opened up about 1909. There is no ventilating shaft to the surface in its neighbourhood, such as might have afforded access to some of the animals.

The general conditions of life may be shortly summed up. The working is a moderately narrow excavation, with walls and roof partly mudstone, partly coal. These are supported by close-set props of pine, and the floor is strewn with coal fragments and dust, or dross. Absolute darkness reigns, and the greater part of the place is damp through a constant drip of water, which specially forms a moist surface on the rock "pavement" left after the removal of the coal seam. Yet, owing to a system of ventilation, the air is not stagnant, as in a damp cellar, but blows in a fair and fresh current through the workings.

ANIMAL INHABITANTS—*General Remarks.*—In such conditions the animals live, but even where there is so great uniformity they show preferences of habitat. The Mycetozoan naturally was confined to the pit props, the "Clocker" beetle (*Quectus mcsomelinus*), of which several were seen, was found only on the floor of the working or on the coal seam, the flies and the beetle *Thanasimus formicarius* were captured during flight; but the slugs, the earthworms, the spiders, and the collembola appeared to be ubiquitous, occurring on the moist "pavement" of rock, on the coal face, occasionally on the floor of the road amongst the dross, and on the pit props.

Food.—The food of the pit inhabitants probably resembles very closely the fare of their kind above ground. The presence of numbers of slugs, the first animals retrieved from the depths, and the fact that they were found far from the

horse-road, with its fodder and vegetable débris, suggested that fungi—the most common food of *Limax maximus*—might be actually growing in the mine. And as the result of a first investigation our enthusiastic collector brought back samples of fungus which he found growing primarily on the pit props and spreading thence over the rock surfaces of the excavation. The fungus, known to the miners as “damp,” was kindly examined by Professor J. W. H. Trail, of Aberdeen University, who writes regarding it: “The fungus is certainly a *Polyporus*. It is probably not quite normal in its development, but I think it may be referred to *P. destructor*, Fr., modified by its conditions of growth as regards form and complete absence of colour.” This is a common species, which normally grows on stumps of trees and on the wood of Scotch fir, larch, and willow. A species of slime-fungus, *Stremmitis fusca*, discussed below, was also found on the pit props. These growths no doubt supply the food material of the slugs. As for the others, the intestines of the earthworms and of the collembolan were filled with coal dust, from which presumably they extracted the organic matter derived from the decay or breaking down of the fir logs. The spiders gave evidence of faring sumptuously upon the flies which frequented the workings, for their webs contained many wings and remains of bodies.

Lack of special modifications.—All the animals were carefully examined in the hope that they might show evidence of their peculiar habitat in modification of structure or of colour. But none such were discovered. The colours of all were as varied and as deep in tint as in specimens from the open air, and in none were there any traces of reduction in the size of the eyes.

Introduction and establishment.—Consideration of the ordinary habits of the pit animals shows that the majority, in at least one stage of their existence, are, or may be, dwellers amongst wood, in damp, decaying portions, under the bark, and so on. It is evident, therefore, that the greater number have entered the pit along with the props which support the roof and walls of the working. In the case under investigation, these props were of Norwegian fir from which

the bark had not been stripped. The incline wherein our specimens were found was driven in 1909, and many trees introduced at that time still exist there; but, owing to decay and crushing, new trees have to be erected every few weeks, so that it is impossible to fix the date of the introduction of the animals. It is possible also that the constant current of air driven through the passages may bear with it from the outside such light-bodied creatures as the flies found underground.

However they may have been introduced, the majority of the species seem to have become naturalised in their new habitation. For not only was there abundance of individuals of flies, collembola, spiders, earthworms, and slugs, but young individuals at different stages of growth were common as regards the slugs, earthworms, and spiders. Small whitish cocoons, apparently belonging to the last named, were also found, as well as a larva, probably of the Staphylinid beetle. These facts taken together seem to point to the permanency of the animal occupation; at any rate to the definite establishment of the slugs, earthworms, spiders, and "clocker" beetles.

As regards the distributional interest of the animals found, all, with the exception of the spider, are common in the Forth Area, though none have been recorded, so far as I know, as living in cavern conditions, apart from the earthworm *Eiseniella tetraedra* and the collembolan, both of which have been discovered in Mitchelstown Cave, in Ireland, the latter also in similar situations elsewhere. The spider *Lessertia dentichelis* is an addition to the known fauna of Scotland.

Before passing to a consideration of the animals found, it remains to add my grateful thanks to many willing helpers:— To Mr John M'Dermott, who collected the material with great perseverance and enthusiasm during his leisure moments in the pit; to Mr Percy H. Grimshaw, F.E.S., F.R.S.E., who identified and supplied the notes regarding the flies and beetles; to Dr Randall Jackson for identifying the spider; and to Mr F. M. Calder for information regarding the pit.

(To be continued)

BOOK NOTICE.

FIELD-STUDIES OF SOME RARER BRITISH BIRDS. By John Walpole Bond. Witherby & Co., London, 1914. 7s. 6d. net.

Books relating to natural history written from intimate personal knowledge and wide experience are *rare aves* nowadays. Such an one is the book under notice, and on these grounds alone Mr Walpole Bond's studies should be welcome as a relief from the rush of works—on birds in particular—which appear in a never-ending stream, most of them containing no information of value, and often displaying lamentable ignorance. The book we are dealing with, however, is one which will be read with pleasure and profit by those who are interested in the life of the eighteen uncommon native birds of which it treats. It is based upon considerable experience, and affords in pleasant fashion much useful information. Scottish naturalists should welcome the excellent first-hand accounts of such birds as the Dartford Warbler, Girl Bunting, Wood-lark, Kite, and Hobby—species which are not to be observed in their native haunts in Northern Britain.

NOTES.

Badger in Dumfriesshire.—It is perhaps worth recording that a Badger was captured on Townfoot Moor (Closeburn) on 25th May last.—HUGH S. GLADSTONE, Thornhill, Dumfriesshire.

Increase in Cliff-breeding Birds on the Isle of May.—During our spring visit to the Isle of May this year we noticed a distinct increase in the number of birds breeding on the cliffs there. The most notable increase is in the case of the Herring-gull. In 1911 we could only find one nest, and only saw one pair of adults, the same being the case in 1912. In 1913 more birds were about, and this year we know of ten nests with eggs, and we are pretty certain there are two or three more, as we saw the birds coming out over and over again from the same spot, but could not see down to it, owing to the overhanging rocks. Kittiwakes too are forming a new colony on a part of the cliffs where they have not bred for the last twenty-four years at least. Puffins are decidedly more plentiful, and we are inclined to think that there is an increase of Razorbills and

Guillemots, but it is more difficult to be certain on this point. Information as to decided increases or decreases in the colonies of cliff-breeding birds round our coasts would be very welcome. This might be sent in the form of short notes for the *Scottish Naturalist*, or direct to ourselves for incorporation in the next Report.—LEONORA JEFFREY RINTOUL and EVELYN V. BAXTER, Largo.

The Nesting Season of 1914.—As one would expect, the open winter and the spell of summer-like weather we had in April seem to have stimulated many of our birds to nest somewhat earlier than usual. Such at any rate is the impression I have gained from what has come under my notice in this district. Apart from Rooks, Owls, and Herons, several of our resident birds—Blackbird, Mistle-thrush, Song-thrush, Dipper, Robin, etc.—had begun laying by the end of March. On 15th March I watched a Starling carrying material with which to make its nest; while another Starling's nest contained eggs early in April, as did also a Hedge-sparrow's. By the middle of the month Larks were laying. A Greenfinch had eggs (two) on 17th April, and within the next three or four days, Linnet, Yellow-hammer, and Chaffinch had followed suit. On 11th May, Misses Rintoul and Baxter showed me a Rock-pipit's nest, containing recently hatched young, on the May Island, which they had discovered the previous day. Summer migrants, which on the whole were with us rather earlier than usual, had begun building by the middle of May. For the three following records (and others) from East Lothian, I am indebted to Mr James Curr, who kindly took me to see the nests, namely, a Willow-warbler's with one egg on 17th May, a Garden-warbler's and a Whitethroat's, each with one egg, on the 18th, and a Wood-warbler's with six eggs, three or four days incubated, on the 24th. In the last-mentioned case the first egg must have been laid on or about the 15th, by which date Sand-martins were commencing to incubate. A pair of Great Spotted Woodpeckers had young in an East Lothian wood by 26th May.

Golden Plover were laying by the 20th of April, on which date I found a sucked egg on Blawhorn Moss, an exposed and bleak locality in the west of Linlithgowshire. I mention this, not as a specially early date—I have several similar ones for former years—but in view, rather, of the statements one finds in certain standard works to the effect that in this country the Golden Plover does not begin to lay till some time in May. On 30th May I watched a pair of Dunlins on the moor north of Fauldhouse, which by their behaviour I felt sure had young, the inference from this being that

laying must have begun about the 6th or 7th. At Beil, near Dunbar, a Partridge's nest with several eggs was found on 3rd May. Sea-birds, too, began laying early. On 8th May I disturbed an Eider-duck from her nest of five eggs at the Isle of May; there was some down, and incubation had commenced. On the 9th I examined a portion of the cliffs, putting one Guillemot and five Razorbills off their eggs; next day I saw another Guillemot's egg and other three Razorbills'. One of the lighthouse staff informed me that he saw a Guillemot's egg on the 7th. At the Bass Rock, according to the lighthouse-keeper there, Razorbills and Puffins had eggs in evidence by the 11th of May, but the Guillemots had not then started laying. On the 19th, however, I was assured by North Berwick fishermen that they took three Guillemots' eggs from the rock on the 8th. Mr Harold Raeburn tells me that on the 17th he saw hundreds of Guillemots' eggs at St Abb's Head. I was on the Isle of May again on the 19th, and found that one or two Kittiwakes had begun laying. Also there were half a dozen Herring-gulls' nests with eggs, but this is a late rather than an early date for them.

In putting forward the above records as indicative of an early nesting season, I am relying on a comparison with the local data I have accumulated in the course of past years. In the case of the Guillemot, the Razorbill, and the Kittiwake, 1914 has furnished my earliest dates, the next earliest for the first two species being the 12th of May (1912), and for the last the 23rd of May (1905).—WILLIAM EVANS, Edinburgh.

Willow-tit nesting in Renfrewshire.—On 13th April, while searching in a wood for the nest of the Tawny Owl, my friend Mr Malloch and I came upon a pair of Willow-tits (*Parus atricapillus kleinschmidti*). Our attention was drawn to them by their quaint alarm note, "chey chey." Being in the wood again on 6th June we were fortunate enough to find the nest with young almost fully fledged. It was placed in a rotten stump about eight feet from the ground, and was lined with wool. The hole had evidently been excavated by the birds themselves. We watched the parent birds for about half an hour. The black on the head was a dull sooty black. I think this is the first nest that has actually been seen with eggs or young in the county. There is a record of adults feeding young that had left the nest.—T. THORNTON MACKETH, Kilmacolin.

Little Gull in Forth in June.—On 10th June I had several excellent views of a Little Gull (*Larus minutus*) in Largo Bay. It

was very tame, and I was repeatedly able to get within a few yards of it as it stood on the sand. It was not in adult dress, but corresponded with the description of a bird of the second year in Dresser's *Birds of Europe*, except that the tinge of pink was very faint; the tail was slightly forked. The flight was peculiar and very easy, and it consorted frequently with some Common Terns. Meves states (*Dresser's Birds of Europe*, vol. viii., p. 379) that he saw birds of the previous year frequenting the breeding grounds that he visited in Russia; he did not believe them to be nesting, but held that they had come to join the breeding-birds for the sake of company. The nearest breeding-place of the Little Gull is in Jutland, and probably the strong north-east wind that had been blowing brought this immature bird across the North Sea from the Danish shores.—EVELYN V. BAXTER, Largo.

Fulmars at Butt of Lewis.—For the first time on record, Fulmar Petrels were seen at the Kittiwake's breeding cliffs at Butt of Lewis on 24th April, and a few still remain, evidently intending to breed. Though the cliffs are only about 100 feet in height, the great distribution of Fulmars during the last few years has made their arrival here not unlikely, and expected sooner or later. Now—16th May—three pairs have chosen a position above a small colony of Kittiwakes, and the place where the pair of Guillemots bred last year, and on either side of them is one Herring Gull's nest. The Fulmars are not so easily frightened from their perch as are the other more familiar breeders near. There are three separate colonies of Kittiwakes in proximity, and about the time of the arrival of the Fulmars they all left their breeding rocks, of which they had several weeks taken possession, and did not return till 8th May. They never did so in previous years, whether the coming of the Fulmars was the cause or not. Probably their haunts were invaded for a few days by great numbers of Fulmars, though only the few have remained. The position is about half a mile S.W. from the lighthouse, but the Fulmars are never seen beside the station, where the rocks are lower, so they must keep closely by the place they have chosen.

The Kittiwakes and Tysties (Black Guillemots) here are not yet nesting, but a few of the other Gulls and Shags are now incubating. The pair of Common Guillemots which bred last season have not returned.—R. CLYNE, Butt of Lewis.

Great Warty, Smooth, and Palmated Newts near Forres.—While examining the aquatic life of a pond near here,

I recognised in the water a female specimen of the Great Warty Newt, and several specimens of the Smooth Newt—both male and female. By means of a small hand-net we caught these, and have them still in a small aquarium. From the same pond I obtained the following week a male Warty Newt, and specimens of the Palmated species. I knew the latter species was the Common Newt in “heath” country, and as I had formerly found the other two species I mentioned the find to Mr William Taylor, Lhanbryde. He said that so far as he knew no record had been made of these for the county of Elgin, and probably not even for the province of Moray. He was hopeful of finding at least one of the above species near Forres, as after he had described the size of the Newt usually found here to the gardener at Darnaway Castle, the gardener said he had seen larger ones, but had not kept any of them. So far as I have read, I have seen no reference to the fact that when handled Smooth Newts emit a slight cry, which I should find difficult to describe, as it is neither a grunt nor a squeal, and could scarcely be called a croak, though quite distinct. They occasionally lay their eggs in strings of four to six as well as singly, and the former are not wrapped in leaves of water-weeds. I may add that, so far as I have observed, the Warty Newts make no sound whatever, and I am not surprised, as they are much more sluggish than their smaller relatives. I found the Smooth Newt before getting one of the Palmate species from the same pond, but I had no doubt as to the identity of the former when I saw it. The tapering tail, the serrated crest, the greater length ($3\frac{1}{2}$ inches), and the hind toes lobed, not webbed, marked it off clearly from the latter, and these were emphasised when I had the males of both species side by side.—ALEX. MACGREGOR, Forres.

[The distribution of Newts in Scotland has not received much attention, and our information bearing upon the subject is of a very imperfect nature. The Editors hope that the publication of Mr MacGregor’s useful note will induce others to make communications of a similar nature, and they will be pleased to receive specimens for identification.—EDS.]

Greater Fork-beard in Clyde.—A very fine male specimen of the Greater Fork-beard (*Phycis blennioides*) was landed at Maidens on 30th March last. It was caught on the lines to the north of Arran. It was 28 inches in length, and weighed nearly 12 lbs. It is perhaps a record for size. Mr Gray, who identified the fish, says there is only one other recorded for the Clyde, and that a very small one.—GIB. GRAHAM, Girvan.

***Clausilia plicata*, Drap., in Sutherland.**—In looking through the Conchological Society's collection recently I came across a glass tube containing two unidentified examples of *Clausilia*, labelled "*Clausilia*, Dornoch, E. Sutherland." I was at once struck with the remarkable aperture of the specimens, and on comparing them with *Clausilia plicata* from Gottland, Sweden, and other localities, I found them to be that well-distributed European species.

The specimens are part of a collection of Sutherland shells presented to the Society by W. Baillie, of Brora (See *Journ. of Conch.*, vi., 272; vii., 168, 170, and 173).

It is well known that Baillie was in the habit of colonising various southern species, especially in the lower part of basin of the river Brora, and in the *Journal of Conchology* (iv., 160; v., 192; vi., 15) he gives the names of the forms experimented with. Amongst these, however, the only extra-British species is *Clausilia parvula*, from Normandy. The fact of *Cl. plicata* not being given in the lists has led me to write this note, in the hope of soliciting further information from Scottish conchologists.

Though the occurrence of this species in the extreme north of Scotland looks like introduction, it is not unreasonable to assume the possibility of it actually being indigenous in that region. This problem, therefore, needs close investigation, for, as pointed out by J. W. Taylor and others, there is the possibility of finding in the Scottish Highlands other continental species, such as *Acanthinula harpa* and *Pyramidula ruderata*, which so far have not been observed living in these islands, though the latter is a well-known British Pleistocene species. Both this species and *A. harpa* occur to-day in Scandinavia, and when one remembers that Scotland, and what are now its outlying islands, remained united with Scandinavia down to post-glacial times, it does not seem impossible for the above and other species to have spread from Scandinavia and left relics of their existence in Scotland.—J. WILFRID JACKSON, Manchester Museum.

***Helicella gigaxii* in Haddingtonshire.**—In a list of the mollusca of North Berwick (*Journ. of Conch.*, vi., 1889, pp. 1-5) the late Rev. J. M'Murtrie records the occurrence of *Helix caperata*, and its var. *major*. The specimens on which this list was based were presented by the author to the Conchological Society, and on inspecting the collection recently I was interested to find that the supposed *H. caperata* and var. *major* were undoubtedly the *H.*

gigavii (Charp. MS.) Pfr. (= *heripensis*, Mab.). The North Berwick specimens are quite characteristic of this species, and the largest compare favourably with the Lewes examples. The largest example measures, alt. 8.5; diam. 13.3 mm.

H. gigavii, regarded by the older collectors as a variety of *H. caperata*, has only recently been raised to specific rank, and, so far as the present records are concerned, it appears to be a species of peculiarly south-eastern distribution in the British Isles, though recorded for counties as far north as Lancashire and Yorkshire.

Its occurrence, therefore, in Southern Scotland is highly interesting, and should prove an incentive towards further search in neighbouring localities.—J. WILFRID JACKSON, Manchester Museum.

Humble Bees in a House in Perthshire.—I am not aware that it is usual for Humble Bees to select the inside of an occupied house as a residence. We have no less than two establishments here at present. One lot have selected a cupboard (under a staircase) opening off our pantry, and about equidistant (8 feet either way) between the front door and a window, both of which they use. They come in with a great to-do, land on the floor, trot under the cupboard door, and disappear. In the bathroom (once a bedroom) the same performance is going on in the neighbourhood of the fireplace. The house is very old, and set down close to the ground, so I presume the insects have a burrow in the earth beneath, or rather two burrows, for the entrances are about 15 feet apart. We have to keep doors and windows open all day to oblige the bees, which are of the very largest type, for, if they encounter any obstacle or go astray, they become extremely testy. I like bees, but not inside my burberry, or in a towel, or running about among the clothes! Besides, we waste much time in putting them on their way again. The situation seems unusual.—MARY M. WILSON, Strathtay.

Since writing the above there has been a very destructive frost in the district, no bees have been visible for three or four days, and I fear they have either died or been stupefied. The last one to arrive was in a lethargic condition, indeed it seemed half dead.—M. M. W.

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[AUGUST

EDITORIAL.

MANY books and papers of interest have come under our notice since our last issue. Among them we may first call attention to a handsome volume recently issued from the offices of *Country Life*, under the title of *British Deer Heads*. The work, which should be of much interest to Scottish naturalists and sportsmen, consists essentially of 225 well-executed process-blocks illustrating the heads of Red Deer, Fallow Deer, and Roe Deer from all parts of the British Islands, together with half a dozen Red Deer from South Island, New Zealand. Five of the last mentioned are the descendants of two stags and five hinds introduced into Otago in 1870, while the sixth originates from a herd established in South Canterbury in 1897. The Scottish examples of Red Deer, 145 in number, show an interesting variety in the form of the antlers; and since in each case full particulars are given, including the locality, date, number of points, weight, and measurements of length, beam, and inside span, much can be learned from a careful study of this fine series of pictures. From the title-page we learn that the volume forms an illustrated record of an exhibition organised by the publishers in June and July of last year.

The British Long-tailed Field Mice form the subject of an elaborate paper by Martin A. C. Hinton,¹ entitled "Notes on British Forms of *Apodemus*." The paper is based mainly upon material collected in the Hebrides in 1912 and 1913, but specimens from various parts of the British Isles have also been carefully studied. The Non-Hebridean British races are grouped together under the typical form (*Apodemus sylvaticus sylvaticus*, L.). Fifteen examples from Skye were examined, and also referred to the typical form, while seventeen from the island of Bute are relegated to a new subspecies under the name of *A. sylvaticus butci*. The specimens from the Hebrides falling into the species *hebridensis* of De Winton are separated into no fewer than six subspecies, of which *hebridensis hamiltoni* (from Rum), *h. cumbræ* (from Great Cumbrae), *h. maclean* (from Mull), and *h. fiolagan* (from Arran) are described as new, as is also a form of *fridiariensis*, which is called *grantii*, from Shetland. The differences between these various forms of field mice are so slight, being based mainly on intricate cranial measurements, that we are afraid they can only be appreciated by specialists after prolonged study. One result of this wholesale splitting of species will be, we fear, to deter the ordinary naturalist from the study of our smaller British Mammals. But for the information of our readers we may quote Hinton's remarks, if only to show how far he has been led by his elaborate studies. "It now appears," says he, "that in practically every island of the Hebrides, differentiation from the parent stock has proceeded so far that the most logical course would be to describe the mice of each island as distinct subspecies. On the mainland of Britain the same process is seen at work. Skulls from the English plains taken here as being typical of *A. s. sylvaticus* seem to be distinguishable from those of Wales or from the Scotch Highlands; those from the lowlands of Scotland in turn have their peculiar characters. But in order to define these mainland forms it will be necessary to have far more material of the right kind than is at present available . . . the work must be based upon

¹ *Ann. and Mag. Nat. Hist.*, July 1914, pp. 117-134

averages, and not upon individuals, and it will require the most careful procedure."

Miss Laura Florence has published¹ the second of her valuable Reports on the Food of Birds. In this report, which is for the years 1911-1912, the results of the examination of no fewer than 1390 birds are given. The majority of these birds, which belonged to eighty-one species, were shot on agricultural land. At the end of each species a short summary is given, enabling us to realise with little trouble the nature of the food and the position the bird should occupy in its relation to agriculture. Thus the Starling is shown to feed mainly upon insects, but also largely upon grain, especially in the autumn and winter. In the case of the Rook, grain and injurious insects were found in about an equal proportion of crops. It thus becomes a difficult question to decide whether these birds should be encouraged or destroyed. It is pointed out that the Rook does much harm to turnips, potatoes, and the nests of birds, with no resulting evidence in the crops. We may therefore, from these data, regard the species rather as an enemy than a friend. Several other interesting questions are discussed in this important paper, which we hope will be followed by others of a similar nature.

The entomological papers published during the last few weeks are, as usual, numerous. One of the most interesting is an article on "Scent Organs in Trichoptera," by Bruce F. Cummings.² The species upon which his researches were conducted is *Sericostoma personatum*, Spence, a Caddisfly tolerably common in Britain. The scent organs in this insect are situated upon the palpus of the first maxilla, which in the male consists of but a single segment, of a shape described as that of a half-moon. This organ secretes an odour which is supposed to charm or stimulate the female during the time of pairing. Such organs are well known in Butterflies, Moths, Beetles, and Cockroaches, but their occurrence on the maxillary palpi appears to be

¹ *Trans. Highland and Agricultural Society of Scotland*, vol. xxvi. (1914), pp. 1-74.

² *Proc. Zool. Soc. Lond.*, 1914, part ii., pp. 459-474 (June 1914).

peculiar to the Caddis-flies, and the author of the present paper anticipates that among the many curious modifications of these organs in the family of which *Sericostoma* is a typical representative, scent glands will be found to be of common occurrence.

The flourishing *South London Entomological and Natural History Society* has recently issued its *Proceedings* for 1913-1914. It forms an attractive volume of 158 pages, and is embellished with 9 plates. A paper therein by W. J. Lucas on "British Short-horned Grasshoppers" is of interest to northern naturalists, inasmuch as the Scottish distribution of the various species is briefly alluded to, while a useful analytical key is given, whereby all the British forms (eleven in number) may be readily identified. Three plates accompany the paper, containing figures of all the species.

The Narrow-bordered Bee Hawk-Moth (*Hemaris tityus* or *bombylififormis*) is recorded by Allan G. Cameron from Bromhill, Fortrose, Ross-shire.¹ The two specimens referred to were captured on 18th June 1913 and 27th May 1914, respectively, and constitute, we believe, an addition to the county fauna.

A useful and readable paper on "The Economic Importance of Woodlice," has been recently published by Walter E. Collinge.² These little crustaceans sometimes become exceedingly destructive to flowers, fruit, and vegetables, and it is therefore of importance to know something of their habits and life-histories. In the paper referred to much useful information is given regarding these matters, special reference being made to seven species which are of more common occurrence. Several remedies are suggested, the most important of which are the thorough cleaning out of outhouses, potting-sheds, etc., the destruction of rubbish heaps, and the use of Paris green either sprinkled on the floors and soil, or dusted over sliced potatoes.

¹ *Ent. Record*, July and August 1914, p. 185.

² *Journ. Board of Agriculture*, June 1914, pp. 206-212.

SPRING BIRD-NOTES FROM VARIOUS
SCOTTISH ISLANDS.

By the DUCHESS OF BEDFORD, F.L.S., F.Z.S., Honorary Member of the
British Ornithologists' Union.

(PLATES I.-VIII.)

THE following notes have been made during two cruises round the north and west coasts of Scotland this summer.

My yachting season began with the usual spring visit to Fair Isle on the 29th April. The north-west wind, which favours landing on this often inaccessible island, is not the one which is most conducive to the arrival of migrant birds, and it was not until the 8th May that any number of them appeared.

On that day, when the wind had been blowing strongly for some hours from the east and rain had fallen heavily, a Swallow flew slowly in at my window and settled on the window-sill, a welcome sight to one who had been tramping over the island for hours every day, seeing little but the resident birds.

A very short walk from my cottage revealed that a number of the common migrants had arrived, as well as many of the more local species, such as White Wagtails, Pied Flycatchers, etc., but the only birds worthy of special note were the Ortolan Buntings. It was difficult to estimate their number, for, as all too often happens on Fair Isle, the weather which brings the birds makes watching them all but impossible; but every little patch of ploughed land held one or more, and I can only have seen a very small proportion of the arrivals. They remained on the island a few days in rapidly decreasing numbers.

On the 15th May, when steaming up the Moray Firth, I saw a small flock of about twelve to fifteen Brent Geese. At the Shiant Isles a very pretty Pied Puffin was observed.

On the 23rd May I visited St Kilda. The most common birds inland at the time of my visit were Whimbrels,

Wheatears, Twites, and White Wagtails. The Whimbrels were all over the island, both on cultivated and uncultivated ground. Meadow-pipits, Rock-pipits, and Tree-sparrows were also common round the houses. There were a few Hooded Crows, but doubtless the greater number of the resident birds were away breeding on the cliffs. Several St Kilda Wrens were noticed about the houses and "cleits," where the natives kept their fuel.

St Kilda is well known as one of the principal resorts in Great Britain of the Fulmar. At the time of my visit the inhabitants were bringing in boat-loads which had been noosed on the cliffs. It would seem a short-sighted policy for a people which depends largely upon these birds for a living to kill them at this season of the year; but, judging from the numbers, the practice has apparently been carried on with impunity in the past. I was fortunate enough to obtain one of the rare "Blue Fulmars," the only one seen amongst thousands of others. The bill is not "blue" as described to Mr Eagle Clarke (see *Studies in Bird Migration*, ii., p. 24), but appeared to be very like that of the Common Fulmar, though I had not the two in my hand at the same time. The nostrils are dark slate and the rest of the bill greenish yellow, getting more horn-coloured towards the tip. If anything, the bill is less blue than that of the local form.

Having read of St Kilda as the resort of myriads of sea-fowl—*i.e.*, Kittiwakes, Razorbills, Guillemots, and Puffins—I was somewhat surprised to find that, with the exception of the last, they were by no means so plentiful as I had expected. I do not mean to say that there are not thousands breeding there, but, compared with such places as Handa and many of the other great cliff resorts, they are distinctly scattered, and one sees no great number in the sea.

On the whole, the cliffs do not seem to have the type of ledges they require for nesting. The greater part of them consists of small grass slopes and short precipitous rock faces, far better adapted to Fulmars and Puffins than to Guillemots and Razorbills. I have seen Kittiwakes nesting

on similar cliffs, but possibly the atmosphere of Fulmar is too strong for them at St Kilda.

There are more of the cliff-breeding birds on the south side of Dun than any other part of the islands that I visited, but I did not go round Soay.

The Herring Gull was the commonest of the Gulls round the yacht in the bay. Some twenty Lesser Black-backed Gulls followed us over from Loch Tarbert—56 miles—and remained a short time, but I saw no others during the remainder of my visit. Though reported to have nested once (*Studies in Bird Migration*, ii., p. 238), it is probable that, when seen there on other occasions, they may have followed boats in the same way. It is astonishing the distance that Gulls will follow a boat. I noticed a Lesser Black-back with a broken leg, which accompanied my yacht from the Farne Islands for a distance of 117 miles, and possibly farther, as I was unable to watch it longer.

Two Arctic Terns were observed during my visit; also eight Turnstones, a Common Sandpiper, a Teal, Dunlin, Merlin, a few Oyster-catchers, several pairs of Eider Ducks, a number of Starlings, and a pair of Ravens.

I was fortunate enough to be able to go over to Stack Lii and Boreray in my launch, and, though there was rather a heavy swell, was able to go very close to both islands. At first we steamed along under the St Kilda cliffs and thousands of Fulmars swooped round and over us on every side; then, as we turned off towards Boreray, the Fulmars thinned off and the air was thick with Gannets. *Apropos* of the destruction of fish by these birds, which is now being investigated by a committee appointed by the Fishery Board, it may be worth mentioning that a trawler which had been fishing round Stack Lii and Boreray had made such a big haul of fish that they took a rest in St Kilda Bay from early Saturday afternoon to Monday morning before returning home. The mate supplied the information to my captain, and those who know anything of life on board these trawlers will be aware that only when the fishing has been exceptionally good can they afford themselves the luxury of a voluntary rest both night and day.

On my return from St Kilda on 26th May, I visited Barra, an island that I know best under the influence of November gales. Seen at this time of the year, in brilliant sunshine and clothed with a carpet of Thrift, Primroses, and Marsh Marigolds, it and the adjacent islands are hardly recognisable. Most of the Waders had left, but I saw a flock of twenty to thirty Bar-tailed Godwits. There were also a number of Great Northern Divers in many stages of plumage, and both Arctic and Common Terns were nesting there. Numbers of Gannets fished in the Sound every afternoon, and, as I have seen it stated (*The Gannet*, Gurney, p. 400) that they are unable to catch fish in a perfectly calm sea, it may be of interest to mention that I have frequently seen them fishing here, as also off the Mull of Cantyre, when there was not a ripple on the water.

On the 16th June a great number of Manx Shearwaters were observed off the Isles of the Sea, and again on the 17th between the Sound of Sleat and Eigg, some being seen as far north as Gairloch. Two Great Northern Divers were also noticed.

On the 19th June I visited the Stack of "Stack and Skerry." The island lies about 27 miles north of the north coast of Sutherlandshire, and $4\frac{1}{2}$ miles from Sule Skerry. It is one of the principal breeding resorts of the Gannet. The Stack is divided into two almost equal portions, the sea running through a narrow cleft between the two islands. There was too much swell for landing at the time of my visit, though, but for this cleft, I think I might have managed it on the south-east side.

As the estimate of the number of Gannets breeding there in the past varies from 8000 (Gurney) to 50,000 (Seebohm), I made very careful observations on this point. We steamed round the Stack on one side at a distance not exceeding 150 yards. On the other my captain treated it with greater respect and we were rather farther off, but I afterwards rowed round in my dinghy within a few yards of the islands. I counted the birds before many of them rose on a portion of the rock which was most thickly occupied, and my opinion is that there were about 5000 at the time of my visit. If



(Photo: Duclees of Bedford.)

STACK FROM THE N.W.



(Photo: Duchess of Bedford.)

STACK OF STACK AND SKERRY (WEST SIDE).



STACK FROM THE S.E.

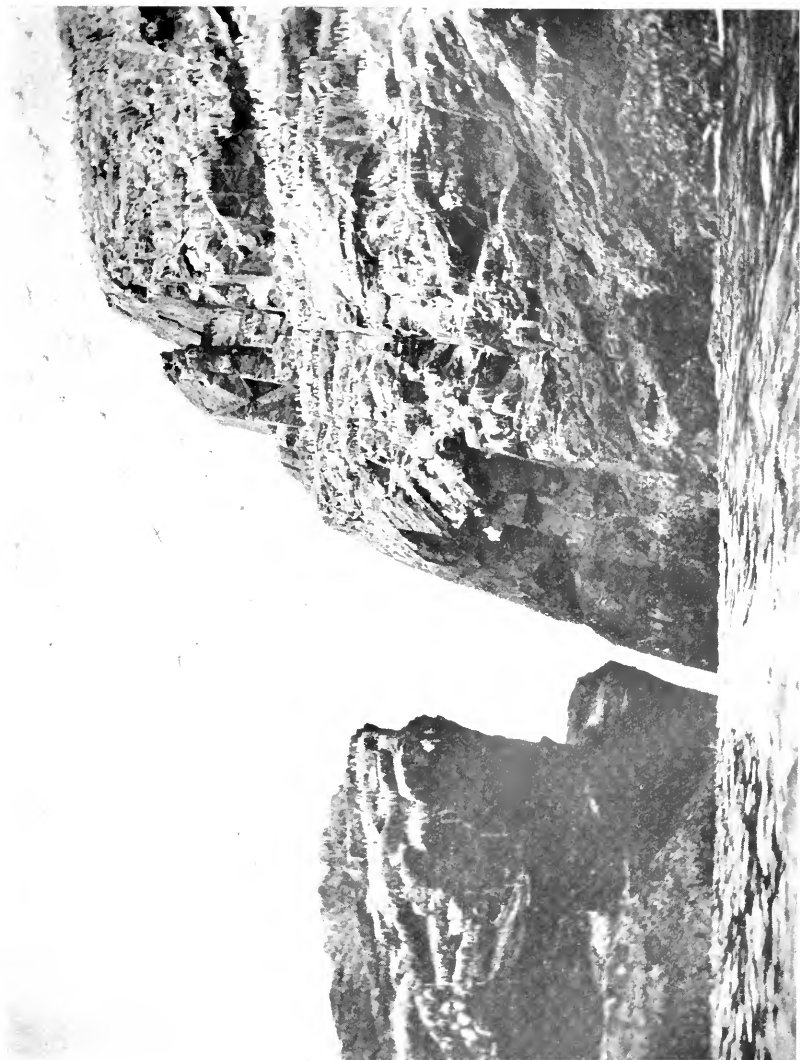
Photo: Duchess of Bedford.



EAST SIDE OF STACK.

only that portion above the dark line on the northern half of the island is occupied by nesting birds, and the highest point on the southern half.

Photo: Inghis of Ballyrd.



(Photo: Duchess of Bedford.)

GAP BETWEEN THE TWO PORTIONS OF THE STACK.



[Photo: Duchess of Bedford.]

EAST SIDE OF STACK.



[Photo: Duchess of Bedford.]

NATURAL ARCHES AT WHITEN HEAD, LOCH ERRIBOLL.

anything, this may be a little under the mark, but I should certainly say there were less than 6000. I believe the over-estimation of the numbers to be due to the difficulty of separating the Gannets with the eye from the multitude of Kittiwakes and Guillemots sitting amongst them. I asked one of my yacht's officers how many Gannets he thought there were, and, even after consideration, he suggested a million! As none of the sitting birds rose, even when I was within a few yards of the rock in the dinghy, it was not possible to see whether any young were hatched. I presume that the population would be quite one-third more if counted before the young are able to fly.

Only the upper third of the northern part of the Skerry is occupied by nesting birds, and a very small point of rock, which cannot hold more than half a dozen nests, on the southern portion. At first sight the *whole* Stack appears to be covered in its upper half by nesting birds; but a closer inspection reveals that quite one in six—and I think possibly even a larger proportion of those on the southern part—are immature birds, not all in the dark plumage, but still immature.

There were no Puffins, very few Razorbills, and a few Shags with young; also a few Greater and Lesser Black-backed Gulls.

There were both Grey and Common Seals, disporting themselves, as is their wont, just where the sea was breaking most heavily, and where it would appear that every wave would dash them on the rocks.

Leaving Stack, we steamed over to Bulgach Island, six miles south of Cape Wrath. Here the swell again prevented my landing, but gave me a very imposing view of the curious "Bellows" Cave at the north end, which is a feature of the island.

The north-west side of Bulgach is almost entirely occupied by Kittiwakes and a few Fulmars. On the south-west were great numbers of Kittiwakes, Razorbills, Guillemots, and some Shags. The visible population of these last was a little under one hundred, including young. The top of the island was covered with Puffins and Herring Gulls; and three

Cormorants, a few Greater Black-backed Gulls and Black Guillemots, were also observed on it. We rowed over to Stack Buachaille, which is well worth seeing, but only one or two of the ledges were occupied by birds, and these were Fulmars and Razorbills.

All along the north coast of Sutherlandshire Fulmars are seen in small numbers.

Whilst in this neighbourhood I saw a number of Black Fish, particularly between Loch Erriboll and North Rona.

Near this island a Rudolphi's Rorqual was twice observed. On both occasions it flung itself perpendicularly out of water like a salmon. This seems an unexpected proceeding on the part of so large an animal, but I have since been informed by Mr Millais that the Norwegian hunters have told him that this whale jumps clear of the water in this way.

Three Killer Whales were also seen, and were recognised by the conspicuously high-pointed dorsal fin, and by the commotion which they caused amongst the Porpoises.

On the 20th June I visited the Smoo Cave, near Durness, and found both the Grey and Pied Wagtails breeding in it; also Spotted Flycatchers.

The caves and stacks on the east side of the entrance to Loch Erriboll are also well worth visiting, not on account of the birds, which are few in number, but for the great beauty of the caves themselves. The walls are a harmonious blending of colour—red, green, brown and yellow—and have been carved into a succession of pillars and arches by the Atlantic breakers, which too often render the caves unapproachable. No imaginary grotto of fairy legend could be more beautiful than these probably almost unknown examples of Nature's architecture.

The same day I landed on Garve Island. "The matrix," to quote Mr J. A. Harvie Brown, "is limestone, and every inch of it is studded with fossils." The matrix had been "weathered out" by wind and wave, and the small fossil shells stand out so sharply defined that one has to be careful how one clutches the rock on landing. However, it provides a security of foothold for the somewhat precipitous ascent to the top, which it has not been my luck to find on many

of these sea-girt islands. A polished surface of rock, covered with slippery seaweed, is the usual order of things; and this, combined with the Atlantic swell, renders them as a rule sanctuaries for the birds but inaccessible to the naturalist.

I had an unexpected find in the shape of a freshly dead mole on the island, brought there probably by the Gulls, as no mole could find a living in such a place.

Seven Eider Ducks' nests were found, one with five young in it; but, generally, there were only one or two eggs, several of which were on the point of hatching, showing, I think, that they are probably robbed by the Gulls.

On the 21st June I landed for the fourth time on North Rona, not by any of the recognised landing-places, at all of which there was too much swell, but nearer the big cliff on the east side. By far the most abundant birds away from the cliffs are the Lesser Black-backed Gulls. They are nesting from one end of the island to the other; and at this season of the year, when the ground is thickly covered with Thrift, make a most charming contrast with their pink and green carpet. There are comparatively few Great Black-backed and Herring Gulls. Though there were hundreds of Fulmars on the island, there were far fewer nesting in the ruined houses than usual. I attribute this to the fact that two gentlemen had put up a shelter in one of the houses and spent a few days there about three weeks before my visit. Tame as the Fulmars are, as a rule, they probably resented this interference with their domestic arrangements and the fumes of tobacco, which must have been very necessary to anyone sharing a house with them. (I found the remains of a cigar!) I detected a Petrel in the ruined walls but was unable to get at it, but at this date it was probably the Fork-tailed Petrel.

When lying on the grass, with Fulmars swooping all round and over me, I noticed one bird settle on an egg, between two slabs of rock at the top of the cliff, in what seemed to me rather an unusual site for a Fulmar's nest. I watched her for some time, and then went to look at the egg. She resented my intrusion, and only rose when I could almost touch her with my stick. I then found that she was

sitting on a Herring Gull's egg! There was no doubt about it, as the egg reeked of Fulmar. She returned to it as soon as I walked away.

I saw a pair of Whimbrels on the high ground, but had not time to search for a nest.

There were four colonies of Arctic Terns, and many Eider Ducks nesting; and, in addition to the cliff-breeding birds, Wheatears and Starlings (nesting in the walls), Hooded Crows, Rock-pipits, and Oyster-catchers were seen. Amongst the Terns I noticed one in the rarely observed plumage of the year-old bird, *i.e.*, with the white forehead and mottled crown of head.

Leaving Rona, I again visited Stack, but though the sea was very smooth, there was far more swell than at my last visit, and landing was out of the question. However, I steamed close round the skerry and took another careful survey of the number of Gannets, and was quite satisfied with my former estimate of 5000. One or two birds were still carrying seaweed to the island.

I took the temperature of the water at 5 P.M.—52° at 10 feet, and 51° at 60 feet; and then steamed off towards the Pentland Firth.

Immediately after leaving the island we came across a number of Great Shearwaters and a few Fork-tailed Petrels. The yacht's engines were slowed down, and for two hours we were passing amongst the Shearwaters. It was difficult to estimate their numbers, for though the sea had an oily surface, there was a rather heavy swell, which hid the birds just as one detected them. Many of them were sitting amongst the Guillemots, and, unless the white throat was turned towards me, it was not easy to see them at a distance. Often, however, six or eight were in sight at one moment. As they skim over the water away from one, they look like very dark but slightly slimmer Fulmars, with a dark band across the tail and conspicuous white upper tail-coverts. A side view reveals the white cheeks, which seem to extend almost as a collar behind the nape. At times we glided within thirty or forty yards of one sitting on the water, and in bright sunlight it is seen that they are a lighter brown

than they appear on the wing. A great deal of white shows above the water on the sides, and of course the breast, throat, and chin are white.

The Shearwater is rather a heavy and almost duck-like bird on the water, exclusive of the head, as the wings, which appear so long and pointed in flight, do not reach beyond the tail.

Though hardly coming within the range of *Scottish Naturalist*, I may mention that on 2nd June I saw two Common Rorquals, just north of Spurn Point, on my homeward voyage. They were very close to the yacht at first, and I had a good view of the length and small dorsal fin as they rolled over. After the roll they appeared to skim just beneath the surface for a time, and we saw them blow several times before they disappeared in the distance.

THE FAUNA OF A COAL-PIT AT GREAT DEPTHS.

By JAMES RITCHIE, M.A., D.Sc., The Royal Scottish Museum.

(Continued from page 161.)

NOTES ON THE PIT ANIMALS.

VERTEBRATES.

1. The Common Mouse (*Mus musculus*, Linn.) is frequently found in certain parts of the mine. Introduced with the horse fodder, it has become well established underground. Less abundant but still moderately common is (2) the Brown Rat.

3. On a single occasion a Sparrow was found in No. 12 pit. It had entered the hutch at the surface, and being too frightened to fly out when the cage moved away, was taken to the bottom, where it escaped into the galleries. It stands as an illustration of an introduction, quite unsuited for the peculiar conditions, which must rapidly have been weeded out.

INVERTEBRATES.

MOLLUSCA.

4. Only one representative of the Mollusca—the Great Slug (*Limax maximus*, Linnæus)—was discovered, but that in considerable numbers, and at various stages of growth. The Slugs, curiously enough, appeared to be aggregated in one particular section of the pit—in the four years' old incline leading off the horse-road of No. 13 pit. Here as many as two dozen at a time have been observed, although in other parts of the workings none were to be seen, with the exception of a single specimen recorded from the horse-road itself—about 90 yards away. This was no doubt a wanderer from the centre of dispersal in the incline. In their confined area the Slugs were widely spread. They occurred on the pit-props, on the moist walls of the incline, on the coal, and on the “pavement” or rock-bottom whence the coal seam had been removed. In normal conditions *Limax maximus* “frequents gardens, damp and shady hedgerows and woods, hiding during the day beneath stones, under fallen trees, or other obscure and damp places; it, however, exhibits a decided preference for the vicinity of human habitations, and readily takes up its abode in damp cellars or outbuildings.”¹ The general similarity between the present situation and damp cellarage is obvious, but I know of no previous records from coal-mines. That the Slug had accommodated itself to its surroundings and was breeding in the darkness was apparent from its numbers and their aggregation, as well as from the fact that individuals of all sizes were found.

As regards colour and markings there is little to be noted. Adult specimens agreed in markings with var. *sylvatica*, but were even darker in colour. In young specimens the colour was much paler—a buff yellow tinged with pink—and the dark bands, particularly the dorsal pair, were broken into short, irregular sections. In all, the eyes had attained their normal development so far as external appearance indicated.

These molluscan specimens first drew our attention to the fauna of the coal-pit, and allowing that they were there well established, I had some difficulty in accounting for their food supply. Taylor (*op. cit.*, p. 38) states that *Limax maximus*, according to Simroth, as a rule refused plants containing chlorophyll, and further that it “greedily devours fungi, which, indeed, are said to form its staple diet, and to be preferred to other food.” On this account

¹ Taylor, *British Land and Freshwater Mollusca*, vol. ii., 1907, p. 36.

our young collector was requested to be on the look out for "mushrooms" in the neighbourhood of the Slugs, and the result was the collection of quantities of *Polyporus destructor* (see Introduction) and the small slime-fungus, *Stremonitis fusca*. I have no doubt that the former of these formed the main food-material of the Slugs.

ARACHNIDA.

SPIDERS.

5. LESSERTIA DENTICHELIS (Simon).

Tmeticus dentichelis (Simon). *Arach. France*, vol. v. 1884, p. 390, figs. 167-169.

Tmeticus simplex. F. O. Pickard-Cambridge, *Ann. Mag. Nat. Hist.*, ser. vi., vol. x. 1892, p. 384, pl. 20, fig. 5 A-G.

Macrargus dentichelis (Simon). Berland, *Arch. Zool. exp. et gén.*, 1911, ser. v., vol. vi., Notes et Revue, p. cxiv., figs. 6, 7.

Lessertia dentichelis (Simon). Simon, *Arch. Zool. exp. et gén.*, 1911, ser. v., vol. ix., p. 185.

A considerable number of these little Spiders were captured moving actively on the rock roof of the workings, on the wooden props, on brick barriers, and on the coal itself. Clearly it was quite at home in the darkness and at the great depth, for its delicate sheets of net were common in the workings and were evidently of good use for they contained many insect wings. Several small cylindrical white cocoons found near the webs probably contained young of this form. Viewed in relation to its coal-pit existence, the previous records of the habitat of *Lessertia dentichelis* are of some interest. There appear to be two more or less distinct modifications; one variety (*sub-lucicole*) prefers an existence under conditions of subdued daylight, and has been found so far only in France, in Var and the Alpes-Maritimes (Simon, 1884), and in one of the courts of the Sorbonne in Paris (Berland, 1911). The other form (*lucifuge*) frequents only places from which light is absent. It has been found once in England, on the "damp walls of a brewery cellar at Cannock, Staffordshire" (Pickard-Cambridge, 1892); in the catacombs of Paris (Berland, 1911), and in various grottoes, "baoumo," and subterranean river-courses in the French departments of Ardèche, Gard, and Ariège (Simon, 1911). It has been stated (Berland, p. cxiv.) that differences of smaller size, less colour, eyes slightly more closely set, anterior tooth of chelicerae shorter and as

seen from below slightly curved, distinguish the *lucifuge* from the *lucivole* form. The former is typified by the specimen described by Pickard-Cambridge as *Tmeticus simplex*, and with these our specimens agree in all respects, the colour belonging to the greyish green series with paler spot-like mottlings.

This species has not previously been recorded from Scotland.

INSECTA.

COLEOPTERA.

6. *Quedius mesomelinus*, Marsh.—A single specimen of this common Staphylinid Beetle, known to the miners as the “Clocker,” was brought in for examination, but reported to be present in some numbers. It was observed only on the floor of the incline and on the coal seam. The example submitted differed in no respect from normal specimens. The species is common and widely distributed throughout the country, and is found in moss, fungi, decaying vegetable rubbish, etc. It is reported to occur also in cellars.

A larva was captured which bore a characteristically Staphylinid appearance, and I have little doubt but that it represented the same species of *Quedius*. We may, therefore, fairly assume that the beetle is quite at home and breeds in the mine.

7. *Thanasimus formicarius*, Linnæus.—A well-known and easily recognised member of the Cleridæ. A single example was captured flying; and since in Scotland this species usually occurs on logs of Scotch fir, it is hardly surprising to find that it has been introduced into the mine. In the open it has a wide distribution over the whole of Britain.

DIPTERA.

8. *Psychoda humeralis*, Mg.—Several specimens of this “Moth-fly” (Family Psychodidæ) were obtained. As these naturally were in bad condition, owing to the necessarily rough methods of capture, it is fortunate for purposes of identification that the species is easily recognised by the distinct neuration of the wings. We do not as yet possess much definite information regarding the life-history and habitat of these distinctive little flies, but the present species has been reared from putrid snails and rotten potatoes, both of which are likely to occur in the galleries.

9. *Phora (Apliocheta) rufipes*, Mg.—This well-known, easily recognised, and very common species was reported to be of frequent occurrence in the mine. I find that, under normal conditions, it has been bred from Lepidoptera, decaying caterpillars, beetles, rotten potatoes, and fungi. A single specimen was submitted for examination.

COLLEMBOLA.

10. The most common of the insects captured were small, almost black, Springtails, whose leaping habit is well characterised by the miner's name of "pit-fleas." The "pit-fleas," all the specimens of which examined belonged to the species *Tomocerus minor* (Lubbock), were common and widely distributed, not only in the incline, but in other parts of the pit. They were found on the coal, the rock, and the pit-props, in both wet and dry places. It is scarcely surprising that a creature which is, according to Mr Wm. Evans, "very generally distributed, and by far the commonest species of the genus here [in the Edinburgh district] . . . found under stones, logs,"¹ etc., should occur in a Midlothian coal-pit. It has almost certainly been introduced with the fir logs, and a predisposition to a life in obscurity would render easy its establishment in the total darkness of the mine. Indeed, the species has been recorded from the Irish caves of Mitchelstown and Coolarkin—from the former by Wright and Haliday, and more recently by Jameson, from the latter by Jameson; and from North American caves by Packard.²

The species is variously known as *Tomocerus minor*, *T. tridentiferus*, or, as in Lubbock's Ray Society Monograph, *T. plumbeus*. From the recent description of the species given by Linnaniemi (Axelson),³ the Niddrie specimens differ in having the five to seven small teeth on the inner surface of the large claws practically obsolete, and in having rarely nine, instead of a minimum of ten, dental spines. In this latter point, however, they agree with Lubbock's description of *T. plumbeus*.⁴

¹ Carpenter and Evans, "Collembola and Thysanura of the Edinburgh District," *Proc. Roy. Physical Soc.*, vol. xiv., p. 237, as *T. tridentiferus*.

² Jameson, "Caves of Enniskillen and Mitchelstown," in *Irish Naturalist*, vol. v., 1896, as *T. tridentiferus*.

³ Linnaniemi, "Die Apterygotenfauna Finlands, II., Spezieller Teil," in *Acta. Soc. Scient. Fennicæ*, tom. xl., No. 5, 1912, p. 181.

⁴ Lubbock, "Monograph of the Collembola and Thysanura," *Ray Society*, 1873, p. 139.

WORMS.

OLIGOCHÆTA.

11. Many specimens of a comparatively small species of Lumbricid Worm were found in various types of situation in the workings. Some were found between pieces of damp wood on the floor of one of the coal galleries, others amongst damp paper, and still others actually amongst the coal dross itself. This varied distribution, together with the fact that specimens of all ages were captured, seems to indicate that however it may have been introduced, the worm has now become naturalised and has a permanent existence in the pit.

The characters of the mature specimens are those of the species *Eiseniella tetradra* or *Allurus tetradrus*, and the presence of the male pores on segment 13 of every example on which they could be distinguished, and of the clitellum on segments 22 to 27, show that the pit worms belong to the typical variety, *Eiseniella tetradra* var. *typica* (Sav.). The subterranean examples appear to differ little in colour from the surface forms. The younger specimens are opaque white with the faintest indication of colour towards the head, but the forepart of the mature specimens is deeply pigmented with a brownish or purplish brown tinge.

Eiseniella tetradra is a common form in Midlothian,¹ where it has been found amongst wet mud and stones, and exceptionally under the bark of a rotting log. Such an exceptional habitat as the latter may account for its presence in the pit, whither it may have been conveyed in a pit-prop. Otherwise its occurrence at so great a depth and at such a distance from the pit or ventilating shafts is hard to account for. It is interesting to note that a variety of the species (*E. tetradra* var. *flavus*) has been found in the great Irish cavern of Mitchelstown.²

12. *Helodrilus* (subgenus *Dendrobæna*) *rubidus* (Sav.) var. *subrubicundus*, Eisen.—Three specimens of this species were found and had apparently been living amongst the coal débris, for when I received them alive they were still intertwined amongst much black grit, and with them were associated castings also of the same black nature. It is difficult to imagine what organic

¹ Evans, "The Oligochæta of the Forth Area," *Proc. Roy. Physical Soc.*, Edinburgh, vol. xviii., 1910, p. 118.

² Friend, "A new Form of Irish Earthworm," *Irish Naturalist*, vol. iv., 1895, p. 35.

food the worms could obtain by ingulphng such material, unless it be that as it occurs on the pit floor there is mingled with it decaying wood derived ultimately from the pit-props. Such conditions would approximate to those of its natural environment, for Mr Wm. Evans, in recording this variety from Midlothian, says of it, that "though delighting to live among dead leaves and dead branches, it is by no means confined to woodland." Consideration of its normal habitat would lead one to assume that it has been imported to the pit with the pine props, but from the material at hand and the information with which it was accompanied, I am unable to say definitely that it has established itself in the subterranean workings.

A word may be said regarding the specimens. They are rather under the usual length of the variety, varying between 35 and 40 mm. in their contracted state in alcohol. The numbers of segments are also less than normal—93, 99, 102—though they fall well within the recorded range of variation. The colour is well marked—a pale bluish red near the head fading away towards the clitellum, but continuing along the median dorsal line as a pale delicate pink. The final 4 or 5 segments are flushed with a darker pink, a fact to which is no doubt due the name "gilt-tail" attributed to this variety by Rev. H. Friend. Characteristic of the variety are the "tubercula pubertatis," which in the form of a continuous mound—"pubertätswälle"—extend over segments 28 to 30.

PROTOZOA.

MYCETOZOA.

13. There occurred here and there, but not commonly, on the surfaces of the pit-props, colonies of one of the commonest of British Slime-Fungi or Mycetozoa—*Stremonitis fusca*, Roth. The variety *rufescens*, Lister, was indicated by the fine reticulation composed of minute dots (three in general on each side of a mesh), which was revealed on the surface of the spores by microscope examination with oil-immersion lens. No differences could be distinguished between these colonies and the descriptions of normal specimens; the sporangia had glossy black stalks, were of large size, well developed, averaging 8-9 mm. in height, of the usual purplish brown colour, and grew in close clusters. The spores were pearly grey in colour. *Stremonitis fusca* is obviously an import with pit-props. Its interest lies in that it probably serves

along with *Polyporus* as a food supply of the molluscan and perhaps other inhabitants of the pit, and in that it survives luxuriantly and unchanged in type long after the pit-props upon which it lives were brought to the darkness from above ground.

NOTES.

Albino Weasel.—On Thursday, 9th inst., there was brought to me an Albino Weasel which had been trapped on Tentsmuir two days previously. The peltage was of a very pure white, and the gamekeeper tells me that it is only the second he has met with, and that the previous one, which was also trapped here, but which I did not see, had the white somewhat tinged with yellow. Unfortunately when this Weasel was brought to me the skin had already become so decomposed that preservation was impossible. As, however, Albino Weasels are not common, the occurrence may be worthy of record. There are, so far as I know, no Stoats in this district. I have never seen one, dead or alive, nor have any of my keepers or trappers. Weasels are fairly numerous; we trap about sixty every year.—WILLIAM BERRY, Tayfield, Newport, Fife.

Birds Singing while on Migration.—Having read, with interest, Mr Tulloch's note on the Blackcap singing on migration, we think it may be worth recording our experiences with regard to birds singing on the Isle of May on spring passage. We have frequently heard quite a large number of Warblers in song at the same time, answering each other from the walls round the fields and from the fences and bushes in the gardens. The species which chiefly delighted us with their charming songs were Willow-warblers, Sedge-warblers, Whitethroats, and Skylarks, but as well as these, we have heard the Whinchat, each spring, carolling his little melody from thistle top and hemlock spray. This spring we woke early one morning and found a fine male Reed-bunting sitting on the support of the flagstaff, and singing vigorously just outside our window. Wheatears, too, sing their delightful little trilling song, and as well as that of our common breeding bird (which does not, however, nest on the May), we have heard the song of the Greater Wheatear. Cuckoos, too, utter their dissyllabic note on their short visit to this

little island, on which they never seem to rest very long. Early on the morning (4 A.M.) of 9th May 1911, we were certain we heard a Nightingale singing, and much to our surprise found a bird of this species on the island during the day (*Annals of Scottish Natural History*, 1911, p. 132). Many of these were probably our own summer visitors arriving, not passage migrants like Mr Tulloch's Blackcap. On the other hand, however, such birds as the Greater Wheatear undoubtedly belong to this category, and in all probability the Warblers, etc., which pass late in May are also passage migrants. Dr Lowe, in his charming book on *Our Common Sea-birds* (p. 13), says: "Columbus notes that, 'at dawn two or three small land-birds came singing to the ships, and afterwards disappeared before sunrise'; but land-birds do not sing before sunrise, and still less when they have lost their bearings on the ocean." The statement that "land-birds do not sing *before sunrise*" does not, however, always hold good. One of the most delightful experiences we ever had was standing on the balcony of the lighthouse of the Isle of May watching a big rush of Willow-warblers, etc., which took place from midnight to 3 A.M. on 9th May 1911. It is always a wonderful sight to see so many birds round the lantern, and on this occasion its charm was greatly enhanced by the fact that many of the Willow-warblers sang sweetly while fluttering up to the light. There was a light S.E. wind and small rain, and though many birds were attracted by the light they did not dash themselves against the glass, but merely fluttered singing up to the lantern and remained gazing in, fascinated by its powerful rays. Possibly Columbus' experience may have been parallel to ours.—EVELYN V. BAXTER and LEONORA JEFFREY RINTOUL, Largo, Fife.

Increase of the Goldfinch in Scotland.—Mr Charles Oldham's note in the June number accords with observations in other parts of Scotland. The increase of this beautiful species during recent years is one of the most gratifying results of protective legislation. Probably no bird falls an easier prey to the professional bird-catcher, whose work has been severely curtailed or prohibited in those counties where the local authority is alive to its duty. Goldfinches had become extremely rare in Galloway; when they began to return there a few years ago, bird-catchers were busy among them, until the attention of the police was called to the fact that they are a protected species. Goldfinches are pretty numerous now in our district, both in migratory flocks and as breeding pairs. In April 1913 I watched a flock of about thirty-five feeding in a grass field.—HERBERT MAXWELL, Moncreith.

Silpha quadripunctata at Aberfoyle.—Whilst collecting in an oak wood near Aberfoyle on 30th May last, I obtained two specimens of this beetle running among the dead leaves. I understand they are not very common in Scotland.—D. HAMILTON, Edinburgh.

Clyde Tenthredinidæ (Sawflies).—In explanation of some points raised by Mr Dalglish in connection with my recent paper on Clyde Sawflies, I desire to state the following facts. The paper was written nearly five years ago, before my departure for America. The identifications were, so far as my own material is concerned, made by Rev. F. D. Morice. Several of the species mentioned by Dalglish have been dealt with in papers written by other authors subsequent to the completion of my manuscript. The synonymy is complete only so far as I could ascertain, and, unless one cares to arbitrarily decide certain points, almost as complete as it is ever likely to be. Many of the species mentioned by Dalglish were accidental omissions, and would have been rectified had I remained in Scotland. My purpose in writing the list was solely to bring together the recorded species. Lastly, I accept Dalglish's criticisms as an addition to our knowledge of the group, and not as criticisms of myself or my work. I consider that the work should have been undertaken by Dalglish in 1901 when he compiled the list for the Glasgow "Handbook."—J. R. MALLOCH, Urbana, U.S.A.

Nacерdes melanura in Scotland (Forth Area).—Whether the following incident does or does not furnish a genuine addition to the list of Scottish Coleoptera, it seems worth recording in the pages of this magazine. On 9th July (1914) when on board the Forth pleasure-steamer *Redgauntlet*, about a mile off Methil, on the Fife coast, I noticed a beetle running on the deck, and, needless to say, promptly secured it. At first I thought it was a *Leptura*, but closer examination showed that it bears only a superficial resemblance to that genus, and is in reality a female example of *Nacерdes melanura*, Schmidt (= *lepturoides*, Thunb.). The habitat of the species is stated in Fowler's *British Coleoptera* to be "on old posts and timber on the seashore and near the mouths of large rivers; sometimes introduced further inland with timber." A number of localities in which it has occurred in the south of England, and a few others northwards as far as Sunderland and Shields are given; also two in Ireland; but I can find no record for Scotland. How this specimen came to be on the *Redgauntlet* it is impossible to say. Perhaps it came from Methil, and had

just alighted when I saw it, or it may have got to the steamer in Leith Docks. In any case there is the probability that it was imported to the district in timber.—WILLIAM EVANS, Edinburgh.

Scottish Records of Marine Mollusca.—A further instalment of J. T. Marshall's lengthy paper on "Additions to 'British Conchology'" appears in the July issue of the *Journal of Conchology* (pp. 200-213). The following Scottish records are included:—*Venus fasciata* var. *pallida*, var. nov. (Fair Isle Bank); *V. verrucosa*, L. (a doubtful record from Garroch Head, Clyde); *Psammobia tellinella* var. *gracilis*, Jeff. (Gairloch); *Donax vittatus* var. *turgida*, Jeff. (Aberdeen beach); *Scrobicularia alba* var. *oblonga*, Marsh. (Garelochhead); *Solecortus scopula*, Turt. (off Peterhead, Aberdeen Bank, and Gairloch); *Thracia pratensis*, Pult. (Gairloch); *T. pubescens*, Pult. (doubtful records from Arran, Footdee in Aberdeenshire); *Lyonsiella abyssicola* (off Butt of Lewis); *Næra costellata*, Desh. (Sanda Island, Clyde, and off Furnace, Loch Fyne); *N. cuspidata*, Oliv. (Turnberry, Ayrshire, and Lamlash); *N. rostrata*, Spengl. (off Shetlands); *N. obesa*, Lov., and *N. striata*, Jeff. (off Butt of Lewis); *N. lamellosa*, M. Sars (Butt of Lewis, etc.); *Mya truncata*, L., var. *abbreviata*, Jeff. (Great Fisher Bank, off Aberdeenshire); *Panopea plicata*, Mont. (Garelochhead and Lamlash); *Saxicava norvegica*, Spengl. (Aberdeen and East Shetlands); *S. rugosa*, L. (Clyde); *Venerupis irus*, L. (a doubtful record from Brodick); *Teredo megotara* var. *subericola*, Macg. (coast of Aberdeenshire); *Siphodentalium lofotense*, M. Sars (off Ailsa Craig); *S. affine*, M. Sars (off Shetlands); *Cadulus tumidosus* var. *minor*, Jeff. (N. Shetland); *Dentalium entalis*, L., var. *striolatum*, Stimps. (Shetlands, Skye, and Hebrides); *Chiton debilis*, Gray (Sutherlandshire off Loch Ryan, Ailsa Craig, Mull of Cantire, and Shetlands); *C. albus*, L. (Aberdeenshire); *C. marmoreus* (Sutherlandshire); *Helcion pellucidum* var. *lævis*, Penn. (Benbecula); *H. pellucidum* var. *elongata*, Jeff. (Aberdeen); *Tectura virginica* var. *lactea*, Jeff. (Aberdeen); *Lepeta fulva* var. *albula*, Jeff. (The Minch, off Butt of Lewis and Shetlands); *L. fulva* var. *expansa*, Jeff. (The Minch); *Propilidium ancyloides*, Forb. (Mull of Cantire, off Flugga Light, N. Shetlands, and off Loch Ryan); *Emarginula rosca*, Bell (a doubtful record from Whiting Bay, Clyde).

BOOK NOTICES.

THE ELEMENTARY PRINCIPLES OF GENERAL BIOLOGY. By James Francis Abbott. The Macmillan Company, New York, 1914; pp. xvi+329. Price 6s. 6d. net.

Many a naturalist in these days of specialisation is apt, in the study of the intricacies of one group of animals or another, to lose sight of the wood on account of the trees. Professor Abbott reminds us that the great mass of detailed facts which has resulted from recent research is bound together by generalisations of far-reaching importance. These fundamental principles of life he describes with full knowledge and charming simplicity. The study of the nature of living matter, of its workings and modes of growth, is made the basis for further investigations into the gradual specialisation of the organs of animals and plants, and into the laws which appear to regulate their inherent qualities of variation and inheritance. The adaptations exhibited by living things are graphically described, and a critical summary is given of modern views of evolution. In the discussion of these generalities the author makes full use of recent biological research, and while the volume is primarily intended to supplement a practical course of biology, its clearness and terseness and the admirable diagrams and pictures with which it is illustrated make it an excellent guide for the general reader who would learn something of the great forces of life.—J. R.

BIRD STUDIES, IN TWENTY-FOUR LESSONS. By W. Percival Westell, F.L.S., M.B.O.U. Cambridge Nature Study Series, University Press, 1914. Price 2s. 6d. net.

This little book is an original and stimulating Primer on bird life. We say stimulating advisedly, as the author lays great stress on the pupil developing his own powers of observation. Mr Westell groups his "lessons" into four parts, corresponding to the seasons of the year, and taking for each lesson a locality or subject suited to the season. He writes in a light and easy style, and draws his pupils' attention to almost every phase of bird life. The idea of compiling a bird census of some particular locality, as suggested in Lesson 5, is an excellent one, and should prove a pleasant task for any ornithologist, old or young. The book is well illustrated throughout, and has ten appendices which contain much useful information and many valuable practical hints, as well as a list of books and journals likely to be useful to the student.—G. E. G. M.

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[SEPTEMBER

EDITORIAL.

IN a time like the present, when travelling facilities are limited, it behoves the naturalist to consider whether good work cannot be done at home. In this connection a singularly appropriate paper (published, curiously enough, before the war broke out) appears from the facile pen of Claude Morley,¹ under the title of "Garden Notes." One of the objects of this very interesting paper is to show what can be done by careful observation in one's own garden, or in a small spot close to one's own dwelling. A variety of subjects is dealt with in the article, which is to be continued in a future issue. An Empid fly preying upon a Hymenopterous parasite—reversing the usual order of things—the painful bite of open-air bugs or Hemiptera, the aerial dancing of flies, weevils devouring ivy leaves, the habits of an Ichneumon, and the attacks of a pugnacious Dolichopodid fly are all described in this first instalment, and indicate in telling fashion what can be done by keeping one's eyes open. Why worry if continental trips are cut off when so much can be done by staying at home (in the most literal sense)? Only this month, while enjoying a quiet holiday in Yorkshire, we took *in the garden* two specimens of a fly which

¹ *Entomologist*, August 1914, pp. 215-218.

proved to be an addition to the county list, the only previous records of the species being from Cambridgeshire and the New Forest!

A short paper by William Falconer,¹ entitled "Nesting Habits of the Common Mole," deals with an interesting variation of habit. It appears that in the fen district of Wicken, Cambridgeshire, the mole does not burrow in the usual way, but constructs a spherical nest of bits of old dry leaves, depositing it "amongst bedding of the same materials in a hollow of the ground between tufts of sedge and grass, and concealed by them." This is an interesting adaptation to the peculiar nature of the ground, for, as the author points out, the fen is always more or less permeated with water, even in the driest season, and should the usual burrowing habit be followed, percolating water would find its way in and drown the young broods. Two nests about the size of a cricket ball, and constructed in the manner stated, were found, each containing five young moles. In wet seasons the animals build high massive mounds said to contain "as much soil as would fill a wheelbarrow."

The sleeping attitude of Butterflies is a subject of which one hears and reads little, and hence a short paper by F. W. Frohawk² is of much interest. It appears that the *Lycænidæ* or "Blues" go to sleep in the twilight and evening, resting head *downwards* on the flower-heads and stems of grasses, etc.; but that when darkness comes on they reverse their position, and sleep with the head *uppermost*. The author recently experimented with examples of *Lycæna icarus*, our "Common Blue," and found this habit of changing position when darkness set in fully confirmed. One wonders what object is served by this curious habit. It has been assumed that in the downward position the insect to some extent defeats the attacks of birds which might seize them during twilight, and which in this position merely grasp the wings instead of the all-important thorax, whereas after dark, when birds also are at rest, the upright position becomes a safe one. As the author remarks, this may be so, but the idea

¹ *Naturalist*, August 1914, p. 238.

² *Entomologist*, August 1914, pp. 212-213.

is quite conjectural. Here then is a subject for investigation in a group of insects where one might imagine little was left to be done.

Flood refuse sometimes yields a rich harvest to the beetle collector. We have a notable instance in a paper just published by Norman H. Joy,¹ in which a list is given of species found in a sack of rubbish sent to the author by a correspondent near Lairg, in Sutherlandshire. The material was carefully sifted in a manner described in the paper, and the spoil was found to consist of no fewer than 147 species. In view of the paucity of records from areas so far north, Dr Joy has judged it advisable to publish a complete list of the species.

Some British species of *Hemerobius*, a well-known genus of insects allied to the Lacewing Flies, are discussed in a paper by Kenneth J. Morton.² The genus has been recently split up by an American author into three, according to differences in the neuration of the wings. These must now be known as *Symphherobius*, *Boriomyia*, and *Hemerobius* (sens. str.). According to Morton two species of *Symphherobius* have hitherto been mixed in British collections, viz., *striatellus* and *elegans*. A short diagnosis is given, serving to distinguish the two, and of course *S. striatellus* must now be added to the British list.

Students of British Mites will find a paper by the Rev. J. E. Hull,³ on "British Oribatidæ: Notes on New and Critical Species," of much service and indeed indispensable. In this valuable paper, which is illustrated by a plate, twenty-two species are added to the British list, eighteen of which are described as new to science. The article is not yet concluded, but sufficient is already published to indicate its value to workers in this interesting group of Arachnida.

The list of British Diptera grows ever larger. A paper by A. E. J. Carter⁴ records two recent additions, viz., a "Daddy," *Amalopsis schincri*, Kol., taken at Callander in

¹ *Ent. Mo. Mag.*, August 1914, pp. 195-196.

² *Entomologist*, August 1914, pp. 209-212.

³ *Naturalist*, July 1914, pp. 215-220, and August 1914, pp. 249-250.

⁴ *Ent. Mo. Mag.*, July 1914, pp. 173-174.

1904 and at Aberfoyle in 1905, and one of the silvery glistening Dolichopids of the genus *Argyra* (*A. auricollis*, Mg.) taken at Polton, Midlothian, in 1906. The same author publishes a list of the Diptera taken in the Aberfoyle district of Perthshire.¹ In five visits to this interesting locality over three hundred species were taken, eight of which were new to the British fauna and one new to Scotland. We notice an entire absence of certain families, such as Tendipedidæ (Chironomidæ), the members of which are difficult of determination; but when attention is given to these forms a large increase in the list, interesting as it already is, is sure to result.

In the June issue of the *Entomologist's Monthly Magazine* we note the conclusion of the Rev. James Waterston's article on "Some Records of Scottish Siphonaptera." This paper is a contribution to our knowledge of the Fleas of Scotland. No fewer than twenty-eight species of these parasites are here recorded, with full particulars of their localities, hosts, dates, and number of examples taken. The nomenclature is thoroughly up to date, and a mere perusal of the names used indicates how actively the study of these tiny insects has recently been prosecuted.

Several papers of importance dealing with marine animals have recently been published. J. H. Orton contributes² a study of the ciliary mechanisms in Brachiopods and Polychætes, as compared with those found on the gills of Molluscs and other marine creatures. He comes to the conclusion that Brachiopods, *Crepidula*, Lamellibranchiate Mollusca, Ascidians, and *Amphioxus* use their gills mainly as an organ for establishing a current of water through certain spaces in the body, and that in this way food is collected and passed to the alimentary canal.

Another paper by the same author³ is of a more general nature. It is entitled a "Preliminary Account of a Contribution to an Evaluation of the Sea." In this article

¹ *Trans. Perthshire Society of Nat. Science*, vol. v., pp. 176-181 (1914).

² *Journ. Marine Biological Association*, vol. x., No. 2 (June 1914), pp. 283-311.

³ *Ibid.*, vol. x., No. 2 (June 1914), pp. 312-326.

many particulars are given as to the rates of growth in Cœlenterates, Sponges, Flat and other Worms, Polyzoa, Crustacea, Mollusca, Tunicates, and other marine groups. Of practical importance is a short section dealing with the rate of growth of Oyster spat during the first summer. The particulars given, however, are only of a preliminary nature, but since samples of these Oysters are being kept under observation we may look forward to a fuller account later.

In the same Journal¹ we note with pleasure a lengthy and important "General Report on the Larval and Post-Larval Teleosteans in Plymouth Waters." This paper, which is by R. S. Clark, lately attached to the Scottish Oceanographical Laboratory, is crowded with details concerning the spawning, distribution of larval and post-larval forms, and vertical distribution of the young of a large number of fishes, representing no fewer than nineteen families. Several figures accompany the report, which will prove of much service to British ichthyologists.

The Marine Biological Association of the West of Scotland has issued the Annual Report for 1913, from which we are pleased to notice that much good work continues to be done at Millport. During the year eleven species have been recorded as new to the area investigated, while short notices are given of several papers which have appeared during the year as the result, wholly or in part, of work done in the station.

An account of the love-song, and of the prolonged, patient, and ineffective attempts of several males of a familiar Grasshopper, *Gomphocerus maculatus*, to woo an unwilling female, is given in the *Entomologist* by S. E. Brock, from observations made at Kirkliston ;² and in the same magazine (p. 80) is to be found a careful description of the larval development of the common Dragon-Fly, *Sympetrum striolatum*. With the voracity of the nymphs everyone is familiar, but it is amazing, nevertheless, to find that although they were fed on bloodworms almost daily, they "would sometimes eat as many as eight in succession, though each was as long as the nymph itself." A detailed study of the development of

¹ Pp. 327-394.

² *Entomologist*, March 1914, p. 104.

the curious rectal gills of Libellulid Nymphs settles the question of the development of those extraordinary organs. The gill-plates are transferred with little modification of the adult body, when they are eliminated or degenerate gradually.¹

The study of the "lesser fleas" proceeds apace. No fewer than thirteen different species of protozoa have been identified by Doris L. Mackinnon from the food canal of the larvæ ("leather-jackets") of Scottish Crane-Flies, and in a recent paper the authoress draws attention to a new species of Amœba, *Löschia hartmanni*, discovered in this limited field.²

BIRD NOTES FROM THE ISLE OF MAY— SPRING 1914.

By LEONORA JEFFREY RINTOUL, F.Z.S., H.M.B.O.U., and EVELYN
V. BAXTER, F.Z.S., H.M.B.O.U.

BY the kindness of the Commissioners of Northern Lights we were enabled to return to the Isle of May this spring, and were on the island from the 8th to the 25th May. During this time the lower wind-current was, almost without exception either northerly or westerly, and the upper current as far as we could see was persistently off the north, which weather conditions proved unfavourable to the arrival of any large number of birds, and also militated against the appearance of uncommon visitors. In spite of this a fair amount of migration was observed, and although our list of species only totalled sixty-four, it contained several interesting items.

¹ Berlin, *Entomolog. Zeits.*, vol. lviii. (1914).

² *Archiv f. Protistenkunde*, vol. xxxii., 1914, 267.

There is, too, a never-failing pleasure in the observation of the habits of the land- and sea-birds which breed on the island. On our arrival we were given a small lot of birds which had been killed at the lantern on the night of the 3rd-4th: these comprised a Wood-warbler, a first record for the island, Willow-warblers, a Whitethroat, and a Sedge-warbler. There were some migrants on the May on the 8th, namely, a Carrion Crow, a good many Willow-warblers, three White-throats, about six Fieldfares, a good many Wheatears, a Whinchat, a Redstart, and a Swallow. An Eider had a nest and five eggs, and eight Oyster-catchers were circling near the harbour. Next day a White Wagtail, a Thrush, and some Greater Wheatears had appeared, and the first Fulmar recorded from the May flew close past the south end—a bird of this species was also seen on the 25th. In view of the recent extension of range of the Fulmar, these occurrences strike us as being of interest, possibly a case of "coming events" casting "their shadows before." On the 10th we saw our first Razorbill and Guillemot eggs, and found a newly hatched brood of Rock-pipits. A Carrion Crow and a Hoodie were both on the island on the 11th, and one of the latter species on the 14th, a Peregrine on the 11th, a Linnet on the 13th, and one or two Tree-pipits from the 11th to the 13th. On the 14th small numbers of a good many of our common summer migrants were seen, these being probably our own birds arriving, though some may have been passage migrants, and a Wood-pigeon appeared and stayed till the 16th. The chief arrivals on the 15th were a Pied Flycatcher, a Ring-ouzel, and a Ringed Plover, and we saw the first Kittiwake's egg. On the 16th and 17th there were further arrivals, all of common species, and although there was no big movement there were a good many birds about, the most interesting being Reed-buntings and a Lapwing on the former date, a White Wagtail and a Robin (*Dandalus rubecula rubecula*) at the lantern that night, and a Skylark, a good many Spotted Flycatchers, two Garden-warblers, two Swifts, and two Dunlins next day; two Robins of the continental race were also on the island. A Thrush appeared on the 19th, and a Grey-headed Wagtail on the

20th; we flushed it from the grass by the side of the road, and when it rose to fly it repeatedly uttered its loud note: this is the second recorded occurrence of this Wagtail in Forth. Sand-martins were passing on the 21st and 22nd, and a male Pied Flycatcher appeared on the former date. The pair of Shags have nested in exactly the same place ever since 1911, and their three bare black babies hatched on the 21st. On the 22nd and 23rd a continental Robin was on the island, and a fresh incursion of summer migrants occurred on the 23rd, there being quite a rush of Common Wheatears of both sexes, and a good many of these came to the lantern in the early morning. Five Golden Plover passed about midday, going due north at a great pace, while the only Common Sandpiper of our visit was noted on the 24th. Fieldfares were seen up to the 23rd May, Purple Sandpiper to the 20th, the greatest number seen being on the 13th, when twenty-two were counted; Curlew to the 15th, and Turnstones till the 24th. Lesser Black-backed Gulls were more *en evidence* this year than ever before in spring; some were on the island throughout our stay, the majority being adult birds. The stock of Tree-sparrows has dwindled to three, and we know of one nest. On several occasions we watched male Greater Wheatears displaying,—they crouched down, spreading and depressing their tails so that the white was very conspicuous, and uttering a peculiar sharp note, then lifted their wings stiffly and remained so for a moment. They also sang vigorously.

On 16th May, when looking at the birds breeding on the cliffs, we watched a pair of Kittiwakes that were standing on a nest, and saw the one that had been sitting on the nest apparently fed with regurgitated food brought up by the other. The one on the nest we took to be the female, she seemed to ask to be fed, making queer coaxing noises and sometimes a clapper-like sound, caressing the head and beak of the other with her bill, and sometimes striking an attitude with bill straight down on the nest. Her mate, after a good deal of coaxing, opened his beak wide, and she thrust hers right down his throat, then withdrawing it she swallowed something. This occurred several times; there was nothing

in the nest on which they were standing while this went on. We saw immature Kittiwakes up to about thirty in number on the ledges near the breeding colony, and once or twice we saw an adult and an immature bird standing together on a ledge among the nesting birds, but the birds in immature plumage were never on or beside a nest. Some of the Kittiwakes were nesting right inside the caves, where the sun could never touch them. The cliff-breeding birds are distinctly increasing in number, details of which will be found in a separate note. We hope to return to the Isle of May in autumn, and trust we may then have much to record in the pages of the *Scottish Naturalist*.

RARE BIRDS IN ABERDEENSHIRE IN 1913.

By A. LANDBOROUGH THOMSON, M.A., M.B.O.U.

A BARE statement of the following records has already been contributed to the *Report on Scottish Ornithology for 1913*, but they are perhaps sufficiently important to deserve separate and detailed publication in these pages.

WHITE'S THRUSH (*Turdus varius*).

An example of this species killed itself against a window in the Castlehill, Aberdeen, on 6th October 1913. It was at once brought to the late Mr George Sim's shop, where I saw it some time later. There is not the slightest reason to doubt the history of the specimen, which thus constitutes the second record for Scotland.

HONEY BUZZARD (*Pernis apivorus*).

A male was shot at Kemnay, on 15th August 1913 (*vide* J. Mutch, in whose shop I afterwards saw the specimen).

TURTLE DOVE (*Turtur turtur*).

An immature example was shot near Fraserburgh, on or about 4th October 1913 (*vide* J. Mutch, in whose shop I saw the specimen a few days later).

BUFFON'S SKUA (*Stercorarius parasiticus*).

A specimen in adult plumage was shot at the Mains of Auchreddie, New Deer, on 19th May 1913. It was sent to the University by Mr Henry Cowie, M.A., and examined by me on the 21st. It was afterwards dissected by Miss L. Florence, B.Sc., in connection with the Food of Birds Inquiry. The bird was then found to be a female with well-developed but not enlarged ovary. The stomach contained, in addition to stones and sand, the remains of an earthworm, of a beetle, of a beetle larva, of a "leather-jacket," of a Dipteron, of an earwig, and of two weevils of different species. The occurrence of an adult example in summer is remarkable; the locality, moreover, is an inland one. The specimen is now in the University Museum.

BLACK-THROATED DIVER (*Colymbus arcticus*).

An adult in full plumage was drowned in the salmon nets at Peterhead, on 30th June or 1st July 1913. It was sent to us for examination, and preserved for the University Museum. It was a female (ovary not enlarged). Here also the season is a remarkable one for the occurrence of an adult example.

BLACK-HEADED GULLS IN DUMFRIESSHIRE.

By HUGH S. GLADSTONE, M.A., F.R.S.E., F.Z.S.

WHEN compiling *The Birds of Dumfriesshire* (1910) I took considerable pains to ascertain the number of Black-headed Gulls (*Larus ridibundus*) nesting in the county, and also how long the different "gulleries" had then been in existence. This year, 1914, I took steps to find out whether the Gulls were increasing or decreasing at their nesting places, and the following shows the results of my inquiries. The page references are to *The Birds of Dumfriesshire*, where a succinct account of the earlier history of these "gulleries" is given:—

CAERLAVEROCK PARISH (p. 432).

Eastbank foreshore: about 400 nests in 1909. About half of the gulls left here in 1911, and the remainder left in 1912, presumably for the gulleries in Lochar Moss (*vide infra*, DUMFRIES and TORTHORWALD PARISHES). In 1913, 1 nest near Bowhouse Point; in 1914, 8 nests.

CLOSEBURN PARISH (p. 432).

Townfoot Loch: 300 to 400 nests in 1909; 600 to 800 nests in 1914.

DUMFRIES PARISH (p. 432).

Racks Moss: about 800 nests in 1908; about 800 nests in 1914.

DURISDEER PARISH (p. 432).

Cleughhead: 160 to 180 nests in 1908. The loch was partially drained in 1914, and all nests destroyed except three with one egg and one with two eggs (19th May 1914).

Muiryhill Loch: 40 to 60 nests in 1908. The gulls ceased nesting here in 1911.

ESKDALEMUIR PARISH (p. 432).

Langshawburn Loch: about 200 nests in 1908; about 100 nests in 1914, annually decreasing.

Tanlawhill: about 200 nests in 1908; 30 nests in 1914.

Foulbog: 20 nests in 1908; 6 or 8 nests in 1914.

GLENCAIRN PARISH (p. 432).

Loch Urr: about 1300 nests in 1910; about 1150 in 1911; and 1200 in 1914.

Stranshalloch Loch: 25 to 40 nests in 1909; 80 to 100 nests in 1914.

KIRKMAHOE PARISH (p. 432).

Black Loch: upwards of 500 nests in 1908; great decrease in 1909; no nests in 1914.

KIRKPATRICK FLEMING PARISH (p. 432).

Raeburn Moss: nests in hundreds in 1908. "The nests vary in number from year to year, and in 1914 there are fewer than there have been for some years (N. Gass, *in litt.*).

PENPONT PARISH (p. 433).

Dhu Loch: about 800 nests in 1908; about 800 nests in 1911; 1000 nests in 1912. The loch was drained and all nests destroyed in 1914.

RUTHWELL PARISH (p. 433).

Longbridgemuir: a gullery here in 1908. No gullery in Ruthwell parish in 1914 (J. Harkness, *in litt.*).

SANQUHAR PARISH (p. 433).

Black Loch: about 200 nests in 1908. In 1910 there was a decided decrease in the number of nests, but in 1914 there were about 200.

TORTHORWALD PARISH (p. 433).

Racks Moss (on Brocklehurst property): upwards of 200 nests. This gullery might be better described as on Ironhurst Moss. Upwards of 600 nests in 1914.

No new "gulleries" of any importance have been discovered in Dumfriesshire since the last census was made of the Black-headed Gulls breeding in the county. From the above figures it will be seen that on that occasion there were upwards of 5300 nests in Dumfriesshire, and that in 1914 there were about 3600.

It only remains for me to thank my numerous correspondents, whose information has enabled me to compile this short paper which it is hoped will be of interest to our readers.

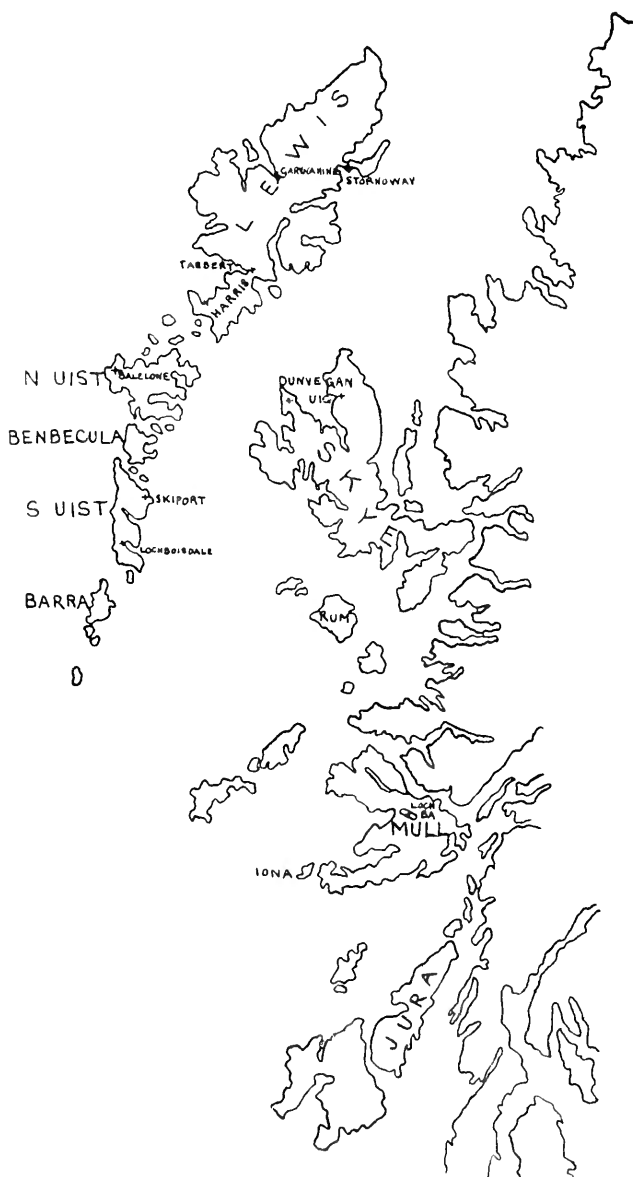
DIPTERA SCOTICA : VI.—THE WESTERN ISLES.

By PERCY H. GRIMSHAW, F.R.S.E., F.E.S.

AFTER a lapse of several years I am once more able to resume my series of articles, commenced in the *Annals of Scottish Natural History*, upon the Diptera of Scotland. The area I propose to deal with in the present contribution is practically untouched ground, for only sixteen species appear to have been recorded hitherto from the islands off our western coast. These records are contained in two notes contributed to the *Entomologist's Monthly Magazine* by C. W. Dale in September 1882 and February 1884 respectively, and in a paper by Messrs A. E. J. Carter and James Waterston, published in the *Annals of Scottish Natural History* for April 1909. In order to render the following list a complete record of what is known regarding the Dipterous fauna of the Western Isles, I have included these previous records and placed them in their proper systematic position.

In undertaking the compilation of this list, I have been in the fortunate position of being able to examine an amount of material which, I believe, represents the most complete collection of Hebridean Diptera ever brought together. The nucleus of this collection consists, in the first place, of a fine series of specimens captured in various islands by Mr Waterston; and secondly, of the results of a trip which I myself made to South Uist in the month of June 1910. My own material was obtained within a few miles of Lochboisdale, and, since I was favoured with exceptionally fine and sunny weather, and as I took care to capture as many species as possible, if only for the sake of record, the collection thus formed may be fairly regarded as a representative one for that neighbourhood. My trip was an official one, and all the specimens obtained are now in the Royal Scottish Museum.

In addition, I have been favoured with a few specimens from Barra and Rum, collected by the Misses Baxter and



Rintoul; a large number from the islands of South Uist, Benbecula, and Lewis, taken by Mr Norman B. Kinnear, of the Bombay Museum; a few flies taken in Mull by Dr Nelson Annandale, of the Calcutta Museum; a few from Mr William Evans, taken in Islay by his daughter; and lastly, one or two specimens from the island of Harris, captured by Mr A. J. H. Edwards.

For the benefit of those who are not familiar with the geography of the Hebrides I append a rough outline map, on which I have indicated most of the localities mentioned in the list.

In the vexed question of nomenclature, I have endeavoured to be up-to-date. In the main I have followed the Palæarctic Catalogue of Becker and others (*Katalog der Paläarktischen Diptera*, Buda-Pest, 1903-7), but have departed therefrom when a more recent Monograph has rendered such a course advisable. Meigen's much discussed paper of 1900 has been followed throughout, for I am convinced that sooner or later we shall have to fall into line with American and continental entomologists, and the sooner we become familiar with Meigen's original names the better. To render the present list a little less revolutionary, however, I have given in parentheses the names of the families and genera as used in Verrall's "List," whenever the unfamiliar names of Meigen's 1900 paper are adopted.

ORTHORRHAPHA NEMATOCERA.

LYCORIIDÆ (SCIARIDÆ).

1. *Lycoria flavipes*, Mg.—2 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston).

FUNGIVORIDÆ (MYCETOPHILIDÆ).

2. *Macrocera centralis*, Mg.—1 ♀, Stornoway, 8th July 1906 (Kinnear).
3. *M. stigma*, Curt.—1 ♂, Benbecula, 7th June 1906 (Kinnear).
4. *Polylepta undulata*, Winn.—1 ♂, Jura, Sept. 1907 (Waterston).
5. *Leia (Glaphyroptera) fascipennis*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston).
6. *Allodia lugens*, Wied.—1 ♀, Jura, Sept. 1907 (Waterston).

7. *Fungivora (Mycetophila) lineola*, Mg.—1 ♂, Dunvegan, Skye, June 1905 (Waterston); 1 ♀, Jura, Sept. 1907 (Waterston).
8. *F. punctata*, Mg.—1 ♂, Dunvegan, Skye, June 1905 (Waterston); 1 ♀, Jura, Sept. 1907 (Waterston).
9. *F. signata*, Mg.—1 ♀, Stornoway, 8th July 1906 (Kinnear).

BIBIONIDÆ.

10. *Scatopse notata*, L.—1, Balelone, N. Uist, June 1905 (Waterston).
11. *S. pulicaria*, Lw.—5, Jura, Sept. 1907 (Waterston).
12. *S. flavicollis*, Mg.—1, Jura, Sept. 1907 (Waterston).
13. *Bibio clavipes*, Mg.—Tarbert, Harris, Sept. 1882—C. W. Dale, *Ent. Mo. Mag.*, xix., p. 238 (1882-3).
14. *B. lacteipennis*, Ztt.—1 ♂, Dunvegan, Skye, June 1905 (Waterston).
15. *B. lepidus*, Lw.—1 ♂, Loch Ba, Mull, October 1907 (Annandale).
16. *B. pomonæ*, Fab.—Tarbert, Harris, Sept. 1882—C. W. Dale, *Ent. Mo. Mag.*, xix., p. 238 (1882-3).
17. *Philia (Dilophus) femorata*, Mg.—2 ♂ and 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♀, Uig, Skye, June 1906 (Waterston); 1 ♂, Skipport, S. Uist, June 1906 (Waterston); 11 ♂ and 8 ♀, S. Uist, June 1906 (Waterston); 3 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston).
18. *P. vulgaris*, Mg.—2 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston).

TENDIPEDIDÆ (CHIRONOMIDÆ).

19. *Corynoneura minuta*, Winn.—1 ♂, Loch Ba, Mull, October 1907 (Annandale).
20. *Tendipes (Chironomus) annularis*, Deg.—1 ♀, Skipport, S. Uist, June 1906 (Waterston); 5 ♂ and 5 ♀, S. Uist, June 1910 (Grimshaw); 2 ♂, Benbecula, 7th June 1906 (Kinnear).
21. *T. aprilinus*, Mg.—1 ♂ and 3 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂ and 5 ♀, Benbecula, 7th June 1906 (Kinnear); 2 ♂ and 1 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
22. *T. chloris*, Mg.—7 ♂ and 7 ♀, S. Uist, June 1910 (Grimshaw).
23. *T. prasinatus*, Staeg.—3 ♂ and ? 2 ♀, S. Uist, June 1910 (Grimshaw).
24. *T. rufipes*, Linn.—A single ♂ of this well-marked and pretty species on the roadside at Lochboisdale, S. Uist, on the 21st June 1910 (Grimshaw).

25. *T. tentans*, Fab.—1 ♂, S. Uist, 13th June 1906 (Kinnear).
 26. *T. viridis*, Mcq.—1 ♂ and 1 ♀, S. Uist, June 1910 (Grimshaw); 2 ♂, Benbecula, 7th June 1906 (Kinnear); 1 ♂, Stornoway, 8th July 1906 (Kinnear).
 27. *Cricotopus motitator*, Linn.—1 ♂, Jura, Sept. 1907 (Waterston); 1 ♀, S. Uist, 13th June 1906 (Kinnear).
 28. *C. pulchripes*, Verrall—A single ♀ of this species, the description of which only appeared in Jan. 1912 (*Ent. Mo. Mag.*, 1912, p. 22), was taken by Mr Waterston in Jura in Sept. 1907.
 29. *C. tremulus*, Linn.—1 ♀, Uig, Skye, June 1906 (Waterston).
 30. *C. trifusciatus*, Panz., var. *tricinctus*, Mg.—1 ♂, S. Uist, June 1910 (Grimshaw).
 31. *Orthocladius sordidellus*, Ztt.—9 ♂ and 7 ♀, S. Uist, June 1910 (Grimshaw).
 32. *Metriocnemus albolineatus*, Mg.—1 ♀, Uig, Skye, June 1906 (Waterston). A beautiful little species, easily recognised by the silvery-white thorax, with three deep black longitudinal stripes. I believe it is rare.
 33. *M. fuscipes*, Mg.—1 ♂, Loch Ba, Mull, Oct. 1907 (Annandale).
 34. *Pelopia culiciformis*, Linn.—2 ♂ and 5 ♀, S. Uist, June 1910 (Grimshaw).
 35. *Ablabesmyia mouilis*, Linn.—1 ♂, Jura, Sept. 1907 (Waterston); 1 ♀, S. Uist, June 1910 (Grimshaw).
 36. *A. nebulosa*, Mg.—4 ♂ and 5 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, S. Uist, 13th June 1906 (Kinnear); 1 ♀, S. Uist, June 1910 (Grimshaw); 1 ♀, Benbecula, 7th June 1906 (Kinnear); 1 ♂ and 2 ♀, Balelone, N. Uist, June 1905 (Waterston).
 37. *A. pygmaea*, V. d. Wlp.—8 ♂, S. Uist, June 1910 (Grimshaw).
 38. *Helea pavidata*, Winn.—5 ♂ and 3 ♀, S. Uist, June 1910 (Grimshaw).
 39. *Culicoides pulicaris*, Linn.—1 ♀, S. Uist, June 1910 (Grimshaw).
 40. *Palpomyia flavipes*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston).
 41. *Serromyia femorata*, Mg.—2 ♂ and 1 ♀, Skipport, S. Uist, June 1906 (Waterston); 1 ♀, Lochboisdale, S. Uist, June 1906 (Waterston); 2 ♀, S. Uist, June 1910 (Grimshaw); 1 ♀, Balelone, N. Uist, June 1906 (Waterston); 2 ♂ and 2 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).

LIRIOPIDÆ (PTYCHOPTERIDÆ).

42. *Liriope (Ptychoptera) albimana*, Fab.—1 ♀, Jura, Sept. 1907 (Waterston).

43. *L. scutellaris*, Mg.—1 ♀, S. Uist, 13th June 1906 (Kinnear);
1 ♂, Balelone, N. Uist, June 1905 (Waterston).

DIXIDÆ.

44. *Dixa æstivalis*, Mg. (*aprilina*, Mg.).—1, Balelone, N. Uist,
June 1905 (Waterston).
45. *D. maculata*, Mg.—1 ♂, Jura, Sept. 1907 (Waterston).

MELUSINIDÆ (SIMULIIDÆ).

46. *Melusina (Simulium) argyreata*, Mg.—2 ♂ and 1 ♀, Jura, Sept.
1907 (Waterston).
47. *M. latipes*, Mg.—6 ♂ and 4 ♀, Jura, Sept. 1907 (Waterston);
1 ♀, Uig, Skye, June 1906 (Waterston); 1 ♂, Benbecula,
7th June 1906 (Kinnear).
48. *M. reptans*, Linn.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston);
4 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston);
Tarbert, Harris, Sept. 1882—C. W. Dale, *Ent. Mo. Mag.*,
xix., p. 238 (1882-3).

ORPHNEPHILIDÆ.

49. *Orphnephila testacea*, Ruthe.—1 ♀, Jura, Sept. 1907 (Water-
ston).

PHRYNIDÆ (RHYPHIDÆ).

50. *Phryne (Rhyphus) fenestralis*, Scop.—1 ♂, Jura, Sept. 1907
(Waterston); 1 ♂, Loch Ba, Mull, Oct. 1907 (Annandale);
1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♂, Uig,
Skye, June 1906 (Waterston); 1 ♂, Lochboisdale, S. Uist,
June 1906 (Waterston); 4 ♂ and 2 ♀, S. Uist, June 1910
(Grimshaw); 2 ♂, Benbecula, 7th June 1906 (Kinnear);
1 ♀, Balelone, N. Uist, June 1905 (Waterston); 1 ♀,
Garynahine, Lewis, 4th July 1906 (Kinnear); 1 ♀, Storno-
way, 8th July 1906 (Kinnear).
51. *Phryne punctata*, Fab.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Water-
ston); 2 ♂ and 2 ♀, Balelone, N. Uist, June 1905
(Waterston).

ITONIDIDÆ (CECIDOMYIIDÆ).

52. *Asphondylia sarothamni*, H. Lw.—1 ♀, Jura, Sept. 1907
(Waterston).

LIMONIDÆ (LIMNOBIIDÆ).

53. *Dicranomyia stigmatica*, Mg.—1 ♀, S. Uist, June 1910
(Grimshaw); 1 ♂ and 1 ♀, Benbecula, 7th June 1906
(Kinnear); 2 ♂ and 3 ♀, Balelone, N. Uist, June 1905
(Waterston).

54. *Rhipidia maculata*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston).
55. *Limonia (Limnobia) macrostigma*, Schum.—1 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston).
56. *L. mitis*, Mg.—4 ♂ and 3 ♀, Jura, Sept. 1907 (Waterston).
57. *L. nebeculosa*, Mg.—1 ♂, 1 ♀, and 1? sex (no abdomen), Jura, Sept. 1907 (Waterston); 1 ♂, Dunvegan, Skye, June 1905 (Waterston); 1 (no abdomen), Uig, Skye, June 1906 (Waterston); 1 ♀, Stornoway, 8th July 1906 (Kinnear).
58. *L. trivittata*, Schum.—2 ♀, Jura, Sept. 1907 (Waterston).
59. *Rhypholophus nodulosus*, Mcq.—2 ♂ and 1 ♀, Stornoway, 8th July 1906 (Kinnear).
60. *R. similis*, Staeg.—1 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
61. *R. varius*, Mg.—5 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston).
62. *Molophilus appendiculatus*, Staeg.—1 ♂ and 3 ♀, Jura, Sept. 1907 (Waterston).
63. *M. obscurus*, Mg.—2 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂ and 3 ♀, Balelone, N. Uist, June 1905 (Waterston).
64. *M. propinquus*, Egg.—1 ♂ and 1 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
65. *Polymeda (Erioptera) fuscipennis*, Mg.—4 ♂ and 1 ♀, S. Uist, June 1910 (Grimshaw); 2 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston).
66. *P. taenionota*, Mg.—3 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 1 ♂, Dunvegan, Skye, June 1905 (Waterston).
67. *P. trivialis*, Mg.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 1 ♂ and 3 ♀, Loch Ba, Mull, October 1907 (Annandale); 1 ♀, S. Uist, June 1910 (Grimshaw).
68. *Symplecta stictica*, Mg.—3 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston).
69. *Gonomyia tenella*, Mg.—3 ♂, Jura, Sept. 1907 (Waterston); 6 ♂ and 8 ♀, S. Uist, June 1910 (Grimshaw); 2 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
70. *Limnophila ferruginea*, Mg.—4 ♂, S. Uist, June 1910 (Grimshaw).
71. *L. lineolella*, Verrall—2 ♂ and 3 ♀, S. Uist, June 1910 (Grimshaw).
72. *L. mcigenii*, Verrall—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 1 ♂ and 1 ♀ (very small specimens), S. Uist, June 1910 (Grimshaw); 1 ♀, Benbecula, 7th June 1906 (Kinnear); 1 ♀, Balelone, N. Uist, June 1905 (Waterston).
73. *L. nemoralis*, Mg.—2 ♂, Garynahine, Lewis, 4th July 1906 (Kinnear).

74. *L. ?sepium*, Verrall—1 ♂, Jura, Sept. 1907 (Waterston).
 75. *Petaurista (Trichocera) hiemalis*, Deg.—2 ♂, Dunvegan, Skye, June 1905 (Waterston).
 76. *Amalopis immaculata*, Mg.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston).
 77. *A. littoralis*, Mg.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston).

TIPULIDÆ.

78. *Tipula fulvipennis*, Deg.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston).
 79. *T. lunata*, Linn.—1 ♂, S. Uist, June 1910 (Grimshaw).
 80. *T. marmorata*, Mg.—1 ♂ and 1 ♀, S. Uist, June 1910 (Grimshaw).
 81. *T. melanoceros*, Schum.—1 ♂, Jura, Sept. 1907 (Waterston).
 82. *T. oleracca*, Linn.—1 ♂, Jura, Sept. 1907 (Waterston); 2 ♂ and 2 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂, Benbecula, 7th June 1906 (Kinnear); 1 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston).
 83. *T. rufina*, Mg.—2 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, Balelone, N. Uist, June 1905 (Waterston).
 84. *T. variipennis*, Mg.—1 ♂, S. Uist, June 1910 (Grimshaw); 1 ♂, Balelone, N. Uist, June 1905 (Waterston).
 85. *Pachyrrhina lineata*, Scop.—4 ♂ and 4 ♀, S. Uist, June 1910 (Grimshaw).

ORTHORRHAPHA BRACHYCERA.

STRATIOMYIDÆ.

86. *Chloromyia formosa*, Scop.—1 ♀, S. Uist, June 1910 (Grimshaw).
 87. *Microchrysa polita*, Linn.—1 ♂, Dunvegan, Skye, June 1905 (Waterston); 1 ♂, Uig, Skye, June 1906 (Waterston). Recorded by Carter and Waterston, *Ann. Scot. Nat. Hist.*, 1909, p. 92.
 88. *Beris vallata*, Forst.—1 ♀, Jura, Sept. 1907 (Waterston); Iona and Jura, Carter and Waterston, *Ann. Scot. Nat. Hist.*, 1909, p. 92.

TABANIDÆ.

89. *Chrysozona (Hematopota) crassicornis*, Whlbg.—6 ♀, S. Uist, June 1910 (Grimshaw); 2 ♀, Garrynahine, Lewis, 4th July 1906 (Kinnear).
 90. *C. pluvialis*, Linn.—1 ♀, Jura, Sept. 1907 (Waterston); 4 ♂ and 35 ♀, S. Uist, June 1910 (Grimshaw); Isle of Harris, 29th July 1883, C. W. Dale, *Ent. Mo. Mag.*, xx., p. 256

(1883-4); 2 ♂, Garynahine, Lewis, 4th July 1906 (Kinnear). Recorded for Jura by Carter and Waterston, *Ann. Scot. Nat. Hist.*, 1909, p. 94.

[It may be of interest to record that an undoubted ♂ of *C. crassicornis* and a ♀ of *pluvialis* were caught by me flying *in coitu* on the roadside at Lochboisdale, S. Uist, on 23rd June 1910.]

91. *Theriotplectes montanus*, Mg.—1 ♀, Rum, 10th June 1910 (Misses Baxter and Rintoul); 1 ♂ and 24 ♀, S. Uist, June 1910 (Grimshaw); 1 ♀, Bunaveneader, Harris, July 1907 (Edwards).

(*To be continued.*)

NOTES.

Large Sturgeon in the Solway Firth.—A Sturgeon was captured at Dornock Brow, near Annan, on 18th July. It measured 9 ft. 2 ins. in length, was 4 ft. 11 ins. in girth, and weighed 350 lbs. This is the largest Sturgeon captured in the locality; one of 336 lbs., taken in the Newbie nets in July 1898 having hitherto been the record.—HUGH S. GLADSTONE, Thornhill, Dumfriesshire.

Scottish Heronries.—In *The Scottish Naturalist* for May last (pp. 112-115), there is a paper on "Scottish Heronries" by Mr Hugh Boyd Watt. On p. 114 under "Argyll and the Inner Hebrides" there is given "Riska Isle, Loch Moidart; eighty to a hundred nests, but it is difficult to state the number definitely.—F. BONNETT." This small island, on which I may mention that Herons have nested only in recent years, is close to my residence. The nests number five. I may add that Riska is the only island in Loch Moidart on which Herons breed.—SYMERS M. MACVICAR, Invermoidart.

Nesting of Twites on Ailsa Craig.—On 20th July two young Twites (*Acanthis flavirostris*) were observed resting on the wire fence that protects the pipe track leading to the north fog-

horn. They allowed of a close approach and then flew up on to the hillside, which is well clothed with long grass at this point. They were afterwards fed by the adult birds, so there can be little doubt of their having nested on the Craig this season. I do not think there are any previous records of this species nesting there.—
CHARLES KIRK, Glasgow.

Dunlin brooding Young Redshanks.—On 26th May 1914, I was photographing a Dunlin at a nest in which the eggs were on the point of hatching. About 15 yards from the Dunlin's nest was that of a Redshank's containing three young, and an eggshell from which one of them had just emerged. After I had obtained several photographs of the Dunlin she stopped coming to her nest, and I noticed that she disappeared in the vicinity of the Redshank's nest. I went forward to this nest and raised the Dunlin from close beside it. I lay down and watched again. She soon came down and disappeared from view beside the Redshank's nest. Presently she emerged carrying something in her bill, which she dropped a short distance away. I went to the spot and found the empty shell from the Redshank's nest. I allowed her to settle, and then quietly approached the Redshank's nest. I could hear the Dunlin keeping up a constant twittering in the nest, and when I was within a few yards she flew off. She had been brooding the young Redshanks. As the bird was very tame I set up my camera a few feet from the nest and sat down behind it. In less than a minute she came on and I got several exposures. It was rather ridiculous to see her trying to cover three young Redshanks. The task was much too large for her, and she could never manage more than two at a time. I wished to see what would happen when the Redshank returned to her nest, but she would not approach when I was near. I therefore left the place and returned in about half an hour, when each bird flew off its own nest. It is probable that the Dunlin mistook the Redshank's nest for her own, the eggs in which were just chipping.—
RUSSELL G. THIN, Edinburgh.

Fulmars and Common Guillemots at Butt of Lewis.—The Fulmars recorded as arriving here in April were stoned and frightened away after a month's residence, their fearlessness making them a tempting target for the local youths. Several pairs again returned about the middle of June, but they are now quite as scary and frightened as are the gulls. They are not yet breeding, but still keep flying around and into every creek as if looking for a convenient situation.

Several pairs of Common Guillemots frequented the cliff here

all June, and nine pairs still remain. With the exception of the single pair which bred last year, this is the first season we have seen any frequent here. As no eggs have been seen we cannot say for certain that they are breeding. The most suitable ledges are taken up by the Kittiwakes, which are more numerous than usual this year.—R. CLYNE, Butt of Lewis.

Fulmars at Fowlsheugh, Kincardineshire Coast.—On 18th June 1914 we visited the famous bird-cliffs of Fowlsheugh, with intent to discover whether the Fulmar had yet extended so far south on the east coast of Scotland. Almost the moment we arrived one sailed past us, along the face of the cliff, and on further investigation we counted ten of these interesting birds flying about or sitting on the ledges. We frequently saw them sitting in two different places pretty close to each other; two were specially faithful to one spot and we quite hoped they had an egg, but on putting them off, found they were sitting on an empty hollow. We noticed, with interest, their rather curious display; two sat facing one another, opened their beaks wide showing all the pale leaden-green interior, and shook their heads from side to side, making the while a clattering sound. When two birds were sitting on a ledge and a third came up and lit, the two made a great deal of noise, clattering loudly at the intruder. This struck us particularly, Fulmars being generally described as very silent birds. Both phases of plumage were represented, one of the ten being of the darker type, the legs and feet were leaden-pink. As Fulmars seem to prospect a new locality for a year or so before breeding there, next year we shall hope to see a colony established on this famous bird-cliff. The formation of the cliffs at Fowlsheugh is "sandstone conglomerate, pierced in many places by dykes and beds of greenstone." They consist largely of round boulders of varying size, cemented together by softer material; every here and there the boulders have fallen out, leaving round holes. Almost every one of these was crammed with breeding birds, and we saw Herring-gulls, Kittiwakes, Razorbills, and Guillemots all nesting in these cavities, sometimes so far in that only the tip of the beak or tail of the sitting bird could be seen. It struck us as curious to find these birds breeding thus under cover; in some cases the Razorbills and Guillemots were packed so tightly that it looked as if not one more could possibly get in. We also noticed that almost all the Kittiwakes' nests were much higher and more elaborately built than those on the cliffs of the Isle of May.—LEONORA JEFFREY RINTOUL, EVELYN V. BAXTER, and L. R. SUTHERLAND, Largo, Fife.

Scottish Land and Fresh-water Mollusca.—Among the "Census Authentications" recorded by W. Denison Roebuck in the *Journal of Conchology* for July (pp. 223-224), we note the following:—KINCARDINESHIRE: *Arion hortensis*, very pale-coloured, Kinneff (Rev. J. R. Fraser); PEEBLESHIRE: *Hyalinia radiatula*, near Peebles (J. E. Black); ROSS, EAST: *Arion ater*, *Limax arborum*, *L.* and *maximus* var. *fasciata*, Cromarty (K. H. Jones).

BOOK NOTICE.

REPORT ON SCOTTISH ORNITHOLOGY IN 1913, INCLUDING MIGRATION.

By Evelyn V. Baxter and Leonora Jeffrey Rintoul. Edinburgh: Oliver & Boyd; London: Gurney & Jackson, 1914. Price 1s. 6d. net.

It is with great pleasure that we again welcome the appearance of this important annual contribution to the history of our British birds. We offer our congratulations to the authors on the excellence of their work, on the comprehensive lines on which it has been prepared, and on the widespread sources from which the vast data on which it is based have been drawn. In this latter respect it reminds us of the doings of the celebrated author of the "American Ornithology," the Scotsman, Alexander Wilson, who wrote from Boston, in October 1808, "I am fixing correspondents in every corner of these northern regions, like as many pickets and outposts; so that scarcely a wren or tit shall be able to pass from York to Canada but I shall get intelligence of it." This is exactly what has been accomplished in Scotland, thanks to the energy of the Misses Baxter and Rintoul, who have enlisted the co-operation of no less than eighty-five recorders between the Tweed and Solway in the south and the northernmost of the Shetland Isles. We must not, however, overlook the personal contributions of the authors, which have added so very much to the value of the Report, but to which no reference is made therein. Some idea of the remarkable extent of the work accomplished during the past year may be gleaned from the fact that the records relate to no less than 223 species and subspecies, six of which are additions to the Scottish avifauna, and one is even a novelty to that of Europe. We should like to make one suggestion, namely, that in future Reports where records of outstanding value have not previously been published, the name of the reporter should be given; this we regard as being of material importance. The Report should be in the hands of all who are interested in the varied phases of bird-life in the British Isles; it is not only of great value to ornithologists, but, from the method of treatment of the subject, it is rendered equally interesting to naturalists generally.

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EDITORIAL.

THE food of the Common Mole forms the subject of an article recently published by Philip Bruce White, of the University College of North Wales, Bangor.¹ This paper summarises the results of the examination of one hundred stomachs which were taken from animals captured in two localities (fifty from each) in Wales. Full details of the stomach-contents are given in the table which concludes the article, and from these it may be gathered that this familiar insectivore is of much service in clearing the soil of injurious insects. The prevalent opinion that earthworms form its principal diet is confirmed, but leather jackets (larvæ of *Tipula* or "Daddy-longlegs") were found in 87 per cent. of the stomachs, and the average number in each stomach was 5.4. The author estimates that a single Mole would destroy in six months no fewer than 3650 of these destructive grubs. Wireworms (larvæ of "Click-Beetles") occurred in 41 per cent. of the stomachs, but on the other hand centipedes, which are to be reckoned useful, were found in 50 per cent. The list of creatures on which the Mole was proved to feed is a very miscellaneous one, and seems to indicate that the

¹ *Journ. Board of Agriculture*, August 1914, pp. 401-407.

animal shows "little discrimination in the choice of its food," and "nothing edible seems too small or too insignificant to be diligently sought and consumed." The subject of the Mole's food is fully dealt with in Barrett-Hamilton's *History of British Mammals*, but it is nevertheless important to be in possession of data compiled from actual dissections. *A propos* of the suggestion, mentioned by Barrett-Hamilton, and regarded by him as improbable, that the Mole may be partly herbivorous, it is interesting to note that the present author says that "though there is no doubt that the vegetable contents of the stomach of the Mole are only accidentally ingested along with animal food—worms in particular—there were found indications that on occasion the Mole may use its small sharp teeth with effect in severing obstructions to its progress through the soil."

In *The Ibis*,¹ Percy R. Lowe upholds the claim to racial separation of the Ringed Plover which breeds in the British Isles, as was proposed by Seebohm, who in 1885 applied to it the trinomial designation *Charadrius hiaticula major*. Mr Lowe speaks of it as a quite distinct Western race, larger and paler than the typical continental form, which "is by no means uncommon in the British Isles during at least the autumn migration." Wing measurements of some sixty specimens are given, the averages being 131 mm. for males and 132 mm. for females of the Western race, as against 124 mm. for both sexes of the other; *i.e.*, a superiority of about one-third of an inch. Possessors of Scottish examples of Ringed Plover should examine them with a view to establishing records of the occurrence of the typical form on our shores.

A paper by S. E. Brock, on the "Ecological Relations of Bird-Distribution,"² should not be overlooked; it is, indeed, well worth a careful perusal. Animal ecology is still in its infancy, and in no group, perhaps, do greater difficulties present themselves to the student than in that of birds. This is no reason, however, why the subject should not be investigated. Mr Brock's paper, whether we agree with his

¹ *The Ibis*, July 1914, pp. 395-399.

² *British Birds*, July 1914, pp. 30-44.

conclusions or not, has at least the merit of being out of the beaten track.

In a later number of the same Journal¹ two papers may be noticed. The first of these (pp. 83-92) is "A Report on the Land-Rail Inquiry," by H. G. Alexander. From schedules received in 1913 and 1914 a good deal of information has been gained regarding the status of this bird as a breeding species, principally from England. It has been found that from Devon to Lincolnshire, and including the south-east Midlands, the Land-Rail can no longer be regarded as a regular breeding species, while in South Wales, the west of England, and the greater part of the Midlands, a fairly general decrease is taking place. After discussing the various suggested explanations of this decrease, the author expresses himself as not satisfied, and doubts "if enough is known of the bird's requisites to permit even of speculation on the subject." The second paper (pp. 93-94) is by H. W. Ford-Lindsay, recording the occurrence of a new British bird, Rüppell's Warbler (*Sylvia rüppelli*, Temm.) in Sussex. Two males were obtained on 5th May of this year at Baldslow, Hastings. A photograph of the bird is given on p. 94, while the two following pages are devoted to a detailed description of the species.

The article on British Oribatidæ, by the Rev. J. E. Hull, to which we referred last month, has now been completed.² Twenty species are dealt with in this concluding part, eight of which are described as new.

Rev. F. D. Morice continues³ his very useful "Help-notes towards the determination of British Tenthredinidæ, etc." Most of this instalment is devoted to a synopsis of the males of the genus *Tenthredopsis*, a difficult group of species, into which awkward questions of synonymy enter to bewilder the student. Ten species are included in this synoptic table, yet the author confesses himself unable to name specimens of more than three with confidence.

So far as we are aware, few cases of viviparity in

¹ *British Birds*, September 1914.

² *Naturalist*, September 1914, pp. 281-288.

³ *Ent. Mo. Mag.*, September 1914, pp. 209-212.

Beetles are on record. C. B. Williams describes¹ the life-history of *Phytodecta* (*Gonioctena*) *viminalis* as observed in the New Forest. Mature insects and larvæ were found in numbers on willow bushes, and although apparently newly-hatched larvæ were observed, there was not the slightest trace of egg-shells. This circumstance aroused the suspicions of the author, who collected numbers of females for closer observation. The Beetles were watched closely and seen to give birth to tiny orange-coloured larvæ, quite free from any investing membrane. Upon dissection, the ovaries and oviducts of other females were found to contain several larvæ similar to those newly deposited. The life-history of the Beetle is described in full detail, and allusion is made to the fact that in the allied genus *Orina*, several species are known to be viviparous.

An account of the abnormal Sea Urchins in the collection of the Royal Scottish Museum, by James Ritchie and J. A. Todd,² contains descriptions of some rare and highly peculiar specimens from the Moray Firth and Australian seas. To the general reader, one of the most interesting features of this well-illustrated paper lies in the suggestions made as to the course of events following upon a serious accident to a living Sea Urchin. It is shown that, should any section of the shell cease to grow, the place of the deficient area is taken either by enlargements of ordinary plates of the shell in the neighbourhood, or by the creation of an entirely new series of irregular plates bearing no relationship to the normal plates or to their arrangement.

¹ *Entomologist*, September 1914, pp. 249-250.

² *Proc. Roy. Soc.*, Edinburgh, vol. xxxiv., p. 241, 1914.

THE "BLUE FULMAR": ITS PLUMAGE
AND DISTRIBUTION.

BY WILLIAM EAGLE CLARKE.

THE capture of a fine male example of a Fulmar Petrel in the dark phase of plumage at St Kilda—where the bird is not inaptly known as the "Blue Fulmar"—by the Duchess of Bedford during the last week of May, enables me, thanks to Her Grace's kind permission, to give a more detailed description of its plumage than has hitherto, I believe, been published. It also affords an opportunity for offering some information on its geographical distribution, which may not be known to some of our readers. It may further, perhaps, be regarded as a corollary to Dr Harvie-Brown's papers on the past and present distribution of the Fulmar, which appeared in our pages and those of the *Zoologist* during the year 1912.

This dark form appears to be extremely rare in our British seas and to be confined as a native bird, so far as is known, to St Kilda, where a few are annually found amid the vast throng of the ordinary Fulmars for which this little archipelago is so famous. It is one of the very few instances of the interesting phenomenon of Dimorphism to be found among British birds. The general colour of the specimen under notice consists of various shades of the neutral gray of Ridgway's "Color Standards," but these are modified to some extent by a silvery or silken sheen which pervades the entire plumage of the upper surface, including the wings and tail. The mantle, scapulars, wing-coverts (except those of the primaries), and flanks are "neutral gray." The head, hind neck, cheeks, secondaries, and tail are paler, being "light neutral gray"; the under surface paler still, or "pallid neutral gray." The primaries and their coverts, "dark neutral gray." The chin and throat are dull white. As in the adults of the pale or typical form (see *Scot. Nat.*, 1912, p. 103), some of the feathers of the mantle, scapulars, and wing-coverts (except

those of the primaries) are edged more or less broadly with "light drab" (*vide* Ridgway), these edgings on the coverts forming a broken band across the wing. Some of the feathers of the upper and under tail-coverts are also edged with "light drab." A slight tinge of this same colour pervades the whole of the plumage of the under surface below the throat. The dusky patch of hair-like feathers in front of the eye (which is found in both the adults and young of the pale form) are also present. Her Grace describes the tubular nostrils at the time of capture as being dark slate colour, thus differing from those of the pale bird, in which they are light bluish gray. The rest of the bill from the description seems to closely resemble that of the pale form. The length of the bill taken in a straight line from the forehead to the tip is 1.47 ins. (37 mm.); a similar measurement taken from a typical male, also from St Kilda, gives the bill as 1.6 ins. (41 mm.). The outer sides of the tarsus and the toes and their webs are the same colour as the general tint of the plumage: the inner sides somewhat paler. The iris was dark brown. The wing measurements are 12.5 ins. (317 mm.), or rather less than those quoted by Saunders (*Manual of British Birds*) and by Salvin (*B. M. Catalogue of Birds*, vol. xxv.) for the pale form; their measurements being respectively 13.25 ins. (337 mm.) and 13.2 ins. (335.2 mm.).

The coloration of the dark form has been very differently described by some of our leading British ornithologists. Thus Seebohm alludes to it as being a "brown bird"; Yarrell (fourth edition) as "brown"; and other authorities described it simply as "dark slaty gray"; while others again have erroneously considered it as the immature stage of the common bird. Koenig, in his beautiful work *Avifauna Spitzbergensis*, affords us some valuable information regarding this bird, based upon his own personal experience. He describes it as being slate-coloured, with the under side somewhat lighter gray; and furnishes the interesting information that the chicks are uniform smoky-gray. The bill and feet are in general darker. The colour of the beak of adult individuals, says the same author, is really variable. Mostly only the tip is beautifully yellow coloured, but

otherwise entirely dark. In single specimens, on the contrary, the entire bill, with the exception of the nose-tube, is yellow. Intermediate colours are frequently to be met with. Many specimens bear on the nose-tube yellow longitudinal stripes, or this tube is mottled with yellow and black, inwards, however, uniformly yellow. Also the shape of the nose-tube is very different. Sometimes the tube is quite broad and flat, sometimes laterally compressed and provided with raised median margin.

Koenig also tells us that at Spitzbergen and at Bear Island the extremes of both colour phases occur; but by far the greater number observed were of an intermediate phase, the majority of them tending towards the dark phase. The differences in coloration are not, he says, associated in any way with "age-stages" of plumage, as has hitherto been accepted by many ornithologists, but is of a purely individual nature. Indeed these colour differences are manifest in the young in down, some of the chicks having the head, neck, and under surface light whitish gray, and others uniform smoky-gray. Thus, as Koenig says, already in the young in down the colour-differentiation is evident.

The exact geographical areas in which these dark and pale forms of the Fulmar occur or predominate have not received the attention they deserve. In addition to Koenig's information on this important subject for Spitzbergen and Bear Island, there are, however, the excellent investigations made by Manniche (Denmark ekspeditionen til Gronlands Nordkyst, 1906-1908). These observations were made systematically between the Shetland Islands and the east coast of Greenland as far north as $80^{\circ} 20'$. The first Fulmars were observed a little north of the Shetland Isles on 9th July 1906, and were all pronouncedly pale birds, as were also the Fulmars seen at the Faroes. In the Atlantic the Fulmars that came under notice until 24th July (when the ship was in lat. $66^{\circ} N.$, long. $11^{\circ} 56' W.$) were all of the light form; but on that day the first dark bird was seen in company with the ordinary form, and appeared to be a little smaller than the rest. On the following day, about thirty Fulmars were observed, two of which were dark. Off Jan Mayen, on the 27th, many were

seen, most of which were pale birds. On the following day, in lat. $71^{\circ} 28' N.$, long. $5^{\circ} 8' W.$, more Fulmars were observed than hitherto, the pale form still being far the commonest. In lat. $74^{\circ} 30' N.$, long. $3^{\circ} 15' W.$, many were seen in the pack-ice close to the ship, the dark form apparently predominating. On the following day, 31st July, under the same conditions, in lat. $75^{\circ} N.$, fifty birds were seen, 75 per cent. of which were dark examples, while a few were transition forms between the dark and light phases. On 3rd, 4th, 8th, and 9th August in lat. $75^{\circ} 56' N.$ in the pack only dark birds were seen. On the 11th in lat. $75^{\circ} 50' N.$, long. $16^{\circ} 10' W.$, two dark and one very small pale bird were seen; and the latter, or a similar bird, was seen on the following day off the Koldeway Islands. This appears to be the last observation for the year 1906. On the 17th of April 1908 in lat. $79^{\circ} 45' N.$ five or six dark birds were observed on open spots in the ice. On the 20th, at Mallemukfjeldet (lat. $80^{\circ} 12' N.$), Fulmars in hundreds settled high upon the rock at their nesting-places. The great majority of them were dark birds. On 9th and 10th June, in lat. $80^{\circ} 20'$ and $80^{\circ} 10' N.$, Fulmars in great numbers, much greater than before, were noticed, these still being almost exclusively dark birds—the reverse of what occurs at St Kilda, the southern metropolis of the species. The observations made during the return voyage of the expedition confirmed those already quoted for the outward passage; and the conclusion arrived at by Manniche was that this species appears in two forms, a southern pale and a northern dark one, and that there may be deviations from the rule with perhaps transitions from pale to dark. He is of opinion, from the specimens he examined, that in the dark form the bill, as a rule, is shorter and more slender, especially at the hook.

The dark form is also the predominant one in eastern Arctic America; and doubtless also in Novaya Zemlya, whence I have not been able to find any satisfactory information. It has been stated in more than one work that the dark form predominates on the north coast of Iceland; but the Duchess of Bedford informs me that no dark birds came under observation amongst the great numbers seen at Grimsey in July 1910.

The preponderance of the Blue Fulmar in the far north, and its equal abundance with the pale form in the sub-arctic regions, all militate against the probability of those boreal areas having furnished the emigrants which have in recent years so rapidly established themselves in British haunts where they were previously unknown. Had these colonists been of high northern origin there would surely have been among them a fair proportion of dark birds: so far as we know such is not the case, for the ancient southern home of the species, St Kilda, is the only haunt that knows the "Blue Fulmar" as a native of our islands.

LEPIDOPTERA (MOTHS) AND OTHER INSECTS AT SCOTTISH LIGHTHOUSES, CHIEFLY IN THE FORTH AREA.

BY WILLIAM EVANS, F.R.S.E.

(Continued from page 135.)

We now come to the lists of species obtained in the course of the present inquiry.

Until quite recently it was not intended that the scope of the inquiry should extend beyond the limits of the Forth area; but seeing that several lighthouse-keepers in the west and north of Scotland have, during the past twelve months, been kind enough to send me interesting collections, a wider field has come into view. The records from the Forth stations are, however, still kept by themselves and form the main list. Records from Killantringan lighthouse, on the coast of Wigtownshire, are given in a second list; those from Butt of Lewis lighthouse, Outer Hebrides, in a third; and those from Orkney and Shetland lighthouses in a fourth. Supplementary notes concerning some of the species are given at the end. As in my previous

papers on "Forth" Lepidoptera,¹ the arrangement and nomenclature of South's well-known British list have been followed in the case of that group. Where well-established English names exist these have been added, but general adoption of the manufactured English appellations seems both unnecessary and undesirable.

Cordial acknowledgment of my indebtedness to those lighthouse friends who have taken the trouble to secure specimens for identification must not be omitted. Without their kindly and often enthusiastic co-operation, this report would, of course, have been quite impossible. Through their instrumentality fully 6000 Moths, of which over 4000 were furnished by the Isle of May lighthouse alone, and a fair number of other insects have passed through my hands. The greatest number for one night was from the Isle of May in the third week of July, when about 400 Moths representing thirty species were secured, while other not greatly inferior catches have more than once come from that station. At Killantringan 357 belonging to eleven species were boxed on 19th September 1913 in the space of one hour (10 to 11 P.M.). Though never lucky enough to be present on one of these special occasions, I have taken part in the capture at the Isle of May lantern of some 200 specimens in the course of an hour and a half. The weather conditions for a "mothy" night at a lighthouse are much the same as elsewhere—a mild atmosphere, overcast sky (haze or light rain is good), and little or no wind. The actual direction of the wind seems to matter little except in its local bearings, that is, in relation to the environing lands, but it has been observed that at the Isle of May moths frequently come with a north-easterly wind. The time of night at which they chiefly appear varies somewhat with the season; in summer 10 to 11 P.M. and 1 to 2 A.M. are good hours for them, though in point of fact they have been observed coming to the rays at all hours of the night.

The following is a list of the lighthouses from which specimens have been obtained :—

ISLE OF MAY, at mouth of the Firth of Forth; distant

¹ *Ann. Scot. Nat. Hist.*, 1897, pp. 89-110, and 1905, pp. 153-160.

about 5 miles from the nearest point of the Fife coast on the north, and about 9 from the East Lothian coast on the south. The lighthouse stands on the highest part of the island, and from its lantern, at 240 feet above high water, there flashes a 3-million (?) candle-power electric light.

ST ABB'S HEAD, on the coast of Berwickshire; a land station.

BARNSNESS, on low point of land, coast of East Lothian, a few miles south-east of Dunbar. A 565-thousand candle-power incandescent light; 120 feet above high water.

BASS ROCK, about $1\frac{1}{2}$ miles off the East Lothian coast east of North Berwick.

FIDRA, on small island on the East Lothian coast, a few miles west of North Berwick.

INCHKEITH, about mid-channel, 14 miles farther up the Firth; distant 3 miles from Kinghorn (Fife) on the north, and 4 from Leith (Midlothian) on the south.

NORTH CARR LIGHTSHIP, situated about 2 miles off Fife-ness, the north-eastern point of the Forth area.

BELL ROCK, the well-known tower in the North Sea, about 11 miles from the nearest land.

The above are what I call the Forth group of lighthouses. The Bell Rock is no doubt outside the area, but for convenience it may be included for the present.

KILLANTRINGAN, on the coast of Wigtownshire; a land station in the south-west of Scotland.

BUTT OF LEWIS, at the northernmost point of the Outer Hebrides.

AUSKERRY, on one of the easternmost of the Orkney Islands.

FAIR ISLE (SOUTH END), about midway between Orkney and Shetland.

NORTH UNST, on Muckle Flugga, a rock in the extreme north of the Shetland Islands.

Odd records from one or two other stations have also reached me.

The lightkeepers and others who have shown an interest in the inquiry by securing specimens for identification are:— J. S. Ross, Isle of May; R. Wilson and S. Baigrie, Isle of

May, who, ably seconded by Mrs Wilson and Mrs Baigrie, have rendered special service; J. Mowat, Isle of May; Miss L. J. Rintoul and Miss Evelyn V. Baxter, Isle of May; J. Moore, St Abb's Head; D. Stewart, D. Budge, and A. M'Millan, Barnsness; J. M. Campbell, Bass Rock; J. Johnstone, D. M'Donald, and G. Miller, Fidra; W. Begg, Inchkeith; T. Wilson and H. G. Kelcey, North Carr Lightship; C. M'Cormick, Bell Rock; D. A. Mowat, Killantringan; R. Clyne, Butt of Lewis; W. Eagle Clarke, Auskerry and Fair Isle; C. M'Eachern, North Unst. Besides those caught at the lighthouse on the Isle of May, many specimens have been taken at the engine-house and adjoining buildings; these, however, do not strictly come within the scope of this report, and will be dealt with in a paper on the fauna of the island in general. In respect of these latter specimens, acknowledgments are due to J. M'Kenzie, H. M'Innes, W. Mouat, M. Cunningham, and last but not least my friends, Mr and Mrs Ross, whose hospitality I have so often enjoyed.

For help in the identification of a number of the Trichoptera and Diptera respectively, I have to thank Mr Morton and Mr Grimshaw.

I. RECORDS FROM THE FORTH GROUP OF LIGHTHOUSES.

LEPIDOPTERA.

Vanessa urticae, L. (Tortoiseshell).

ISLE OF MAY: a female (♀) of this butterfly was taken at the lantern on the night of 27th May 1912. Other examples have occurred in this lighthouse, and also in that on the Bass Rock and Fidra Island, but not, I understand, at the lantern. Early in April 1910 a Red Admiral (*V. atalanta*) was caught in Mr Ross's house, Isle of May; that, however, is some distance from the lighthouse.

Lycæna icarus, Rott. (*alexis*, Hb.).

ST ABB'S HEAD: a female of the Common Blue Butterfly was taken at the lantern on the night of 1st July 1914 by Mr J. Moore, lightkeeper, from whom I got it next day. Its coming to the light is a fact of considerable interest.

Sphinx convolvuli, L. (Convolvulus Hawk-moth).

NORTH CARR LIGHTSHIP: a specimen (♀) of this large and powerful insect now in my collection was caught on this lightship during foggy weather in the third week of September 1908.

ISLE OF MAY: one (♂) has also been received from this station, where it was captured by Mr Mowat at the lantern shortly before midnight, 30th August 1914—wind N.E., light breeze, rain.

Both may safely be assumed to have crossed the North Sea.¹

Euchelia jacobææ, L. (Cinnabar).

ISLE OF MAY: one (♀), night of 7th June 1911, and one (♂) on night of 27th May 1912.

BASS ROCK: one in June 1912, and three in 1913.

FIDRA: one in summer of 1910, and three in 1913.

INCHKEITH: two, summer of 1912.

Arctia caia, L. (Garden Tiger).

ISLE OF MAY: one (♂), night of 25th July 1912.

BASS ROCK: one (♂) in summer of 1907.

FIDRA: one in summer of 1910.

Spilosoma menthastris, Esp. (The Ermine).

ISLE OF MAY: three (♂), night of 1st June 1911.

ST ABB'S HEAD: two (♂ and ♀), 25th May 1911.

Hepialus humuli, L. (Ghost Moth).

ISLE OF MAY: one (♂), end of June 1910, and another, 8th July 1913; one (♀), middle of July 1913.

INCHKEITH: five (4 ♂ and 1 ♀), June 1914.

Hepialus velleda, Hb. (Northern Swift).

INCHKEITH: three (♂) in summer of 1914.

Hepialus lupulinus, L. (Common Swift).

ISLE OF MAY: one (♂), 8th June 1911, but I am not sure that it was actually taken at the lantern.

¹ When alluding to the wanderings of this fine insect, *ante* p. 62, mention might have been made of a specimen which was found by Mr H. Raeburn at about 8800 feet on the G rner Glacier, Switzerland, in August 1901 (W. Evans, *Ann. Scot. Nat. Hist.*, 1902, p. 56).

Pacilocampa populi, L. (December Moth).

BARNSNESS: one (♂) in end of 1912.

ST ABB'S HEAD: one (♂), evening of 16th November 1913.

Saturnia pavonia, L. (Emperor Moth).

ST ABB'S HEAD: one (♀), 6th May 1912.

Dicranura vinula, L. (Puss Moth).

ISLE OF MAY: one (♂) on or about 20th April 1912.

ST ABB'S HEAD: one (♀), 25th May 1911.

Notodonta dictæa, L. (Swallow Prominent).

ISLE OF MAY: one (♂), 1st June 1911, in early morning.

Notodonta dromedarius, L. (Iron Prominent).

ST ABB'S HEAD: one (♂), night of 27th July 1911.

BARNSNESS: one (♀), night of 22nd June 1913.

Notodonta sicca, L. (Pebble Prominent).

ST ABB'S HEAD: one (♂), 1st July 1914.

Bryophila perla, Fab.

ISLE OF MAY: one (♂), middle of July 1914.

Demas coryli, L. (Nut-tree Tussock).

ST ABB'S HEAD: one (♂), much worn, beginning of July 1913.

Leucania impura, Hb.

ISLE OF MAY: two (♂ and ♀), middle of July 1914.

Leucania pallens, L. (The Wainscot).

ISLE OF MAY: one (♀), beginning of August, and two, night of 13th August 1913; one (♂), night of 12th July 1914.

FIDRA: one in summer of 1911.

Calamia lutosa, Hb.

ISLE OF MAY: two (♂), night of 3rd October 1913.

BASS ROCK: one (♂), end of summer of 1908 (see *Scot. Nat.*, 1913, p. 93).

Hydracia nictitans, Bork. (Ear Moth).

BARNSNESS: one, night of 23rd September 1908.

Hydracia micacca, Esp.

ISLE OF MAY: one, September 1908; two, 5th September 1910, 10 P.M., and one in morning of 13th; one, night of 13th August 1911, one (♂), 23rd September, and one (♀), 11th October; one (♂), September 1912; two on 16th and 27th August, two on 9th, and one on 27th September 1913 (all ♂); one (♂), beginning of August 1914.

ST ABB'S HEAD: one, night of 25th September 1913.

INCHKEITH: one in August 1911; one, night of 26th September 1913.

Axylia putris, Linn.

ISLE OF MAY: one (♀), second half of July 1914.

Xylophasia rurea, Fab.

ISLE OF MAY: two in summer of 1909.

Xylophasia polyodon, L., Dbl. Cat. (Dark Arches).

ISLE OF MAY: the commonest and most frequent visitor to the lantern, my records, which are very numerous, ranging from 1885 down to the present year, and from 18th June (1913) to 26th September (1909). Their numbers are greatest from about the middle of July to the middle of August, when 100 to 200 have frequently been captured in a single night. Both sexes come to the light, but the males predominate (see note at end).

ST ABB'S HEAD: six, six, and fourteen on nights of 12th July 1913, 1st and 14th July 1914 respectively (common at Isle of May on the last-mentioned night).

BARNSNESS: two, 3rd August 1911; nine in August 1912; three, 2nd July 1913; fourteen in July 1914.

BASS ROCK: many, night of 17th August 1909 (common also at Isle of May); five in latter part of July, and one in September 1913; three in August 1914.

FIDRA: a number on various dates from August 1909 to August 1913.

INCHKEITH: ten (7 ♂, 3 ♀), July 1912; ten (8 ♂, 2 ♀), August 1913, and one, night of 26th September; ten (5 ♂, 5 ♀), July 1914.

Charceas graminis, L. (Antler).

ISLE OF MAY: many occurrences from September 1885 onwards; the following are definite:—Common on night of 30th August 1910; ♀, morning of 13th September 1910; common, night of

28th July, ♀, 17th August, and 10 ♂, 1 ♀, 28th August 1911; ♂, 14th August and 5th September 1912; 2 ♂, 6 ♀, 13th, and 2 ♂, 2 ♀, 15th August 1913; five, 3rd September 1913; ♂, 25th July, and 3 ♂, beginning of August 1914.

ST ABB'S HEAD: 27 (9 ♂, 18 ♀), night of 1st August 1914.

BARNSNESS: seven, third week of August 1911.

BASS ROCK: many (both sexes), night of 17th August 1909.

FIDRA: four (♂) in 1910; and others in 1911 and 1912.

INCHKEITH: three (2 ♂, 1 ♀), August 1913; one, night of 26th September 1913.

Cerigo matura, Hufn. (*cytherea*, Fb.).

ISLE OF MAY: one (♀), third week of July 1914.

Luperina testacea, Hb.

ISLE OF MAY: one on night of 14th, six on 17th, and two on 24th August 1911; one, end of September 1912; two (♂), dark var., night of 13th, one (♂) on 15th, and two (♂), dark var., on 27th August 1913; three on 3rd September 1913; three on 13th of August 1914.

BASS ROCK: three (2 ♂, 1 ♀), August 1914.

FIDRA: three in August 1913.

INCHKEITH; one (♂) on or about 13th August 1913.

Mamestra furva, Hb.

ST ABB'S HEAD: three (♀), night of 12th July 1914.

FIDRA: one in summer of 1910.

Mamestra brassicae, L. (Cabbage Moth).

ISLE OF MAY: one, beginning of July 1911; one (♂), night of 12th July, and one, beginning of September 1912; two, night of 18th, and one on 20th June 1913; six (4 ♂, 2 ♀), 9th, and one (♂), 26th July 1913; several, night of 12th, and four about 25th July 1914.

ST ABB'S HEAD: four (2 ♂, 2 ♀), night of 12th July 1913.

BARNSNESS: two, third week of August 1911; three, August 1912.

BASS ROCK: two, August 1912.

FIDRA: two in 1910; one, August 1912.

INCHKEITH: one (♂), night of 12th July 1914.

NORTH CARR LIGHTSHIP: one, night of 1st August 1912.

Apamea basilinea, Fb.

ISLE OF MAY: one (♂), night of 21st June 1914.

INCHKEITH: one (♂), end of June 1914.

Apamea gemina, Hb.

ISLE OF MAY: one (♂), in July 1912.

Apamea didyma, Esp. (*oculca*, Gn.).

ISLE OF MAY: one, end of July 1908; two, beginning of July, and two on night of 20th July 1911; one (♀), 8th August 1911; one, beginning of August, eleven (♂, ♀), night of 13th, and one, (♀), 15th August 1913; three, beginning of August 1914.

FIDRA: one, in summer of 1911, and one in August 1913.

INCHKEITH: one (♂), in summer of 1912.

Note.—*A. unanimitis* has been recorded from the Isle of May, but having seen the specimen, which is in poor condition, I think the identification doubtful.

Miana strigilis, Clerck.

ISLE OF MAY: one (♂), dark variety, July 1914.

Miana fasciuncula, Haw.

ISLE OF MAY: one (♂), on or about 2nd July 1912; thirteen (all ♂), middle of July 1914.

Miana arcuosa, Haw.

ISLE OF MAY: three (2 ♂, 1 ♀), night of 22nd July, and one (♂), August 1912; one (♂), morning of 8th, and nine (all ♂), second half of July 1914.

ST ABB'S HEAD: one (♂), night of 12th July 1911; another (♂), night of 12th July 1914.

FIDRA: one (♂), in summer of 1910.

INCHKEITH: one (♂), July 1913; one (♂), July 1914.

Celena Haworthii, Curt.

ISLE OF MAY: one (♂), between 9 and 10 P.M., 14th August 1911, wind light, S. to E., haze, warm.

(To be continued.)

DIPTERA SCOTICA: VI.—THE WESTERN ISLES.

By PERCY H. GRIMSHAW, F.R.S.E., F.E.S.

(Continued from page 213.)

LEPTIDÆ.

92. *Leptis lineola*, Fab.—Small Isles, Jura—Carter and Waterston, *Ann. Scot. Nat. Hist.*, 1909, p. 93; 2 ♀, Jura, Sept. 1907 (Waterston).
93. *L. scolopacea*, Linn.—1 ♂, Uig, Skye, June 1906 (Waterston).
1 ♂, Vatersay, 2nd June 1910, and 2 ♀, Barra, 2nd and 3rd June 1910 (Misses Baxter and Rintoul); 9 ♂ and 2 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂, Benbecula, 7th June 1906 (Kinnear); 4 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston). See also Carter and Waterston, *Ann. Scot. Nat. Hist.*, 1909, p. 93.
94. *Chrysopilus cristatus*, Fab.—3 ♂, Uig, Skye, June 1906 (Waterston), see also Carter and Waterston, *Ann. Scot. Nat. Hist.*, 1909, p. 94; 4 ♂ and 1 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂, Stornoway, 8th July 1906 (Kinnear).

THEREVIDÆ.

95. *Thereva nobilitata*, Fab.—5 ♂ and 5 ♀, S. Uist, June 1910 (Grimshaw).
96. *T. plebeia*, Linn.—North Uist, June 1883, C. W. Dale, *Ent. Mo. Mag.*, xx, p. 214 (1883-4).

EMPIDIDÆ.

97. *Noeza (Hybos) culiciformis*, Fab.—1 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston).
98. *N. femorata*, Müll.—7 ♂ and 1 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
99. *Bicellaria spuria*, Flin.—2 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, S. Uist, June 1910 (Grimshaw); 1 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
100. *Rhamphomyia albosegmentata*, Ztt.—1 ♂ and 2 ♀, Uig, Skye, June 1906 (Waterston).
101. *R. dentipes*, Ztt.—2 ♂, Dunvegan, Skye, June 1905 (Waterston).

102. *R. hybrida*, Ztt.—3 ♂ and 6 ♀, Jura, Sept. 1907 (Waterston).
This species was only added to the British list a year ago.
(see Collin, *Ent. Mo. Mag.*, 1913, p. 105).
103. *R. plumipes*, Fln.—1 ♀, Dunvegan, Skye, June 1905 (Waterston).
104. *R. spinipes*, Fln.—1 ♂ (immature), Jura, Sept. 1907 (Waterston).
105. *R. variabilis*, Fln.—4 ♂ and 4 ♀, Jura, Sept. 1907 (Waterston).
106. *Empis livida*, Linn.—1 ♀, Balelone, N. Uist, June 1905
(Waterston).
107. *E. palparis*, Egg.—1 ♀, Loch Ba, Mull, October 1907
(Annandale).
108. *E. tessellata*, Fab.—1 ♀, Dunvegan, Skye, June 1905 (Water-
ston); 1 ♂, Uist, June 1910 (Grimshaw).
109. *E. trigramma*, Mg.—1 ♂ and 1 ♀, Dunvegan, Skye, June
1905 (Waterston); 1 ♀, Uig, Skye, June 1906 (Waterston).
110. *Hilara chorica*, Fln.—1 ♀, Jura, Sept. 1907 (Waterston); 1 ♀,
Stornoway, 8th July 1906 (Kinneare).
111. *H. flavipes*, Mg.—2 ♀, Jura, Sept. 1907 (Waterston).
112. *H. litorea*, Fln.—1 ♀, Jura, Sept. 1907 (Waterston).
113. *H. maura*, Fab.—1 ♂, Dunvegan, Skye, June 1905 (Water-
ston); 1 ♂, Uig, Skye, June 1906 (Waterston); 1 ♂ and
1 ♀, Stornoway, 8th July 1906 (Kinneare).
114. *H. pilipes*, Ztt.—1 ♀, Iona, June 1906 (Waterston); 2 ♂ and
1 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂, Balelone, N.
Uist, June 1905 (Waterston). This species is not yet on the
British list, but Lundbeck, in his *Diptera Danica*, part iii.,
p. 173, says he has English specimens sent him by Verrall.
115. *Trichina clavipes*, Mg.—1 ♂, Stornoway, 8th July 1906
(Kinneare).
116. *Ocydromia glabricula*, Fln.—1 ♀, Jura, Sept. 1907 (Waterston).
117. *Heleodromia fontinalis*, Hal.—1, Jura, Sept. 1907 (Waterston);
3, Balelone, N. Uist, June 1905 (Waterston).
118. *Hemerodromia melanocephala*, Hal.—1 ♂, Jura, Sept. 1907
(Waterston).
119. *H. precatória*, Fln.—1 ♂ and 2 ♀, Jura, Sept. 1907 (Water-
ston); 10 ♂ and 3 ♀, Balelone, N. Uist, June 1905 (Water-
ston); 1 ♀, Stornoway, 8th July 1906 (Kinneare).
120. *Dolichocephala guttata*, Hal.—2 ♂ and 1 ♀, Jura, Sept. 1907
(Waterston).
121. *Chelipoda melanocephala*, Mcq.—1 ♀, Jura, Sept. 1907
(Waterston).
122. *Tachypeza nubila*, Mg.—1 ♂, Loch Ba, Mull, October 1907
(Annandale).
123. *Tachista arrogans*, Linn.—3 ♀, Jura, Sept. 1907 (Waterston).

124. *Coryneta (Tachydromia) agilis*, Mg.—1 ♀, Dunvegan, Skye, June 1905 (Waterston).
 125. *C. ciliaris*, Fln.—1 ♂ and 4 ♀, Jura, Sept. 1907 (Waterston).
 126. *C. fasciata*, Mg.—1 ♂, Jura, Sept. 1907 (Waterston); 3 ♀, Uig, Skye, June 1906 (Waterston).
 127. *C. fulvipes*, Mg.—1 ♂ and 2 ♀, S. Uist, 13th June 1906 (Kinnear); 3 ♂ and 2 ♀, S. Uist, June 1910 (Grimshaw); 2 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
 128. *C. longicornis*, Mg.—1 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston).
 129. *C. minuta*, Mg.—1 ♂, Iona, June 1906 (Waterston); 3 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston).
 130. *C. nigritarsis*, Fln.—1 ♀, Lochboisdale, S. Uist, June 1906 (Waterston); 1 ♂, Benbecula, 7th June 1906 (Kinnear).

DOLICHOPODIDÆ.

131. *Dolichopus atratus*, Mg.—4 ♂ and 6 ♀, S. Uist, June 1910 (Grimshaw); North Uist, June 1883, C. W. Dale, *Ent. Mo. Mag.*, xx., p. 214 (1883-4); 10 ♂ and 11 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear); 1 ♂, Stornoway, 8th July 1906 (Kinnear).
 132. *D. atripes*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston).
 133. *D. brevipennis*, Mg.—7 ♂ and 3 ♀, Iona, June 1906 (Waterston); 7 ♂ and 4 ♀, S. Uist, June 1910 (Grimshaw).
 134. *D. nubilus*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, Iona, June 1906 (Waterston); N. Uist, June 1883, C. W. Dale, *Ent. Mo. Mag.*, xx., p. 214 (1883-4).
 135. *D. pennatus*, Mg.—2 ♂, Uig, Skye, June 1906 (Waterston); 4 ♂ and 5 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂, Balelone, N. Uist, June 1905 (Waterston); 1 ♂, Garynahine, Lewis, 4th July 1906 (Kinnear).
 135. *D. plumipes*, Scop.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 4 ♂ and 5 ♀, Iona, June 1906 (Waterston); 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♀, Uig, Skye, June 1906 (Waterston); 1 ♂, Skipport, S. Uist, June 1906 (Waterston); 21 ♂ and 9 ♀, S. Uist, June 1910 (Grimshaw); 3 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston); 8 ♂ and 5 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).

(To be continued.)

NOTES.

Bird Notes from Lauderdale.—One of our keepers saw four strange ducks on a mill-pond. He shot two of them, but, unfortunately, I did not have a chance of seeing the dead birds. He gave me a wing, however, which proves them to have been Pintails (*Dafila acuta*). We have no lochs in Lauderdale, only a few mill-ponds, and these birds are the first of the kind recorded here. The head keeper on the Lauderdale estate sent me a Barn Owl (apparently a male) on Sunday week past. He got it under strange circumstances while fishing after nine o'clock on the Saturday night. The bird passed him on the stream, and he flicked at it with his cast of flies and caught it by one foot, landing it safely. To my great delight, a message came with it saying to be sure and let it away, and not let anyone get it for stuffing. The message was superfluous in itself, but pleasant, as showing a new interest in these birds. They have been with us for two or three years now, after a long absence, not only from Lauderdale but also from the county. It may be interesting to add that I went over in the gloaming to a high stone bridge over one of our streams last night (14th September) and saw a pair of Barn Owls, which have evidently nested in one of the drainage holes opening through the masonry. On 28th August I saw and watched a couple of Green Sandpipers by Lauder. They were beautiful birds and very shy.—WM. McCONACHIE, The Manse, Lauder.

Icterine Warbler in Orkney.—On 10th and 11th June, Icterine Warblers (*Hippolais icterina*), male and female, were killed at the Pentland Skerries, one on each occasion. I sent them to Mr Eagle Clarke, who confirms my identification, and informs me that the species is new to the avifauna of the Orkneys.—JOHN BAIN, Hoy, Orkney.

The Spread of the Starling in Scotland.—The following records may be taken as supplementing in details Dr Harvie-Brown's interesting account of the increase and distribution of the Starling in Scotland, published in the *Annals of Scottish Natural History* for 1895. In that paper no definite record is given for the appearance of the Starling in the Easter Ross district. Mr Thomson, harbourmaster at Portmahomack, in that region of the Moray area, has informed me that in the year 1865, while he was a

scholar in the Old Free Church School still standing between Portmahomack and Balnalruach, a pair of Starlings, the first seen in the district, arrived at the school and built there. Many years ago the late Mr Bisset, an observant farmer in central Aberdeenshire, described to me the surprise with which he had observed the arrival in his stackyard at Ardtannes, Inverurie, of a "most curious bird," the Starling, between the years 1845 and 1848. This was the first example of the bird seen by him, and was stated by him to have been the first seen in the district—a record which falls in line with the general information regarding the "Dee" area, collected by the late Mr George Sim.—JAMES RITCHIE, Royal Scottish Museum.

Carrion Crow in North Uist.—During August and September, this bird (*Corvus corone*), which I understand to be a rarity in these parts, has been evident in some numbers. On 3rd August and 8th September two examples (the latter immature) were killed as vermin, and both of these are now in my possession. During the whole of the period, which I mentioned above, a flock of eight birds was repeatedly observed. Thus, unless the Carrion Crow has been recorded since the publication of Mr Harvie-Brown's avifauna, these must stand as almost unique examples for the Outer Hebrides.—F. S. BEVERIDGE, Vallay, North Uist.

Young Goatsucker at Durriss, Kincardineshire.—On Saturday, 22nd August, a young Goatsucker (*Caprimulgus europæus*) was shot at the base of Cairnmovearn under the impression that it was a hawk. The buffish spots on tail and wings, the softness of the feathers, etc., showed its age, but it was fully grown, and measured 10 ins. in length. The wings were 7 ins. each and the spread 16 ins. The serrations on the middle claw were distinctly seen. Its crop contained a mass of fragments of legs, wings, and antennæ of moths and other insects, with two entire burying-beetles. The record may be of some importance as indicating the date of nesting. The bird is fairly common in "Dee."—A. MACDONALD, Crossroad School, Durriss.

Great Spotted Woodpecker in Dumfriesshire.—On Sunday last (12th July) my keeper saw a specimen of the Great Spotted Woodpecker (*Dendrocopus major*) here. This is the first anyone has seen hereabouts that I have heard of.—N. E. DOUGLAS-MENZIES, Newtonaids, Dumfries.

[Mr Gladstone, in his work on the Vertebrates of Dumfriesshire (1912) describes this species as rare and very local as a resident, and an irregular early winter visitor.—EDS.]

Kingfisher at the Isle of May Lantern.—On the morning of 3rd September I found a Kingfisher (*Alcedo ispida ispida*) lying dead on the roof of the houses, below the lighthouse tower. It must have struck the lantern the previous night; the weather was hazy with a light westerly wind. As the Kingfisher has not previously been recorded from the Isle of May, I think it may be worth a note.—SIM BAIGRIE, Isle of May.

Dotterel at the Isle of May and Mull of Galloway Lanterns.—On the nights of 29th to 30th and 30th to 31st August, Dotterel (*Charadrius morinellus*) were plentiful round the lantern of the Isle of May. I am safe to say there were hundreds of them on the latter night circling round the light. Sometimes they came on in a flock, perhaps newly arrived and attracted by the noise made by those already in the vicinity. A good many struck the glass of the lantern. I picked up four killed and two very badly hurt, while others were dazed for some time. They most often struck when coming up in a flock, and many more must have been hurt. I saw one running about with a broken wing for some days after. The weather on the first night was foggy, wind S.E. to S.W., light; on the latter it was E. and N.E., light breeze, cloudy, rain and fog. There were a good many other birds at the lantern both nights, far the most numerous being Wheatears.—SIM BAIGRIE, Isle of May Lighthouse.

On the night of 29th to 30th August there was a steady drizzle of rain, the wind was blowing lightly from the west, and there were a good many birds about the lantern of the Mull of Galloway, Wheatears being the most abundant. About 10.30 P.M. I first noticed a flock of Dotterel circling round the lantern; three struck shortly after 11, and a little later another came in contact with the dome and was found dead next morning. Just before going off duty I counted the flock and found there were still eleven birds in it.—CHARLES H. BRAID, Mull of Galloway Lighthouse.

[There are few Scottish records of the autumn passage of Dotterel, and the above notes are valuable evidence of a widespread movement of this species on our coasts in the end of August. Mr Baigrie and Mr Braid were kind enough to send specimens of the birds killed to the Misses Baxter and Rintoul.—EDS.]

Death's-head Moth near Peebles.—A specimen of the Death's-head Moth (*Acherontia atropos*) was taken in Lyne Valley, about 7 miles from Peebles, about the beginning of this month. It was captured by a little girl, a daughter of Ferguson the shepherd

at Stevenson Farm. The moth was identified for me by Mr Black, Nether Croft, Peebles. He informs me it is not at all common in this district.—WILLIAM T. BLACKWOOD, Peebles.

Cerigo matura, Hufn., and Luperina cespitis, Fb., in the Forth Area.—In Scotland these two moths seem sufficiently rare to warrant the following records from this—the Forth—district. Of the first, I received a female which was captured at the Isle of May Lighthouse in July last, and in August I took a male of the second near Tynninghame, East Lothian. An old specimen of *C. matura* in my collection is believed to have been taken near Dunbar many years ago. Two examples of *C. cespitis* were, it may be added, received from Killantringan Lighthouse, Wigtownshire, in August.—WILLIAM EVANS, Edinburgh.

Diptera in a Forfarshire Garden.—The interesting Editorial comment in the *Scottish Naturalist* for September on the observations to be made in one's own garden, induces me to write this note on some Diptera I have taken in my garden here during the past summer. They are only the more interesting species taken amongst a great many more common forms. Some were new to my collection, and the three marked with an asterisk are *new* records for Scotland. (1) *Anthrax paniscus*, Rossi., a fine ♀, on 8th July; (2) *Psilopus wiedemanni*, Fln., quite a number in June and July; (3) *Melanostoma ambiguum*,* Fln., a ♂ in April. This is an early spring species, and thus is perhaps overlooked; (4) *Merodon equestris*, F., half a dozen in June. Some very fine specimens of the forms *equestris*, *narcissi*, and *validus*. The garden being well stocked with Dutch bulbs accounts for the presence of this handsome fly; (5) *Melanophora roralis*,* L., ♂, 28th June. (I had previously taken this species at Musselburgh); (6) *Stevenia maculata*, Fln., two in June. Aberlady, I think, is the only previous Scottish record; (7) *Pegomyia setaria*,* Mgn., ♂, 17th May. Although recorded by Meade, this species was not included in Verrall's List of 1901. It has been recorded from North Kent by H. W. Andrews (cf. *Ent. Mo. Mag.*, 1908, p. 187), and I have a ♀ from Blairgowrie. My specimens agree with the descriptions in Stein's monograph (1906); (8) *Leria modesta*, Mgn., a ♀, on 4th June. This appears to be a scarce species, though widely distributed.—A. E. J. CARTER, Monifieth.

Ridgway's Color Standards.—In our notice of this work on p. 96 we regret that the price is erroneously given as £1, 10s. It should be £1, 15s.—EDS.

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EDITORIAL.

TWO papers recently published by R. I. Pocock indicate certain new directions that may be usefully taken in the study of mammals. The first¹ deals with the "facial vibrissæ," classifying the bristles (whiskers, etc.), according to their position on the head, in a manner which strongly reminds us of the comparatively recent study of "chaetotaxy" or bristle-arrangement in insects, especially Diptera. This paper shows us conclusively that in all the principal orders of terrestrial mammals some of the species possess bristles arranged upon a definite plan. It is also argued that the species which possess a full complement of bristles are of a more generalised type, while those with a defective supply are of a higher derivative type. The second paper² treats of the feet and other external features of the Canidæ or Dog Family, and the Ursidæ or Bear Family. Characters of taxonomic or classificatory value are found in the relative positions of the pads on the soles and heels of these animals, on the shape of the *rhinarium* or nostril-pad, and of the nostrils themselves. It seems to us that some attention

¹ *Proc. Zool. Soc.*, 1914, Part III., pp. 889-912.

² *Ibid.*, pp. 913-941.

might very usefully be given to our British mammals regarding these points, for characters derived from bristles, foot-pads, and nostrils might prove of value, and would be more easily appreciated than the intricate cranial measurements so much in vogue at present.

Entomologists who are interested in the paper now appearing in our pages on Lepidoptera and other Insects at Scottish Lighthouses, by William Evans, should read an article by Commander J. J. Walker on the "Geographical Distribution of *Danaida plexippus*,"¹ a butterfly whose remarkable migrations have led to its being now established in nearly all parts of the world. This important paper is divided into several sections, dealing in the first place with the westward migration of the species as evidenced by its occurrence in New Zealand, afterwards in the Central and North Pacific Oceans, and still later in the Western Pacific, Australia, and the Malay Archipelago. In an eastward direction the butterfly evidently spread from the American Continent to Bermuda, the Azores, and the Canary Islands, the British Islands (where several examples have been captured), and finally the Continent of Europe. Perhaps the most interesting section of the paper is that devoted to the "means of dispersal" of this ubiquitous butterfly.

The habits and characteristics of certain Mites inhabiting the shore at Millport have been studied and reported upon by L. A. L. King.² Four species are dealt with in this paper, which contains many interesting details respecting the food, method of feeding, number of eggs laid, hatching of the eggs, and so on. *Gamasus immanis* lived in situations where Collembola, gnats, dipterous larvæ, Turbellaria, and small Oligochæte worms abounded, but upon experiment it was found that only the last-mentioned were acceptable. Shreds of raw mutton were taken without evil effects, but raw beef apparently proved fatal, for the Mite which ventured upon this strong diet was found dead the next day! The mandibles are stated to be the most useful appendages for feeding purposes. In attacking a worm, "the mandibles are

¹ *Ent. Mo. Mag.*, July to October 1914, pp. 181-193, and 224-237.

² *Proc. Roy. Phys. Soc.*, vol. xix., No. 6, pp. 129-141 (Sept. 1914).

plunged into the body," and "the Mite then tugs until a piece of the worm is broken off." The detached fragment is afterwards carried about, to be torn and sucked as required.

Prof. M'Intosh, of St Andrews, has recently published¹ a lengthy but very readable paper entitled, "General Remarks on some Points in the Life-history of the Salmon, and a contrast of its Oviposition with that of a few other types of Teleosteans." In this place it is impossible to summarise a paper of this extent, but we have pleasure in calling attention to it as likely to interest our readers. It is penned in the author's usual lucid style, and gives us within a moderate compass an accurate account of many recent investigations into the habits and life-history of a food-fish of the highest value.

Under the title of "A Fortnight in Shetland" Percy C. Reid contributes² an account of the results of a collecting expedition in search of Lepidoptera during July and August last. The main object was the capture of the rare moth *Crymodes exulis*, of which many examples were obtained. About twenty other species are recorded in this paper, to which reference should be made for details.

The third part of James W. Pryde's "Report on the Annelida Polychæta collected in the North Sea and adjacent parts by the Scotch Fishery Board vessel *Goldsecker*" has just been published.³ It deals with the families Syllidæ, Nereidæ, and Eunicidæ, and includes descriptions of or references to eighteen species, many of which were taken in Scottish waters.

Ornithologists will be much interested in a paper by Julian S. Huxley on the "Courtship-habits of the Great Crested Grebe."⁴ This article forms an important contribution to the theory of Sexual Selection. It is divided into two parts—(1) General, and (2) Special. In the former there are some six sections, dealing respectively with (1) the

¹ *Zoologist*, 15th August 1914, pp. 281-301.

² *Entomologist*, October 1914, pp. 274-276.

³ *Ann. and Mag. Nat. Hist.*, October 1914, pp. 289-315, Plate XVI.

⁴ *Proc. Zool. Soc.*, 1914, Part III., pp. 491-562, Plates I. and II. (Sept. 1914).

possibilities of observation when armed with a good glass, a note-book, and a stock of patience; (2) the bird's appearance, especially the nature of the crest; (3) its annual history; (4) some descriptions of common scenes of courtship; (5) the relations of the sexes; and (6) a general discussion upon the significance of the courtship actions. The second part contains likewise six sections, which give a large amount of detail supplementing Part I., together with a list of papers which should be consulted. The two plates show several of the extraordinary attitudes assumed by the courting birds.

An account of the bird-lice of the genus *Docophorus* found on British Auks has been recently published by the Rev. James Waterston.¹ From the sub-heading of this paper (marked "A") it is evident that this is only the first instalment. It deals with the question of hosts, gives practical hints on collecting, and includes some interesting remarks on parasitism, normal and otherwise. For the purposes of this investigation, over 1000 specimens of *Docophorus* were examined, obtained from forty-four hosts. Seven species in all were taken, and upon analysis of the results it was found (1) that each of the five British species of Auks has a species of *Docophorus* peculiar to itself, at least within the British area; (2) the species of *Docophorus* usually attach themselves either to a group or a genus of birds, not necessarily to one host species, and the fact given under (1) would indicate that the five hosts are each of a separate genus; (3) "stragglers," or accidental occurrences, are also met with, which offer points of interest.

¹ *Proc. Roy. Phys. Soc.*, vol. xix., No. 6, pp. 149-158 (Sept. 1914).

NOTES ON SOME PASSERINE BIRDS FOUND
MIGRATING IN MOULT.

By LEONORA JEFFREY RINTOUL, F.Z.S., H.M.B.O.U., and
EVELYN V. BAXTER, F.Z.S., H.M.B.O.U.

THE subject of moult is one on which perhaps less has been written than on any other phase of bird life, and while the broad facts are generally known, the minuter details have, so far as we know from published information, occupied but little of the attention of ornithologists. It is occasionally stated that birds complete their moult before migrating; that this statement is not uniformly correct is known to every ornithologist who has observed the arrival of Waders on our shores, in late summer and early autumn. The earlier arrivals of Turnstones, Knots, Sanderlings, Bar-tailed Godwits, and Grey Plover—to mention only the more outstanding ones—are often still in breeding dress; the plumage is frequently very faded and shows signs of the wear and tear to which it has been subjected, but the birds are still in the dress in which they spent their brief summer in the Arctic solitudes of the far-off tundras. While this is apparent to every field naturalist, it is, we think, not generally realised that many Passerine species migrate at times in a state of partial moult, this being usually confined to the body feathers. We have for some time been interested in the subject, and, as we have had considerable opportunity of examining birds killed at lighthouse lanterns while in the act of migrating, and as Mr Eagle Clarke has kindly placed at our disposal the large and representative collection of skins at the Royal Scottish Museum, including all his Fair Isle specimens, we think it may be worth while to put on record what we have found. All the material examined has come either from the lanterns or from stations where birds occur only on migration, specially on passage. Some of the undeveloped feathers may, of course, have been replacing others lost through accident, but the majority of the specimens, of which details are given below, were without doubt birds undergoing

an ordinary moult. Being well aware of the danger of drawing conclusions from insufficient evidence, we do not propose to make any deductions, but merely to state as plainly as we can the facts that have come under our notice.

We have examined five Starlings killed at the Isle of May lantern during the great autumn immigrations of the species; of these, a male, got on 8th October 1910, had a good many feathers on back of head, throat, and breast still partly in quill. Of six Siskins, two autumn birds had a good many of the small feathers not fully developed. Greenfinches, Chaffinches, and Bramblings yielded little of interest, the only one worthy of note being a Greenfinch from the Isle of May on 20th November 1911, which had a secondary in each wing partly in quill. As a whole, the Redpolls examined had completed their moult before arriving on our shores; all the *Carduelis linaria holboelli* and *C. l. rostrata* were in perfect plumage, and of twenty-three *C. l. linaria*, four only (autumn birds) showed signs of moult, some of the body feathers being partly in quill. We have had the opportunity of handling twelve of the typical form of Crossbill, *Loxia curvirostra curvirostra*, taken during their irregular visitations to our shores; one female taken on Fair Isle on 13th August 1910 had several feathers on throat and nape still in quill, the rump, tail, and primaries new-moulted, most of the throat and breast feathers and some feathers on the back old, while a male from Foula (Shetland) on 16th August 1894 had some feathers on back and chin partly in quill. A Linnet (late October 1911, Isle of May) and a Northern Bullfinch (3rd November 1910, Fair Isle, ♀) each had one or two feathers on the back not fully developed. We have examined a good many Buntings taken while on migration; these included Reed-buntings, Ortolans, Corn-buntings, Little, Lapland, and Snow-buntings, but in no case have we found any sign of moult.

Wood-larks yielded nothing of interest; but of fourteen Skylarks examined, a female got at the Isle of May lantern on 10th October 1910 had all the tail feathers partly in quill, while two others, also autumn birds, had a few feathers on breast and back of head not fully developed. Of six autumn

Shore-larks examined, one had feathers on the back partly in quill, while the only spring bird showed no sign of moult. Pipits and Wagtails moult twice a year (Hartert's *Die Vögel der paläarktischen Fauna*, p. 264); of the Tree- and Meadow-pipits examined, the autumn birds had all completed their moult, but two spring Meadow-pipits from Pentland Skerries on 21st and 25th March 1914 had many of the small feathers partly in quill. The Grey, Yellow, Grey-headed, and Blue-headed Wagtails examined were all in excellent plumage, with the exception of one Grey-headed Wagtail, a female from the Isle of May (20th May 1914), which had feathers on the rump and throat still partly in quill. White Wagtails are pretty common at some of our migration stations, specially in autumn, and twenty-three specimens were at our disposal; of these, three autumn and one spring bird had feathers on head, nape, or crop not fully developed, while a female from St Kilda (4th October 1911) had some secondaries and a feather on the back partly in quill. Tits so seldom occur on migration that we have only had the chance of examining two Continental Great Tits (*Parus major major*) and a British Long-tailed Tit (*Aegithalos caudatus roseus*), none of which showed any sign of moult. As Goldcrests are strongly attracted by the lanterns, we have been able to examine a good many of them, and find that a very large proportion of them migrate while still in body moult. Of fifteen of the typical *R. r. regulus*, all autumn birds, nine had feathers in quill on the body; the most pronounced example was a female from the Isle of May (8th October 1910), which had one or two feathers on the head, several at the edge of the gape and on the throat, and almost all on the back still partly in quill. The British form (*R. r. anglorum*) too seems prone to migrate before the moult is completed: of twenty-three examples examined, eleven were in this condition. This was the case in spring as well as in autumn; at the former season three were found with new feathers coming on throat and crop, while the most outstanding specimen procured in autumn was a male from the Isle of May lantern (3rd October 1911), which had many feathers on back, throat, and crop partly in quill, and quill still remaining round the bases of all the primaries. Two

Spotted Flycatchers, out of a total of four examined, showed signs of moult; one from the Little Ross lantern (19th August 1914) had three secondaries in the left wing entirely, and two partly in quill, a good many feathers on the top of the head, some on the back, many on the throat, lores, crop, breast, belly, vent, and rump partly in quill, the tail feathers being old. In all probability this was one of our own birds leaving us.

Warblers, as a whole, are strongly attracted by light; we have therefore been able to examine a fairly large series of them. The Phylloscopi were very barren of results; we inspected Chiffchaffs, Northern Chiffchaffs, Siberian Chiffchaffs, Yellow-browed Warblers, Wood-warblers, Willow-warblers, and Northern Willow-warblers, and out of ninety-one skins the only ones which showed any signs of moult were—one Northern Chiffchaff, killed by a cat on the Isle of May, on 7th October 1913, which had a good many feathers on the back, many on the top of the head, nape, ear-coverts, and rump, and a few on the breast partly in quill; and three autumn Willow-warblers, which had body feathers not fully developed. Grasshopper-warblers appear to have a double moult; unfortunately we have only been able to examine three spring birds, all in perfect plumage, clear and bright in colour, with almost no signs of wear, and two autumn birds in a very different condition. One from the Isle of May on 21st September 1908 had all the tail feathers very much worn, wing feathers somewhat worn, top of the head very rough (old feathers), back and breast feathers freshly moulted; while a female got on Fair Isle on 22nd September 1913 had no sign of fresh feathers coming, the whole plumage, including the remiges and rectrices, being old and much worn. Of seventeen Sedge-warblers examined, four, all August birds, showed signs of moult: these were in mixed plumage, some feathers being old and worn, others fresh. The most interesting specimen was a female from the Little Ross lantern (17/18th August 1912): this bird had a good many feathers on the nape and back still partially in quill; the other feathers on the back were mostly old, and the tail-coverts were partly in quill; the centre pair of tail

feathers were new, the rest old and worn; primaries worn, secondaries fresh. A male Sedge-warbler killed at the Isle of May lantern on 8th August 1910 had evidently begun to migrate before moulting, as all the feathers, including the quills, were old and very much worn.

Professor Newton in his article on Moults (*Dictionary of Birds*, p. 598) writes: "the Garden-warbler, *Sylvia salicaria*, and the Whitethroats, *S. rufa* and *S. curruca*, are said to moult twice in the year." We have examined a fair series of all three species, and found all the autumn birds in fine fresh plumage, except one Garden-warbler (♀, Fair Isle, 15th September 1905), which had a good many feathers on the head, back, and rump in quill, and two Common Whitethroats from Fair Isle, one of which (15th September 1906, ♀) had the 2nd, 3rd, and 4th primaries in both wings still partly in quill, the old 2nd primary in the right wing still remaining, a good many of the tail feathers still partly in quill, and outer ones not fully grown; the other (9th October 1906) having the outer tail feathers on the left side not fully developed.

With regard to the spring specimens, there would appear to be considerable differences between the species, and even between individuals. All the spring Garden-warblers were in beautiful plumage, none of the feathers, including the remiges and rectrices, showing signs of wear. A female from the Isle of May on 15th May 1913 had an imperfectly developed tail, all the feathers with the exception of the four outer feathers on the right side being only partially grown. There is much more variation between individual Whitethroats: to take the common species first, we have examined sixteen spring specimens, and find that five are freshly moulted birds in beautiful plumage, the wing and tail-quills showing hardly any signs of wear; while three are in an extremely worn condition, the feathers of the tail being worst. These very worn specimens were on passage as late as 24th May. If these were to be breeding birds, it is difficult to see when they would have time to accomplish even a partial moult before beginning to nest. In addition to these we have two freshly moulted Whitethroats, with

the two centre tail feathers only partly grown ; in both cases the rest of the tail looked fresh, while one had an old centre tail feather still remaining. One male from Fair Isle (8th May 1906) had one centre tail feather extremely worn, rest of tail new and about three parts grown ; a male from Little Ross lantern had the small feathers fresh and the four outer tail feathers on the left side only half grown (4th May 1913) ; a female from the Isle of May lantern (17/18th May 1914) had the 5th and 6th primaries in the right wing only half grown, tail feathers old and rather worn, body feathers fresh ; and one male from Fair Isle had a fresh feather in the tail not fully grown, rump and tail feathers much worn, small feathers fresh : all the above had the primaries slightly worn. The other two had the body feathers fresh, and the rectrices and remiges worn, which is what one would expect in view of the statement that only the small feathers are affected by the spring moult (Pycraft, *A History of Birds*, p. 282).

Bearing this statement in mind, it would seem curious that such a large proportion of the spring Whitethroats examined should have partly grown feathers in the tail. Though some are possibly due to accident, it is hardly likely that all are referable to this cause, and one cannot help wondering whether the tail feathers are not also moulted in spring, at any rate in some cases. The same remarks apply to the Lesser Whitethroats : of fifteen spring specimens examined, seven had the small feathers newly moulted, but the wings and tail-quills and tail-coverts old and worn ; three showed no sign of recent moult, the whole plumage being much abraded, specially the centre pair of tail feathers, of which little was left but the shaft ; four were birds in perfect plumage, small feathers and quills alike—these certainly looked as though they had recently undergone a complete moult ; the other bird was in an intermediate state, some of the small feathers being old, others new. Can this diversity be caused by pathological conditions, or is it possible that birds of the previous year undergo a *complete* moult in spring, while the older ones change only the small feathers ?

Fieldfares, Redwings, Missel-thrushes, Ring-ouzels, and Blackbirds yielded nothing of interest. Of seven

Continental Song-thrushes (*Turdus philomelus philomelus*), one, a female from the Isle of May (18th October 1913), had several feathers on the upper back still partly in quill. A great many British Song-thrushes (*T. ph. clarkeri*) kill themselves at the lanterns round our coasts. We have examined fifty-seven, killed during January, March, September, and October; of these, we find eight (2 spring, 6 autumn) with feathers in quill on the crop, while one (30th September 1913, Isle of May, ♀) also had heavy moult on breast and belly. Three Common Wheatears, out of a total of eighteen, showed signs of moult; one at the Isle of May lantern on 29/30th September 1913 had the tail only half grown, one of the old feathers still remaining (*Scot. Nat.*, 1914, p. 108). Of two from the Little Ross lantern on the night of 19/20th August 1914, one had a good many feathers still partly in quill on the back, while the other had the first primary in each wing short and partly in quill, three secondaries in each wing, one or two feathers on the crown, a few on the back, a good many on breast and flanks, partly or wholly in quill. None of the Greater Wheatears, Whinchats, Stonechats, Redstarts, Black Redstarts, and Bluethroats examined showed any sign of moult, except a Whinchat from Little Ross lantern (19/20th August 1914), which had one or two feathers on the crown, all on the lores and ear-coverts, and many on the breast still partly in quill; a Redstart from the Isle of May (1st October 1912), which showed moult on the ear-coverts and throat; and a female Black Redstart from Pentland Skerries on 28th March 1913, which had ear-coverts strongly in moult and feathers on the crop in quill. Continental Robins (*Dandalus rubecula rubecula*) appear to finish their moult before migrating, only one of those we examined having feathers in quill; this was a male from the Isle of May on 1st October 1912. The British sub-species, *D. r. melophilus*, showed more of interest: five out of seven autumn birds having body feathers still partly in quill, this being specially noticeable on the under side. One Continental Hedge-sparrow (*Prunella modularis modularis*), out of four autumn birds examined, had several feathers on the

rump still partly in quill, while as many as six out of ten of the British form, *P. m. occidentalis*, showed signs of body moult; and in addition a male from the Isle of May on 7th October 1912 had one tail feather partly in quill and about three-quarters grown.

As we have examined so many specimens, it is obviously impossible to describe the condition of each one, but we have tried to give a representative few. It would seem that some species of Passerine birds are more liable than others to migrate before the moult is completed, and that even the long over-seas journey from the Continent is frequently undertaken before the new plumage is fully developed. We would reiterate that the above remarks do not profess to be a paper on moult—that we leave to others better qualified than ourselves; they are merely some observations on the state of plumage of birds taken while performing their migration journeys.

BOOK NOTICE.

COMMON BRITISH BEETLES. By Rev. Charles A. Hall, F.R.M.S.
London: Adam & Charles Black, 1914. Price 1s. 6d. net.

This little volume is one of the "Peeps at Nature" series, and forms an admirable introduction to the study of our native Coleoptera. It is principally intended to aid the young collector in the identification of his captures, and to this end the bulk of the book consists of careful descriptions, in simple language, and in systematic order, of the commoner species. The various families under which the species are grouped are also simply diagnosed. The book is embellished with 8 full-page plates in colour, 15 in black and white from photographs, and 5 text-figures. They are all excellent, and since upon the coloured plates we find no fewer than 140 figures representing the species described in the text an idea can be gained of the usefulness of this remarkably cheap volume. Chapter I. gives a general elementary account of the structure of beetles, and serves principally to explain the descriptive terms used in the following chapters. Chapter II. is devoted to an account of the habits of certain selected forms, while Chapter IV. gives some useful practical hints respecting collection and preservation.

LEPIDOPTERA (MOTHS) AND OTHER INSECTS
AT SCOTTISH LIGHTHOUSES, CHIEFLY IN
THE FORTH AREA.

BY WILLIAM EVANS, F.R.S.E.

*(Continued from page 233.)**Caradrina quadripunctata*, Fb.=*cubicularis*, Bork.
(Mottled Willow).

ISLE OF MAY:¹ one (♂), 30th July 1909; two in first week, eight about the 20th, and one (♀) on night of 28th July 1911; eight (5 ♂, 3 ♀) on night of 22nd June, two on night of 3rd July, and one in end of Sept. 1912; for 1913 the records are, one (♂) 8th July, two (♂) 26th July, two 13th August, one (♀) 15th August, one 15th Sept., and one 26th Sept.; and for 1914, two (♂, ♀) on night of 6th June, two (♂, ♀) on night of 7th July, and three in second week of July.

ST ABB'S HEAD: one on night of 29th October 1911.

INCHKEITH: two in end of July 1913; one (♂), beginning of July 1914.

Rusina tenebrosa, Hb.

ST ABB'S HEAD: one (♂), night of 27th July 1911; two (♂), night of 1st July 1914.

Agrotis suffusa, Hb.

ISLE OF MAY: two (♂, ♀), night of 23rd Sept. 1908; one (♀), Sept. 1909; one (♀) on 14th and one (♂) on 17th August, and one (♂) on 11th Sept. 1911; in 1912 captures were made on the following nights, namely, 1 ♂ and 3 ♀ on 4th October, 1 ♀ on 3rd November, 6 ♂ and 7 ♀ on 4th November, and 4 ♀ on 7th November; in 1913 the captures were, eleven on 26th, two (♂, ♀)

¹ In the case of some of the commoner species the records from the Isle of May lighthouse have not all been preserved. The following, however, were inadvertently omitted from the previous instalment of the paper:—*Leucania pallens*: one (♂), about 12th August 1912; and two in third week of July 1914. *Hydracnia micacea*: one on 11th Sept. 1910; one (♂) on 7th and two (♂) on 26th Sept. 1913. *Charaxes graminis*: eight (5 ♂, 3 ♀) on 9th August, twelve (both sexes) on 17th August 1911; and one (♂) on 14th Sept. 1912. *Mamestra brassicae*: one (♂) in first half of August 1912, and two on 21st June 1914. *Apamea didyma*: two on 28th July and one on 24th August 1911; two on 12th, and five about 20th July 1914. *Miana fasciuncula*: three in first week of August 1913. *Miana arcuosa*: four (♂) on or about 12th July 1911.

on 27th, and two (♂, ♀) on 29th Sept.; 4 ♂ and 2 ♀ between 1st and 4th October, 2 ♂ and 3 ♀ on 25th, and 1 ♀ on 29th October.

ST ABB'S HEAD: two on night of 27th Sept. 1913.

BARNSNESS: two (♀), 10 P.M. on 26th October 1913.

FIDRA: one (♂), autumn of 1909; one (♀), 1st November 1913.

Agrotis saucia, Hb.

ISLE OF MAY: two (♂ and ♀) on nights of 26th and 27th Sept. 1913 respectively (see *Scot. Nat.*, 1914, p. 47).

Agrotis segetum, Schiff. (Turnip Moth).

ISLE OF MAY: one (♀), Sept. 1908; a ♀ in end of June, three on 17th August, and a ♂ about 10th Sept. 1911; a ♀ on 3rd, and a ♂ on 25th October 1913.

ST ABB'S HEAD: one on 25th Sept. 1913.

Agrotis exclamationis, L.

ISLE OF MAY: two in beginning of July 1911; 6 ♂ and 1 ♀ on night of 22nd June, ten (♂, ♀) on the 3rd, one (♀) on the 12th July, and one in August 1912; a ♂ on 18th June, and another on 26th July 1913; 5 ♂ and 2 ♀ on 21st June and 7th July, and several on 12th July 1914.

ST ABB'S HEAD: seven (5 ♂, 2 ♀) on night of 27th July 1911; one (♂), 12th July 1913; four (1 ♂, 3 ♀), 12th July 1914.

Agrotis corticea, Hb.

BARNSNESS: one in September 1908.

Agrotis nigricans, L.

ISLE OF MAY: one, 10th Sept. 1907 (Grimshaw, *Ann. Scot. Nat. Hist.*, 1908, p. 89); one (♀) on 20th, and another (♂) on 28th July 1911; several (♂, ♀), 13th August 1913; one on night of 12th July, and three (2 ♂, 1 ♀) in beginning of August 1914.

Agrotis tritici, Linn.

ISLE OF MAY: one (♂), 6th August 1911; one in end of July, and another (♂) about 28th August 1913; and one in end of July 1914.

ST ABB'S HEAD: one (♂) in August, and a worn specimen, which appears to be also referable to this form, on night of 27th Sept. 1913.

BARNSNESS: two (♂) in July 1914.

BASS ROCK: one in summer of 1908.

INCHKEITH: one (♂), end of July or beginning of August 1913.

Agrotis obelisca, Hb.

ISLE OF MAY: 2 ♂, 1 ♀ on night of 14th, five (both sexes) on 17th, and 3 ♂, 2 ♀ on 24th August 1911; 1 ♂, August 1912; 2 ♂, 1 ♀ on 13th, 5 ♂, 5 ♀ on 15th, and twelve (7 ♂, 5 ♀), 27th and 28th August 1913; four (3 ♂, 1 ♀) in beginning of August 1914.

ST ABB'S HEAD: two (♂) on night of 29th August 1913.

BASS ROCK: one (♂) in August 1914.

Agrotis strigula, Thnb. (*porphyrea*, Hb.).

ISLE OF MAY: two (♂) on night of 20th July 1911; one (♂) in end of July 1912; one on night of 12th July, and another in third week of July 1914.

ST ABB'S HEAD: six (2 ♂, 4 ♀) on night of 12th July 1913; twenty-seven (12 ♂, 15 ♀) on night of 12th July 1914.

FIDRA: one in summer of 1910.

INCHKEITH: four (♂) in second and third weeks of July 1914.

Agrotis lucerneae, L. (Northern Rustic).

ISLE OF MAY: one worn specimen (♀), 2nd Sept. 1910; for 1911 the records are—4 ♂ 3 ♀ between 10 and 11 P.M. on 13th July, 6 ♂ 5 ♀ on the night of the 20th, 1 ♂ on the 28th, two on night of 14th August, three on the 17th, and 1 ♂ on the 24th; for 1912—3 ♂ 3 ♀ on night of 22nd June, 1 ♀ on the 27th, twenty-four (both sexes, but females predominating) on 3rd July, 2 ♂ 4 ♀ on the 12th, three on the 22nd, 1 ♀ at beginning of August, 1 ♂ on 14th, and 1 ♀ in middle of September; for 1913—1 ♂ on 18th June, 6 ♂ 1 ♀ on 9th July, 2 ♀ on the 11th, 13 ♂ 8 ♀ on the 26th, 2 ♂ 8 ♀ about 1st August, 2 ♂ 9 ♀ on the 13th, 4 ♂ 7 ♀ on the 15th, and 5 ♀ on the 27th; for 1914—8 ♂ 6 ♀ on 21st June and 7th July, 7 ♂ 2 ♀ on 12th and 13th July, 4 ♂ 14 ♀ in third week of July, and 2 ♂ 3 ♀ in the beginning of August.

FIDRA: three, summers of 1909 and 1910; one (♂) in July 1913.

INCHKEITH: one (♂) in July 1913; one (♀) in July 1914.

Noctua augur, Hb.

ISLE OF MAY: one (♀) in middle of July 1914.

Noctua plecta, L. (Flame Shoulder).

ISLE OF MAY: one (♂), 18th June 1913; two before midnight, 14th June 1914.

Noctua c-nigrum, L.

ISLE OF MAY: one (♀), night of 20th July 1911; one (♀) on or about 12th July, and another (♀) in beginning of September 1912; one (♂), night of 13th July 1914.

ST ABB'S HEAD: four (♂, ♀), 29th October 1911; one (♂), 12th July 1913.

BARNSNESS: two (♂, ♀) on or about 11th October 1911.

INCHKEITH: one (♂) in July 1913; one (♂) in beginning of July 1914, and six (4 ♂, 2 ♀) about middle of month.

Noctua festiva, Hb.

ISLE OF MAY: one (♀), night of 28th July 1911; one (♀) on night of 12th July 1914, and three (♂, ♀) on or about the 18th. All seem to belong to var. *confua*.

Noctua rubi, View.

ISLE OF MAY: one (♀), latter part of July 1914.

Noctua baia, Fab.

ISLE OF MAY: one (♂), beginning of August 1913; and another (♂), night of 12th July 1914.

Noctua xanthographa, Fb. (Square-spot Rustic).

ISLE OF MAY: of this abundant species specimens were taken at the lantern on the following dates:—1911, on nights of August 6th, 9th, 14th (11 ♂, 1 ♀), 17th (seventeen, mostly ♂), on or about 24th (31 ♂, 23 ♀), and 10th Sept.; in 1912 the only records are, five (4 ♂, 1 ♀) and four (♂) in August, and seven in Sept.; 1913, on the other hand, was a prolific year, as the following data show: 3rd August (two), on and about the 13th (fifty-three, mostly ♂), 15th (31 ♂, 8 ♀), 25th to 27th (105, mostly on latter night, and 86 of them ♂), on and about 3rd Sept. (forty), 7th (1 ♂, 2 ♀), 9th (3 ♂, 1 ♀), latter part of Sept., but chiefly on night of 26th (14 ♂, 5 ♀), 27th (2 ♂); in 1914, thirty-nine (23 ♂, 16 ♀) were taken in the beginning of August, and thirty-five (14 ♂, 21 ♀) in first week of Sept.

ST ABB'S HEAD: four on night of 29th August 1913.

FIDRA: one in August 1913.

INCHKEITH: five taken in first half of August 1913, and four on night of 26th September.

(To be continued.)

TANYTARSUS SIGNATUS, V. D. WULP, A NEW
BRITISH FLY.

By PERCY H. GRIMSHAW, F.R.S.E., F.E.S.

ON the 7th July last, while collecting on the roadside at Loch Ossian, Corrou, West Inverness-shire, I came across swarms of tiny midges, which, upon examination, proved to be *Tanytarsus signatus*, Van der Wulp, a species not only new to the British fauna, but one about which little has been written. Indeed the only references I have been able to find are the original description by Van der Wulp in the second volume of the *Tijdschrift voor Entomologie* (1859) and another by the same author in his *Diptera Neerlandica* (1877). Since both these accounts are in the Dutch language and not very accessible to the ordinary worker, it may be useful to give here a new and original description in English, together with a simple figure showing the characteristic markings. I have also added an outline drawing of the male genitalia, which may be of service at some future date, when our native Tendipedidæ are more carefully studied.

♂ Head pale green, palpi light yellowish, eyes black, antennæ with brownish black basal joint and pale brownish plume. Thorax

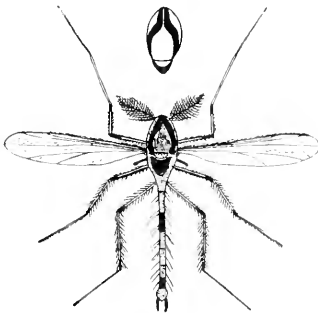


FIG. 1.



FIG. 2.

pale green; on the dorsum two black longitudinal stripes which in the anterior third are straight, parallel, and only separated by a very narrow line of ground-colour (see upper drawing in Fig. 1), while in

the posterior two-thirds they are bent outwards in a curve so as to include the whole width of the dorsum, and extending backwards to the base of the scutellum; the latter pale green, metathorax black with a central basal spot of pale greenish, halteres pale yellowish with black tip. Pleuræ pale green with small black spot below root of wing, sternum black. Abdomen pale or yellowish green, the 3rd and 7th segments black, 8th segment broad and pale, genitalia prominent, with slender forceps (for details, see Fig. 2). Legs pale yellowish and hairy, with the tips of the femora, knees, and tips of tibiæ black; 1st segment of front tarsus twice as long as the tibia and equal in length to the femur. Wings greyish milky, strongly iridescent, surface with rather long hairs which, however, are very liable to be rubbed off; base of fork of 5th vein beyond the level of the cross-vein. Length 2.5 mm.

♀ Like the male, but smaller (1.5 mm.) and paler; antennæ pale yellow, thorax more of a pale yellowish, legs much less hairy, while the black bands on the abdomen show a tendency to break up into spots.

Eight males and one female were captured, and are now in the collection of the Royal Scottish Museum.

DIPTERA SCOTICA: VI.—THE WESTERN ISLES.

By PERCY H. GRIMSHAW, F.R.S.E., F.E.S.

(Continued from page 236.)

137. *Dolichopus popularis*, Wied.—3 ♂ and 6 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♂, Uig, Skye, June 1906 (Waterston).

[*D. punctum*, Mg.—This species was recorded by C. W. Dale from N. Uist, June 1883 (*Ent. Mo. Mag.*, xx., p. 214), but it is very doubtful whether it has ever been taken in Britain.]

138. *D. simplex*, Mg.—2 ♂, Jura, Sept. 1907 (Waterston); 1 ♂, Lochboisdale, S. Uist, June 1906 (Waterston); 2 ♂, Skipport, S. Uist, June 1906 (Waterston); 24 ♂ and 13 ♀, S. Uist, June 1910 (Grimshaw); 2 ♂ and 2 ♀, Balelone, N. Uist, June 1905 (Waterston); 14 ♂ and 10 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear); 9 ♂ and 2 ♀, Stornoway, Lewis, 8th July 1906 (Kinnear).

139. *D. unguilatus*, L.—1 ♂ and 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 2 ♂, Uig, Skye, June 1906 (Waterston).
140. *D. urbanus*, Stann.—4 ♂, Garynahine, Lewis, 4th July 1906 (Kinneair); 2 ♂ and 1 ♀, Stornoway, Lewis, 8th July 1906 (Kinneair).
141. *D. vitripennis*, Mg.—3 ♂ and 5 ♀, S. Uist, June 1910 (Grimshaw); 8 ♂ and 16 ♀, Garynahine, Lewis, 4th July 1906 (Kinneair).
142. *Tachytrechus notatus*, Stann.—1 ♂, S. Uist, June 1910 (Grimshaw).
143. *Hypophyllus obscurellus*, Fln.—1 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston).
144. *Gymnopternus aerosus*, Fln. — 4 ♂, Jura, Sept. 1907 (Waterston); 1 ♂, Dunvegan, Skye, June 1905 (Waterston); 1 ♀, Garynahine, Lewis, 4th July 1906 (Kinneair); 27 ♂ and 7 ♀, Stornoway, 8th July 1906 (Kinneair).
145. *Argyra argentina*, Mg.—2 ♀, Jura, Sept. 1907 (Waterston).
146. *A. leucocephala*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston).
147. *Porphyrops consobrina*, Ztt.—1 ♀, Dunvegan, Skye, June 1905 (Waterston).
148. *Syntormon pallipes*, Fab.—5 ♂ and 3 ♀, Jura, Sept. 1907 (Waterston); 2 ♂ and 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♂ and 1 ♀, Uig, Skye, June 1906 (Waterston); 18 ♂ and 7 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂ and 1 ♀, Benbecula, 7th June 1906 (Kinneair); 1 ♂ and 7 ♀, Balelone, N. Uist, June 1905 (Waterston); 3 ♂ and 7 ♀, Garynahine, Lewis, 4th July 1906 (Kinneair).
149. *S. pumilus*, Mg.—3 ♀, S. Uist, June 1910 (Grimshaw).
150. *Xiphandrium monotrichum*, Lw.—1 ♂, Balelone, N. Uist, June 1905 (Waterston).
151. *Hydrophorus balticus*, Mg.—2 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston).
152. *H. nebulosus*, Fln.—Tarbert, Harris, Sept. 1882—C. W. Dale, *Ent. Mo. Mag.*, xix., p. 238 (1882-3).
153. *Campsicnemus curvipes*, Fln.—2 ♀, S. Uist, June 1910 (Grimshaw).
154. *C. loripes*, Hal.—5 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston); 4 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂, Balelone, N. Uist, June 1905 (Waterston).
155. *Ectomus alpinus*, Hal.—1 ♂, S. Uist, June 1910 (Grimshaw).
156. *Sympycnus annulipes*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, Garynahine, Lewis, 4th July 1906 (Kinneair); 18 ♂ and 2 ♀, Stornoway, 8th July 1906 (Kinneair).

MUSIDORIDÆ (LONCHOPTERIDÆ).

157. *Musidora (Lonchoptera) lutea*, Panz.—4 ♀, Jura, Sept. 1907 (Waterston); 1 ♂ and 2 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♂, Uig, Skye, June 1906 (Waterston); 2 ♀, Lochboisdale, S. Uist, June 1906 (Waterston); 1 ♀, S. Uist, 13th June 1906 (Kinnear); 4 ♀, S. Uist, June 1910 (Grimshaw); 2 ♀, Balelone, N. Uist, June 1905 (Waterston).

[The species of *Musidora* are very little understood, and until the genus is carefully investigated it is difficult to say whether we have more than one species in Britain. The specimens here recorded appear all to be forms of one, although they answer to the descriptions of three or four. I have therefore used the earliest specific name.]

CYCLORRHAPHA.

SYRPHIDÆ.

158. *Pipizella virens*, Fab.—1 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
159. *Liogaster metallina*, Fab.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♂, Uig, Skye, June 1906 (Waterston); 10 ♂ and 4 ♀, S. Uist, June 1910 (Grimshaw); 14 ♂ and 2 ♀, Balelone, N. Uist, June 1905 (Waterston).
160. *Chrysogaster hirtella*, Lw.—1 ♂, Machrie, Islay, 30th August 1904 (Miss Evans); 1 ♂, Dunvegan, Skye, June 1905 (Waterston); 5 ♂ and 2 ♀, Uig, Skye, June 1906 (Waterston); 1 ♂ and 4 ♀, S. Uist, 13th June 1906 (Kinnear); 16 ♂ and 5 ♀, S. Uist, June 1910 (Grimshaw); 2 ♀, Garynahine, Lewis, 4th July 1906 (Kinnear).
161. *Chilosia antiqua*, Mg. (*sparsa*, Lw.)—5 ♂, Dunvegan, Skye, June 1905 (Waterston).
162. *Platychirus albimanus*, Fab.—1 ♀, Uig, Skye, June 1906 (Waterston); 1 ♂, Barra, 3rd June 1910 (Misses Baxter and Rintoul); 1 ♀, S. Uist, 13th June 1906 (Kinnear); 1 ♂, Lochboisdale, S. Uist, June 1906 (Waterston); 1 ♂ and 2 ♀, S. Uist, June 1910 (Grimshaw); 4 ♂ and 1 ♀, Balelone, N. Uist, June 1905 (Waterston).
163. *P. clypeatus*, Mg.—1 ♂ and 3 ♀, Jura, Sept. 1907 (Waterston); 1 ♂, Uig, Skye, June 1906 (Waterston); 1 ♀, S. Uist, 13th June 1906 (Kinnear); 15 ♂ and 14 ♀, S. Uist, June 1910 (Grimshaw); 1 ♀, Benbecula, 7th June 1906 (Kinnear);

- 2 ♂ and 5 ♀, Balclona, N. Uist, June 1905 (Waterston).
[Some of the females may belong to *scambus*, Staeg., but as I cannot distinguish them I have labelled them all *clypeatus*.]
164. *P. manicatus*, Mg.—1 ♂, Iona, June 1906 (Waterston); 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 2 ♂, Uig, Skye, June 1906 (Waterston); 3 ♂ and 2 ♀, S. Uist, June 1910 (Grimshaw); North Uist, June 1883, C. W. Dale, *Ent. Mo. Mag.*, xx., p. 214 (1883-4).
165. *P. scambus*, Staeg.—10 ♂, S. Uist, June 1910 (Grimshaw).
[For females see note under *P. clypeatus*.]
166. *Melanostoma mellinum*, L.—1 ♂, Machrie, Islay, 30th August 1904 (Miss Evans); 1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 3 ♂ and 1 ♀, Uig, Skye, June 1906 (Waterston); 4 ♂ and 8 ♀ (one melanic), S. Uist, June 1910 (Grimshaw); 1 ♂ and 2 ♀ (one melanic), Benbecula, 7th June 1906 (Kinnear); North Uist, June 1883, C. W. Dale, *Ent. Mo. Mag.*, xx., p. 214 (1883-4); 6 ♂ and 4 ♀, Balclona, N. Uist, June 1905 (Waterston); 3 ♂ and 4 ♀, Garrynahine, Lewis, 4th July 1906 (Kinnear); 1 ♂ and 2 ♀, Stornoway, 8th July 1906 (Kinnear).
167. *M. scalare*, Fab.—1 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, Balclona, N. Uist, June 1905 (Waterston); 1 ♂ and 1 ♀, Stornoway, 8th July 1906 (Kinnear).
168. *Ischyrosyrphus glaucius*, L.—8 ♀, Jura, Sept. 1907 (Waterston).
169. *Syrphus cinctellus*, Ztt.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, Dunvegan, Skye, June 1905 (Waterston).
170. *S. grossulariæ*, Mg.—1 ♀, Jura, Sept. 1907 (Waterston).
171. *S. ribesii*, L.—1 ♀, Jura, Sept. 1907 (Waterston).
172. *S. torvus*, Ost.-Sack.—1 ♀, Jura, Sept. 1907 (Waterston).
173. *S. vitripennis*, Mg.—1 ♂ and 2 ♀, Jura, Sept. 1907 (Waterston).
174. *Sphærophoria menthastri*, L. var. *picta*, Mg.—2 ♀, Jura, Sept. 1907 (Waterston); 1 ♂, Uig, Skye, June 1906 (Waterston); 1 ♀, Garrynahine, Lewis, 4th July 1906 (Kinnear).
175. *Neoascia floralis*, Mg.—1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♀, Uig, Skye, June 1906 (Waterston); 2 ♀, Lochboisdale, S. Uist, June 1906 (Waterston); 1 ♂, S. Uist, June 1910 (Grimshaw); 1 ♀, Balclona, N. Uist, June 1905 (Waterston); 1 ♀, Garrynahine, Lewis, 4th July 1906 (Kinnear).
176. *Rhingia campestris*, Mg.—1 ♀, Dunvegan, Skye, June 1905 (Waterston); 3 ♂, Barra, 3rd June 1910 (Misses Baxter and

- Rintoul): 10 ♂ and 5 ♀, S. Uist, June 1910 (Grimshaw);
1 ♂, Balelone, N. Uist, June 1905 (Waterston).
177. *Eristalis arbustorum*, L.—1 ♂ and 1 ♀, Jura, Sept. 1907 (Waterston); 3 ♂ and 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 5 ♂ and 2 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂ and 3 ♀, Balelone, N. Uist, June 1905 (Waterston); 1 ♀, Bunavencader, Harris, July 1907 (Edwards).
178. *E. horticola*, Deg.—1 ♀, Balelone, N. Uist, June 1905 (Waterston).
179. *E. intricarius*, L.—1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♀, S. Uist, June 1910 (Grimshaw); 4 ♂ and 2 ♀, Balelone, N. Uist, June 1905 (Waterston).
180. *E. pertinax*, Scop.—1 ♂, Jura, Sept. 1907 (Waterston); 2 ♀, Stornoway, 8th July 1906 (Kinnear).
181. *E. sepulchralis*, L.—2 ♂, Jura, Sept. 1907 (Waterston); North Uist, June 1883, C. W. Dale, *Ent. Mo. Mag.*, xx., p. 214 (1883-4).
182. *E. tenax*, L.—1 ♀, Jura, Sept. 1907 (Waterston).
183. *Tubifera (Helophilus) lunulata*, Mg.—1 ♀, S. Uist, June 1910 (Grimshaw).
184. *T. pendula*, L.—1 ♂, Machrie, Islay, 30th August 1904 (Miss Evans); 4 ♂ and 2 ♀, S. Uist, June 1910 (Grimshaw); 1 ♂, Balelone, N. Uist, June 1905 (Waterston).
185. *Syritta pipiens*, L.—1 ♀, Jura, Sept. 1907 (Waterston); 1 ♀, Dunvegan, Skye, June 1905 (Waterston); 1 ♂, Uig, Skye, June 1906 (Waterston); 1 ♂ and 1 ♀, S. Uist, June 1910 (Grimshaw); 2 ♂, Balelone, N. Uist, June 1905 (Waterston).
186. *Ferdinanda (Chrysochlamys) cuprea*, Scop.—1 ♀, Dunvegan, Skye, June 1905 (Waterston). This is an interesting record, as it is nowhere a common insect, and particularly rare in Scotland.
187. *Cinxia (Sericomymia) borealis*, Flh.—2 ♂, Jura, Sept. 1907 (Waterston); 1 ♂, S. Uist, June 1910 (Grimshaw).

DORYLAIDÆ (PIPUNCULIDÆ).

188. *Dorylas (Pipunculus) campestris*, Ltr.—1 ♀, Dunvegan, Skye, June 1905 (Waterston).

PHORIDÆ.

189. *Aphiochæta sordida*. Ztt.—1 ♂ and 6 ♀, Jura, Sept. 1907 (Waterston).
190. *Hypocera citreiformis*, Becker.—1, Jura, Sept. 1907 (Waterston).

(To be continued.)

NOTES.

Nesting of the Eider Duck in Tynninghame Woods.—Mr W. Thomson, the head keeper at Tynninghame, East Lothian, tells me that these birds, which formerly only bred among the bents on the links, have been much harried by rooks, which carry off the eggs whenever the old birds are absent, and for the last three or four years they have therefore taken more and more to nesting in the adjacent woods. This year he estimates that something like eighty nests were in the woods, though there are still a certain number of nests on the links outside.—ALICE BALFOUR, Whittingehame.

Lesser Tern in East Lothian.—The keeper at Tynninghame saw one pair of Lesser Terns (*Sterna minuta*) constantly flying about in one particular spot on the seashore this year, and he believes they bred, though he did not find the nest.—ALICE BALFOUR, Whittingehame.

[We have seen an egg of the Lesser Tern taken in the locality alluded to above in June 1908.—EDS.]

Large Numbers of the Lesser Launce in Largo Bay.—When walking along the shore in Largo Bay on 5th July 1914, we were astonished to see vast numbers of tiny fish strewn along high-water mark. For about a hundred yards along the shore they were piled up several inches deep, and extended altogether for about half a mile. We collected specimens and sent them to the Royal Scottish Museum, where they were identified as the young of the Lesser Launce (*Ammodytes tobianus*). A great many Black-headed Gulls, lesser numbers of Common, Herring, Lesser Black-backed, and Greater Black-backed Gulls, and a few Kittiwakes were enjoying this unusual feast: the large majority of all the Gulls, except the Black-headed, were immature.—T. K. and J. H. GASKELL, Largo, Fife.

Convolvulus Hawk Moth in Shetland.—A nice specimen of *Sphinx convolvuli* was taken at the lighthouse shore station on North Unst on 26th August 1914, and kindly sent us by Mr William Crowe, principal lightkeeper at the Muckle Flugga Lighthouse. The wind at the time of capture was southerly, with rain and mist. We notice in Mr Evans' interesting article (*Scot. Nat.*,

1914, p. 229) on Lepidoptera, etc., at Scottish Lighthouses, that a Convolvulus Hawk Moth was caught at the Isle of May lantern, four days after the occurrence of this Shetland specimen. It would be interesting to hear if any other occurrences of this fine moth were noted elsewhere on the East Coast.—LEONORA JEFFREY RINTOUL and EVELYN V. BAXTER, Largo, Fife.

Exochomus quadripustulatus in the Clyde Area.—On 23rd September, while walking along a road in Meikleriggs, a suburb of Paisley, I observed a small, slowly moving object glittering in the sunshine. On capture and examination it turned out to be the Coccinellid (Lady-bird) Beetle, *Exochomus quadripustulatus*. This species appears to be new to the Clyde area. Fowler gives records for the Solway, Tweed, Tay, and Moray districts, but I can find no Clyde record, either in Fowler's *British Coleoptera* or the British Association *Flora and Fauna of the Clyde Area*. My identification has been confirmed by Mr Percy H. Grimshaw, to whom I submitted the specimen.—CHARLES A. HALL, Meikleriggs, Paisley.

Cionus tuberculosus, Scop., in Cantyre.—With reference to Mr Grimshaw's record of the occurrence of this weevil near Oban (*A.S.N.H.*, 1905, p. 56), it may be of interest to note that I found a single example at Tayvallich, in vice-county Cantyre, during the month of August 1901. At the time of capture it was confused with *C. scrophulariae*, L., a closely allied, but commoner species of the genus. Otherwise I have no doubt further specimens might have been taken. The insect occurred on *Scrophularia nodosa*.—ANDERSON FERGUSSON, Glasgow.

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[DECEMBER

EDITORIAL.

TWO papers on the Gannet, by J. H. Gurney, who has made this bird the object of so much careful study, have been recently published. The first of these¹ bears the title, "Are Gannets Destructive Birds?" and deals with the question of the bird's food-supply, and its bearing upon the stock of Herrings round our coasts. It has been alleged that, since the Herring forms the main food-supply of the Gannet, the great quantities devoured by this species must materially affect the stock available for man. But with the aid of figures Mr Gurney shows that the depredations of this interesting member of our avifauna have really little effect, owing chiefly to the extraordinary fecundity of the fish. It is opined, indeed, that but for the Gannet and other piscivorous sea-birds, the seas would soon become overstocked, and the part played by sea-fowl is not inaptly compared with that of birds of prey, which keep a healthy check upon our threatening hordes of rats and mice; or that of small birds, which in the same way prevent a too rapid multiplication of noxious insects. The author estimates that the number of herrings brought into British ports during 1913 approximated *three thousand millions*. In the face of this calculation we can surely feel satisfied that there is no fear of a depletion in the stock of

¹ *Irish Naturalist*, October 1914, pp. 212-213.

this valuable food-fish, and the Gannet and other handsome denizens of our sea-cliffs may be left in peace, to gladden the eye of the naturalist and to add a touch of animation to the lonely stacks and islets which lend variety to our coasts. The second of Mr Gurney's papers¹ deals with the Gannetry at "The Stack," Orkney Islands. The article draws attention to the recent valuable observations by the Duchess of Bedford, as recorded by her in our August issue. One of her photographs (our Plate IV.) is reproduced, as are also the estimates she formed as to the number of birds, breeding or otherwise, which inhabit the island.

The food of nestling Sparrows forms the subject of a paper by Walter E. Collinge.² The observations are based upon the examination of the stomach contents of over 280 specimens, spread over a period of two years, and obtained in both suburban and fruit-growing districts. Tables are given in full detail, and these show conclusively that the staple food consists of injurious insects. Since it may be assumed that during the nesting' period the adult birds partake largely of the same food as their offspring, the rôle of the Sparrow appears, after all, to be a useful one, and the author expresses the opinion that "if this species were considerably reduced in numbers, the good that it would do would probably more than compensate for the harm, especially in fruit-growing districts."

We welcome the appearance of another part of the *History of British Mammals*, the second which has been issued since the lamented death of its original author, Major Barrett-Hamilton. The present Part (number XVI.) appears under the joint authorship of Gerald E. H. Barrett-Hamilton and Martin A. C. Hinton, the latter of whom has undertaken to continue this important work. The subjects dealt with are the Orkney Grass-mouse (*Microtus orcadensis*), a number of locally extinct Voles, the British Water-rat, with its two sub-species the "South British" and the "Black" Water-rats (*Arvicola amphibius amphibius* and *A. a. retz*), the general characters of the sub-family Murinæ, and the genus

¹ *The Ibis*, October 1914, pp. 631-634.

² *Journ. Board of Agriculture*, October 1914, pp. 618-623.

Apodemus. The pressure upon our space prevents further indication of what may be found in Part XVI. of this exhaustive monograph, the contents of which are on the same high level of accuracy and completeness as in the previous numbers.

The study of insects from the all-important economic point of view proceeds apace. An article by R. A. Wardle, on the life-histories of two parasites, one Hymenopterous and the other Dipterous,¹ is of much importance to the cultivator of the Larch, inasmuch as the insects in question prey upon a Sawfly which is extremely destructive to this tree. The paper gives in the first place a useful list of the known parasites of the Sawfly, which, by the way, is known as *Nematus erichsonii*. Then follow an account of the results obtained from rearing the Ichneumonid parasite, *Mesoleius tenthredinis*, and a full account of the structure and life-history of *Hypamblys albopictus*, a second parasite of the same family. The Dipterous parasite is *Zenillia (Myxexorista) pexops*, and since this is new to the British list, it also is described in full detail. An important question raised in this paper is that, since the Dipteran appears to predominate at the expense of the Hymenopteron, future work should be aimed at a study of the respective values which these parasites bear in the control of the Sawfly.

A note by J. C. F. Fryer, on "An Insect Harmful to Newly-budded Rose, Apple, and Plum,"² is of considerable interest. The insect in question is a member of the Cecidomyiidae, or Gall-midge family, by name *Clinodiplosis oculiperda*. The maggot of this fly has caused numerous failures in stocks during the last two years, but only as yet in the southern English counties. Let us hope that the spread of this pest may soon be checked. As a preventive measure it is recommended that the raphia fibre used in tying up the buds be replaced by woollen thread which has been soaked in a mixture of turpentine, linseed oil, and naphthalene, the threads being dried off before using. Gall-midges in general are of much economic importance, for the family includes

¹ *Journ. Economic Biology*, October 1914, pp. 85-104, plates iv.-vi.

² *Journ. Board of Agriculture*, October 1914, pp. 636-637.

such well-known and justly dreaded insects as the Hessian Fly and its relatives. Some idea of the appearance of the younger stages of these insects may be gathered from an illustration accompanying a paper by Percy H. Grimshaw,¹ on a species recently found attacking a certain grass (*Molinia caerulea*) in Yorkshire.

One of the most interesting entomological papers published during the past month is that by H. G. and R. J. Champion, on the "Life-history of *Methoca ichneumonoides*,"² a Hymenopterous insect belonging to the family Mutillidæ. This creature attacks the larvæ of Tiger-beetles (*Cicindela campestris* and *C. sylvatica*), stinging the victim several times in the thorax, thereby paralyzing it, and then depositing a single egg within its body. The attack is made in the burrow of the beetle larva, and after the egg is laid the *Methoca* fills up the burrow with any movable material at hand. The larva which emerges from the egg lives, of course, upon the body-contents of its victim. Many interesting details are given in the article, including numerous observations on the behaviour of females kept in captivity.

Major A. O. C. Watson gives³ a summary of the most interesting Coleoptera, selected from a total of 413 species observed near Aberdeen during the past five years. In the present place we cannot do more than draw the attention of our entomological readers to this useful local list.

Students of Mites should not overlook an important paper by Stanley Hirst, on the species of Acari occurring on the Brown Rat (*Mus norvegicus*) in Great Britain.⁴ In this article, which deals with no fewer than 12 species (poor Rat!), several records from Scotland are included, and a species described as new to science. Three lithographic plates embellish the paper, giving details of structure and the general appearance of the new species.

A paper on a somewhat out-of-the-way but none the less

¹ *The Naturalist*, November 1914, pp. 333-336.

² *Ent. Mo. Mag.*, November 1914, pp. 296-270.

³ *Ibid.*, October and November 1914, pp. 254-258.

⁴ *Bulletin of Entomological Research*, vol. v., pt. 2, September 1914, pp. 119-124.

interesting subject appears from the pen of J. W. Haigh Johnson.¹ It is entitled "A Contribution to the Biology of Sewage Disposal." This article, of which only a portion has as yet appeared, draws attention to the great practical importance of the subject, which is treated under various heads. The first of these comprises a carefully written historical account of the development of sewage-filters; then follows a section on "Organisms as an Index of Pollution," including a list of the more characteristic organisms, arranged according to the pollution intensity. Other sections are held over for a future instalment of the article, which from many points of view is worthy of careful perusal.

In Memoriam.

ALEXANDER M. RODGER

Curator of the Perthshire Natural History Museum.

ON the 13th October 1914 there died in Perth, at the age of forty-five years, Alexander M. Rodger, Keeper of the Museum of the Perthshire Society of Naturalists. His death was unexpected and sudden: he had been working to the end.

Aleck Rodger came to me in his boyhood, more than five and twenty years ago, to help in the little museum that I was then building up in Dundee. He became skilled in all sorts of museum handicraft, and was, in particular, an admirable articulator, turning his hand to the setting up of an elephant's skeleton or a whale's, and again, with more delicate craftsmanship, putting together some disarticulated skull of snake or bird, after the manner in which French osteologists excel. He had in those days considerable opportunities of travel, sometimes alone, sometimes in my own company. So, for instance, he hurried on one occasion to Orkney, where a shoal of Caaing Whales had come in, and brought a rich booty of skeletons and other material home. Then he went a couple of whaling voyages, firstly

¹ *Journ. Economic Biology*, October 1914, pp. 105-124.

with the late Captain Phillips to Newfoundland and Davis Straits, and again to East Greenland with that well-known navigator Captain James Robertson, afterwards of the "Scotia": on each of these voyages he found opportunities for dredging, and returned with a very large collection of Arctic invertebrates. And again he came with me on one of my journeys to the North Pacific, to the Pribyloff and Commander Islands, and to Kamtchatka, photographing and collecting all the while.

About the year 1895, when the Perth Museum was reorganised and its new buildings erected, he was appointed its first Curator. The Perth Museum is by a long way the finest local collection of natural history in Scotland, and though there are many greater collections of the kind elsewhere, I know not one that is more choice and elegant and educative. Many men, living and dead, have helped to make it. Colonel Drummond Hay helped so much that his name cannot be left unsaid. But nevertheless, as the Museum stands to-day, to my thinking it is Aleck Rodger's monument. He lavished patient care on every nook and corner of it. The work he did was not for outward show, but, as it were, "for the gods to see." When, after months of labour on some case of specimens, he at last considered his work done, it was a thing perfect of its kind.

So Aleck Rodger's quiet and modest life passed by, in diligent work, in the study and love of Nature, in home-life of unusual happiness, and, not least, in faithful service to his Church. But across all the years of friendship between him and me, it has seemed to me that his capacity for friendship was his greatest quality. He had the very genius of friendship, and the golden gift of easy, kindly intercourse with all sorts and conditions of men. Among the rough deckhands on board a Greenland whaler, as a guest of the ward-room on board the old *Amphion* or the *Rainbow* in the Pacific, among the lairds of Perthshire and the townspeople of Perth, among the children whom he drew around him in his Museum, it was always the same simple story of mutual confidence and easy, unostentatious popularity.

D. W. T.

NOTES ON HIGH MORTALITY AMONG YOUNG COMMON TERNS IN CERTAIN SEASONS.

By A. RUDOLF GALLOWAY, M.A., M.B., C.M., and A. LANDSBOROUGH
THOMSON, M.A., B.Sc., M.B.O.U.

THE writers of the following notes wish to draw attention to the extraordinarily high "infant mortality" that prevails in certain seasons in some nesting colonies of the Common Tern (*Sterna hirundo L.*). The colony to which their observations relate is one of over a thousand nests, situated on the extensive sands of Forvie, on the Aberdeenshire coast, immediately to the north of the estuary of the Ythan. The seasons in which the high mortality was evident were 1910 and 1912, and the notes for these years are given separately below. Other seasons of which the writers are able to speak are 1907, 1908, 1909, 1911, 1913, and 1914, although only as regards the earlier part of the first two: in all these years nothing more than the normal slight or moderate mortality was recorded, except during a short period in the otherwise favourable summer of 1914, a point which will receive further mention. The two bad seasons stand out in strong contrast to the others by reason of the excessive rate of mortality which then prevailed; on numerous occasions the ground was strewn with many hundreds of dead and dying young, and the total number which survived to take wing in these years must have been pitifully small. Similar occurrences have been reported from colonies in other parts of the British Isles, and, as there is room for doubt as to the cause or causes, the matter seems to be of considerable interest.

The High Mortality at Forvie in 1910.

Unfortunately I saw only the early phases of the high mortality in both 1910 and 1912, owing to absence from Aberdeenshire after the middle of July. For the following observations regarding the former season I am, therefore,

mainly indebted to notes placed in my hands at the time by Miss D. Hamilton, Mr L. N. G. Ramsay, M.A., B.Sc., and Mr A. G. Davidson :—

- (1) Nothing unusual was noted in the last week of June, when a small proportion of the eggs were already hatched. On various dates during the first half of July, scores of dead and few living young birds were found. In the second half of the month the dead were numbered in hundreds, while many living birds that had reached full growth were too weak to fly, and younger birds lay altogether helpless.
- (2) Both Mr Ramsay and Mr Davidson state emphatically that the death-rate was much lower along the dunes near the seashore, where there is only bare sand with scanty clumps of bent-grass. The high death-rate prevailed where the bent-grass was abundant, or where the ground was rough turf and moss. Mr Davidson remarks on the difficulty the young birds have of keeping above the drifting sand in the former situation during high winds; but during lighter winds there might be no mortality from this cause, but dead birds might soon be buried. This does not explain away the comparatively great number of living birds in this part of the colony, a fact for which it is difficult to suggest a satisfactory cause: the slightly smaller distance from the sea can hardly be material.
- (3) Deaths occurred freely at all ages from newly hatched to nearly full fledged, but adults were apparently unaffected, only the usual occasional dead old birds being found.
- (4) Unfortunately no dead birds were properly examined in 1910. It was noted, however, that many of the dead had widely gaping beaks, as if they had died gasping. No obvious injury existed in most cases, while other bodies had apparently been gnawed by rats.
- (5) Lack of food and the long drought were suggested causes of mortality, but Miss Hamilton remarks that the

drought had come to an end before her visit on 27th July.

- (6) As regards the food-supply, this, in the case of the young Common Tern, seems to consist almost exclusively of sand-eels. These may be found partly swallowed by the young, or lying in the nests where the parents have dropped them on being frightened off. On one occasion I found a very small plaice in the latter situation. A sand-eel which I took from a bird only a day or two old, measured just 4 ins. in length: it had been swallowed whole, and the head was already partly digested, while the tail protruded from the sides of the bird's beak. Mr Ramsay has drawn our attention to the interesting fact that the parents continue to feed the young on the shore long after the latter can fly, in fact up to the time of their departure from our coasts in mid-September.
- (7) As an argument against scarcity of food being the sole cause of high mortality, I may quote Mr Ramsay's note to the effect that "Among the Black-headed Gulls which nest on Forvie Sands, an increased infant mortality was also evident in 1910; but it was less easy to estimate, owing to the fact that the gulls are more scattered for nesting purposes than formerly, and are much less numerous than the Terns." The gulls have a much wider choice of food than the Terns, and would not be affected by the same conditions: a variety of insect food has been found in dead young gulls of this colony.
- (8) Finally, Mr Ramsay believes that most of the birds of this and other local colonies left for the south during the first half of August. Certainly only occasional small parties were to be seen about the coast after the 21st of that month. In normal years, old and young are abundant in the first half of September.

A. L. T.

The High Mortality at Forvie in 1912.

The following is a summary of my observations regarding the high mortality prevailing at the Forvie Tern colony in 1912, and also regarding the very relevant question of the feeding of the young birds:—

- (1) On 21st July, during a two-hours' walk through the favourite nesting places, 125 recently dead and three or four dying Terns, of all ages from the newly hatched to the flying period, were found. All of these showed signs of emaciation and starvation, and there was an absence of any other likely cause of death.
- (2) On the 18th and 19th July a strong, bitterly cold, and rainless north-easterly gale had prevailed, and very rough seas. On 17th July a large number of nests and many newly hatched young had been seen along the sand-dunes near the shore, but the storm practically killed and buried them all. Thus the breeding season was abruptly ended.
- (3) During my stay in the neighbourhood there had been several rainless wind storms, and after each a fresh lot of recently dead young Terns were found. The outlines of the sand-dunes were perceptibly altered, and hollows were filled up with blown sand.
- (4) Fourteen of the 125 dead Terns found on the 21st July were sent only a few hours after death to the Natural History Department of Aberdeen University. All the specimens were at the fully feathered stage. Miss L. Florence, B.Sc., reported that in each of the fourteen Terns the stomach was empty, that the internal organs were normal, that no parasites were found, and that the birds had apparently died of starvation. Lack of rain was also suggested as a cause of mortality.
- (5) The Forvie Terns are entirely sea or estuary feeders, none ever being found inland. The only food carried to the young is a small fish or fry like a sand-eel, which may be seen as a curved glistening object in the bill of the parent bird. The one parent having

caught a fish, carries it towards the nesting place. The sitting bird detects the approach of its mate from a considerable distance, and answers the call. The young now run out from below the sitting parent and pick off bits of the fish, which is still held firmly in the bill of the other parent. Thus the young obtain their food free from gritty sand. Once, on my handling one of the little birds only a day or two old, a surprisingly large bit of sand-eel was regurgitated.

- (6) The supply of this food seems to vary greatly, as large numbers of fish are carried on some days, very few on others. Cold and windy weather with rough seas seem to diminish the supply seriously.
- (7) That the quantity of this food was very limited in 1912 was asserted by an experienced Ythan angler, who states that it forms the food also of the sea-trout, which are caught in good seasons in large numbers, and that the summer of 1912 was the worst for fishing that he had ever known. He stated that an excellent plan for obtaining a good basket of sea-trout was to fish where Terns are seen securing fry.
- (8) No unusual mortality was noted among the Black-headed Gulls on the same nesting ground, only one young gull being found dead.
- (9) No lower mortality was observable on the part of the colony nearer the sea where others recorded it in 1910.

A. R. G.

The Season 1914.

A short unfavourable period was noted in 1914, as already mentioned, but otherwise this was an excellent season. No dead young were to be seen until the last week of July, which was characterised by cold, north-easterly winds, with rain and rough seas. During this week the constant flights of old birds carrying sand-eels practically ceased. On 9th August forty dead chicks were counted in half an hour, while the sandy slope near the chief nesting site was covered with young birds apparently recovering from partial starvation,

and able to fly. On 16th August the breeding place was found to be deserted, and many old birds were feeding their young on the shore.

A. R. G.

Bird-marking and Mortality.

It seems desirable to refute as completely as possible the suggestion unfortunately made by thoughtless persons in 1910, that a connection was to be found between the mortality described and the marking of the young birds of this colony with the rings of the Aberdeen University Bird-Migration Inquiry. The matter was even reported to the Royal Society for the Protection of Birds, but Mr Lewis Bonhote, corresponding with me on behalf of the Society, expressed himself fully satisfied as to the groundlessness of the accusation. I should like to make good the following points:—

- (1) No reasonable suggestion has been made as to how ringing could be the cause of death without leaving visible signs of injury.
- (2) Similar conditions of high mortality have been reported to us from colonies where no ringing was in progress.
- (3) Ringing was carried out at Forvie in 1909, 1911, and 1913, and elsewhere in various seasons, without any such mortality occurring.
- (4) In the seasons 1910 and 1912 ringed birds formed no more than a due proportion of the dead, considering the large number that had been marked. Unfortunately, we have not a sufficiently reliable estimate of the total size of the colony to state actual percentages. But in 1910 Mr Ramsay stated that the great majority of the dead seen by him were unmarked, while in 1912 Dr Galloway collected the following figures:—

The total number of dead young found on 21st July was 125, of which only 4 bore rings; 105 young Terns were marked that season, and of these only 11 were discovered among the hundreds of dead examined on various dates. The latter figures suggest a death-rate of only 10 per cent., while the general death-rate

was certainly many times this figure: a very large margin can thus be left for dead marked birds not discovered. The other figures suggest that on 21st July the marked young stood to the total hatched by that date as 4 to 125. As the total marked up to that time was 70, this would represent about 2200 young birds in all—a very likely figure. The 125 and 4, of course, represent only the mortality observable on a single date, and give no clue to the total death-rate. In 1913 Dr Galloway found dead *none* of the 43 young Terns marked in that season.

A. L. T.

CONCLUSIONS.

The young of the Common Tern are subject in certain seasons to an extremely high death-rate, which applies to all ages from the newly hatched to the fully fledged. Most of the dead are not injured in any way, and there is also no ground for suspecting parasites or disease.

Sand-drifting during high winds buries both eggs and very young birds, but does not explain the hundreds of unburied dead of all ages.

Long droughts occurred in both the bad seasons here described, but the death-rate continued high after the cessation of drought in 1910.

The appearance of the dead suggests starvation, and it seems certain that the food of the young is very restricted in kind, and that the supply is liable to be cut off. For the season 1912 the starvation theory seems all-sufficient; but the 1910 observations include some contrary evidence, namely, the fact that the almost omnivorous Black-headed Gulls were affected in that season, and that the death-rate among the Terns, also in that year only, varied noticeably with the nature of the ground at different parts of the colony. This latter fact remains unexplained.

Postscript.—Since penning the above the writers have read the following sentences regarding mortality at the Blakeney (Norfolk) "Ternery," where 1912 was a good

season and 1913 a bad, just the reverse of the Aberdeenshire conditions. At Blakeney in 1913 there was "a most unfortunate mortality among the young, three-fourths of which were lying dead on the sand, and other downy mites were scarcely able to crawl. The watcher in charge considered that they had been starved by lack of whitebait, their usual food, he having opened several nestlings and found no food in them. Mr William Rowan, who was staying at the Point some ten days later, remarked on the whitebait to be seen lying about in numbers among the Terns' nests, whither they had been brought by the parent birds for their dying young, by that time too feeble to eat them, or it may have been that the fish were too large."—(J. H. Gurney, "Ornithological Report for Norfolk (1913)," *Zoologist*, 1914, p. 174.)

LEPIDOPTERA (MOTHS) AND OTHER INSECTS AT SCOTTISH LIGHTHOUSES, CHIEFLY IN THE FORTH AREA.

By WILLIAM EVANS, F.R.S.E.

(Continued from page 256.)

Triphæna ianthina, Esp.

ISLE OF MAY: one (♂), 6th August 1911; one on or about 1st August 1913, one on 13th, and one on 29th (all ♂).

Triphæna comes, Hb. (*orbona*, Dbld. Cat.).

ISLE OF MAY: one on night of 14th August 1911; one (♂) in latter part of August 1912; four (♂) on night of 27th August 1913; two on 25th July 1914, and one in beginning of August.

ST ABB'S HEAD: three, night of 29th August 1913; two, night of 1st August 1914.

BARNSNESS: two in end of July 1914.

Triphæna pronuba, L. (Large Yellow Underwing).

ISLE OF MAY:—Though this well-known moth is a frequent visitor to the lantern, it does not appear in very large numbers. Disregarding the earlier and less exact records (September 1885,

etc.), the following amply attest its frequency:—1911, 1st July (2), 13th (1 ♂), 28th (4 ♂); 6th August (1 ♂), 14th (11, ♂ ♀); while on the nights of 20th and 21st September 19 were caught: 1912, 22nd June (1 ♂); 3rd July (1 ♂), 12th (5 ♂, 3 ♀), 22nd (2); 14th August (1 ♂), 24th (1 ♀); 9th September (2): 1913, night of 20th June (1 ♂); 9th July (2 ♂), 11th (2, ♂ ♀), 26th (2, ♂ ♀); end of July and beginning of August (19 ♂, 6 ♀); on and about 13th August (18, two-thirds ♂), 27th (9 ♂, 2 ♀); 3rd September (4), 7th (1 ♂), night of 25th (2 ♂, 1 ♀): 1914, 7th July (2), night of 12th, chiefly after midnight (10 ♂, 6 ♀), second half of July (16 ♂, 14 ♀); and beginning of August (10 ♂, 6 ♀). Among the above specimens a wide range of colour variation occurs, some being very dark while others are quite pale.

ST ABB'S HEAD: one (♂), 27th July 1911; eleven, 29th August 1913, four on night of 25th September and two on 27th; four (♀), 12th July 1914, and seven on 1st August.

BARNSNESS: one in third week of August 1911; two in July 1912, three on 4th August, and two in September; ten in July and beginning of August 1914.

BASS ROCK: one in summer of 1907; and one in August 1912.

FIDRA: two in 1909; three in 1912; and two in 1913.

INCHKEITH: two (♂ ♀) in 1912; twelve (majority ♂) in beginning of August 1913; one (♀), July 1914.

NORTH CARR LIGHTSHIP: one (♂) in end of August 1913.

Amphipyra tragopogonis, L. (The Mouse).

ISLE OF MAY: three on 14th, and two (♂ ♀) about 11 P.M. on 17th August 1911; two on 9th, and one at end of September 1912; two (♂ ♀) on 27th August, one (♀) on 3rd and another (♀) on 7th September 1913; two about the middle of August 1914.

ST ABB'S HEAD: one (♀) on 29th August, and another (♂) on 9th September 1913.

BARNSNESS: eleven in third week of August 1911; eight (5 ♂, 3 ♀) in middle of August 1914.

BASS ROCK: one (♂) about middle of August 1914.

Pachnobia rubricosa, Fb.

BARNSNESS: three (♂) in April 1912.

Teniocampa gothica, L. (Hebrew Character).

ST ABB'S HEAD: one (♂) in April 1914.

Tæniocampa stabilis, View.

ST ABB'S HEAD: one (♀) in morning of 23rd April 1911.

Orthosia lota, Clerck.

ISLE OF MAY: one, at lantern, 26th September 1907 (Grimshaw, *loc. cit.*).

Anchocelis lunosa, Haw. (Lunar Underwing).

ISLE OF MAY:—As the following data show, this is a more or less common visitor to the lantern, a fact of considerable interest, seeing how little has been recorded of the species in the Forth area. Grimshaw (*loc. cit.*) records five at lantern on 10th, and one on 11th September 1907, and I have a pair (♂ and ♀) given me by Misses Rintoul and Baxter, which were taken the same autumn; 1910 yielded me one (♂) taken on night of 30th August, one on 3rd, three (♂) on night of 7th, three (♂) on night of 10th, five (♂) on morning of 13th, and three (♂) between 2 and 4 A.M. on 25th September; in 1911, though common down at the engine-house, the only examples taken at the tower lantern were 11 ♂ and 2 ♀ on night of 11th September, 3 ♂ about 1 A.M. on the 17th (wind northerly and light), and five (2 ♂, 3 ♀) on night of 23rd (wind S.); 1912, one (♂) about 8 P.M. on 14th September, seven (6 ♂, 1 ♀) towards end of September, and two (♂) in beginning of October; 1913, 6 ♂ on night of 3rd September, 8 ♂ and 14 ♀ on 7th, 51 ♂ and 8 ♀ on nights of 9th and 10th, 2 ♂ on 13th, seventy-one (chiefly ♂) on and about 26th, and 1 ♂ on 2nd October; 1914, 6 ♂ and 9 ♀ in first week of September.

BASS ROCK: one (♂), September 1913.

FIDRA: one (♂), September 1913.

INCHKEITH: one (♂), night of 26th September 1913.

Cerastis vacciniæ, Linn.

ISLE OF MAY: Grimshaw (*loc. cit.*) refers to this species a moth taken at the lantern on 9th September 1907.

ST ABB'S HEAD: one hibernated example, spring of 1914.

Scopelosoma satellitia, L. (The Satellite).

ISLE OF MAY: one (♂), night of 25th October 1913.

INCHKEITH: one (♂) in autumn of 1911.

Xanthia flavago, Fb. (*silago*, Hb.).

FIDRA: one (♀) in August 1911.

Xanthia circellaris, Hufn. (*ferruginea*, Esp.).

ISLE OF MAY: one on night of 26th September 1909; one (♀), 7 P.M., on 25th September 1910; one (♀), 23rd September 1911; one (♀) in end of September 1912, two (♂ ♀) on 17th October, and one (♂) on 6th November.

ST ABB'S HEAD: one (♂) on night of 29th October 1911; seven (2 ♂, 5 ♀) on 25th, and four (2 ♂, 1 ♀) on 27th September 1913.

BARNESNESS: two on morning of 2nd October 1908.

FIDRA: one (♂) in September 1912.

Calymnia trapezina, Linn.

ISLE OF MAY: one (♀) taken at lantern in third week of September 1912.

Dianthacia nana, Rott. = *conspersa*, Esp. (The Coronet).

ISLE OF MAY: two (♂ ♀), June 1909; two (♂), end June and 27th July 1911: in 1912, the captures were, three (2 ♂, 1 ♀) on 27th May, four (♂) on night of 22nd June, and one on 3rd July: in 1913, three (2 ♂, 1 ♀) in beginning of June, 12 ♂ and 1 ♀ on night of 18th, and one on 20th; 5 ♂ and 1 ♀ on or about 8th July, and 3 ♂ on 26th: in 1914, 2 ♂ on night of 17th May, and two (♂ ♀) towards the end of month; 28 ♂ and 13 ♀ on 6th June; twenty-three on nights of 21st June and 7th July.

ST ABB'S HEAD: one (♂), night of 25th May, and one (♀) 27th July 1911; one (♂), 12th July 1913; 6 ♂ and 2 ♀, 4th June 1914.

BASS ROCK: one in summer of 1907.

Polia chi, Linn.

ISLE OF MAY: one (♂) taken at lantern in third week of September 1912.

ST ABB'S HEAD: one (♂), var. *olivacea*, night of 27th July 1911.

BASS ROCK: one (♀), var. *olivacea*, August 1914.

Dasytopia templei, Thnb. (Brindled Ochre).

ISLE OF MAY: one (♂), night of 17th September 1885 (W. Evans, *loc. cit.*); one (♀), October 1909; five (4 ♂, 1 ♀) on night of 11th October 1911 (mostly after midnight), two (♀) on morning of the 8th, and one (♂) on morning of the 21st; in 1912, two (♀) were taken on or about 20th April, one (♂) on 29th September, three (1 ♂, 2 ♀) on 11th October, one (♂) on 4th November, and another (♂) on the 7th; 1913 was remarkable for the large number of this species taken at the lantern, namely, one (♀) in the spring, eighty

(69 ♂, 11 ♀) on the nights of 25th and 26th September, ten (9 ♂, 1 ♀) on the 27th, two (♂) on the 29th, and twelve (10 ♂, 2 ♀) on 3rd October.

ST ABB'S HEAD: one (♀), morning of 2nd April 1911; one (♂), night of 25th September 1913.

BARNSNESS: one (♂) in early morning of 2nd October 1908, and another (♂) on night of the 14th.

BASS ROCK: one (♀) in end of September 1911.

FIDRA: one (♂), autumn of 1909; one (♂), end of September 1911.

INCHKEITH: eleven during autumn of 1911; four (♂), autumn of 1912; eight (3 ♂, 5 ♀), night of 26th September 1913; eight (2 ♂, 6 ♀), spring of 1914.

Miselia oxyacanthæ, L.

FIDRA: one (♂), end of September 1911.

Agriopsis aprilina, L. (Marvel-du-jour).

FIDRA: one (♂) in beginning of October 1909.

Phlogophora meticulosa, L. (Angle-shades).

ISLE OF MAY: one (♀) in beginning of October 1911, six (5 ♂, 1 ♀) on the 11th, one (♂) on the 17th, and one (♀) at 11.30 P.M. on the 20th; one (♂) on night of 27th May 1912, and one (♂) on 10th October; two (♂) on night of 26th September 1913, eight (5 ♂, 3 ♀) on 3rd and 4th October, two (♀) on the 25th, and one (♂) at 10 P.M. on the 26th; one (♂) on night of 6th June 1914, and one (♀) about the middle of August.

BARNSNESS: two (♂), October 1912; four (2 ♂, 2 ♀), about 10 P.M., 26th October 1913.

INCHKEITH: two in autumn of 1911; one (♂) in autumn of 1912; two (♂) in June 1914.

Hadena adusta, Esp.

ISLE OF MAY: one (♂), end of June 1911; one (♂) on night of 17th May 1914, and two (♀) on night of 6th June.

ST ABB'S HEAD: one (♂), night of 27th July 1911.

INCHKEITH: one in July 1911.

Hadena dentina, Esp.

ISLE OF MAY: one (♂) taken in 1909 (from Misses Baxter and Rintoul); three (♂) on or about 30th June 1911, and one on night of 14th August.

ST ABB'S HEAD: three (♂) on night of 12th July 1913.

Hadena oleracea, Linn.

ISLE OF MAY: one (♂), night of 20th July 1911; one (♀), 22nd July 1912; one (♀), 26th July 1913, and one (♂) on 9th September; one (♂), 12th July 1914.

INCHKEITH: one (♂), end of July 1913; one (♀), 12th July 1914.

Calocampa vetusta, Hub.

ISLE OF MAY: one (♂), night of 14th November 1912.

BARNSNESS: one (♂), 2nd October 1908, in early morning.

INCHKEITH: two (♂ ♀) in autumn of 1911.

Calocampa exoleta, L. (The Sword-grass).

ISLE OF MAY: one (♂), very worn, night of 8th May 1911; two (♂), spring of 1913.

ST ABB'S HEAD: one (♂), night of 25th March 1914.

BARNSNESS: two (♀), morning of 2nd October 1908; one (♂), spring of 1912.

FIDRA: one in autumn of 1909.

Cucullia umbratica, L. (The Shark).

ISLE OF MAY: one (♂), night of 26th July 1913.

Plusia chrysitis, L. (Burnished Brass).

ISLE OF MAY: one (♂), night of 28th July 1911; one (♂), night of 12th July 1914 (after midnight).

ST ABB'S HEAD: one (♀), night of 12th July 1914.

Plusia iota, L. (Golden Y).

BASS ROCK: one, summer of 1908.

ST ABB'S HEAD: one (♀), night of 12th July 1914.

Plusia pulchrina, Haw.

ISLE OF MAY: one (♂), night of 7th July 1914.

Plusia gamma, L. (Silver Y).

ISLE OF MAY: many records—too numerous to be stated here in detail—ranging from September 1885 to August 1914; the earliest date in any year is first week of April (1914), 1 ♂, and the latest 11th October (1912), 1 ♀; a few captures are recorded in June (8th June 1911, two; 18th June 1913, one; etc.), rather more in July (third week of July 1897, five; morning of 13th July 1914, three; etc.), and a marked increase in August, while by far the largest numbers visit the lantern in September. The following are

the principal "rushes" noted; third week of September 1908, many (forty-one sent); night of 26th September 1909, many (thirty sent); night of 10th September 1910, a great "rush" (a score sent along with other species), and again on morning of 13th, 12.30 to 4 A.M. (forty taken); morning of 1st October 1910, eighteen (♂ ♀); night of (fore part chiefly) 14th August 1911, 137 captured (weather warm, with fog or haze; wind S. to E.); nights of 9th, 10th, and 11th (more especially the last) September 1911, 181 (153 ♂, 28 ♀) taken, and on the 23rd, twenty-seven; nights of 26th and 27th August 1913, sixty-nine taken. Males, as a rule, appear at the lantern in greater numbers than females.

ST ABB'S HEAD: ten on night of 25th September 1913, and twelve on the 27th; two, 29th October 1914.

BARNNESS: twelve, morning of 2nd October 1908; one, 11th October 1911, and one (♂) on night of the 17th; one, early in October 1912.

BASS ROCK: one about end of September 1909.

FIDRA: eleven (♂ ♀) in 1909, six (3 ♂, 3 ♀) in autumn of 1911, and one in September 1913.

INCHKEITH: twenty in September 1913, mostly on night of the 26th.

NORTH CARR LIGHTSHIP: one, end of July 1912.

BELL ROCK: one (♂), 8th July 1914.

Hypena proboscidalis, L. (The Snout).

ST ABB'S HEAD: one (♂), night of 12th July 1913.

Rumia luteolata, L. = *cratægata*, Dbld. Cat. (Brimstone Moth).

ISLE OF MAV: one (♂), end of June 1910.

INCHKEITH: one about end of July 1913.

Metrocampa margaritaria, L. (Light Emerald).

FIDRA: one (♂) in summer of 1912.

Crocallis elinguaris, L.

ST ABB'S HEAD: one (♂), night of 29th August 1913.

FIDRA: three (♂) in summer of 1913.

Phigalia pedaria, Fb. (*pilosaria*, Hb.).

ST ABB'S HEAD: one (♂), night of 25th March 1914.

Scodiona belgiaria, Hb.

FIDRA: one (♂) in summer of 1913.

Abraxas grossulariata, L. (Currant or Magpie Moth).

ST ABB'S HEAD: one (♀), night of 12th July 1914.

FIDRA: one (♂) in summer of 1910.

Hybernia rupicaprararia, Hb.

ST ABB'S HEAD: three, 5th March 1911.

Hybernia aurantiaria, Esp.

ISLE OF MAY: one, morning of 16th November 1912.

Hybernia defoliaria, Clk.

ISLE OF MAY: one, unbanded variety, December 1913.

BARNSNESS: one, night of 17th October 1911; one, night of 26th October 1913.

INCHKEITH: two in autumn of 1911.

All are, of course, males (♂), the females (♀)—which have only rudimentary wings—being unable to fly; this applies also to the two preceding species.

Anisopteryx æscularia, Schiff.

ST ABB'S HEAD: one (♂), 2nd April 1911, in early morning.

Cheimatobia brumata, L. (Winter Moth).

ISLE OF MAY: one (♂), 3rd November 1912, and another in December. Here, again, the female is practically wingless.

Oporabia dilutata, Bork.

ISLE OF MAY: one, 23rd September 1907 (Grimshaw, *loc. cit.*); one (♂), beginning of October 1912; one (♂), first week of September 1914.

Larentia didymata, Linn.

ISLE OF MAY: one (♂), second week of August 1913.

Larentia multistrigaria, Haw.

ST ABB'S HEAD: many (fifteen sent), 5th March and 2nd April 1911; seven (5 ♂, 2 ♀), night of 25th March 1914.

BARNSNESS: many (4 ♂ sent), evening of 31st March 1913, and one (♂), morning of 11th April.

Emmelesia alchemillata, L.

ISLE OF MAY: one, night of 28th July 1911.

Eupithecia nanata, Hb.

INCHKEITH: one (♂) in June 1914.

Eupithecia assimilata, Gn.

ISLE OF MAY: one on or about 12th June 1911.

Thera variata, Schiff.

ISLE OF MAY: two (♀), night of 11th September 1911; one, 24th June 1912; one (♀), 26th September 1913.

ST ABB'S HEAD: one (♀), night of 27th September 1913.

FIDRA: two (♂ ♀), in summer of 1911.

Hypsipetes sordidata, Fb. (*elutata*, Hb.).

ISLE OF MAY: one (♀), 10th August 1911, at window.

ST ABB'S HEAD: one (♂) at lantern, night of 29th August 1913.

Melanthia ocellata, Linn.

ISLE OF MAY: one (♂), night of 12th July 1914.

Melanippe montanata, Bork.

ST ABB'S HEAD: two, night of 12th July 1913; one (♂), night of 12th July 1914.

FIDRA: one in summer of 1912.

Melanippe fluctuata, L. (Garden Carpet).

ISLE OF MAY: much the commonest Geometer at the lantern, occurring from end of April to end of September:—One (♀), 9th September 1910: in 1911, it was noted on 20th July (1♂), 28th (seven, both sexes); 14th August (two), 17th (four), 24th (nine); 10th September (one), and 23rd (1♀): in 1912, on 29th April (1♂); beginning of May (1♀), 27th (2♂, 1♀); 24th June (one); 12th July (four); 9th September (one), and last week of September (two): in 1913, on 11th August (two), 15th (one), 26th (two); 3rd September (one): in 1914, on 6th June (1♂), 19th July (1♂), beginning of August (2♂, 1♀).

ST ABB'S HEAD: two on night of 12th July 1913, six on 29th August, and four on 9th September; two on 4th June 1914, and one on 1st August.

BARNESNESS: one, third week of August 1911.

BASS ROCK: three, 17th August 1909; one, middle of July 1913; one, beginning of August 1914.

FIDRA: one in summer of 1910, and one in 1913.

INCHKEITH: one in August 1911; one in summer of 1912; two in end of July, and one in end of August 1913; one in June 1914.

(To be continued.)

NOTES.

Bird Notes from Shetland.—So far, the migration has not been productive of many rarities. Two specimens of the Great Tit (Continental?) were procured in Lerwick in the last week of October, and on the 30th I had a Black Redstart which had been got in Bressay, given me. I gave it to Mr Robert Russell, North Ness, and he tells me it was an immature male.

There was a big rush of Redwings on the nights of 16th and 18th October, thousands I should say, judging by their cries and the vast space they appeared to extend over, as they were apparently just as plentiful at both ends of the town, as they were passing from east to west. The first Woodcock I heard of being shot was on 26th. There are a few Robins in, and I heard one on the 27th.—JOHN S. TULLOCH, Lerwick.

Bird Notes from Leith.—The following ornithological notes have been made from the sea-wall at Leith Docks, between 3rd and 21st October 1914.

Common Terns were numerous up to the 13th, but on the 14th only a few were seen, until by the 21st they seemed to have all gone except one bird. Up to the time of writing, three Skuas are still giving the gulls a hard time of it, while Kittiwakes are in fair numbers. A very tame Whimbrel arrived on the 6th, and was flushed feeding on the east pier breakwater. On the 11th, about the same place that I saw the Whimbrel, a Purple Sandpiper was disturbed, and three Turnstones were also noted on the 13th. Just within the west end of the sea-wall, a confiding female Redstart let me approach to within a yard and a half of it, and whilst on sentry during the night of the 19th, I got rather a start by an Owl flying over my head. It flew from the Seafield Road into the docks, near the sea-wall.—REGINALD PAGE, Edinburgh.

Increase of the Tree-sparrow in Lauderdale.—In a series of observations extending over some time, I have been greatly struck by a considerable local increase in the number of the Tree-sparrows. A few years ago, a bird of the kind was a very rare sight. The first pair seen came to the trees by my house, and reared two broods during the summer in a nesting-box set up in a little wood. Last season or two, however, these birds have become comparatively plentiful in Lauderdale. About many of our farmsteads are one or more pairs in company with the familiar House-

sparrows. Apart from the more elegant shape and markings, very much the same in both male and female Tree-sparrows, their quick, nervous flight, shriller notes, and, above all, the twittering song, wonderfully sweet to the ear when heard in early spring, are all characteristic, so that one soon gets to distinguish them. During the present year, this evident increase in the number of the Tree-sparrows was very notable. Several pairs were observed, day by day, in a cornfield by my gate. Some of them, at least, nested in cavities of old ash trees near. In an ancient castled ruin by Leader, where, some years ago, few if any were observed, a larger colony nested in holes of the masonry. By the roadsides the note of the bird is also very much more familiar. Again, on 15th October last, a large flock of Tree-sparrows were seen in company with some Greenfinches and several House-sparrows, in a hedge near Lauder. They were coming and going between it and a ploughed field. I counted fully eighty birds in the hedge, and, as a good few more had just left it, there might have been considerably more than a hundred Tree-sparrows. These were probably immigrants not long from the sea, as they were never seen in the same numbers before, and they very soon disappeared. The increase of the Tree-sparrow has often made me wonder whether observers in other places of the Borders have had an experience similar to my own in regard to the bird.—WM. MCCONACHIE, Lauder.

[Much information regarding the status of the Tree-sparrow in the Border district will be found in Bolam's recent work on the *Birds of Northumberland and the Eastern Borders*. With reference to its recent westward penetration, this author remarks (p. 148): "Up to about 1884 it was confined, on the Borders, almost exclusively to the neighbourhood of the coast, but has since penetrated westwards in a manner that is remarkable."—EDS.]

Long-eared Owl in Shetland.—A young lad here caught yesterday (10th November) a fine specimen of the Long-eared Owl (*Asio otus*). It was secured without any injury, and may be worth recording, as it is so seldom that the bird is seen in Whalsay. It is the first example of the species I have myself seen in the island during a period of eleven years.—ANDREW WHITE, Whalsay, Shetlands.

Spotted Crake in Shetland.—A specimen of what I take to be the Spotted Crake (*Porzana maruetta*) was shot here on 19th October last. I believe this species has not often been recorded from Shetland, so thought this occurrence might be

worth reporting. Though we have seen a good many Water-rail when shooting Snipe, this is the first bird of the kind we have come across.—ARTHUR J. NICOLSON, Fetlar, Shetland.

[We have seen the specimen referred to, and can confirm the identification. Only three previous occurrences in Shetland are on record.—EDS.]

Razorbills and Guillemots on Ailsa Craig.—As recorded in the *Scottish Naturalist* last year, the season of 1913 proved a complete failure for the Razorbills and Guillemots nesting on Ailsa Craig. After apparently settling down in early May, the birds gradually left the rock, until by the month of July they had all disappeared, without fulfilling their parental duties. Many attributed this to the disturbance caused by heavy-gun practice on the warships in the Firth; but as Mr William Evans found these species had successfully nested at several stations on the east coast where the same disturbing element was present, one must look for some other cause, and it seems more likely that a lack of suitable food in the neighbouring waters accounted for the early exodus. This year, I visited the Craig with two friends on 6th June. On landing, we made our way round the cliffs on the western side which form one of the main nesting sites, and found them tenanted by vast numbers of Razorbills and Guillemots. The cliffs here are remarkably steep, and difficult of access, but we successfully reached a good number of the ledges on which the birds were nesting, and found they nearly all had eggs. Many Kittiwakes also had their nests here, and although they were apparently complete, comparatively few of them contained eggs.

Puffins were breeding plentifully on the steep slopes running down from the cliffs at certain parts, and large numbers of Gannets occupied the top ledges, their harsh cries adding greatly to the general din. Whilst standing on the shingle at the base of the cliffs we witnessed a desperate encounter between two of these birds on the water, close inshore. They rolled over and over as each held the other in its powerful bill, and it looked as if the fight would end fatally for one or other of the combatants, when suddenly an immature bird dashed down, sending them off in opposite directions—such an unlooked-for finish being almost ludicrous in its tameness.—J. KIRKE NASH, Edinburgh.

Blackbird feeding on daisies.—While many of our passerine birds are very partial to fruit, they seem seldom to include flowers in their dietary. It was with considerable interest, therefore, that

I had my attention drawn in June last to a Blackbird—an adult female—greedily devouring the daisies (*Bellis perennis*) which starred the plot of grass in front of my house. On two consecutive days—the 29th and the 30th—it was several times observed thus engaged. The weather was fine and warm. On the second date I watched the bird from a distance of only a few yards. Alighting on the grass, it immediately hopped towards a fully expanded daisy, which it seized in its bill, plucked neatly from the stem, and swallowed whole. In rapid succession daisy after daisy was treated in exactly the same way, till no less than twenty-one flower-heads had disappeared down the bird's throat, when, taking alarm at something, it flew off to another garden. In about ten minutes it returned, and, systematically as before, disposed of other twenty-four daisies. One wonders what nourishment the bird could derive from such a meal; but perhaps the flowers were taken medicinally!—WILLIAM EVANS, Edinburgh.

Song-thrush's strange bill of fare.—On two occasions during the nesting seasons of 1913 and 1914 I observed a Song-thrush feeding its young with daisy flower-heads.

Each occurrence was with a full-fledged young bird following its parent. The flowers were full-blown, and as the old bird plucked them, they were eagerly accepted by its offspring—over a dozen flowers disappearing in rapid succession.

I was naturally much interested, and carefully examined several of the flower-stalks. I found the flower-head in every instance had been neatly nipped off and the full length of the stalk left standing. This strange performance took place in the Royal Botanic Garden, Edinburgh, where the birds are unusually tame and easily approached, and was also witnessed by my little daughter.

I have never seen any account of thrushes indulging in such a curious diet, and think it may be worth recording.—J. KIRKE NASH, Edinburgh.

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