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# The Scottish Naturalist

*A Magazine devoted to Zoology*

With which is incorporated  
"The Annals of Scottish Natural History"

EDITED BY

JAMES RITCHIE, M.A., D.Sc., F.R.S.E.  
*Keeper, Natural History Department, Royal Scottish Museum*

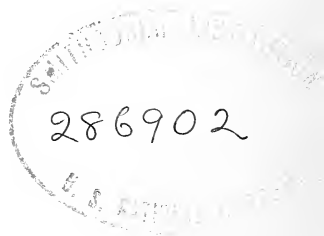
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1929



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## EVERY NATURALIST SHOULD READ

The following major articles which have appeared in recent numbers of *The Scottish Naturalist*:—

Annual Reports on Scottish Ornithology, including Migration.

Notes from the Scottish Zoological Park:

The King Penguins. (Illustrated.)

The Great Skua in Shetland.

Some Records of Large Foxes.

On the Decrease of Blackgame in Scotland.

The Destruction of Methil Dock-gates by Marine Organisms. (Illustrated.)

Red Deer in Selkirkshire in Prehistoric Times.

Studies of Lanarkshire Birds.

A New Scottish Aquarium. (Illustrated.)

A Remarkable Whale Invasion.

The Natural History of Floods.

List of Birds of the Forth Area.

Scarcity of the Corncrake.

The Rookeries of Edinburgh and Midlothian.

The Garganey—an addition to the Breeding Birds of Scotland.

Remarkable Decrease of the House-Sparrow.

As well as numerous shorter notices of interesting events in the Wild Life of Scotland.

*(Authors are responsible for nomenclature used.)*

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## MORE OPPORTUNITIES FOR NATURALISTS: NATURAL HISTORY AS A PROFESSION.

IN the last number of this journal we suggested one or two Scottish problems in the solution of which naturalists might combine with good effect, and we await with interest the replies which, we doubt not, readers are compiling to the queries we there set out. Until these have been answered we do not propose to tax the patience of our readers with further natural history problems, but there is a question, more vital to many naturalists, to which we would draw attention—the question of the possibilities of natural history as a profession, particularly for the growing generation.

There has never been a time when so many opportunities offered themselves for young men who desire to follow natural history as a career, nor a time when so few men could be found to fill the posts that await them. This strange result is due to a new appreciation on the part of governments and of business men to the need of applying the knowledge of science to the problems with which they are confronted at every stage. It is almost a new discovery in business that science, with its laboratories and its microscope, and its knowledge of the life-histories of obscure animals, may play a large part in the promotion of the success of commercial enterprises. The seriousness of the position was brought forcibly before the scientific world at

the recent Imperial Agricultural Research Conference, where complaints were made on all sides of the scarcity of qualified men for openings in this country and in the colonies.

The intensity of the demand may be judged from the expansion which has taken place in recent years in the numbers of posts available. Ten years ago the Ministry of Agriculture for England and Wales had 63 biological posts of one sort or another, to-day it has 169 such posts and the number is likely to increase. Within the last nine years the colonies have recruited over 500 biologists in addition to some 700 medical officers, and there also the demand is expanding.

Of course neither the home country nor the colonies require untrained naturalists; they demand men, generally young men, who have made a special study, such as most of our universities and colleges can now give, along particular lines adapted to fit them for the problems likely to be met. Here is the opportunity. The demand is unsatisfied and is likely to remain unsatisfied for years to come. There is still time for the schoolboy or youth, who has a bent for natural history, to direct his education (or have it directed for him) so that he may be reasonably certain of obtaining a good and interesting job at the end of his course of study.

The work is varied; there are opportunities for all tastes. We make free use of an important article on the subject which appeared in the February number of the *Journal of the Ministry of Agriculture*, in which the suggestion is made that the lack of applicants is largely due to the early bias of the schools, which tend to subordinate biological teaching to physics and chemistry. Many of the requirements belong to branches of agricultural science. There are the insect pests and fungus diseases of cultivated crops which must be battled with, improved varieties of crops which must be bred and tested, the improvement of races of live stock, the increase of the quality and quantity of meat and dairy produce, the combating of animal diseases, the prevention of losses in storage and transport of agricultural produce. In addition to the biologists to be absorbed by State agriculture, there are the specialist workers who more and more are

being sought by private companies engaged in great enterprises, such as the growing of cotton and rubber.

Such men if they cannot be found at present, must be created, and the process of creation forges new links in the chain of biological requirements, for it means that more teachers of biology will inevitably be employed in the educational system, from the secondary schools upwards.

The great training ground for the economic biologist, apart from the insight which experience alone can give, must be the universities, where a firm grounding in scientific outlook and method will form the basis for more special studies. For the aspiring specialist the way has been eased in recent years by the financial aid proffered by various Government Departments and other bodies. The Colonial Office, the Departments of Agriculture in England and Scotland, and the Empire Cotton Growing Corporation, each offer a number of post-graduate scholarships for specialised biological study. The Department of Scientific and Industrial Research, as part of its scheme for increasing the supply of trained scientific investigators, awards maintenance allowances to properly qualified graduate students to enable them to make use of existing facilities for training in research in various branches of science. Pamphlets giving particulars of these scholarships and grants may be obtained free or at a cost of a few pence from H.M. Stationery Office, Adastral House, Kingsway, London, W.C. 2.

Are these biological jobs worth having? Like other scientific posts they cannot be compared to successful commercial careers as creators of opulence, but they offer security and a competence. "Salaries in Great Britain range from £300 to £800 per annum, with higher salaries for directors of institutes; in the Colonies they usually range from £500 to £950 or more per annum, and some of the highest appointments carry salaries of £1200 to £2000 per annum." But the work is pleasant, often combining out-of-doors observations with laboratory investigation, and affording field for ingenuity in experiment and the discovery of new knowledge.

Here in a sentence, quoted from the article already mentioned, is the gist of our tale: The prospects before

able young biologists promise to be very bright for a long time to come, and it is important that parents and boys should recognise this fact.

J. R.

\* \* \* \*

The possibility of a connection between the presence of Rooks and disease in the poultry-yard has not hitherto been suggested as an argument against the Rook, but it is brought vividly forward by an investigation carried out by Mr Charles Elton and Mr Frank Buckland in certain rookeries near Oxford (*Parasitology*, December 1928). Of 41 rooks examined, 35 harboured the identical gape-worm (*Syngamus trachea*) which causes serious epidemics amongst poultry. The worm was most common in the young Rooks, 31 out of 33 examined being affected, while of 8 adults, 4 contained the parasites. Apart from the possibility of the carrying of gape-worm infection to poultry, the case is interesting as suggesting one of the important causes of mortality amongst young Rooks.



THE SCARCITY OF THE CORN-CRAKE  
IN THE LOTHIANS.

By J. KIRKE NASH.

THAT the Corn-Crake or Land Rail (*Crex crex*) is now comparatively rare in the Lothians and in many other parts of the country is a matter of regret, but the cause of its decrease is somewhat obscure and any of the suggested reasons have so far not been very convincing.

The work of the reaping machine is the usual and somewhat obvious reason given for the bird's disappearance, but such an explanation is not satisfactory, as the reaping machine has been in general use for more than fifty years, whereas the decrease of the Corn-Crake has only become apparent within the last fifteen or twenty years. Near the beginning of the latter period I can recall a friend whose house was close to the city, complaining bitterly that he could not sleep at nights owing to the incessant rasping call of the Corn-Crakes in the adjoining fields, where now not one is to be found.

We do not dispute the fact that birds may occasionally be destroyed by the reaping machine, but a swiftly moving creature like the Corn-Crake, which will as a last resort take to flight, if hard pressed, should have no difficulty as a rule in evading such a fate, and anxiety for its progeny is not likely to cause its destruction among grain crops, as the young are usually well able to take care of themselves before harvest time occurs in the Lothians. The Corn-Crake, however, is very partial to grass fields, and as these crops are cut much earlier in the season, birds and their eggs are more likely to meet with disaster there. Considerable use of the reaping machine is made in securing these crops; but a great deal of grass is still cut by the scythe, and although it is sometimes asserted that the reaping machine is more dangerous, this is really not the case, as a good hand with the scythe cuts closer than any reaping machine. I have consulted a number of well-known farmers in different localities and they are unanimous in stating that they have

never seen a Corn-Crake killed by the machine. On the other hand, I have seen eggs of the Corn-Crake destroyed by the scythe; but until we have clear evidence that a large number of birds and nests are destroyed either by the machine or the scythe this explanation of the bird's decrease must be set aside. The cause is therefore still to seek.

Within the last twenty years there has been a great increase in the use of artificial manures and although, with the addition of artificials, farmyard manure is as much used as formerly for root crops, grain and rotation grass crops—Italian rye, etc.—are now solely treated with artificial dressings. There is no better material for breeding flies, insects in general and other invertebrate forms than farmyard manure, with its supply of heat and nutriment, a fact we are unpleasantly reminded of when we approach a large manure heap in hot weather. This material spread over the soil supplies large quantities of eggs, larvæ and pupæ of these various forms, thus affording a rich food supply to the Corn-Crake and other allied species, whereas artificial fertilisers are entirely negative in this respect, for if they do not actually destroy insect life they certainly do not support it, therefore there is bound to be a reduction of such life in the fields where rotation grass crops are grown and which are the chief haunts of the Corn-Crake. Here then I think we have a reasonable explanation of its decrease.

In support of this suggestion I shall now give a summary of a census of the "Insect and Invertebrate Fauna of Arable Land," carried through by Mr H. Morris at the Rothamsted Experimental Station and to which my attention has been kindly drawn by Mr P. F. Kendall. This census was made on two plots of land one of which had been regularly treated with farmyard manure since 1843, while the other had never been manured during the same period. The latter plot represents to a considerable extent the conditions prevailing on land carrying a rotation grass crop as it only receives artificial dressings. The census of the invertebrate life on the manured plot reached a total of 15,100,955 per acre, while that of the unmanured plot worked out at 4,952,857, practically a ratio of 3 to 1. Elateridæ and Tipulidæ were

fairly equal on both plots, but Diplopoda (Millepedes, etc.) showed an enormous increase, being 200 per cent. more on the manured ground. These three orders are of course distinctly injurious to growing crops.

The census includes many other orders, several of which are saprophagous, but it will be unnecessary to detail these as the main point of interest lies in the striking difference in the totals.

A series of cold wet seasons is another reason put forward as a likely cause of the scarcity of the Corn-Crake. I have no doubt that within the last few years this has had some effect, because even in the Hebrides, where the bird is abundant, there has been a decrease, and Mr John R. Dale of Auldham, East Lothian, assures me that Partridges have been a complete failure for some years owing to nests being destroyed on the water-logged soil. Still two or three bad seasons do not explain the decided decrease over the long period of twenty years, and I strongly suspect it is really a question of food supply.

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**The Fate of Two Otters.**—The recent obituary of two Otters in this parish may be worth recording, because, except the Badger, none other of our native mammals succeeds so well in eluding human observation as *Lutra vulgaris*. That, at least, is the conclusion to which I have been drawn after spending a very large part of a long life by the waterside, and having only on two occasions enjoyed the privilege of watching the movements of an Otter.

The first incident took place in last July, when my gardener told me that he had seen an Otter pass down to the lake in the park, dragging a trap on one of its feet, and making for an island not far from the shore. I desired our gamekeeper to follow it and put it out of misery; but he never got the chance. Landing on the island, he found that the Otter had dived under the roots of a willow among which the trap had got hanked and the animal was drowned—surely an unusual fate for so accomplished a swimmer! I may have the satisfaction of adding that the trap was not one of ours.

The other fatality took place in January of the present year, when, on the roadside near Loch Elrig in this parish, the body of a large dog Otter was found, having evidently been run over by a motor car.—HERBERT MAXWELL, Monreith.

**Prehistoric Red Deer's Antlers in Roxburghshire.—**

During the cutting of Lindean moss in Roxburghshire, sometime in the latter part of the eighteenth century, a pair of Red Deer's antlers were discovered. After various vicissitudes they found their way into the hands of Mr John Lowrie, by whom they have been carefully preserved, and who recently gave me an opportunity of examining them. The antlers are almost complete and form a very fine and well-balanced pair with exceptionally massive crowns. They are still attached to the skull, showing that the deer died with them, and their colour suggests that they had been preserved, not in peat, but in the underlying marl. The dimensions of the antlers are as follows:—

	Right.	Left.
Number of points . . . .	10	9 (on each antler one very small).
Length along curve . . . .	35 ins. *	33 ins. †
Length of brow tine . . . .	17 "	17 $\frac{1}{4}$ "
Circumference of beam above burr	9 "	9 "
Circumference of beam between bez and trez . . . .	5 $\frac{1}{2}$ "	5 $\frac{3}{4}$ "
Greatest span . . . . .		40 $\frac{1}{2}$ ins.

\* To this must be added an estimated 4 ins. representing the tip of a broken point.

† In the left antler the longest crown point was gone.

Two of the finest of Scottish prehistoric Red Deer heads have been recovered from Roxburghshire, Linton Loch and Ashkirk, and the Lindean specimen recorded above makes a good third.—  
JAMES RITCHIE.

**Large School of Pilot Whales in Lerwick Harbour.—**

Extraordinary scenes were witnessed at Lerwick, Shetland, on Sunday, 10th February, when a big school of Pilot Whales (*Globicephala melæna*) entered the harbour and remained all day. The school, estimated to number 500 Whales, came close inshore, and, after swimming along both sides of the harbour, assembled in deep water in the centre. Hundreds of onlookers in motor launches obtained an excellent close-up view.

The Whales were so densely packed that they collided with each other when diving, and when the launches charged through them commotion prevailed. The school always followed a large Whale acting as leader. They were still in the harbour at nightfall but had disappeared on Monday.—From *The Evening Dispatch*, 11th February 1929.

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## RARE BIRDS AT FAIR ISLE.

By Surgeon Rear-Admiral J. H. STENHOUSE.

DURING last autumn there was very little migration at Fair Isle. I spent three weeks on the island, from 15th September to 4th October. Previous to my arrival very few birds had been seen, and during my stay the wind was almost continuously from the north or north-west, and with the exception of the usual Icelandic and Faroese migrants and two Greenland Redpolls (*Acanthis linaria rostrata*) on the 19th, the island was practically bare of birds. Thrice, however, the wind backed for a few hours to the north-east, once on the 22nd, again on the 24th, and again on the 28th, and on each occasion a few birds arrived, mostly rarities. A female Lanceolated Warbler (*Locustella lanceolata*) and an Eastern Lesser Whitethroat (*Sylvia curruca affinis*) were obtained on the 22nd and two Yellow-Browed Warblers (*Phylloscopus i. inornatus*) were seen. On the 24th a male Blyth's Reed Warbler (*Acrocephalus dumetorum*) was shot among standing corn, the first record of this bird since 1912. On the 25th a female Bluethroat occurred, on the 26th two Northern Willow-Warblers (*Phylloscopus trochilus eversmanni*), on the 28th another Bluethroat, four Yellow-Browed Warblers and a male Eastern Lesser Whitethroat. On 1st October a few Redwings arrived; one shot proved to be of the Icelandic race (*Turdus iliacus coburni*). On 5th October a south-easterly gale brought in a fair sprinkling of birds, among which were the Desert Wheatear, whose occurrence has been already recorded, and two Richard's Pipits, male and female. Later, on the 9th, a male Petchora Pipit (*Anthus gustavi*) was secured, the second record of this bird's occurrence in the British Isles, in fact in Western Europe. A young male Ortolan was also obtained on the same date, and on the following day a female Scarlet Grosbeak. For the records after 4th October I am indebted to Mr George Stout, Field, Fair Isle, who has forwarded the birds mentioned to the Royal Scottish Museum.

**Northern Limit of Wild Cat in Scotland.**—Records of Wild Cats (*Felis sylvestris grampia*), killed in various parts of Scotland, have appeared so frequently during the last two years in Scottish newspapers that, if the records be accurate, we must assume either that Wild Cats are increasing in numbers with us, or that more attention than formerly is being paid to their destruction. A marked increase in numbers would almost certainly be followed by an extension of the range frequented by the Wild Cat, and the recent killing of a dozen or more individuals in the neighbourhood of Blairgowrie in eastern Perthshire, where they are said not to have been seen for many years, suggests that extensions of range and therefore increases in numbers have been taking place.

On 9th January I received for identification from Mr Alex. Gordon, Durness, a Wild Cat which must belong to the very limit of the northern range of the species in Scotland. It was a young male, caught in a trap on 6th January, near Loch Erriboll, in the north of Sutherland. The Wild Cat was rare in the Tongue district when Harvie-Brown and Buckley wrote their *Vertebrate Fauna of Sutherland, Caithness and West Cromarty* (1887).—JAMES RITCHIE.

**Further Note on the Mortality amongst House-Sparrows in Shetland.**—I duly received your letter of the 19th December and I am sorry that now I cannot send you dead Sparrows. I may explain that this disease killed the last bird here in Mid Yell about the end of September. The north and south end of this island is and has been free from the disease, and so Sparrows are still there, both in the south and north, but in and around Mid Yell there are none. I hear that there are three or four now come to Wind House, and though I have not seen them I do not doubt the information.—CHARLES J. INKSTER, Mid Yell.

**Mortality of House-Sparrows in West Perth.**—A feature of the present winter in West Perthshire is the large number of dead birds which are being picked up. It may be that hardship due to the recent prolonged spell of frost has something to do with the mortality, but some are inclined to think that an epidemic of sorts has been prevalent. A measure of strength is lent to this supposition by the fact that when the birds were picked up and examined the heads of many of them were found to be abnormally swollen. It is interesting to note that the Sparrow tribe has been most seriously affected. Robins, too, are numerous among the dead birds picked up.—HAMISH MUIR, Callander.



## NOTES ON THE STATUS OF BIRDS IN SCOTLAND.

By LEONORA JEFFREY RINTOUL and EVELYN V. BAXTER.

WE have a considerable number of additions to make to the information contained in our book, *The Geographical Distribution and Status of Birds in Scotland*. These consist of records published in 1928, notes sent us by competent observers and the result of work done by ourselves.

Two new birds have been added to the Scottish list, namely, the American Red-necked Grebe, *Podiceps griseigena holboelli*, Reinhart, a specimen of which was shot near Aultbea, W. Ross, in September 1925 (*British Birds*, xlviii. 53 and 70). Therefore one of the spare leaves in the book should be devoted to this subspecies and O. added to W. Ross.

The Desert Wheatear, *Enanthe deserti deserti*, Temm., occurred on Fair Isle on 6th October 1928 (SCOTTISH NATURALIST, 1928, 180); it should be entered on a spare leaf and O. inserted after Fair Isle.

As no Scottish specimen of the Little Bustard had been critically examined, we were forced to include it under a binomial. Now, however, one from S. Kincardine has been examined by Dr Hartert and has proved to be the Eastern Little Bustard, *Otis tetrax orientalis*.

Hereafter will be found further additions to the book, which should be added as indicated:—

- Hooded Crow, *add* W. to Lanark.
- Magpie, *add* R. to S. Argyll and O. to Inner Hebrides.
- British Jay, *add* R. to Dumbarton.
- Chough, *add* "used to breed" to Lanark.
- Starling, *add* W. to Lanark.
- Siskin, *add* OP. to Forfar (Bell Rock).
- Mealy Redpoll, *add* OW. to Selkirk.
- Lesser Redpoll, *add* "has bred" to Selkirk.

- Common Crossbill, *add* O. to Isle of May and to Inner Hebrides, where the subspecies has hitherto been in doubt.
- House Sparrow, *add* OP. to the Inner Hebrides.
- Cirl Bunting, *add* O. to Ayr.
- Rustic Bunting, *add* O. to Orkney.
- Yellow Wagtail, *add* O. to N. Kincardine.
- British Great Tit, *add* R. to W. Inverness.
- Continental Goldcrest, *add* O. to Inner Hebrides.
- Willow-warbler, *add* P. to Midlothian.
- Blackcap, *add* O. to Forfar; *delete* query for Peebles.
- Mistle Thrush, *add* R. to W. Inverness.
- Continental Song Thrush, *add* O. to N. Argyll.
- British Song Thrush, *delete* "rare" in Orkney.
- Blackbird, *add* S. to Renfrew.
- Whinchat, *add* P. to E. Lothian.
- Norwegian Bluethroat, *add* O. to Forfar (Bell Rock).
- Swift, Inner Hebrides, *add* S. Eigg.
- Kingfisher, *add* W. to N. Fife.
- British Great Spotted Woodpecker, *add* R. to Nairn, "Now R." to E. Ross.
- Peregrine Falcon, *add* "has bred" to Midlothian.
- White Stork, *add* O. to Lanark.
- Bewick's Swan, *add* O. to W. Stirling.
- The Snow Goose, *add* O. to Inner Hebrides,
- Shelduck, *add* "has bred" to Caithness.
- Mallard, *add* W. to W. Lothian.
- Teal, *add* W. to S. Argyll and W. Lothian.
- Garganey, *add* "has bred Forth" and O. to Outer Hebrides.
- Shoveler, *delete* O. in W. Lothian; insert W.
- Tufted Duck, *add* S. to Selkirk.
- Goldeneye, *add* OS. to Aberdeen.
- Eider, *add* "has bred" to Bute.
- Black Scoter, *add* "has bred" to Orkney.
- Velvet Scoter, *add* O. to Lanark.
- Surf Scoter, *add* O. to N. Fife and Forfar.
- Goosander, *add* OS. to Orkney.

- Shag, *add* W. to Bute, N. Argyll, W. Ross, Skye, Inner Hebrides and Outer Hebrides.
- Fulmar, *add* S. to N. Argyll.
- Great Crested Grebe, *add* S. to N. Perth and OS. to Aberdeen.
- Little Grebe, *add* O. to S. Argyll.
- Red-throated Diver, *add* W. to S. Argyll and O. to S. Kincardine.
- Wood-pigeon, *add* P. to Wigtown.
- Stock-dove, *add* W. to Lanark, R. to N. Argyll and O. to Inner Hebrides.
- Rock-dove, *insert* OW. before "used to breed" on Fair Isle.
- Lapwing, *add* S. to Dumbarton.
- Turnstone, *add* OS. to Ayr and S. Argyll, and P. to Inner Hebrides.
- Sanderling, *add* OW. to Wigtown.
- Pectoral Sandpiper, *add* O. to Caithness.
- Redshank, *add* R. to W. Inverness; *delete* the O. in OW. at Fair Isle and *add* OS.
- Whimbrel, *add* P. to S. Argyll.
- Woodcock, *add* W. to Wigtown, W. Stirling, and S. Perth.
- Sandwich Tern, *delete* "not now breeding" in E. Lothian and *insert* "breeding sporadically."
- Little Tern, *add* S. a few to Ayr.
- Black-headed Gull, *delete* "not breeding" in S. Argyll and E. Lothian, and for latter substitute "has bred."
- Scandinavian Lesser Black-backed Gull, *add* O. to S. Argyll, Berwick, and Orkney.
- British Lesser Black-backed Gull, *delete* "not breeding" in S. Argyll.
- Razorbill, *add* S. to W. Sutherland.
- Northern Guillemot, *add* O. to S. Argyll and W. Inverness.
- Water Rail, *add* "has bred" to E. Lothian.
- Moorhen, *add* S. to W. Stirling.

**Capercaillie in Ross-shire.**—An extension westwards of the range of the Capercaillie is indicated by the appearance of a cock bird, seen by me on the high road near Achanalt on the Dingwall-Kyle Railway—some thirty-five miles west of Dingwall. Capercaillie are known to be established in Easter Ross in the neighbourhood of Swordale, but I know of no record from mid-Ross-shire.—D. N. REID, Loch Carron.

**Unusual Bird Visitors on the Esk.**—On 2nd February my attention was drawn to a Waterhen busily splashing in the water on a quiet reach of the Esk, where it forms a broad bend above Musselburgh. As I stood, a brown-looking object on a sandy patch at the water's edge on the opposite bank caught my eye, and a closer examination through the glass revealed a female Scaup duck at rest, the broad white facial mask showing very distinctly. The bird sat for some time apparently quite unconcerned and then deliberately walked down into the water. My interest was much increased when another most unlooked for species suddenly came under observation, viz., an immature Goldeneye which was energetically diving as it swam up and down stream. It appeared much more disconcerted at my presence than the Scaup, and when a dog suddenly appeared on the bank it flew off, rising from the water with great rapidity. The Scaup has frequently been noticed well into the mouth of the river, but it is most unusual to encounter these two species in the situation described.—J. KIRKE NASH.

**Fulmar Petrels on Sule Skerry, Orkney.**—With the large increase in the range of the Fulmar Petrel during recent years, it may be of interest to record that during the past summer (1928) six pairs bred on the Island of Sule Skerry, Orkney. They have only been there during the last few years and increase by about one pair every year.—H. W. ROBINSON, Lancaster.

**Bean Geese in East Lothian.**—On the evening of 2nd February I shot a Bean Goose (*Anser fabalis*) on the foreshore of the Tyne Estuary. It was one of a lot of about eight, and weighed 7 lbs.—JOHN DUNCAN, North Berwick.

**Winter Nesting of Stockdove in East Fife.**—On 28th December 1928 I found a young Stockdove lying dead. It had evidently just left the nest and was near one of the lime trees in which Stockdoves nest every year. This is the second time we have found young Stockdoves in winter.—LEONORA JEFFREY RINTOUL, Largo, Fife.

THE HABITATS OF SOME CRANE-FLIES (*DIPT. TIPULOIDEA*) IN THE WEST OF SCOTLAND.

By ALEXANDER CUTHBERTSON.

RECENT papers by H. F. Barnes and the present writer on the bionomics of Crane-flies (*Dipt. Tipuloidea*) in North Wales and the West of Scotland respectively, have supplemented the taxonomic studies of F. W. Edwards. Barnes (1925, 1926) has listed the habitats of adult Crane-flies in Carnarvonshire and has discussed in general terms some environmental factors, *e.g.*, relative humidity, temperature, exposure to winds, etc. The present contribution summarises our knowledge of the breeding places, since, as Dr A. E. Cameron points out (*Sci. Prog.*, No. 77, 1925, p. 95), "*the true index of an animal habitat is its suitability for breeding as well as feeding, and of the two the former is probably the more important.*" Since a very few adult Crane-flies (*e.g.* *Geranomyia*, *Helius*) are suspected of feeding on the nectar of flowers, the feeding places are not of importance, but some attempt is made also to correlate the adult and larval habitats. Records of the latter are given in a paper by the writer (1926, B), and references to European literature are included.

The habitat groupings (A, B, C, D) and sub-habitats (I., II., III., etc.) serve to show the environmental relationships of the species studied. The majority of the numerically common and widely-distributed species are not restricted to any *one* ecological habitat. For most of those species which are unknown in the early stages, the writer has detailed field notes made during the years 1922-26, as well as MS. notes and published data by local students of the Tipulids (from the year 1897). Although the seasonal and geographical distribution of at least half of the 184 species<sup>1</sup> found in the West of Scotland is fairly well known, very much remains to be discovered regarding the bionomics, and it is hoped that this paper will stimulate interest in this important phase of entomology.

<sup>1</sup> Dated May 1926.

The methods of study of the various factors relating to ecological distribution have been outlined by A. E. Cameron (1917). There is evidence that relative humidity, temperature and exposure to winds influence the activities of adults (Barnes, 1925). As the field work on which this paper is based was done in spare time by the writer while an agricultural student, only *general* observations and investigations were possible; but it appears that the important factors bearing on the ecological distribution of the soil-inhabiting larvæ will be found to be: presence therein of food-plants and animal-life, moisture, texture, acidity, and exposure to rain and sun. Reliable and standard means of estimating the relative importance of these and other environmental factors must be devised.

#### A. STREAM-MARGIN.

Crane-flies which are in pre-imaginal stages aquatic or sub-aquatic, the adults being found among long grass, etc., in the immediate vicinity of streams in upland glens. Localities of study: Argyll — Ardgoil and Drimsynie Estates in Loch Goil district; Ayr — Yonderfield Farm, Portincross, and Springside, near West Kilbride district, and Tourgill Farm near Largs; Dumbarton — Cochno Estate and Drumchapel, Clydebank district.

I. *Aquatic Species*.—Inhabiting submerged mud near margin:—

<i>Ptychoptera albimana</i> , F.	<i>Tricyphona immaculata</i> , Mg.
„ <i>lacustris</i> , Mg.	<i>Pedicia rivosa</i> , L.
„ <i>scutellaris</i> , Mg.	<i>Tipula vittata</i> , Mg.

And inhabiting sand and gravel in mid-stream:—

<i>Dicranota bimaculata</i> , Schum.	<i>Tipula</i> (? <i>lateralis</i> , Mg.)
„ <i>guerini</i> , Zett.	„ <i>montium</i> , Egg.

II. *Sub-aquatic Species*.—Inhabiting the moist mud, sand, or gravel at the water's edge:—

<i>Dicranomyia didyma</i> , Mg.	<i>Limnophila ferruginea</i> , Mg.
<i>Limonia nubeculosa</i> , Mg.	„ <i>filata</i> , Walk.
<i>Idiotera trimaculata</i> , Zett.	„ <i>lineola</i> , Mg.

<i>Limnophila nemoralis</i> , Mg.	<i>Erioptera taenionota</i> , Mg.
<i>Adelphomyia nielsenii</i> , Kuntze.	„ <i>trivialis</i> , Mg.
„ <i>senilis</i> , Hal.	<i>Ormosia lineata</i> , Mg.
( <i>Tricyphona immaculata</i> , Mg.)	<i>Gonomyia dentata</i> , Meij.
<i>Poecilostola punctata</i> , Schrk.	<i>Symplectomorpha stictica</i> , Mg.
<i>Ilisia areolata</i> , Siebke.	<i>Lipsothrix remota</i> , Walk.
<i>Empeda flava</i> , Schum.	<i>Tipula luna</i> , Westh.
<i>Erioptera flavescens</i> , Mg.	„ <i>vittata</i> , Mg.
„ <i>fuscipennis</i> , Mg.	

Beling (1879, 1886) records from this habitat in Germany the following:—*Gonomyia tenella*, Mg., *Helobia hybrida*, Mg., *Rhabdomastix schistacea*, Schum., *Tipula fulvipennis*, Deg., *T. variicornis*, Schum., and *T. variipennis*, Mg. Gerbig (quoted by Alexander, 1920) reared *Trimicra pilipes*, F., *Pilaria discicollis*, Mg., and Von Rossi reared *Hexatoma nigra*, L. (= *Anisomera æqualis*, Loew.) from larvæ taken in similar situations.

III. Some species discussed under Section C. I. inhabit also wet soil, rich in decaying vegetable matter, at the margin of streams in open mixed woodlands.

IV. Large numbers of interesting species are characteristic of the stream-marginal associations, but are unknown in the early stages:—

<i>Trichocera fuscata</i> , Mg.	<i>Rhaphidolabis exclusa</i> , Walk.
<i>Antocha vitripennis</i> , Mg.	<i>Dicranota pavidata</i> , Hal.
<i>Dicranomyia morio</i> , F.	„ <i>subtilis</i> , Loew.
„ <i>ornata</i> , Mg.	<i>Tricyphona claripennis</i> , Verr.
„ <i>pilipennis</i> , Egg.	„ <i>littoralis</i> , Mg.
„ <i>stigmatica</i> , Mg.	„ <i>lucidipennis</i> , Edw.
<i>Idioptera fasciata</i> , L.	„ <i>occulta</i> , Mg.
„ <i>pulchella</i> , Mg.	„ <i>unicolor</i> , Schum.
<i>Limnophila aperta</i> , Verr.	<i>Erioptera diuturna</i> , Walk.
„ <i>bicolor</i> , Mg.	<i>Molophilus murinus</i> , Mg.
„ <i>punctum</i> , Mg.	„ <i>obscurus</i> , Mg.
<i>Hexatoma fuscipennis</i> , Curt.	<i>Tipula alpium</i> , Bergr. <sup>1</sup>
„ <i>lucidipennis</i> , Curt.	

<sup>1</sup> I believe Mr Britten reared this species from larvæ found under moss.

## B. MARSH AND SWAMP.

Crane-flies which are in the pre-imaginal stages aquatic or sub-aquatic, the adults occurring in vegetation (reeds, rushes, salix, etc.) in marshes and swamps. Localities of study:—Argyll—Glen Goil; Bute—St Ninian's Bay; Dumbarton—Garscadden Estuary, Kilpatrick Hills; Glasgow district—Frankfield Marsh, near Riddrie, and Possil Marsh, near Maryhill.

I. *Aquatic*.—Inhabiting the submerged organic mud in shallow places near margin:—

<i>Ptychoptera paludosa</i> , Mg.	<i>Prionocera turcica</i> , F.
<i>Pilaria discicollis</i> , Mg.	<i>Tipula luteipennis</i> , Mg.

II. *Sub-aquatic*.—Inhabiting the saturated soil at margin, which contains decomposing plants, twigs of shrubs, etc.:—

<i>Helius dubius</i> , Edw.	<i>Erioptera trivialis</i> , Mg.
<i>Limnophila ferruginea</i> , Mg.	<i>Empeda nubila</i> , Schum.
„ <i>lineola</i> , Mg.	<i>Cheilotrichia imbuta</i> , Wied.
<i>Tricyphona immaculata</i> , Mg.	<i>Tipula lateralis</i> , Mg.

*Trichocera regelationis*, L., feeds in larval stage on midribs of crucifers, etc., and in cattle dung, in latter case in association with *Rhipidia maculata*, Mg.

The larvæ of the following have been recorded from decomposing wood: *Limnophila dispar*, Mg., *L. fuscipennis*, Mg., *L. ochracea*, Mg., and *Epiphragma ocellaris*, L.

III. Species feeding upon aquatic grasses or mosses, or Ranunculus, etc., in slow-moving streams on margin of Frankfield Marsh and like places:—

*Phalacrocerca replicata*, L.

IV. *Bogs*.—Locality of study: Kilpatrick Hills. No larvæ of Tipulids have been found in bogs, and only three species have been collected at the margin:—

<i>Limnophila nigrina</i> , Mg.	<i>Prionocera turcica</i> , F.
<i>Tricyphona immaculata</i> , Mg.	



V. Some little-known adult Crane-flies are characteristic of marshes :—

<i>Idioptera fasciata</i> , L.	<i>Limnophila lineolella</i> ,
<i>L. sepium</i> , Verr.	Verr.
<i>L. (Pseudolimnophila), lucorum</i> ,	<i>L. subtinctoria</i> , Zett.
Mg.	

### C. WOODLANDS.

Crane-flies which inhabit in the pre-imaginal stages soil, usually near streams, rich in organic matter from the decay of leaves, pine-needles, etc., or *feed on mosses* growing upon rocks, tree-trunks, etc., or *bore in wood* in various stages of decomposition. Localities of study: Argyll—Ardgoil and Drimsynie Est., Loch Goil; Ayr—West Kilbride district; Dumbarton—Cochno and Edinbarnet Est., Garscadden near Clydebank.

I. *Soil-dwellers*.—Species inhabiting the soil (leaf-mould, etc.) in wet hollows in ditches, drains, near streams in open deciduous mixed woodlands :—

<i>Trichocera annulata</i> , Mg.	<i>Molophilus ochraceus</i> , Mg.
„ <i>hiemalis</i> , de G.	„ <i>bifilatus</i> , Verr.
„ <i>regelationis</i> , L.	<i>Ilisia maculata</i> , Mg.
<i>Dicranomyia autumnalis</i> ,	<i>Empeda nubila</i> , Schum.
Stæg.	<i>Erioptera fuscipennis</i> , Mg.
<i>Limonia flavipes</i> , F.	„ <i>tænionota</i> , Mg.
„ <i>nubeculosa</i> , Mg.	<i>Gonomyia dentata</i> , Meij.
„ <i>ochracea</i> , Mg.	„ <i>tenella</i> , Mg.
„ <i>tripunctata</i> , F.	<i>Tipula fulvipennis</i> , de G.
„ <i>trivittata</i> , Schum.	„ <i>hortulana</i> , Mg.
<i>Limnophila nemoralis</i> , Mg.	„ <i>maxima</i> , Poda.
„ <i>ochracea</i> , Mg.	„ <i>luna</i> , Westh.
<i>Rhypholophus hæmorrhoidalis</i> ,	„ <i>lunata</i> , L.
Zett.	„ <i>pruinosa</i> , Wiest.
<i>Rhypholophus varius</i> , Mg.	„ <i>scripta</i> , Mg.
<i>Ormosia uncinata</i> , Meij.	<i>Nephrotoma flavescens</i> , L.
<i>Molophilus obscurus</i> , Mg.	

A much larger number than is given here inhabit leaf-mould. The larvæ of *Trichocera hiemalis*, Deg., have been found in cattle dung.

II. *Moss-feeders*.—Species which feed on mosses, on rocks, tree-trunks, stone dykes, etc., near-by streams or growing beside waterfalls in glens:<sup>1</sup>—

<i>Dicranomyia chorea</i> (Wied.),	<i>Tipula excisa</i> , Schum.
Mg.	„ <i>marmorata</i> , Mg.
<i>Limnophila nigrina</i> , Mg.	„ <i>rufina</i> , Mg.
<i>Triogma trisulcata</i> , Schum.	„ <i>staegeri</i> , Niel.
<i>Dolichopeza albipes</i> , Strom.	„ <i>truncorum</i> , Mg.
<i>Liogma glabrata</i> , Mg.	„ <i>variipennis</i> , Mg.
<i>Nephrotoma imperialis</i> , Mg.	

*Cylindrotoma distinctissima*, Mg., larva feeds on leaves of valerian, wood anemone, buttercup and other plants.

III. *Fungicolous*.—Species which feed in larval stage on mushrooms (*Agaricus*), or tree-fungi (*Polyporus*):—

<i>Limonia annulus</i> , Mg.	<i>Limonia decemmaculata</i> , Loew.
„ <i>bifasciata</i> , Schrk.	<i>Ula macroptera</i> , Macq.

The adults fly about the undergrowth, or rest on the bark of trees.

IV. *Wood-dwellers*.—Species which, in the larval stage, feed on wood, in various stages of decay.

<i>Dicranomyia dumetorum</i> , Mg.	<i>Tanyptera atrata</i> , L.
„ <i>macrostigma</i> , Schum.	<i>Dictenidia bimaculata</i> , Brullé.
<i>Limnophila ochracea</i> , Mg.	<i>Tipula flavolineata</i> , Mg.
<i>Epiphragma ocellaris</i> , L.	„ <i>irrorata</i> , Macq.

Some *Nephrotomæ* have been recorded from wood, *e.g.* *cornicina*, L., *crocata*, L., *lineata*, Scop., *quadrifaria*, Mg. Barnes has reared *N. crinicaudata*, Riedel, and Keilin *Gnophomyia tripudians*, Bergr., from larvæ found in wood. *Tanyptera* and *Ctenophora* are all wood-borers in larval stage.

<sup>1</sup> Since breeding places occur in various situations, *e.g.* under moss covering boulders which are to be found in upland glens, on exposed hill-slopes, near-by woodland streams, etc., the adults are found in a number of places, but the true habitat is where they are most prolific.

V. Species common in woods, but unknown in the pre-imaginal stages:—

<i>Dicranomyia lutea</i> , Mg.	<i>Molophilus occultus</i> , Meij.
„ <i>mitis</i> , Mg.	<i>Ormosia albitibia</i> , Edw.
„ <i>modesta</i> , Mg.	„ <i>nodulosa</i> , Mcq.
„ <i>rufiventris</i> , Strobl.	„ <i>similis</i> , Staeg.
<i>Molophilus appendiculatus</i> , S.	

Close coniferous plantations with no undergrowth and remote from streams have a scanty Crane-fly population: *Anisopus punctatus*, F., *Trichocera* spp. including *parva*, Mg., *Limonia nubeculosa*, Mg., *Limnophila ochracea*, Mg., *Gonomyia dentata*, Meij., *Molophilus flavus*, Goet., *M. occultus*, Meij., and *Tipula scripta*, Mg., *Tipula nubeculosa*, Mg., larvæ inhabit the leaf-litter of coniferous forests (Dingler).

#### D. GRASSLANDS.

Crane-flies which in the pre-imaginal stages live in the soil at the roots of grasses; or feed on moss, or decaying vegetable matter in pasture fields, hill-slopes, etc. Localities of study:—Ardgoil slopes of Ben Donich, Loch Goil; Ayr—Yonderfield Farm, W. Kilbride, and Tourgill Farm, Largs; Dumbarton—Drumchapel and Duntocher, near Clydebank:—

<i>Limnophila nemoralis</i> , Mg.	<i>Tipula oleracea</i> , L.
„ <i>nigrina</i> , Mg.	„ <i>pagana</i> , Mg.
<i>Gonomyia dentata</i> , Meij.	„ <i>paludosa</i> , Mg.
<i>Nephrotoma flavescens</i> , L.	„ <i>subnodicornis</i> , Zett.
„ <i>maculosa</i> , Mg.	„ <i>vernalis</i> , Mg.

Dicranotæ and Pedicia are often blown by strong winds far from their breeding places in mountain streams on to hill-slopes.

#### E. SEASHORE.

A number of little-known species, as *Limonia dilutior*, Edw., *Limnophila filata*, Walk., *Rhaphidolabis exclusa*, Walk., are found commonly on the shore at St Ninian's Bay, in the Isle of Bute (writer, 1927); but *Geranomyia unicolor*, Hal., is the only characteristic species of this habitat.

Gardens, plant nurseries, and other cultivated areas have not been studied in detail, but many soil-dwelling larvæ Tipulids, as *Tipula oleracea*, *T. paludosa*, *T. unca*, and

*Nephrotoma flavescens*, have been found at the roots of flowers and seedling forest trees.

#### SUMMARY.

1. There is a close correlation between the imaginal and larval habitats of Crane-flies in the west of Scotland. The breeding places give the best indication of the real ecological distribution of the species.

2. The greatest number of species occur near-by streams in upland glens, and open, mixed woodlands, the immature stages being spent in the moist soil at the margin. Some noteworthy aquatic and subaquatic genera are Ptychoptera, Erioptera, Ormosia, Poecilostola, Limnophila, Pedicia, Tricyphona, Dicranota and Tipula (*lateralis*, Mg., *vittata*, Mg.).

3. The Crane-fly fauna of marshes and swamps is large, including some in the preceding section. The larvæ inhabit saturated mud, e.g. genera Helius, Palaria, Prionocera and Tipula (*luteipennis*, Mg.), or feed on aquatic plants, e.g. Phalacroceræ.

4. The species found in woodlands are soil-dwellers in the immature stages, feeding on decaying vegetation, e.g. genera Limonia, Limnophila, Rhypholophus, Molophilus, Gonomyia, Nephrotoma, and Tipula (*fulvipennis*, de G., *maxima*, Poda). Some larvæ feed on wood in various stages of decomposition, e.g. Epiphragma, Tanyptera, Ctenophora, and Tipula (*flavolineata*, Mg.). Several larvæ are fungicolous, e.g. Limonia, Ula; or live in moss on tree-trunks, rocks, etc., e.g. Tipula *marmorata* group. Close coniferous forests have a scanty population.

5. A few Crane-flies are common in grasslands, hill-slopes, etc., the larvæ feeding upon roots of grasses, e.g. Tipula. Several species attack cereals, e.g. *Tipula oleracea*, L. and *T. paludosa*, Mg., and are local pests of considerable importance.

6. Mountain summits have a very poor fauna, owing to the absence of breeding places, and lack of shelter from rain and wind.

Hilly species: a few Tipulids are frequently collected in rocky hill-slopes, and include, *Tipula alpium*, Bergr., *T. cheethami*, Edw., and *T. excisa*, Schum. As far as known

there are no local species one may consider to be mountainous, as most have a very wide altitudinal range.

TABLE SHOWING NUMBER OF SPECIES OCCURRING IN SOME ADULT AND LARVAL HABITATS.

ADULTS			LARVÆ.		
Habitat.	Species studied 140.	Percentage.	Habitat.	Species considered 95.	Percentage.
Stream margins .	80	57	Soil-dwellers .	60	63
Marshes . .	63	45	Aquatic and Sub- aquatic . .	20	22
Woodlands . .	33	24	Moss-dwellers .	15	16
Grasslands . .	9	6	Wood-dwellers .	11	12
Mountains . .	5	3	Fungi . .	4	4.2
Seashore . .	3	2			

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NOTES ON SILVER SMELTS (*ARGENTINA*)  
LANDED AT NEWHAVEN.

By A. C. STEPHEN, B.Sc., Royal Scottish Museum.

ON the 27th June 1928, 35 specimens of the Great Silver Smelt, *Argentina silus*, taken about 240 miles E.N.E. from Buchan Ness in about 80 fathoms, were landed at Newhaven. Several other specimens were landed about the same time from a position about 210 miles N.E.  $\frac{1}{2}$  W. from Buchan Ness in 70 to 80 fathoms of water. The fish is a Northern species which is found in the Norwegian Deep and is said by Fulton (*Report Fishery Board, Scotland, 1901*, p. 540) to be common in the localities given above. It has also been recorded on one occasion as far south as Ireland (Holt, *Journ. Mar. Biol. Assoc.*, v., 1898, p. 341).

The chief interest in the collection lies in the fact that the stomachs were not everted, as is usually said to be the case, and so an examination of the food was possible. Holt (*loc. cit.*) found finely triturated remains of prawn or shrimp tissue and one copepod. He considered the evidence pointed to *A. silus* haunting the bottom.

The fish examined from Newhaven had also been feeding on the bottom. Of the 35 stomachs 13 were empty. The others were mostly filled with unrecognisable fish remains, which smelt very strongly of Herring, and in addition there were one or two which contained four post-larval gadoids and flat-fish, some Schizopod remains, and in one case Ophiuroid fragments.

An examination of the reproductive organs showed that, of 12 males and 21 females, all the males and half the females were immature. The other females either were spawning or had spawned. The exact proportions were as follows:—

Females, immature,	25.0 cm. to 41.0 cm.,	10	
"    ripe	39.5 cm.	1	eggs in alcohol 1.02 mm. in diameter.
"    spent	28.5 cm. to 41.0 cm.,	10	
Males, immature,	22.0 cm. to 36.5 cm.,	12	
Unsexed,	26.5 cm. to 27.0 cm.,	2	

At the same time two specimens of the Hebridean Smelt (*Argentina sphyraena*) were landed from the first locality, having been taken along with *A. silus*. One specimen was a male 24 cm. in length and the other a female 23 cm. in length with well-developed ovary. The eggs, preserved in alcohol, measured 1.2 mm. in diameter.

## NOTES

**Eastern Little Bustard in Scotland.**—Although seven Little Bustards have been recorded in Scotland, the sub-species of none of these has hitherto been ascertained. Through the kindness of Sir John Gilmour we have been able to send the Little Bustard, obtained in Kincardineshire on 1st January 1912, to Dr Hartert for examination. Dr Hartert writes that he finds "it to be a typical female of the Eastern *Tetrao tetrax orientalis*." The specimen is now in the Lundin Links Museum, having been bequeathed by the late Mr William Cook to this collection.—LEONORA JEFFREY RINTOUL and EVELYN V. BAXTER.

**Blackcap Wintering in Midlothian—An Unusual Bird-table Visitor.**—It is not often that one manages to lure such a bird as the Blackcap (*Sylvia atricapilla*) to feed at a bird-table in the garden, nor have I seen any record of this bird so doing; but a female Blackcap, which I was able to photograph, has been quite a regular visitor to my table in Liberton since the fall of snow on Sunday, 27th January 1929. The Blackcap showed no fear but came and fed with other birds, blackbirds, sparrows, etc. She seemed chiefly to enjoy the fat. Why this bird stayed here all the winter I do not know, as it is not injured in any way, neither is it a passing migrant as it has remained in the district for a long time. It was not at all afraid of being photographed as most birds are, but took great interest in the proceedings of changing the dark slide, hopping about from twig to twig, and cocking its head inquisitively every now and then.—V. D. VAN SOMEREN, Liberton.

[Some Blackcaps occasionally spend the winter in Scotland instead of departing for Africa in September, and winter records have come from as far north as Ross-shire.—EDS.]

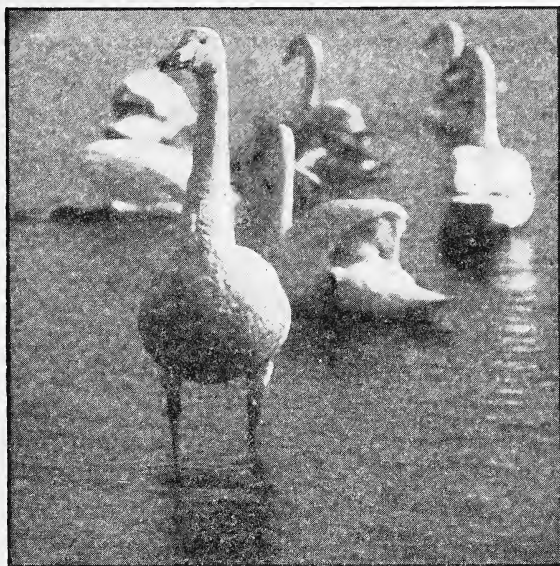
**Whooper Swans in the Tay Estuary.**—The occurrence of wild Whooper Swans in the Tay Estuary is probably fairly regular, but their extreme wariness is enough to prevent most people from gaining more than a very slight knowledge of their habits and behaviour.

About the end of January 1928, however, three Whoopers joined the flock of tame Mute Swans at Broughty Ferry on the Angus coast. One disappeared almost immediately and is believed to have been fatally injured in a fight. The others, an adult and immature swan, remained in the neighbourhood of the harbour for about three months, gradually becoming tamer and tamer, and



readily coming for the food supplied by the fisher folk and interested visitors. As spring approached they wandered here and there to the various freshwater ponds in the neighbourhood, and finally disappeared at the end of April.

Six months later, at the end of October, three Whoopers again appeared off Broughty Ferry, but only two were sufficiently bold to approach the haunts of man; the third, evidently preferring the wild life, after a vain endeavour to persuade his companions to return to him, left the district. The two others, both adults,



WHOOPEER SWAN, STANDING, AMONGST GROUP OF MUTE SWANS, ON THE SHORE OF THE TAY ESTUARY AT BROUGHTY FERRY.

immediately joined in with the Mute Swans, and at the date of writing (end of January) are still there, coming regularly to be fed and even at times taking food out of the children's hands. Although it is impossible to be sure that they are the same birds as were there early in 1928, their extraordinary tameness is enough to make one think that this is so.

They are quarrelsome birds, and noisier than their tame companions, their call note closely resembling the sound made by a toy trumpet. While calling they often bob their heads up and down in a curious excitable manner. The accompanying photograph gives some idea of their surprising tameness.—T. LESLIE SMITH, Broughty Ferry.

**Female Smew at Duddingston.**—During February 1929 a female Smew frequented Duddingston Loch. I saw it on the 3rd of the month but it was too wary to be approached. On the 9th I had it under observation for two hours. The chestnut red of the head, the crest, white cheeks and chin, also the white patch on the wings and the double bar, were all distinctly seen. The bird swam low in the water with great rapidity, and was a most expert diver. It was seen to fly short distances several times. It was also observed by Major Campbell, the Rev. W. Searle, and others.—DAVID HAMILTON, Edinburgh.

**Tree-Sparrow at Linlithgow.**—At a farm quite near Linlithgow Loch several Tree-Sparrows (*Passer montanus*) were seen at different parts of the steading among a mixed flock of other birds. I also saw one at the Loch side. I send this record in view of the fact that there has been no further report in answer to the inquiry by Miss Rintoul and Miss Baxter.—DAVID HAMILTON, Edinburgh.

**Great Crested Grebe's late "Brood."**—On 21st October 1928, at a loch in West Lothian, I came on a Great Crested Grebe with two very young chicks. Judging by their size they could have been little more than a week old. I saw them again on 18th November and they had grown considerably. On 9th December they seemed almost full sized and were still in the peculiar striped plumage. Both chicks were seen making short dives below the surface, but they were evidently only learning, as I saw them being repeatedly fed by the old bird. On 6th January 1929 the loch was frozen over except a small part, and no sign was seen of either young or adults.—DAVID HAMILTON, Edinburgh.

**Autumn Singing of the Missel Thrush and Hedge-Sparrow.**—In Scotland the Missel Thrush is seldom heard in song before February, and perhaps still less often do we hear it late in the year. It may therefore be of interest to record the bird in song as early as 8 A.M. on the 27th and 29th November last, in the Royal Botanic Garden. In the same locality I heard the Hedge-Sparrow singing on 30th October.—J. KIRKE NASH.

**Albino Red Grouse.**—While stalking on the ground at Remony Lodge, Aberfeldy, this autumn, one of my guests saw a pure white Grouse.—J. DUNCAN MILLAR.

## BOOK NOTICES

BIRDS AT THE NEST. By Douglas Dewar. London: John Lane, the Bodley Head, Ltd., 1928. Pp. 271. Price 7s. 6d. net.

The ideas of evolution and the adaptation of creatures to their surroundings set free floods of easy speculation about the structures, colours, and habits of animals, from which natural history has not yet wholly recovered. Mr Dewar, in this volume, makes a valiant effort at breaking the spell, so far as the ways of birds are concerned. He analyses, from observations of his own and the printed records of others, the intelligence of birds, particularly in all the activities associated with nest-building and the rearing of the young; and he very properly reaches the conclusion that the intelligence of birds is on a very different plane from that of human beings. It is obviously absurd to interpret bird actions from the purely human standpoint, though that is often done. The difficulty is to assess just how much of an action is due to intelligent anticipation and how much to a blind instinct, and Mr Dewar seems to us to be hypercritical. To take a single example, he states (p. 134) that "birds do not profit by the experience of their fellows," and gives several observations to that effect. But there are examples very definitely on the other side, such as that, recently described by Mr Gardner in *The Auk*, of Rocky Mountain Crows, thousands of which learned to avoid poisoned baits from seeing a few of their fellows pay the penalty. Mr Dewar's book is well worth study, for it gives a new interest to old problems, and will suggest to the naturalist how alert he must be in both observation and interpretation.

GILBERT WHITE—PIONEER, POET, AND STYLIST. By Walter Johnson, F.G.S. London: John Murray, 1928. Pp. xvi + 340. Price 15s. net.

To examine the works of Gilbert White from a new point of view, is as refreshing as it is novel. Probably no writing on natural history has been so widely read or has been commented upon by so many editors as his *Selborne*, yet the attraction of the volume eludes analysis. Mr Johnson has analysed White's observations after a scientific fashion. The originally disjointed notes are arranged and grouped according to their general subjects, providing chapters on zoological anticipations, birds, insects, botany, geology, antiquities, and so on, and the observations are examined in the light of modern knowledge. The method shows up in clear fashion the meticulous accuracy of most of White's records; but it also indicates the limits of his studies, for he confined himself to one of the lowest but fundamental stages of the naturalist's progress, simple observation. Speculation upon the deeper significance of things, as a rule, he deliberately avoided. One of the most interesting chapters is an examination of "White's prose style," to which a great part of the popularity of his writings is undoubtedly due. Few writers have had so fine a sense of the values of simple, clear, and leisurely diction.

THE BRITISH SEA ANEMONES. By T. A. Stephenson, D.Sc.  
Vol. i. London: Printed for The Ray Society, 1928.  
Pp. xiv + 142.

Since Philip Gosse published his great work on British Sea Anemones nearly seventy years ago, various false starts have been made at a re-monographing of the group. It is fortunate, however, that the task should ultimately have fallen to Dr T. A. Stephenson, for the first volume gives promise of a monograph as attractive as Gosse's, having delineation of much finer quality, and descriptions which have gained in precision and accuracy with the enormous strides in knowledge made during the last half-century. The greater part of this volume is given up to a general account of the characteristics of Sea Anemones—their structure, coloration, development, bionomics and classification. It is an excellent introduction to the study, containing many suggestive observations, such as that there often runs through a group a basic pattern, upon which almost an infinite number of colour changes can be rung; as well as interesting notes upon associated animals, and longevity (seventy years, and still going strong, appears to be the record), and practical hints on the collecting and keeping alive of Anemones. No praise can be too high for the beautiful illustrations, whether they be amusing tail-pieces in black-and-white, or the coloured plates which have caught, as we doubt if they have been ever caught before, the delicacy, transparency and fine colour patterns of these lowly creatures.

FURTHER CORRESPONDENCE OF JOHN RAY. Edited by Robert W. T. Gunther, M.A., Hon. LL.D. London: Printed for The Ray Society, 1928. Pp. 332. With two portraits, two half-tone plates and six text-figures.

This interesting volume owes its publication to the "re-discovery in the Bodleian Library of a number of letters of John Ray, which have not only never been printed *in extenso*, but which form a necessary supplement to the volume of *The Correspondence*" published by the Society in 1848. Fascinating as the recently printed volume is to all lovers of natural history, the value of both the 1848 and the 1928 issues is greatly enhanced by the chronological table of letters to and from Ray (who, by the way, was first known as Wray) given on pp. xv.-xxiv. of the latter. These letters number no fewer than 275, and are arranged in the table, strictly in order of date from January 1658-9 to January 1704-5 (his last letter), thus covering a period of nearly half a century. Although the study of botanical questions apparently occupied the greater part of Ray's life, there were many zoological and a few geological problems which engaged his earnest attention. The exactness of his observations and the remarkable acuteness of his reasoning powers are well brought out in this latest series of published letters. The Society which bears and commemorates the name of this great seventeenth-century genius is to be congratulated, first on the discovery of the letters themselves, and secondly on their publication in a form which stamps the volume as one of the most interesting, and certainly not the least valuable, in the long series so well known to all working naturalists.

## NOTES FROM THE SCOTTISH ZOOLOGICAL PARK

### MUCH TRAVELLED BEAVER.

#### CANADA'S GIFT TO EDINBURGH ZOO.

A PAIR of Canadian Beavers has recently been received by the Scottish Zoological Park at Edinburgh to replace a former couple which died at the close of the War. These new arrivals are the gift of the Canadian Government and were captured in Jasper National Park, Canada, in the heart of the Rocky Mountains. On reaching Edinburgh these beaver completed a journey of some 5000 miles, involving about 3000 on a Canadian National Railways' train and 2000 miles by ocean steamer. Special pains were taken to see that these valuable creatures should arrive safely and they were provided with a particular diet throughout the journey. This included, besides the usual succulent leaves and biscuits, a plentiful supply of unbarked poplar logs—a delicacy for beavers. In captivity they will gradually be made accustomed to a diet composed chiefly of succulent leaves, such as cabbage, lettuce, etc., as well as carrots, turnips, oats, and biscuits.

When the Scottish Zoological Park was opened in 1913 there were three beavers in the Park, which had been secured in Newfoundland. These lived in the Park for a number of years and bred there, but towards the end of the War they all died and, in spite of all efforts to replace them, it is only now that successors have been obtained. At one time beavers were common in all parts of Europe but now are seen only in isolated parts of France and protected districts of Norway. In Canada, where, due to trapping and hunting, the beaver was threatened with extinction, they are accorded special protection.

The beaver is one of the shyest of creatures and great difficulty was experienced in securing the present pair. In his natural state he lives on the bark of trees and water

plants and lives in a house which is partly submerged in water. He is a great dam builder, and a colony of beavers has often been known to create an artificial lake of considerable size through the damming of a stream. The purpose of their engineering activities is to create a body of water sufficient to cover the entrances to their houses.

The beaver builds his dams with logs which he secures himself by felling trees. His front teeth are large and bevelled at the ends like chisels, and with them he is able to cut through logs 3 to 4 inches thick in a few minutes. The beaver has a good idea of his work and knows almost to an inch the length of log he requires for the constructing of a dam. He carries the logs and the mud and leaves he uses in his building operations either in his mouth or between his chin and one fore-paw.

It is confidently believed that, under proper conditions, beavers could be farmed successfully for their fur in Great Britain. The beaver's pelt is one of the most valuable furs and highly prized.

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## EVERY NATURALIST SHOULD READ

The following major articles which have appeared in recent numbers of *The Scottish Naturalist*:—

- Annual Reports on Scottish Ornithology, including Migration.
- Notes from the Scottish Zoological Park.
- The Great Skua in Shetland.
- Some Records of Large Foxes.
- On the Decrease of Blackgame in Scotland.
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- Studies of Lanarkshire Birds.
- A New Scottish Aquarium. (Illustrated.)
- A Remarkable Whale Invasion.
- The Natural History of Floods.
- List of Birds of the Forth Area.
- Scarcity of the Corncrake.
- The Rookeries of Edinburgh and Midlothian.
- The Garganey—an addition to the Breeding Birds of Scotland.
- Remarkable Decrease of the House-Sparrow.
- Natural History as a Profession.

As well as numerous shorter notices of interesting events in the Wild Life of Scotland.



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## THE PURSUIT OF WHALES.

OLD as is the whale fishery, for even in the twelfth century it was an important trade on the shores of the Bay of Biscay, it is ever renewing its youth. No sooner does one species of whale sink into insignificance before the concerted attacks of men, than human endeavour turns to a new species, and human inventiveness succeeds in establishing ascendancy over a race formerly regarded as valueless or impossible of capture. The pursuit of the Biscay Whale was succeeded by the Greenland Whale fishery, which, hunting the whale further and further afield in the Arctic Regions, finally died of its own efforts. The Sperm Whale, the Southern Right Whale, and the Hump-back each had their turn, and each in its turn dropped out of the running. And now the great whale fishery of the world satisfies itself, and that to some purpose, with the capture of whales once regarded as of no economic importance, and once, on account of their swiftness, beyond the power of man to capture, the Finner Whales.

In the present number of this magazine we publish a first instalment of the History of the Whale Fishery of the Port of Aberdeen, in which Mr James Pyper will discuss the results of his investigations amongst the Customs records of the Port, and the files of the Aberdeen newspaper. The history reveals a story of indomitable courage, sometimes

repaid by success which set the whole city rejoicing on the return of the whalers in autumn, sometimes chequered by empty holds and lost vessels, as in the disastrous year of 1830. In the old days so small a margin stood between success and failure, for eight good whales might mean a full hold, and yet often a season's fishing would result in a "clean" ship.

It is very different with the whale fishery of to-day, where a season's fishing may entail the death of 30,000 whales, whereas the successful seasons of 1827-30 yielded an average annual catch of only 848 Greenland Whales. The contrast is established with great effect in a "History of Whaling" which we have received from Sir Sidney Harmer, his Presidential Address to the Linnean Society of London (*Proc. Linn. Soc.*, 1928). A few of the figures he has collected in an exhaustive account of the modern fishery will serve for comparison with the relatively puny results attained by the old time whalers of Aberdeen.

Although Sperm Whales, Humpbacks, Blue and Sei Whales still figure in the catches, the modern fishery depends upon the Fin Whales or Rorquals, formerly considered too swift and too dangerous to be tackled. The change in quarry is due to the invention of Svend Foyn's harpoon gun, the heavy harpoon of which can be discharged from the bow of the whaling ship, with a strong rope sufficient to raise the carcass from the depths, for it was one of the disadvantages of the Finner that its body sank, whereas those of the Right and Sperm Whales generally floated at the surface.

Modern whaling is prosecuted in all the seas. The older stations are in the North Atlantic, but in recent years there has been a vast extension of range, so that now the North and South Pacific, the Australasian Seas, African waters, and particularly the Antarctic area, each yield their quota. From all these areas, then, in the years 1925 and 1926 there was a total world slaughter of 20,962 whales, of which the Antarctic furnished 13,997, and all other localities 12,965.

This is an enormous slaughter, which, from the point of view of the survival of the whales in such numbers as to

ensure continuance of the fishery, would be hard to justify. It is still more difficult to justify in that it involves a very considerable amount of waste. In less marked degree it repeats the story of the American Bison which was slain in its thousands so that the tongue only might be used as a dainty morsel, while the rest of the carcass was allowed to rot upon the plains. "The easiest and most profitable operation in a whaling factory is the stripping or "flensing" of the blubber and the extraction of the high percentage of oil which occurs in that part of the animal."

In the early years of the Antarctic whaling little more than this was attempted, and the sheltered bays became solid masses of rotting carcasses, upon which, as we have been told by Antarctic explorers, rats fed in such numbers that their tracks along hillsides near the shore, could be seen from a ship at sea. "Even now," says Sir Sidney Harmer, "at well-appointed land factories, there is a tendency, when whales have been brought back in unduly large numbers, to carry out merely the more profitable and easily performed parts of the manufacturing process, and to make an incomplete use of the remainder of the carcass. It is found by an examination of the statistics that a large catch of whales is frequently accompanied by a low oil-average, and that a small catch results in a more economical use of material."

Where does this slaughter, and often wasteful slaughter, lead? Undoubtedly to large financial profits, but, beyond this, where? Almost certainly back to the old and oft-repeated story of a gradual disappearance of the much harassed whale, until fishing ceases to bring its profits, and the whale is left to recover, if it is still capable of recovery. Sir Sidney Harmer concludes with wise words: "It is not easy to reconcile oneself to a policy which involves making the largest possible profits without regard to the consideration that the method employed may involve the reduction of the whale population of the world to a mere fraction of its present magnitude. Should the investigations now in progress lead to the conclusion that the danger is a real one, it is to be fervently hoped that whalers will unite with

naturalists in seeking some method by which it may be averted.”

J. R.

\* \* \* \* \*

An interesting little experiment of the sort that many a naturalist might attempt with profitable results, has been carried out by Mr C. Oldham (*Proc. Malac. Soc.*, March 1929). He varied the feeding of two batches of the common snail, *Arianta arbustorum*, so that one lot had access to chalk and the other lot had not. This was in September 1927. By May 1928, the snails had attained full size, and the shells were now examined. They had been originally members all of one brood, and yet the shells showed marked differences. In height and girth the two batches of shells were alike, but the shells of the animals which had access to chalk were just about double the weight of the non-chalkers. It may be said that this was just what one would have expected, but is it? Is it not rather remarkable that in face of a shortage of building material the snails had no power to reduce the size of their building, but must simply build the walls thinner, and so run greater risk of crushing and perhaps also of dessication. Here surely is an hereditary inadaptability which must affect the distribution of the species, and under adverse circumstances might bring about its extinction.

\* \* \* \* \*

The *Transactions of the Perthshire Society of Natural History* for 1928, contain a list of the birds known to nest on Tentsmuir in Fife, 43 species in all, with further notes by Mr E. Crapper on the habits of some of the species, and particularly on the growth of the colony of Sandwich Terns. Among other articles of general interest is one on the antiquities of Tentsmuir by Mr John Ritchie, and on the history of the potato by the President, Mr James Menzies.

\* \* \* \* \*

To the favourable notice of our readers we commend the appeal made for contributions towards the erection of a joint memorial to Drs Peach and Horne. The memorial will take the form of a bronze plaque to be placed in a suitable

position in the Royal Scottish Museum, and of a commemorative inscription upon some conspicuous rock-face or boulder at one of the classical geological localities in the North-West Highlands. An outlay of £200 to £300 is contemplated, and subscriptions should be sent to Mr M. Macgregor, H.M. Geological Survey, 19 Grange Terrace, Edinburgh.

\* \* \* \* \*

We regret to record the death of two Scottish naturalists, both inhabitants of Aberdeen, with whose work we have been familiar for many years. Major Watson was an enthusiastic collector of beetles, and spent many hours year after year in the Royal Scottish Museum, identifying and verifying the naming of his captures in various Scottish districts. The greater part of his collection was made in and around Aberdeen, but he also collected many specimens in the neighbourhood of Strathpeffer. He was working in the Museum almost till the day of his death, early in the year, and since then his collection has been bequeathed to the University of Aberdeen, where it has been deposited in the Natural History Department.

\* \* \* \* \*

Dr Thomas Scott died at Aberdeen, on 27th February, at the ripe age of eighty-nine. It is many years since he took an active part in scientific work, but for a long period the publications of the Fishery Board of Scotland, and the Proceedings of the Royal Physical Society of which he was an Honorary Fellow, were enriched by his contributions to Marine Zoology. He was especially interested in the smaller marine crustacea, and his work at the Fishery Board's hatchery at the Bay of Nigg and on the research steamer *Garland* afforded him abundant opportunities for observation and collecting, of which he made excellent use. Dr Scott was a native of Fife, and it was appropriate that his scientific eminence should have been recognised by the granting to him of the degree of Doctor of Laws by the University of St Andrews.

## NOTES

**Increase of Stoats and Weasels.**—On the estate of Taymunich, Balmaha, there has been a decided increase of Stoats and Weasels in the last two years. The numbers have not only equalled, but far surpassed, those of the worst of the War years. Our average of war figures ran very even year after year, being only about half of the present total. The ratio of Stoats and Weasels is now about fifteen Stoats to one Weasel. This shows, since the days of my father's boyhood, an increase of Stoats and a decrease of Weasels. I have heard complaints from various keepers, of an increase of Stoats in the last two years.—A. H. STEWART, Balmaha.

**Bottle-nosed Dolphin (*Tursiops truncatus*) ashore on the Wigtownshire Coast.**—A large male of this species, measuring 11 ft. 8 in. in length, was washed ashore at Portobello Bay, near Corsewall Point, on the 10th February 1929. This species is rarely stranded in Scotland, but has been frequently recorded from the south coast of England and from the eastern shore of the Irish Sea. The present record therefore, although one of the few for Scotland, is not much beyond the usual range of stranding.—A. C. STEPHEN, Royal Scottish Museum.

**Dark-breasted Brent Goose in Dumfriesshire.**—As two forms of this species are now recognised, it may be of interest to record that I was sent a very fine specimen of the dark-breasted form (*Branta bernicla bernicla*) which was shot, with six others, out of a flock of nine at Lantonside (Dumfriesshire) on 17th February 1929. The Brent Goose is not a common visitor to these parts and I believe that this is the first occasion on which the dark-breasted form has been recorded, the few specimens that have been obtained in the past having been of the light-breasted form (*Branta bernicla hrota*).—HUGH S. GLADSTONE.

**The Corncrake in Bute.**—In view of the scarcity of Corncrakes in many parts of Britain, I should like to put it on record that in July 1928, Corncrakes were quite common at the south end of Bute. I heard about a dozen birds within a mile or two of Kingarth. Modern methods of cultivation are employed in this district.—J. M. M'WILLIAM, Glasgow.

THE HISTORY OF THE WHALE AND SEAL  
FISHERIES OF THE PORT OF ABERDEEN.

By JAMES PYPER, M.A., LL.B.

A WHALE is of course as essentially a mammal as a cow or a horse, and simply resembles a fish externally because it is adapted to inhabit the same element. Yet in the beginning of the nineteenth century, references to "The Fishing" or "The Fishery" invariably mean the pursuit and capture of the Whale. It was the fishery of the day, and had an importance due not only to the value of its produce, but to its being one of the training grounds of British seamen.

The Greenland Right Whale (*Balæna mysticetus*) has been sought since Henry Hudson's first voyage to Greenland and Spitsbergen in 1607. At first the fishing was monopolised by the English, but later it fell mainly into the hands of the Dutch. Although sundry attempts were made to revive the English fishing, notably in 1725 by the South Sea Company, it was not till a bounty of 20s. per ton on the burden of the ships employed, granted in 1733, had been increased to 40s. in 1749, that the industry began to revive. In that year vessels sailed from Scotland for the first time.

In 1752 a Whaling Company was formed in Aberdeen, which sent two vessels to the Greenland fishing in the following year. Although at first successful, by 1775 the Company had got into difficulties and failed. In 1783 another Whaling Company was formed—The Aberdeen Whaling Company—of which the managers were Messrs J. Gibbon & Company. Two vessels, the *Hercules* and *Latona* were acquired, the former of 248 tons and the latter of 236 tons. These vessels made regular journeys till 1800. In 1787 the *Christian* was added to the list of the port's whaling vessels, but fished only for a few years, so that in 1800 there were only Messrs Gibbons' two ships employed in the industry.

By this time the bounty given by Government had been

reduced to £1 per ton of the vessels' tonnage, and only ships of 200 tons or over were eligible for the bounty.

The Whale fishing industry was carried on at the port, regularly or fitfully until 1870. Its history divides itself naturally into two periods, the first lasting till 1840, being the period of the regular journey in spring to Greenland or the Davis Straits for Whales and the return in autumn. The second period extended from 1845 to 1870, and is marked by two distinctions, the one being that besides Whales, Seals were sought for, and the other that the system of "wintering out" was in certain cases adopted.

In 1800 the *Hercules* and the *Latona* both sailed for the Greenland fishing. The outbreak of war had made the use of convoys essential, but exceptions were made when merchant vessels were armed, although none could sail even if armed, without a certificate from the Admiralty. Copies of the certificates issued to the *Hercules* and *Latona* for 1800 exist in the letter-book of the Customs at Aberdeen. The *Latona* certificate is:—"By the Commissioners for executing the office of Lord High Admiral of Great Britain and Ireland, etc., Suffer the ship called the *Latona* of Aberdeen whereof Richard Jamson is Master, Burthen 236 tons, armed with 5 carriage guns, 4 pounders, and manned with 30 men and boys, whereof Messrs James Gibbon and Company are owners, bound on a voyage to the Greenland Fishing, to sail and depart from the Port of Aberdeen without convoy provided the said ship shall be armed and manned in the manner above mentioned, and that she proceed with and accompanies the ship *Hercules* bound also from Aberdeen to the Greenland Fishing. Given under our hands and the seal of the Office of Admiralty the 15th day of March 1800 (signed) Spencer, J. Gambier, W. Yound." The precautions, which continued till 1816, against the perils of war, were not without cause. In 1798 the *Robert*—the one whaling vessel of Peterhead at the time—had been attacked off Peterhead by a French privateer and only saved by the fire of the shore battery.

At this time each ship, whether bound on an ordinary trading journey or on a whaling expedition, had to obtain



a license for that voyage. These licenses were given by the Customs House in London on particulars being provided by the local Customs officials of the port from which the ship was to make her voyage. The following letter dated 26th March 1800, by the local Customs Collector gives an example of the particulars required. "We pray leave to transmit to your honours certificates of the ships *Hercules* and *Latona* of Aberdeen, and *Robert* of Peterhead, being properly manned and equipped for the whale fishing at Greenland or Davis Streights, also certificates of Security being given for their proceeding thereto and the affidavits of the respective shipmasters and one of the owners of each vessel that they shall proceed to the said fishing, and the owners who all reside within the precincts of this port pray that your honours may be pleased to grant them licenses as soon as possible. The Vessels *Hercules* and *Latona* are furnished with licenses from the Admiralty to sail without convoy, and Securities have been given for the *Robert* as directed by the 'Act 38, Geo. 3, Cap. 76, Sec. 5.'"

There were other certificates required by the owners of whaling ships in those days, when the bounty of £1 per ton was given, and when the Continent was in the throes of war. The following letter from the Collector at Aberdeen to his Board of 19th July 1808, gives an idea of the requirements regarding the bounty. "HONOURED SIRS,—We pray leave to transmit to your honours a list of 12 officers engaged on board the ship *Hercules* of Aberdeen, William Gibbon, Master, on the Bounty Whale Fishery trade of Greenland or Davis Streights in the ensuing season of 1809 as given in to us by Thomas Bannerman, Merchant in Aberdeen, one of the Owners and verified on oath by him before us. And the owners propose that the said Thomas Bannerman shall join in a Bond with the said 12 officers on a sum equal to the Bounty on this vessel, which is £248, she being of the burthen of 248 tons, with condition that the said 12 officers shall proceed on the said ship *Hercules* on the Bounty Whale fishing during the ensuing season of 1809, and they therefore pray your honours may be pleased to give directions for furnishing the said officers with protections in terms of law."

This is the ordinary letter sent every year for each ship, until the bounty was withdrawn. "Protection" was not required after the end of the Napoleonic Wars, but till then it was a necessity. To show the dangers of being without a protection the letter from the Collector to the Board of 1st September 1808 may be quoted. Wm. Harrison a Harpooner on the *Latona* was robbed of his pocket-book containing his "Protection," and the Collector asks for a duplicate "as he cannot proceed without it on the coal or coasting trade, but at the risk of being impressed."

The *Hercules* and *Latona* sailed from the Port in February 1800 and returned in July, the former with the produce of 8 large fish—"a full ship"—and the *Latona* with "225 butts of blubber—the produce of 6 large and 2 small fish." In 1802 they were joined by the *Jane*, a vessel of 278 tons built in 1797, and in 1803 by the *Neptune* of 282 tons built in 1796. Annual voyages were made by these four till 1812. The *Hercules* and *Latona* were owned by the Aberdeen Whale Fishing Company, and the *Jane* and *Neptune* by the Union Whale Fishing Company, the manager of which at this time was A. Fraser.

From 1800 to 1804 the produce from the Aberdeen ships was by no means large, but in the following years the success was much greater. In 1806 the *Jane* returned with 8 fish producing 130 tons of oil. The *Neptune* in 1807 brought 13 fish, "a bumper ship," and the *Latona* 18, "a full ship." In 1808, the *Neptune* came into port with 26 fish, "a bumper ship," having one of her fish in bulk. Indeed, mention of a bumper ship is very frequent in those years till 1812, and only once did one of the four return "clean." The crowning effort would appear to have been in 1810, when the *Journal* of 15th August records:—"On Wednesday last the *Hercules*, Gibbon, arrived here from Davis Straits—a full ship with 13 fish supposed to produce about 160 tons. The same evening, the *Jane*, Jamson, arrived in the Bay from Greenland, a bumper ship, with 17 fish, part of the cargo in bulk. The *Jane* will boil upwards of 200 tuns, being the greatest cargo ever brought to Aberdeen, and so great was the success attending Captain

Jamson's efforts that he gave one fish and one half to another ship he met with." The Customs letters mention the arrival of the *Jane* with "383 casks and parcel in bulk." It requires little effort of imagination to picture the interest created by the *Jane's* triumphant entry to the Port, "with part of the cargo in bulk"; and this voyage of the *Jane* may be perpetuated in the song, sung about 1850, when the whalers of that period were being hauled up the entrance channel.

" We'll gi in to Jean Mackenzie's,  
 And buy a pint o' gin,  
 And drink it on the jetty,  
 Whan the *Jean* comes in."

The *Jane* is referred to by the various authorities of this time indifferently as the *Jean* or *Jane*, but in the shipping list her name was *Jane*.

The satisfactory result of the fishing of this year may be reckoned fairly easily. The price of oil per ton was £38, and there were approximately 600 tons of oil brought in by the four ships, producing £22,800. This is without including whalebone or other produce. The expenses of a voyage, including expenses of boiling, etc., did not exceed £3000 per ship, and were probably less, leaving a clear profit from the oil alone of £10,000 amongst the four ships. The expenses of a whaling ship, with the duties and wages of the crew, and the whole operations of capturing and cutting up the fish, are minutely given in Captain Scoresby's *Arctic Regions*, and need not be detailed here. That book gives a most brilliant narrative of the trade in those early days. It is only of such events as are of interest and importance in the Aberdeen ventures that this attempt deals, but a knowledge of the industry and the methods of conducting it in the palmy days of the early nineteenth century would be incomplete without a study of this classic of the British Whale Fishing Industry.

The year 1811 was also successful, and the three following years saw the addition of twelve ships, being the *Middleton*, *Lætitia*, *Oscar*, *Elbe*, and *Diamond* in 1812; the *St Andrew*, *Princess of Wales*, *Bon-Accord*, *Elizabeth*, and *Middleton*

(new) in 1813; and the *Dee* and *Don* in 1814. Thus by 1815, sixteen ships had been fitted out at Aberdeen for the fishery. The growing interest in the fishing and the success of other British ports as well as the increasing produce of the four Aberdeen ships, had produced the formation of this fleet. The following were the companies in existence in 1815, and their ships. It will be noted that the Aberdeen and the Union Companies had increased the number of their ships and that three new companies had been established. The Captain's name is given after each ship:—

ABERDEEN WHALING COMPANY—*Diamond* (Moffat) 371 tons; *Hercules* (Alison) 248 tons—Managers, A. and J. Gibbon.

UNION WHALE FISHING COMPANY—*Jane* (Newton) 278 tons; *Middleton* (Brown) 329 tons; *Neptune* (Drysdale) 282 tons; *St Andrew* (Reid) 313 tons—Manager, A. Fraser.

GREENLAND WHALE FISHING COMPANY—*Elbe* (Young) 312 tons; *Latitia* (Gray) 318 tons; (new) *Middleton* (Baxter) 294 tons; *Princess of Wales* (Nairn) 308 tons—Manager, J. Catto.

BON-ACCORD WHALE FISHING COMPANY—*Bon-Accord* (Parker) 363 tons; *Elizabeth* (Massie) 310 tons—Managers, A. Duthie and J. Brebner.

DEE WHALE FISHING COMPANY—*Dee* (Mackinnon) 319 tons; *Don* (Craig) 333 tons—Manager, J. Lumsden.

The managers appear to have been invariably part owners also. The Bannermans seem to have had a considerable holding in the Aberdeen Company.

But although Aberdeen had entered the trade in these three years with an energy similar to the energy it displayed seventy years afterwards when trawling was developing, it had also met with the commencement of the disasters which were to do so much to cause it to abandon the industry.

In 1813 the *Oscar*, about to sail on her second voyage, was driven ashore at Grayhope Bay and completely wrecked—there being only two survivors. This disaster is one of the events in the history of the Port. There is preserved in the Customs letters a description of the ship. She was “a prize made free,” “a square sterned carvel built ship having two decks and three masts, a flush deck and man figure head, length about 101 feet 2 inches—breadth at broadest part 25 feet and 4 inches, her height between the decks being 5 feet 5 inches—depth of the hold 9 feet 8 inches and admeasuring 283  $\frac{21}{94}$  parts tons.” In the same year the *Latona* was beset in the Davis Straits by a shoal of ice and went down in fifteen minutes. It was not the successful entry into the trade on a larger scale which had been joyfully proclaimed in the *Aberdeen Journal* on 10th January 1813. “Our whale fishing ships,” it had said, “are now beginning to prepare for the fishing, and we are proud to say we shall send out fourteen Davis Straits and Greenland Whalers—most of them as fine ships as ever put to sea. We wish them success. . . . Within these two years our townsmen have laid out upwards of £100,000 in that speculation, which will, we hope, soon return.”

While mentioning these two disasters, reference might also be made to two instances of the perils of war which occurred in 1812. In that year the *Elbe*, while proceeding to Aberdeen to commence the trade, was attacked north of Shields by a cutter privateer she beat off. The *Latona* was also attacked on her way to Greenland by a privateer, who hoisted Danish Colours, and an action fought lasting three quarters of an hour. The *Experiment* of London joined the *Latona* and beat off the privateer.

The whaling fleet after passing all the formalities required by law (which are minutely described in Scoresby's *Arctic Regions*) sailed either to Lerwick or Stromness, where they completed their crews. About ten men per ship appears to have been the usual number taken on board at these ports. The six years after 1812 were the years during which the trade was most actively engaged in by British ports, and it was not always easy, so large was the number of British

ships, for each to obtain her complement at these northern ports.

The number of ships fitted out from British ports, with their produce during the years 1814-1817 is seen from the following table, and it affords an opportunity of comparing the position of Aberdeen at the time when it took up the trade in earnest, with that of the other whaling centres.

Port.	Number of Ships.			Cargoes.			Average Cargo.		
	Equipped 1814-17.	Average per Year.	Lost in 4 Years.	Whales.	Tons of Oil.	Tons Whale- bone.	Whales.	Tons of Oil.	Tons Whale- bone.
London .	77	19 $\frac{1}{4}$	2	775	6,631	346	10.1	86.1	4.5
Hull .	229	57 $\frac{1}{4}$	3	1,785	20,891	1,064	7.8	91.2	4.6
Whitby .	39	9 $\frac{3}{4}$	0	433	4,181	201	11.1	107.2	5.2
Newcastle .	23	5 $\frac{3}{4}$	1	164	2,295	108	7.1	99.8	4.7
Other ports	24	6	1	191	1,826	87	8.0	76.1	3.6
	392	98	7	3,348	35,824	1,806	8.5	92.4	4.6
Aberdeen .	55	13 $\frac{3}{4}$	0	427	4,618	225	7.8	84.0	4.1
Leith .	40	10	0	278	3,756	170	7.0	93.9	4.2
Peterhead .	33	8 $\frac{1}{4}$	0	402	3,815	187	12.2	115.6	5.7
Dundee .	32	8	0	248	3,496	159	7.7	109.2	5.0
Montrose .	15	3 $\frac{3}{4}$	0	127	1,169	62	8.5	78.0	4.1
Other ports	19	4 $\frac{3}{4}$	1	200	1,830	88	10.5	96.3	4.6
	194	48 $\frac{1}{2}$	1	1,682	18,684	891	8.7	96.3	4.6

The table shows clearly that Aberdeen during this period was third in point of number in Great Britain, and first in Scotland. Peterhead and Dundee had not yet taken up the industry with the vigour they afterwards exhibited. It shows how the fourteen ships belonging to the Port during these years had made annual voyages, the only exception being one voyage, and that was the one missed by the *Middleton* (new) when she was in Petersburg. In point of average of produce, however, the position of Aberdeen is not so outstanding, being in fish only seventh in the United Kingdom, and in oil ninth, and in Scotland fifth, Peterhead being first. It will be noted that the average number of ships from Great Britain each year was 146.75. This period is the high level mark of the industry. Almost

every seaport of any size sent ships; and this includes Banff, which sent its first in 1813.

The few losses during these years are in pleasant contrast to the disasters which overtook the vessels in many of the subsequent years. The voyages made up to 1817 were of course dangerous, as any journey must be to a sailing ship which enters the ice, but they were not of the extremely hazardous nature attempted after that year when the passage of Baffin's Bay was made. The Aberdeen ships were not entirely occupied with the whaling trade. The *Jane* and the *Neptune*, for instance, in 1809 returned from a voyage to America in February in time to sail at the end of the month for the fishing. During these troublous times licenses being required for voyages, two of the whalers got into difficulty with the local Customs officials at the beginning of the century for exceeding the bounds of their licenses.

Some instances of Aberdeen ships figuring prominently at the fishing at this time are given by Captain Scoresby. In June 1813, the boat crews of the *Neptune* got into difficulty in the ice and were separated for many miles from their ship, and only regained her after great difficulty and anxiety. In 1816 the *Don* and *Elizabeth* helped to rescue the *Esk* from becoming a total wreck. A very extraordinary incident is mentioned as occurring in 1814 to an Aberdeen whaler whose name is not given. A whale had been struck but owing to heavy weather was lost. The next day the same whale was again struck but had to be abandoned. The following day that same whale "blew" alongside the ship. This time it did not escape.

The years from 1817 to 1821 showed the fleet diligently making its annual voyage. In 1816, the Aberdeen Companies, along with the other British Whaling Companies, had petitioned the Government on the depressed state of the oil market, and the low duty upon foreign tallow and on foreign rape seed. The following year, however, the average price of oil was £46 per ton, and the industry, although entering on the period which, mainly owing to the spread of gas lighting, was to see its decline, was at anyrate

sufficiently remunerative to justify the ships being continued in the trade.

There are, however, three more losses to record in the next four years—the *Elbe* in 1818, the *Diamond* in 1819, and the *Elizabeth* in 1821, all of them in the ice. The crews were saved in each case. The loss of the *Diamond* was aggravated by her having on board eight fish. The year 1821 was full of misfortunes: besides the loss of the *Elizabeth*, the *Ythan*, a new addition to the fleet, and the *Princess of Wales* were both beset in the ice.

The *Ythan* and the *Henrietta*, belonging to Messrs A. & T. Bannerman, which firm now takes the place of the Aberdeen Whaling Company—the Bannermans having apparently purchased the interests of the Gibbons—had been added to their fleet in 1820, and the *Alexander* in 1819.

The price of oil, owing to a less demand, was steadily going down, while the risks of navigation had greatly increased, and by 1822 the trade generally, if not in Aberdeen in particular, was not in a very healthy position. That the situation was regarded with apprehension is seen from a report in the *Aberdeen Journal* of 28th November 1821. "We hear that ten ships belonging to Hull are to abandon the Greenland trade, and nine belonging to that port alone have been lost this year. Great reductions have taken place there in the wages of the masters as well as of the crews. It appears that the trade has been overdone, and we believe we may say that one half of the number of ships, with the exertions and success we have seen for some years is fully equal to the natural demand of the country. It is in vain to look to the foreign markets, for foreigners are prosecuting the fishing extensively, and it would seem profitably, no less than forty sail having been at Greenland this season. In the course of a few years a total change will have taken place in this branch of business."

The outlook was rather serious, and it affected Aberdeen considerably. Her annual fleet for 1820 and 1821 was fifteen ships, and from 1814 to 1819 it had been fourteen,



each ship of the value of nearly £8000. There were on an average fifty men on board of each vessel. The wages paid, particularly to the skilled men, were high. Each company had premises for boiling the blubber, and during the winter a considerable number were engaged at this work. The number of ships employed in 1820 and 1821, which was fifteen, was never again reached.

The Aberdeen 1822 fishing was, however, more successful, and the results show the high position of Aberdeen, the growing fleets of Peterhead and Dundee, and the decline of most of the other ports.

## BRITISH WHALE FISHERY IN 1822.

Ships.	Ships. Average 1814-17.	Port.	Tonnage.	Fish.	Tons of Oil.	Bone.	
						Tons.	Cwts.
40	57 $\frac{1}{4}$	Hull	13,023	228	3,112	154	4
6	19 $\frac{3}{5}$	London	1,954	29	415	18	19
10	9 $\frac{3}{4}$	Whitby	3,196	31	534	17	13
4	5 $\frac{3}{4}$	Newcastle	1,436	9	141	8	1
2	?	Berwick	543	3	41	1	10
5	10	Leith	1,635	23	308	16	5
4	?	Kirkcaldy	1,261	23	283	13	8
3	?	Liverpool	778	9	136	6	2
10	8	Dundee	3,291	47	648	34	1
5	3 $\frac{3}{4}$	Montrose	1,668	30	428	24	0
14	13 $\frac{1}{4}$	ABERDEEN	4,184	90	1,225	62	1
1	?	Greenock	316	13	155	5	10
1	?	Kirkwall	279	...	...	0	...
16	8 $\frac{1}{4}$	Peterhead	4,580	95	1,237	60	14
121	...		38,144	630	8,663	422	8

It will be noted that Hull is still first in ships and Aberdeen third, but Peterhead has taken London's place as second. In average of oil, however, Aberdeen is first, with the exception of Greenock which had only one ship. Oil was now producing only £20 per ton. There is now a continuous decline, not only in Aberdeen ships but in those of the other ports except Peterhead and Dundee.

The fleet continued to sail—always the same ships. In 1823 the *Bon-Accord*—the most illustrious ship of this period—returned with 34 fish, producing about 260 tons, which is almost equal to the greatest cargo ever brought

to Great Britain, that of the *Resolution* of Peterhead in 1814 of 299 tons. But the trade was not prosperous. The dangers of navigation had increased owing to more dangerous voyages into the Straits being attempted, and the average number of fish caught was considerably less than in the years from 1808 to 1812. Greenland waters had been overfished and only in the Straits was a sufficient number of Whales found. "The hazardous nature of the voyage, as proved by many late casualties and the general want of success at Greenland particularly, have no doubt determined many to withdraw from an undertaking which has been found to offer no adequate return," was the comment of the *Aberdeen Journal* in 1826, in mentioning the declining fleet from the British Isles. In 1826 only seven ships prosecuted whaling in the Greenland Seas, while there were eighty-seven in the Straits. There is mention several years of complements being easily effected at Stromness. In fact the most prosperous days of the whaling industry at Aberdeen and the other ports were over.

In 1825 the *Don* was lost, and in 1829 the *Jane*, both at the fishing. In 1830 disaster overtook the Aberdeen fleet. By the losses mentioned, and the withdrawal of the *Ythan*, it had been reduced to ten which sailed in spring for the Straits. The *Princess of Wales* and the *Lætitia* were lost on 25th June in latitude  $75^{\circ} 30'$ , and four of the crew of the *Princess of Wales* were lost on that day while tracking the ship along the ice, and two of the crew of the *Lætitia* while dragging a boat in the ice in search of a ship. The *Alexander* and the *Middleton* (old) were also lost on the 3rd of July but their crews were saved. The *Dee* and the *Middleton* (new) returned "clean," the *St Andrew* with two fish, and the remaining three with only one fish each. The produce of oil from the Aberdeen ships this year was 58 tons. Of the ninety-one British ships at the Davis Straits this year, nineteen were lost in the ice, and twenty-one returned without a fish. Oil rose to almost £60 a ton.

(*To be continued.*)

## FLUCTUATIONS.

By GEORGE BOLAM.

THE title adopted above seems somewhat whimsical, but it has, I believe, in some sort, a kind of "official" recognition for expressing the growing conviction that there may be a reciprocal relationship between the exceptional abundance, or the reverse, of many (perhaps all) living creatures in certain years. The idea is an intriguing one from whatever angle it is viewed. It has been prosecuted by Norwegian naturalists to considerably greater lengths than has been attempted in this country, and I have, thanks to most obliging correspondents, quite a lot of most interesting notes on the subject emanating from the other side of the North Sea. These seek to connect good grouse-years with bumper fishing-seasons, with good crops of wild berries, and even, perhaps, with the exceptional abundance of small birds on the fells. They also seem to demonstrate that outbreaks of grouse-disease in Scandinavia synchronise with those in Britain, and may have some kind of common origin at present little understood. Dr Hugh Blair and I hope to discuss the matter a little more fully in a forthcoming volume on the *Birds of Lapland*, but that is by the way.

The following observations were made at Alston, about 1000 feet above the sea, in the deep and narrow Cumbrian dale through which South Tyne debouches from the Pennines. It is (especially since the War) a very sparsely timbered valley, wherein birds are never so numerous that one is not, so to speak, upon visiting terms with them all; while any serious discrepancies in their ranks are always comparatively easy of detection. The district lies a little to the south of the Border, but that is a fortune which perhaps readers of the SCOTTISH NATURALIST will condone, especially when it is remembered that in "The Good Old Days" the march was very unstable and sometimes actually extended to our dale?

My first observation concerns Starlings, of which we usually have about a dozen nests every year under the eaves of roofs, and in holes in the walls of some old buildings adjoining the house from which I write. In the spring of 1928, the birds appeared as usual and building operations began. All went well until, at the end of May, each nest held its full complement of nearly fledged and clamorous young, but then came Nemesis! Not a young bird ever flew: within a day or two, without apparent cause, all had died in their nests, and their parents disappeared. Whether or not the latter also died, there was no evidence to show, no dead bodies being found; they simply vanished, and, contrary to custom, there was only a single nest later in the season, from which the young were fledged on 16th July. This may have been a second brood brought off by birds that had failed in their first attempt, but quite as easily it may have belonged to an entirely new pair. In normal years it is customary for several second broods to be reared about this date. In the adjoining village, and elsewhere, a few broods fledged about the usual time (beginning of June), but of these no exact observation was made. There appeared to be exceptionally few of them, and throughout the autumn none of the ordinary flocks of Starlings gathered to roost in the neighbouring trees; while any small parties noticed feeding, as is their wont, in the fields, consisted almost entirely of adults. In ordinary years these are represented by flocks, hundreds strong, a large proportion of them being young birds in their conspicuous brown plumage.

Turning now to Swifts: four or five pairs of those have always nested in our old buildings. They usually arrive early in May, and all available sites being at that date, as a rule, occupied by Starlings, they have to wait till these quit the nests before they can take possession. In 1928, the Swifts were a full ten days later than usual in appearing, the first pair not being seen until 12th May, but the usual numbers came within the next day or two. But when the Starlings disappeared they left their nests full of dead young, and no Swift attempted to breed here, although

one pair occasionally (but not regularly) roosted in the roof of an adjoining shed, a site to which, hitherto, neither Swifts nor Starlings have been attracted. Many Swifts usually nest about the village, and no diminution in numbers was noticed in 1928, but how they fared there I have no exact knowledge. Observations made of the usual flocks hawking round before their departure towards the end of July (a full week earlier than their appointed time) seemed to indicate that they contained few, if any, young birds; but that was scarcely more than conjecture, and lacks the positive proof that attaches to our own buildings.

Another circumstance worthy of note is that we had rather fewer nesting sparrows than usual in 1928, and considerably fewer warblers, chats, and similar birds; while in one or two instances that chanced to come under notice, nests containing eggs were deserted without apparent cause. Nor were other birds anything like up to the average: Great Tits were absent from several of their usual nesting-places; and we had very few young Robins in the garden, and only one brood of Wrens. Not a single Corncrake was heard anywhere in the valley, although that may belong to quite a different story. Twelve or fourteen years ago every hay-field used to be vocal with their craking, but for years past they have been steadily decreasing, until in 1927 they were represented by but a couple of pairs, and in 1928 there were none.

Of Grouse, for which all the surrounding moors have long been famous, many dead birds were picked up by the keepers during May and June, chiefly hens, some of them thin, others in fair condition. These, perhaps, may have been birds that had suffered from disease and had recovered sufficiently to pull through the winter, but not enough to enable them to withstand the strain of reproduction. An unusual number of deserted nests were also found, and it was generally anticipated that 1928 would be a bad season. On some moors it was so, but on others quite average bags were obtained, and in a few cases exceeded, despite the fact that our summer here was a very wet one and that a good many young birds perished in the June rains.

Another observation that will interest students of "fluctuations" is concerned with "Mice," including in that term Long-tailed Field-Mice and both Bank- and Field-Voles. During the summer of 1926, these were all exceedingly numerous, amounting, *locally*, to a veritable "plague." In the garden they were a very bad plague indeed, all of them, but more particularly the Common Field-Vole, which is not, as a rule, at all numerous there. In beds of saxifrages, and similar plants, they formed perfect warrens and did an immense amount of damage. Circumstances prevented any systematic raids being made upon them at that time, and very few were killed, but in the following summer many of them died, and by the winter of 1927-28 they had entirely disappeared, and their burrows have since remained deserted.

## STARLING ROOST ON CRAMOND ISLAND.

By J. KIRKE NASH.

ACCOUNTS of Starling roosts have appeared from time to time in the SCOTTISH NATURALIST, and perhaps the most interesting was an account of one that occurred near Winchburgh in West Lothian. In a posthumous article "The Starling in the Forth Area," which appeared in 1925, a graphic description is given by the late Mr William Evans of a visit paid to this roost on a stormy day in January 1890, after he had traced Starlings by successive stages westward till he finally located it in a plantation of young spruce fir, near the above-mentioned village.

Another interesting roost, described by the late Mr Charles Campbell, was located in a plantation of young Scots pines on Cramond Island and existed there from 1896 to 1901. He estimated that the birds numbered somewhere about 12,000. After several years' occupation most of the trees were destroyed through the excessive droppings from such a vast concourse of birds, which were ultimately compelled to seek fresh quarters.

I was frequently on Cramond Island last year and it was a matter of great interest to me to find the site of the old Starling roost again in occupation, most of the pine trees now being supplanted by elder (*Sambucus nigra*) which undoubtedly must have sprung into existence from seeds carried there by the birds. The trees average about twenty feet in height and form a veritable wood. The colony was a comparatively small one and at a reasonable estimate I should say would number from 1500 to 2000 birds. They arrived every evening in groups of varied size, and standing close at hand it was interesting to note the rapidity with which they dropped down into the trees and to hear the swish of their wings. Long after their arrival they kept up an incessant chatter and the varied notes seemed to

betray the mixed feelings of the feathered multitude as they contended for suitable perches among the branches. On a late September evening it was a great delight to hear a Robin singing his evening song in the midst of these unruly visitors. The birds continued to frequent the roost till far on in the autumn, but by November after the leaves had fallen from the elders they ceased to come, and when I visited the place on the 16th of the month not a Starling could be seen on the island. I have little doubt the lack of shelter caused them to depart.

It seems strange that Starlings should daily leave a well-wooded district and make out to sea for the purpose of roosting on this small island, and the wonder is increased when we know that this phenomenon has been repeated after a long interval of years. Can the movement be influenced by a feeling of greater security? As the bird life on the island is of considerable interest, I hope later on to give an account of it so as to comply with Dr Ritchie's desire for a census of the bird life of the smaller Scottish islands, as I feel sure such a scheme will provide much useful information.

The occurrence of two other roosts may be mentioned. During the winter of 1925 to 1926 Starlings to the extent of several thousands roosted in holly bushes in the Royal Botanic Garden, Edinburgh, from November till the end of February, and Mr A. C. Stephen discovered a temporary roost during the autumn of 1926 in the bushes behind the plant breeding station near Barnton. He estimated the birds at many thousands. They were first observed on 5th September and finally disappeared on 10th October.

Accounts of these roosts will be found in the 1926 issue of the SCOTTISH NATURALIST.



## COD ROE ATTACKED BY AMPHIPOD CRUSTACEANS.

By D. S. RAITT, B.Sc., Marine Laboratory of the Fishery  
Board of Scotland, Aberdeen.

IN the SCOTTISH NATURALIST, 1925, p. 131, Miss G. H. Faulkner records the occurrence of a number of small Amphipods in the interior of a Cod ovary. Miss Faulkner identified the Amphipods as *Hoplonyx leucophthalmus*, G.O. Sars, 130 specimens, and *Lepidepecreum carinatum*, Sp. Bate, one specimen. The roe was described as showing no outward sign of the presence of the Amphipods, the suggestion being that the fish had been left on the line for some time, and that the crustaceans had passed up the oviduct into the ovary after the fish had died. Miss Faulkner states that a similar case was observed two or three years previously. Dr Williamson informed her that in most of the ovaries which he had seen infested in this way, it was an Isopod (*Cirolana*) that was concerned.

It should be noted that the generic name *Hoplonyx*, applied to Amphipoda by G. O. Sars, 1895, being preoccupied was altered to *Tmetonyx* by Stebbing, 1906.

On the 1st of March 1929, an ovary infested in the above way, taken from a Cod caught in the Moray Firth, was received at the Marine Laboratory of the Fishery Board for Scotland, Aberdeen. Externally the ovary appeared to be quite normal, but three Isopods of the species *Cirolana borealis*, Lilljeborg, and 144 Amphipods, all *Tmetonyx cicada* (Fabricius) were found to be imbedded in it around the entrance to the oviduct. The anterior half of the roe was in no way affected.

I have examined a few of the Amphipods taken from the ovary which was submitted to Miss Faulkner, and I am satisfied that they too belong to the species *Tmetonyx cicada* and are not *Tmetonyx leucophthalmus*. According to G. O. Sars (*Crustacea of Norway*, vol. i., 1895) fresh

specimens of the two species are readily distinguished, as *T. leucophthalmus* is pale reddish yellow in colour, the eyes being almost pure white with no trace of distinctly developed visual elements, while *T. cicada* is cream coloured, bright apple-red along the back, with bright red eyes. The pigmentation of the present specimens is exactly as Sars describes for *T. cicada*. They agreed with his morphological description in every detail excepting one. The 4th coxal plate in all specimens more closely resembles that figured by Sars belonging to *T. leucophthalmus* or to *T. similis*. In this connection, however, Stephenson (*Danish Ingolf Expedition*, vol. iii., part 9, 1925) states that only in a few of the specimens of *T. cicada* in his collection is the 4th coxal plate as drawn by Sars, and that in the majority of specimens the form is about as in *T. similis*. Miss Faulkner received her specimens in a dried condition and her identification appears to have been based upon the fact that they were completely without colour, with no trace of eye-pigmentation. The specimens which I have examined from the same ovary were also dried and without pigmentation, but, apart from the shape of the 4th coxal plate which certainly resembles that of *T. leucophthalmus*, in all salient points they agree with Sars' description of *T. cicada*.

The cod-net fishing season and the cod roe season being the early months of the year, the occasional occurrence of crustacean infested ovaries in fishmongers' shops seems to be associated with spells of rough weather, such as were experienced in February, when fishermen were unable to reach their gear for some days. Fish which are caught in the loose folds of the ground nets, exhausted with their struggles to escape, and dying if hauling is too long delayed, become easy prey to the voracious, bottom-dwelling scavengers of the sea. In the present case it would certainly appear that the crustaceans entered the ovary through the oviduct under such conditions. The ova were obviously being devoured and the limited area of infestation indicates that the invaders had not occupied the ovary for any appreciable length of time.

A SIPUNCULID WORM (*PHYSCOSOMA GRANULATUM*) NEW TO THE SCOTTISH FAUNA.

By A. C. STEPHEN, B.Sc., Royal Scottish Museum.

A SPECIMEN of the Sipunculid Worm (*Physcosoma granulatum*, Leuck.) was taken on the shore at Birsay, on the west coast of Orkney, on the 28th December of last year, and forwarded to the Royal Scottish Museum, along with other material, by Mr R. Rendall, Kirkwall. The specimen, preserved in alcohol, measured 2 inches (52 mm.) in length, and had the body cavity full of ova, surrounded by the usual conspicuous membrane.

This is the first occasion on which the species has been recorded from the Scottish coast. Widely distributed in southern waters and extending along certain parts of the west coast of Europe, it is the characteristic littoral Sipunculid of the west coast of Ireland (Southern), and has also been recorded from Norway in the Bergenfjord and Byfjord in a depth of 52 fm. (96 metres). Mr Rendall kept the creature alive for some time observing its habits, and the following notes are extracted from his letter.

“The animal was found just below the usual low-water mark, under a stone among sand-covered rocks. When taken it did not show much disposition to move about, and gave evidence of life only by faint wriggles. At first I kept it in a shallow dish of water and for several days it continued quite sluggish. Then it began to move about and after a week crawled over the edge of the dish. I had to put it in a glass tube, which was only about a third filled with water; but the travelling instinct was fully roused and the animal was continually getting lost, and I had to hunt about my dressing-table for it several times. At first the proboscis was only about a third of the length of the body, which kept more or less cylindrical; but now the proboscis became twice the length of the body or more. It was interesting to watch the motions of the animal in the water. First it

would gradually extend its proboscis, a process which was a literal 'turning inside out.' The extremity of the proboscis, when so unfolded, was ringed and semi-transparent. A tentacular crown was then cautiously thrust out and quickly withdrawn. Then the proboscis was *quickly* infolded, to me a most fascinating process to watch. Both when unfolding and when infolding the end of the proboscis was triangular, the mouth appearing as a three-rayed slit."

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## NOTES

**Bird Notes from Aberlady.**—On 10th March 1929 the beach below Aberlady village was specially interesting. About noon the tide was running up the Peffer, making the stream fairly wide, though large expanses of sand were still bare. Not a hundred yards from the road seven Whoopers were feeding in the stream, six adult birds, the other immature. After watching them for some time I made a near approach, but they only swam to the other side. Further over a small flock of Brent Geese were swimming about, also a large flock of Wigeon and Scaup and a few Shelduck. At Gullane Point, Common and Velvet Scoters were diving close in, and Red-throated Divers and Eider Ducks were also present. The Whoopers were again seen on the 16th March and this time I got them to take flight.—DAVID HAMILTON, Edinburgh.

**Early Arrival of Wheatear and Sand Martin.**—On 10th March, when going over Aberlady Links I saw a Wheatear (*Cyanus cyanus*), a male in beautiful plumage. This is an early arrival for the species in the Forth Area. At Musselburgh when watching some Waders at the mouth of the Esk on 20th March I was surprised to see a Sand Martin. It was flying up and down the river picking insects or other food from the surface of the water. This is also an early arrival for Scotland and interesting in view of the Wheatear's appearance.—DAVID HAMILTON, Edinburgh.

**The Blue Tit in Canna.**—The *Old Statistical Account* of Scotland states that the Blue Tit is rarely or never seen among the smaller isles of the Inner Hebrides, though it is common on the mainland

and the larger islands such as Mull and Jura. The Rev. H. A. Macpherson in a paper on the "Birds of Skye," which he read before the Royal Physical Society in October 1880, states that the bird is resident there, and that Miss MacLeod of Dunvegan regularly fed the Blue Tits every winter. There is one record for Eigg which appeared in a list compiled by Mr A. F. Joass (1880), but all subsequent observation has failed up to the present time to confirm this.

Dr J. A. Harvie-Brown states: "We diligently searched in Eigg for Tits in 1891 without success." He also states: "Prof. Duns says he found the Blue Tit at Stornoway in 1865, but it is entered 'without record' by Gray (1871), notwithstanding the previous statement. We failed to find it anywhere in the Outer Hebrides." In a recent letter Mr Alan C. Thom of Canna informed me that his brother Mr R. V. G. Thom observed a Blue Tit last December on a hedge close to the mansion house. This forms a new record for the island, which is one of the most westerly of the inner group. I unsuccessfully looked for the bird every time I visited Canna. A visit from a pair of House Martins at the end of October was also a matter of much interest. They were observed flying round the house. They are rare visitors to Canna and the date is exceptionally late.—J. KIRKE NASH, Edinburgh.

**Wrens Sleeping in House-Martin's Nest.**—There is a House-Martin's nest at one of the windows here, in which eight Wrens sleep every night. We have been interested in watching them going to bed. One or two approach it from above and pop into the hole, the others alight at the bottom of the window sash and crawl all the way, up by the side of the window, over the bottom of the nest "and so to bed." They are quite tame and allow us to stand close to the window and watch them.—RALPH CHRISTIE, Leven.

**Capercaillie in West Stirling.**—On 10th December 1928, I flushed a young male Capercaillie from a thorn tree near Glenorchard, Torrance, Stirlingshire. There are no woods near the house suitable for Capercaillie but I have several times seen hens, once two sitting together on a yew tree about 60 yards from the front door. I have also seen a hen on two occasions in Cawder woods, Lanarkshire, about 2 miles south of here, and they breed regularly in Craigmaddie Wood about 2 miles to the north-west. I believe there were two nests last year.—JAMES BARTHOLOMEW, Torrance.

**Blackcap in January in Berwickshire.**—On 22nd January, a cat brought into my house a bird which, on being taken from it, was found to be dead. On examination it proved to be a Blackcap (*Sylvia atricapilla*); it was either a female or a young male, probably the latter. The Blackcap nests regularly in the grounds of Duns Castle, and I have frequently observed young birds feeding on elder berries to the rear of the house. I am aware that the Blackcap, occasionally at least, winters in the South of England, and it has been noted several times in winter in Scotland, but so rarely that I think this is worth recording—ALLAN A. FALCONER, Duns.

**Tufted Duck in Argyll.**—On Loch Awe on 13th March 1929, I saw half-a-dozen male Tufted Duck (*Nyroca fuligula*); this is the first record of this species for Argyll. Many of the lochs in central Scotland were still ice-bound, and this may account for the appearance of this duck in Loch Awe, which was open water. Other ducks seen on the Loch were Mallard in pairs, a dozen Pochard, apparently paired, and seven or eight Goldeneye, among which were two full-plumaged Drakes displaying vigorously.—EVELYN V. BAXTER.

**Date of Arrival of Sandwich Terns.**—In the SCOTTISH NATURALIST, 1928, p. 122, I was surprised to read a paragraph in which 5th May is given as an early date on which to see Sandwich Terns in Aberlady Bay, for my experience at the well-known colony in Cumberland shows the species to be an early arrival there, a full month earlier than the Common Tern. In 1913, 26th March saw the first arrivals: in 1907, they came on 27th March: in 1909 and 1925, on 29th March, and several years arrived between 30th March and 2nd April. In 1917, they did not arrive until 1st May with Common Terns, but it must be remembered that there was thick snow on their breeding ground from 1st to 14th April. In 1907, on 9th May the majority were incubating and one small colony had flown, as also had happened in a North Lancashire colony in 1927 and 1928.—H. W. ROBINSON, Lancaster.

**Return of Snow Geese to Argyllshire.**—In the SCOTTISH NATURALIST 1928, p. 122, I recorded three Snow Geese as having spent the winter of 1927-28 with the Barnacle Geese on the Gruinart Flats, Islay, Argyllshire. It may be of interest to add that two of them returned there last autumn and again wintered there during the past winter.—H. W. ROBINSON, Lancaster.

**Breeding of the Water-Rail in Bute.**—In the summer of 1927, I was shown an egg of the Water-Rail that had been taken shortly before at Loch Fad. I do not think that there could be any doubt whatever about the egg, and the locality was suitable for Water-Rail and not for Corncrake. The account of the discovery of the nest as given to me was satisfactory.—J. M. M'WILLIAM, Glasgow.

**The Grasshopper-Warbler in Bute.**—In *The Birds of the Island of Bute* I stated that I had once heard a Grasshopper Warbler (*Locustella naevia*) singing on some waste ground at Craigmore in 1926. In 1927 Grasshopper-Warblers returned to this place, and I very frequently heard the song. I was told that they returned in 1928, so they appear to be established there. This is certainly a new locality for the bird, as till recent years the ground at this place was covered by pine trees.—J. M. M'WILLIAM, Glasgow.

**Diving-powers of the Herring-Gull.**—In the last few years there have been enormous catches of herring near Bute, and odd fish are thrown into Rothesay harbour. These lie on the bottom of the harbour, and it is a common thing to see the Herring-Gulls diving for them. The Gulls dive from a height of five or six feet, plunging in head first with open wings in a way that can best be described as a poor imitation of the diving of the Gannet. The Gulls disappear completely beneath the water and are able to secure herrings at a depth of three or four feet. This is new to me, and in a letter to the *Buteman* in December 1927, Mr John M'Crindle described it as being new to him.—J. M. M'WILLIAM, Glasgow.

**Greenland Shark in the Moray Firth, and its Food.**—In response to my inquiries, I received from Mr W. M'Donald, Buckie, a photograph of "a sea monster" which had been recorded in the newspapers as having been landed at that port. This great fish, which was found by the trawler *Bon Ami* on 7th March entangled in cod nets in the Moray Firth, and which the reports said "resembled a dog-fish, but thirty or forty times heavier," was undoubtedly a Greenland Shark (*Lamargus microcephalus*). Its size, the position and shape of the fins, the smallness of the head, and particularly the short gill clefts, are distinctive features. The length of the Shark was 15 feet and it weighed about 21 cwt., but

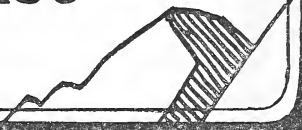
the most interesting discovery related to its food, for it contained four seals, one 4 feet long, and a number of cod (*Gadus callarius*), all recently swallowed. The photograph of one of the seals suggests, by the shape of the head and the coarse spotting on the body and throat, that it was a young Grey Seal (*Halichoerus grypus*).

Now the Greenland Shark is generally said to be a sluggish animal, and Day, in *British Fishes* (vol. ii., p. 321), records it as feeding occasionally upon living whales, but more often upon the dead bodies of whales or other creatures, as well as upon fish. Admiral Stenhouse tells me that on an Arctic sealing trip he has seen a Greenland Shark lying off an ice floe, swallowing one after another the carcasses of Greenland Seals which had been collected by the sealers for transference to the ship.

The habit of the Shark makes it improbable, therefore, that the seals were caught at large in the open sea, and the likelihood is that the Shark was attracted to the cod nets because the seals and the cod were already entangled there, and offered a simple inactive food supply. This supposition is strengthened by the recognised habit of the Greenland Shark of visiting fishing nets for their contents, as Saxby pointed out in 1871, in relation to the Newfoundland herring fisheries.—JAMES RITCHIE.



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## EVERY NATURALIST SHOULD READ

The following major articles which have appeared in recent numbers of *The Scottish Naturalist*:—

- Annual Reports on Scottish Ornithology, including Migration.
- Notes from the Scottish Zoological Park.
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- On the Decrease of Blackgame in Scotland.
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- Red Deer in Selkirkshire in Prehistoric Times.
- Studies of Lanarkshire Birds.
- A New Scottish Aquarium. (Illustrated.)
- A Remarkable Whale Invasion.
- The Natural History of Floods.
- List of Birds of the Forth Area.
- Scarcity of the Corncrake.
- The Rookeries of Edinburgh and Midlothian.
- The Garganey—an addition to the Breeding Birds of Scotland.
- Remarkable Decrease of the House-Sparrow.
- Natural History as a Profession.

As well as numerous shorter notices of interesting events in the Wild Life of Scotland.

*(Authors are responsible for nomenclature used.)*

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## SCOTLAND IN THE DAYS OF THE MAMMOTH AND AFTER

THE pages of this magazine are devoted for the most part to recounting the current story of Scottish animal life, but a glimpse backwards at the succession of animals which inhabited the land in far past days, ought to add perspective to our views of their modern successors. A real link connects the animals of to-day with the faunas of the past. The concourse of creatures which, during the Ice Age, crossed the land bridge, since swamped by the North Sea and the English Channel, and peopled Scotland from the continent, formed the stock from which our modern fauna is directly derived. But the Ice Age did more than introduce, as it were, the fauna of to-day; it guaranteed that the new fauna should start fresh as a unit, unhampered by survivals of its predecessors. The ice-fields, covering the land to an enormous depth, banished every living creature from the country, and on their withdrawal left a denuded Scotland, a clean slate on which the story of the incoming fauna was to be written in its entirety.

The Ice Age is, therefore, of paramount importance in the history of modern Scotland, and that not only from the point of view of animal life, but of vegetation and of soil formation as well. It was not a single continuous epoch,

but a succession of phases during which cold and warm periods alternated, and these changes were reflected in the plant and animal life. So it came about that the Ice Age fauna of Scotland consisted of a series of independent animal assemblages, which followed each other at long intervals as each period of intense cold gave way to more temperate conditions and the place of the glaciers was taken by a covering of vegetation.

“The Fauna of Scotland during the Ice Age” was the subject of a Presidential Address delivered by the writer to the Royal Physical Society and recently published in its *Proceedings* (Vol. XXI., 1929, p. 185). We venture to repeat here some of the conclusions reached in that general survey, since their interest for the naturalist should be obvious.

It is a reasonable supposition that the Scottish Ice Age was preceded by a warm period, in which, judging from the fossil remains found in England, a semi-tropical or warm-temperature fauna existed. Its characteristic animals included a Hippopotamus (*H. major*), an extinct Elephant (*Elephas meridionalis*), a Rhinoceros (*R. etruscus*) and a wild Horse (*Equus stenorhis*). No remains of these creatures have yet been discovered in Scotland, but it must be remembered that after their time the land was covered with enormous glaciers, which may easily have ground to powder or swept away their bones. So that in spite of the absence of direct evidence we may suppose that the conditions which brought together this assemblage were not confined to southern Britain, but extended also to the territory which is now Scotland.

The advent of the ice-sheets banished the temperate fauna, but a long period of cold more or less intense seems to have elapsed before animal life on any extensive scale flourished in Scotland. Even then the remains which have been left are extraordinarily scanty, and represent only the smallest sample of what the total fauna may have been. Fortunately they belong to the most important of all the animals as indicators of the period of their sojourn. They are the Mammoth (*Elephas primigenius*), the Woolly Rhinoceros (*R. antiquitatis*), and the Reindeer (*Rangifer*

*tarandus*). The association of these animals in the south of Scotland, and particularly of the Mammoth and Reindeer in beds overlaid by an extensive deposit of boulder clay, enables us to picture the conditions of their arrival.

They formed part of a continental fauna which, as the ice-fields receded and the country became covered with verdure, travelled northwards from England and apparently never ranged beyond southern Scotland. Their advent was probably of relatively short duration, and they were eventually driven from their limited territory by a new onset of the glaciers, when the boulder clay that buried the bones of a few individuals was deposited. So the first glacial fauna of Scotland came and went in the time of the Old Stone Age, in the Upper Palæolithic period at the close of the Mousterian culture stage.

Representative animals of later glacial faunas have been found in Scotland only in isolated spots, with the exception of the fairly extensive faunas, first discovered by Drs Peach and Horne in limestone caves near Inchnadamph, and recently more extensively explored by the writer in collaboration with the late Mr J. E. Cree and Mr J. Graham Callander. There the remains of a succession of faunas are embedded in the deposits of the caves which honeycomb the limestone bluff in all directions.

The oldest fauna so far discovered appeared after the cave-riddled hill, over 1000 feet above sea-level, had been set free from an ice-cap which left enormous deposits of silt in an inner cave. It is an arctic fauna, of a type which still flourishes in the northern tracts of Europe, containing scarce remains of Reindeer, many arctic rodents, the Arctic Fox, Wolf, Lynx, and a very large Bear.

A short period of recrudescence of the ice-field seems to have driven these animals from the Sutherland highlands, and before traces of a new invasion can be discerned a considerable period had elapsed. The glaciers had dwindled until they no longer covered the hills, but the valley of the caves was filled to the base of the limestone bluff by a valley-glacier, off the surface of which streams poured into the cave-mouths and disappeared into the recesses under-

ground. The fauna at this period was predominantly a Reindeer fauna, the remains of as many as 400 young Reindeer having been discovered in the deposits of a single cave of relatively small size.

There is still no indication in the deposits of this decadent period of the Ice Age of the presence of the animals we know to-day in Scotland. But in the upper and therefore more recent layers they begin to appear. There for the first time occur remains of the Red Deer, though it must still have been a rare creature, for its relics are very few. And so step by step we come to layers containing iron implements, and associated with them the bones of animals which are none other than the early representatives of the modern fauna of Scotland.

It is a tale which is still only partially revealed, but we trust that our future work at the caves and at the collections of bones which have been and will be made there, will add much to our knowledge of the conditions of Northern Scotland in the latter part of the Ice Age, and of the successions of creatures which tenanted these hills whenever climatic conditions made life possible for plant and beast.

J. R.

THE HISTORY OF THE WHALE AND SEAL  
FISHERIES OF THE PORT OF ABERDEEN.

By JAMES PYPER, M.A., LL.B.

(Continued from p. 50.)

Since 1817, when the whalers first attempted to go farther into Baffin's Bay, the list of annual losses had increased. Before that the casualties at Greenland and Davis Straits scarcely averaged two or three ships a season, while the Aberdeen ships had been particularly fortunate, the only loss prior to 1817 being the *Latona* in 1813.

The produce from all the British vessels was going down with the number of ships. In 1832 only 1563 tons of oil were brought to Britain; in 1833, 1695 tons; and in 1834 only 872.

The Aberdeen fleet, now reduced to six, continued to fish, but it was never increased. Peterhead on the other hand did not lose heart, but to some extent filled the gaps made by her losses. In 1834, Messrs Bannerman replaced the veteran *Hercules* for one season with the *Hecla*, the discovery ship sometime commanded by Captain Parry. The *Hercules* went to the Atlantic trade and there remained, while the *Hecla* was sold in 1835 to Kirkcaldy as a whaler.

The fleet was now five, and in 1835 was reduced to four by the loss of the *Middleton*. She did not return from the fishing in autumn, being along with other ten vessels icebound in the Straits. These were six belonging to Hull, two to Newcastle, and one to each of Berwick and Kirkcaldy. After much agitation in the House of Commons, a Government ship, the *Cave*, was sent to their assistance early in January 1836. The *Cave* was accompanied by the famous discovery ships, the *Erebus* and the *Terror*. But in February part of the crew of the *Middleton* were brought to Peterhead by a Hull whaler which had escaped from the ice in the beginning of the year. The *Middleton* and ten of her crew were, however, lost. The ship had been abandoned in November, and the crew had erected a tent and lived there

till January, subsisting chiefly on blubber. Nine had died of cold and exhaustion.

In 1836, almost similar disaster overtook the *Dee*, but she managed to escape in the early spring of 1837 and arrived in Aberdeen in May. Out of a crew of 47, only 12 were alive. Scurvy had broken out on board during the winter, and 20 men died after the ship got clear of the ice. Strangely enough, the vessel was little damaged, and she brought to port 7 fish producing about 60 tons of oil.

From 1837 to 1839 only two of the survivors of the fleet sailed, the *Neptune* and the *Bon-Accord*, and in 1840 the *Bon-Accord* made the last voyage of this period from Aberdeen. If Captain Penny is the outstanding figure in the industry of the second period, the Captain of the *Bon-Accord* is the most prominent in the first. It was almost fitting that he should make that last voyage, for of the twenty ships which had sailed during the forty-one years, the *Bon-Accord* had been the most successful, and since her first voyage, in 1813, Captain Parker had been in command. All the other ships had had different masters. He had been uniformly successful, except towards the end when whales were failing. On returning from this last voyage, which was for the second time only during his twenty-seven years of continuous journeys "clean," he reported that the twenty ships which were that season at the Straits, had obtained, up to the time when he left in October, only 9 fish amongst them.

Since 1830 advertisements had been appearing in the newspapers offering the whaling ships for sale. The "Dee Company," the "Union Company," and the "Greenland Company" between 1830 and 1840 had sold, or at any rate attempted to sell, their boiling yards. The only remaining ships in 1839 were the *St Andrew* and *Neptune* and the *Bon-Accord*. The *St Andrew* and *Neptune* were absorbed in the Atlantic trade, but apparently the *Bon-Accord* was sold to Hull, and one hears of her as a successful whaler at that port for many years.

In concluding this narrative of the voyages, mention should be made of an import from Greenland in 1839, who



caused considerable stir in the town. Captain Penny of the *Neptune* brought home a young "Esquimau," "Eenooloo-Apik" by name, who stayed with us until the following spring when he went back with Captain Parker in the *Bon-Accord*. "He is not the first Esquimau seen here, for seventy years ago, one of the species was picked up in the Bay in his canoe, having as was supposed lost his way." Eenooloo-Apik brought his canoe with him also and entertained the citizens by exhibitions of his skill in the harbour. An illness which overtook the visitor during his stay was recorded in the newspapers and his recovery hailed with relief. On his return to Greenland he married, but his death occurred a few years later—of consumption.

During the forty-one years, twenty ships in all were employed. Of these, twelve or 60 per cent. were lost, all between 1813 and 1835, and all except the *Oscar* and the *Elbe*, in the ice. The total number of voyages to Greenland or the Davis Straits was 330 (including the setting out of the *Oscar* in 1813 as a voyage). The number of voyages home was 318. At Peterhead during the same period the number of voyages made was less—being only 263 outward.

The greatest cargo appears to have been that of the *Bon-Accord* in 1823, being 34 whales, producing 700 butts of oil, or approximately 260 tons, although a similar tonnage is given from the same ship with 22 whales in 1827. An attempt may be made to estimate the total number of whales captured. An approximate number is 2600, and on the assumption that each would produce 10 tons, which is a moderate estimate, the total produce of oil is 26,000 tons. The average price of oil could be fairly stated at £25 per ton. This gives a total value from the oil during these years of £650,000. This is of course only an approximation, but it is not an over-estimate. As regards whalebone, during the first years of the century it was almost valueless, and hardly worth bringing home. Between 1805 and 1820, however, its price began to rise, and it was producing between £50 and £150 per ton, this latter price continuing till 1840. In the second period it soared to £500. A full-grown whale produced only about

15 cwt. of whalebone, and the value of the produce from this source was probably about £90,000.

There were miscellaneous items brought home by the fleet which sometimes occasioned worry to the Customs officials. In 1805, Captain Harrison of the *Latona* brought in a bearskin, which was abandoned by the owners as not worth the duty, and the perplexed Customs Collector wrote his Board asking how it should be disposed of. In 1810 the *Hercules* abandoned three bearskins which the Collector, having now received instructions, sold for 2s. 6d. each. The *Latona* in 1807 brought in "One seahorse" \* and the *Neptune*, in 1808, "One unicorn." † Seals were also brought occasionally but in no great number, even at the end of this period when Peterhead was bringing in thousands every season. The entry for the *Middleton* on its return in 1812, is "360 casks of blubber the produce of 21 whales 2 female unicorns and one bottle-nose with a live bear."

Regarding the provisions taken on board, there are advertisements asking for tenders for 4 to 5 tons of beef for victualling each ship for a season. During the days of the bounty till 1824, the victualling of a bounty ship was under the superintendence of the Customs. Coals were allowed on board only in certain quantities, and there was a similar regulation regarding liquor. The wonder is that scurvy did not break out oftener, but indeed the health of the crews appears to have been good, and excepting accidents, which were frequent, there is little mention of ill-health.

One indication that the fishing was declining, apart from the less number of ships employed, is seen in the increased length of the voyages. From 1800 to 1816 no ship returned later than August, but gradually the period lengthened, till from the end of October to the middle of November became the period when the ships returned. There was anxiety, however, if any were still out after the middle of November. The ships which went to the Greenland grounds always returned earlier than those which went to the Davis Straits. The cause of the longer duration of the voyage rests on the discovery of the passage across Baffin's Bay for whalers, and

\* = Walrus.

† = Narwhal.

of the greater harvest to be obtained there. This was in 1817. The Greenland seas had not been producing their old supplies of fish, and so the popular ground became this newly discovered one in the Straits.

One can trace to some extent yet the voyages made. Take for example this extract from a letter written by Parker in 1820 from the Davis Straits. "I intend if I can to go as high as  $75^{\circ} 30'$  No. where I have been these last two years, and then to go across to the West Land and proceed down the Labrador Coast." There were of course more adventurous and more northern journeys made than the one cited, but it gives an idea of the route sometimes taken.  $70^{\circ} 30'$  is approximately the latitude of Melville Bay, which saw the wreck of many fine vessels after 1817, including the *Princess of Wales* and the *Lætitia* in 1830. Again, in 1839, Parker mentions having captured two whales in  $61^{\circ}$  and having gone north to  $74^{\circ}$  without success.

The vessels themselves were all over 200 tons for the purpose of receiving the bounty, and were probably strengthened for resisting the force of the ice. Some of them appear to have been built especially for the trade, as the *Elbe*, the *Dee*, and the *Middleton* (new), but most were converted for the trade—the *Oscar* for example was a prize taken from an enemy, probably the French. The smallest was the *Latona* of 236 tons and the largest the *Hecla* of 404 tons.

One would like to get some account of the position financially, but there are no real data. That the ships must have paid handsomely before 1814 is certain, and that they continued until they were practically exterminated is evidence that there were no great losses. The trade was apparently somewhat of a lottery—in 1816 the capture was 118 whales, and in 1817 only 49. In 1823 it was 179 and in 1824 only 60, and these great divergencies are obvious in all the years after 1814, culminating in the drop from 135 in 1828 to 5 in the disastrous year of 1830.

There occurs no mention of the proprietors failing, and indeed the few names one finds trace of as proprietors were men of substance. The Bannermans, the Hogarths, the

Gibbons, and the Duthies were at the head of many of the enterprises of the city in the early part of the century.

As regards the produce itself, on arrival it was taken in casks to the Companies' boilhouses, which were all situated in Footdee, in the vicinity of York Street. There, under the local Customs officials, the blubber was boiled into the oil of commerce. The duty was paid on the oil and not on the blubber, and some sort of "diagonal" measure was used by the Customs officials for ascertaining the quantity produced. This appears to have been a steel rod.

On conversion the oil must have been put to the main uses of whale oil at that time—lighting and the manufacture of candles. There is mention of shipments of oil to Hull, doubtless for sail and distribution there, but after the 30's the exports include whale oil to the Hanse Ports. The discovery of the uses of coal-gas for lighting purposes, and its gradual spread, lessened the demand for oil in this country. By 1816 the streets of London were lit by gas, and its use in other towns and in private houses gradually grew. This probably explains the shipments to the Continent.

The whaling industry at Aberdeen during these years is more than an incident in the city's history. The enterprise Aberdeen showed was quite worthy of its position as a leading seaport. In the days of the greatest activity in the industry, from 1814 to 1817, Aberdeen was third in the United Kingdom in the number of ships it sent to the Arctic. The value of the produce during the forty-one years of this period has been estimated, and in addition there has to be considered the number of men employed. This from 1814 to 1824 was probably about 750 yearly, whereof 700 were employed on board and 50 on shore. One might say the industry did not appeal to the cautious sense of the Aberdeen business man, and the trade undoubtedly proved a speculation. At any rate with the practical extermination of the original fleet, the organised effort commenced in 1812 ceased, and when the trade recommenced the ventures were isolated and on a smaller scale.

## 1844 to 1870—WHALES AND SEALS.

No ship appears to have sailed from Aberdeen for the fishing in 1841, 1842, and 1843.

Towards the end of the 30's a change had been taking place in the nature of the northern voyages. Off Greenland, whales had failed, or had been failing; the majority of the ships had devoted their attention to the Davis Straits or rather Baffin's Bay fishing; and "sealing" at Greenland had sprung into prominence. Seal oil was now almost as valuable as whale oil. From 1838, Peterhead had concentrated to a great extent on sealing and the industry assumed large proportions. In 1843 six Peterhead vessels brought from Greenland 21,300 seals. The Aberdeen ships in the first period had been wholly whalers, and, as mentioned, only occasionally were sealskins brought to the port. In April 1844, Captain William Penny sailed on the *St Andrew* for the Davis Straits and returned in November with 183 casks of blubber and 5 tons of whale fins, producing about 90 tons of oil. The old whaling companies were now out of existence, and the *St Andrew*, apparently the vessel built in 1809, which belonged to the Union Company, was now owned by Messrs Oswald George & Company, Shipowners, Marischal Street. In 1845 she again sailed and was even more successful—returning with the produce of 19 whales. This year also the brigs *Isla* and *Flamingo* sailed to the Straits as a speculation, in search of blacklead and other minerals, but also prepared for whaling. They both returned with a small quantity of blacklead but no whales.

The success of the *St Andrew*, after so many blank years, prompted other local ventures. In 1846 four vessels were despatched to the north—the *Flamingo* (180 tons) and the *Mary* (113 tons) for the Greenland seal fishing, and the *Pacific* (401 tons) and *St Andrew* for the Davis Straits fishing. The *Flamingo* was owned by Messrs A. and W. Nicol (Provost Nicol's firm), the *Mary* by Thomas Adam, Shipowner, and the agent or owner of the *Pacific* was A. Anderson. The produce was considerable, and the *Mary*

after returning in the end of June made a second voyage, this time to the Straits, and returned in December with 6 cwt. of whale fins.

This second journey in one year was a new phase, and although attempted in the early part of this period fairly frequently by Peterhead and Aberdeen ships, proved most hazardous, and once, at any rate, disastrous. The years 1847, 1848, and 1849 saw the same four ships making journeys to the north, the *Flamingo* and *Mary* to the sealing and the *St Andrew* and *Pacific* to the Straits. In the last year the *Mary* was lost with all hands. After 1850, the *Flamingo* does not appear as sailing from the port, she having been sold or transferred to Hull.

The troubled times on the Continent in 1848 brought three foreign vessels which had been sealing at Greenland into the port, "to await for orders—a step no doubt of prudence in the present aspect of continental relations." These were the *Neptune* (350 tons) and the *Garmanica*, both Hanoverian, and the *Der Junge* of Flensburg. The *Neptune* may be the old Aberdeen *Neptune*, owned by the Union Company, although the tonnage as stated is slightly different. These three vessels left shortly afterwards without unloading.

The great change which had come over the trade is seen in the number of ships annually sailing to the Arctic Seas, and their produce. In 1849, 38 ships sailed from Great Britain, in 1850, 32, and in 1851, 36. The total produce in these years was:—

1849 . . .	218 whales	49,782 seals	2544 tons oil.
1850 . . .	88 „	74,058 „	1872 „
1851 . . .	96 „	97,266 „	2352 „

The annual average of oil for the four years 1814 to 1817 had been 8956 tons, and in 1822 the produce was 8663 tons. The ports which were now engaged in the industry were, with the prominent exception of Hull, practically all Scottish. In 1849, for instance, to the Davis Straits, Hull sent 12 ships, Bo'ness 1, Kirkcaldy 2, Dundee 4, Aberdeen 2, and Peterhead 11. In 1850 the Aberdeen Whaling Company appears to have been formed by the junction of the *Pacific*

and the *St Andrew*. In 1853, a brig, the *Superior*, was acquired by the Company. In 1855, an application was lodged with the local Customs officer to have the three vessels registered in the names of A. Duthie and John Duthie, jun., Shipbuilders, and Peter Morrison, Manager, of the Aberdeen Lime Company, as trustees for the Aberdeen Whaling Company. The vessels had been hitherto registered in the names of individual owners. The *Superior*, which was originally a Peterhead vessel, was employed exclusively at sealing.

The year 1853 saw an important development at the port. The decline in the fishing and the great losses amongst the whaling ships had created interest in the reasons for the decline of this famous industry—"the cradle of British seamen"—and by some it was ascribed to want of adaptation both in fishing and in vessels. The whalers had so far been all sailing ships, and it was proposed that steamers should be used in the bays and inlets of the Davis Straits. A Company was projected for this purpose, to be called the "Royal Arctic Company," for which a Royal Charter was to be obtained. Amongst the proposed directors of this Company is the name of Mr William Hogarth, Merchant, Aberdeen. Mr Hogarth had been long interested in an extensive way with fishing enterprise, particularly salmon fishing, at Aberdeen. The capital of the Company was to be £200,000, and it was proposed to appoint as General Superintendent, Captain Wm. Penny, lately mentioned as commanding the *St Andrew*, a skipper who had acquired prominence in the Franklin expeditions. The headquarters of the Company were to be Aberdeen.

This enterprise, however, did not come to fruition. There were difficulties about obtaining a Royal Charter, and possibly difficulties about obtaining the support of the public.

The real result of the project was the formation in Aberdeen of the "Aberdeen Arctic Company." The manager or agent was Mr Hogarth, the superintendent Captain Penny, and the general idea of the formation was that of the proposed "Royal Arctic Company," namely the

establishment of a Whaling Colony in the Davis Straits at Northumberland Inlet, which is just at the entrance to Baffin's Bay. Whaling vessels belonging to the Company would go there in summer to pursue the fishing; they would there pass the winter and resume fishing in early spring and then return to Aberdeen. The idea was not new. It has been tried once before with disastrous results, in 1630, by the Dutch, but does not seem to have ever before been attempted voluntarily by British whaling ships. Captain Penny in 1844, 1846, 1847, and 1851 had tested the productiveness of the Cumberland Straits, and by reason of his search for the Franklin ships in 1850 and 1851 knew the grounds intimately.

The *Lady Franklin* of 201 tons and the *Sophia* of 109 tons, the ships in which Penny had conducted his Franklin expedition, were purchased, and with Captain Penny in command of the *Lady Franklin* and Captain Brown on the *Sophia*, they sailed from the port in August 1853. The names of the principal partners in the Company were W. Hogarth, George Davidson, Shipowners; A. Burnett Whyte, Merchant; John Roy, junior, Merchant; James Chalmers, Printer; A. Littlejohn, Merchant; and Wm. Lumsden, Glasgoego, all of Aberdeen. Of course it is only seventy years ago, and these names are still well known in Aberdeen.

The two ships returned in the autumn of 1854, the *Lady Franklin* with 180 tons of oil, and the *Sophia* with about 80 tons, and with 16 tons of whale fins between them. The *Lady Franklin* had returned first with the blubber in a boiled state. The boiling had been done on the *Sophia* in late autumn, while the crew lived during the winter on the *Lady Franklin*. There had been no sickness; friendly relations had been established with the Esquimaux, and altogether the experiment was a success. The following spring (1855) began what was for several years the regular routine of the ships of the Arctic Company, a journey to Greenland in spring for the sealing, a voyage to Cumberland Inlet in the late summer, and the return in the following year. In 1855 the *Lady Franklin* imported



5614 seal skins and 21 tanks of seal blubber (producing 64 tons of seal oil).

The initial success of these projects led the Arctic Company to purchase another vessel, the *Alibi*, and she made her first trip in August 1855. These were, of course, all sailing ships. So by 1856 the Port had six vessels engaged at the industry—three belonging to the Arctic Company and three to the Aberdeen Whaling Company. The trade promised to assume considerable proportions, for from 1849 to 1855 produce to the value of £53,586 had been imported. Peterhead in the same period had obtained approximately £400,000, Dundee £91,290, and Hull £121,875. The progress of Peterhead in the number of ships sent had been steady since 1841. In that year eleven ships were employed, either at sealing or whaling but mainly at sealing. In 1851 she had 15, in 1852, 22, and in 1857, 32.

Much of the financial success was undoubtedly due to the increased prices which were being obtained for produce. Sealskins, which less than twenty years ago (1838) were 1s. 3d. per skin, were now (1856) 3s. 6d. to 7s. Oil in 1848 had been £28 per ton, in 1856 was £40, and in 1858 it rose to £53, while whalebone, at one time almost valueless, was now selling at almost £500. With such prices, if the catch was even moderate, a satisfactory financial return was certain.

These prices indicate, of course, an alteration in the uses to which produce was put. There had commenced a demand for whalebone for brushes employed for mechanical purposes, such as road-sweeping, chimney-sweeping, etc. It was also in demand for millinery and dressmaking purposes. Further, it had been discovered that fish oil was valuable in the manufacture of jute and other fibres, and this largely explains why Dundee became later the headquarters of the whale and seal industry.

How great was the uncertainty in regard to the capture of seals, as well as of whales, is seen in the sealing voyages from 1856 to 1859. The *Alibi* in May 1856 brought in 7000 seals, and the *Superior* 400, while the following May

the *Lady Franklin* brought 278 seals, the *Sophia* 200, and the *Superior* 180. Such small captures could not, of course, pay the expenses of the voyage. The following year the *Alibi* brought 1700 and the *Superior* 1800, and in 1859 the *Lady Franklin* 2792 seals, and the *Sophia* 900, but the success did not nearly approach that of the Peterhead ships, which in 1855 from twenty-seven ships had obtained 131,949 seals. Peterhead had, however, seen the best days of its sealing, and the 1855 capture was never repeated.

In the case of the Arctic Company's ships, the voyage to Greenland was but a side issue, and their main attention was devoted to the autumn and spring whale fishing from Cumberland Inlet. In 1859 the *Superior* of the Aberdeen Whaling Company was withdrawn and turned into the coasting trade.

The results from all the ports in 1853 and 1857 show how the trade was distributed.

1853.							
Port.	Ships.	Seals.	Whales.	Oil.		Whalebone.	
				Tons.		Tons.	Cwt.
Peterhead . .	27	9,820	31	11		11	12
Fraserburgh . .	3	13,102	...	163		...	...
Banff . . . .	2	2,877	...	31		...	...
Aberdeen . . .	3	3,925	9	139		6	5
Dundee . . . .	4	...	24	200		17	3
Kirkcaldy . . .	2	...	17	173		12	8
Bo'ness . . . .	1	...	7	82		5	1
Hull . . . . .	13	17,922	24	468		15	2
	55	47,646	112	1327		67	11
1857.							
				Seals.	Whales.		
Peterhead . . .	31	74,357	20	898	265	16	17
Fraserburgh . .	5	15,245	1	206	7	...	9
Aberdeen . . . .	6	668	13	6	136	11	7
Dundee . . . .	4	...	8½	...	112	7	5
Kirkcaldy . . .	3	...	4	...	58	4	9
Bo'ness . . . .	1	...	2	...	30	1	9
Hull . . . . .	5	13,340	4	160	57	3	2
	55	103,610	52½	1270	665	44	18

(To be continued.)

## SOME CONSIDERATIONS ON BIRD FLUCTUATION.

By Rev. J. M. M'WILLIAM, B A.

ON several occasions recently the present writer has with difficulty restrained himself from joining in discussions in print as to the causes of the fluctuations in the numbers and in the breeding-range of birds. Speculative natural history is a fascinating pursuit. One year it is a question of the Puffins on Ailsa Craig; next year it is the Corncrake that is in the limelight, metaphorically speaking. The suggestions as to the cause of decrease in numbers range from rats to egg-collectors and chemical manure. Any person with a fertile mind can easily suggest other possibilities. If birds increase in numbers the fashionable explanation is of course the activity of the bird-protection societies. Perhaps the time is ripe for a few general remarks on the subject.

In the first place the study of the exact distribution of birds is a recent one. There have always been very few ornithologists in Scotland. It is perhaps too often assumed that if a bird is found in a new area it is in fact a recent arrival. The late John Paterson in conversation with the writer used to pour scorn on some of these recent "extensions of range." We know extremely little about the past history of most of our birds.

Secondly, we have practically no exact statistical information about our birds, and probably about most species exact information can never be obtained. It is likely that many species of birds increase and decrease in numbers constantly without our being aware of the fact at all. Especially when a bird is on the down grade is this so. A rather inconspicuous bird like the Corn-Bunting might vanish from great areas in Scotland for years before its absence was discovered. What has happened with the Corncrake and the Puffin must have happened with many other species, without our being aware of the fact. Ornithologists are often unwilling to say that they have entirely failed to find a species in a

district where others have reported it. In the case of certain migratory birds annual fluctuations in number are often very marked. For the decreases in numbers of most species egg-collecting may practically be ruled out, as the numbers of individual birds of many species is so enormous, as compared with the numbers of collectors interested in their eggs.

Thirdly, one of the few definitely ascertained causes for the decrease of birds is disease. This has been proved in several instances, as a real factor in the case. Birds are subject to epidemics as human beings are. It is possible, if we may make the distinction, that the causes for decline in numbers may lie rather in the bird itself than in its environment. Even if the environment is a chief factor, we have to admit that it is so complicated and mysterious that in many cases we can make no suggestion of any value as to the main cause or causes.

As to extensions of breeding-range in Scotland, it is a very noteworthy fact that in most cases these are from the north to the south. The Starling, the Fulmar, different species of Duck, the Whooper Swan, the Woodcock, the Brambling are cases in point. There is no known change in climatic conditions to account for this. The writer inclines to the opinion that here again the cause is to be found within the bird itself rather than in the environment. Birds begin to breed in places where they have spent the winter. An extension of breeding-range may in some cases have its origin in birds slightly wounded during the winter.

At the same time there can be little or no doubt that what determines the breeding-range of most species is little more than the bird's intense conservatism. The Gannet chooses to breed in a very few stations. The Yellow Wagtail, in Ireland, nests on the shores of Lough Neagh and on the Islands of Lough Mask and Lough Corrib. Would it not be futile to look for any explanation of this limited range in environment?

The Red-breasted Merganser nests on the west of Scotland as far south as the River Stinchar. In Ireland

it nests down to County Kerry. Till recently the Eider never was known to nest inside the Clyde. The Mull of Kintyre formed a barrier. It has now crossed that barrier and is established in the Clyde.

Some birds are erratic in choosing their breeding-ground, but the great majority are intensely conservative. Swallows return to the same barn. Birds continue to breed in areas after the natural conditions have greatly changed. When this conservatism has been overcome it is well known that birds may go nearly anywhere. The Fulmar is on a journey of discovery. A fact that shows that environment is not the chief thing to keep in view, is that when birds are forcibly deported they often do very well in their new locality. Probably in many cases great increases of birds are due to extensions of range, though the common explanation is exactly the reverse.

One very obscure factor in limiting the range of a species is the question of fertility. We sometimes find that at the extremity of a bird's area the fertility is very low. This question needs to have further research given to it.

The foregoing remarks may be summed up by saying that it is the writer's conviction that we know little enough about the increases and decreases of birds, and much less about the causes of these, but that in many cases we have been on the wrong track in looking for these causes in changes of natural conditions rather than within the bird itself. And of what happens within a bird's mind we know practically nothing. Speculative natural history offers a wide field for us all. Of all the ingenious suggestions for a new development on the part of a bird, the most ingenious known to the writer was made with reference to the Fulmar, that what gave it the original impulse was the introduction of tinned food at St Kilda. Many recent suggestions for the change of status in birds are trivial compared to this.

## NOTES

**Chiffchaff in East Ross.**—On 15th May, in Knockfarrow Wood, south of Strathpeffer, I saw a male Chiffchaff. The bird was in full note, calling loudly on its way through the wood and apparently searching for a mate. On subsequent visits to the locality I failed to find the bird again. In Misses Baxter and Rintoul's recent book, there is no record of the Chiffchaff for this district.—J. H. STENHOUSE.

**Golden Oriole in Midlothian.**—A local angler on the Borthwick the other day was attracted by the strange behaviour of a bird which was unfamiliar to him. On a closer investigation he found, lying at the foot of a tree, the dead body of a bird of the same species as the first, which appeared to have been killed by a hawk. On being submitted to a local taxidermist, the bird was identified as a male Golden Oriole.—From *Hawick Express and Advertiser*, 10th May 1929.

**Swallows Feeding on the Ground and Indulging in Play.**—On the afternoon of 4th September 1927 my daughter and I saw what was something new to me. In a market garden there was a strip of ground newly worked and with four or five lines of cabbage seed just sprouting above ground. On the ground was a flock of over fifty Swallows. As we came forward they rose, but we stood still and they at once settled again within 20 feet and began to pick, running about as if catching flies. One, however, suddenly ran to a small strip of paper about 3 inches by  $\frac{1}{4}$  inch in size, picked it up and flew up with it, when the others all took up chase. After a few yards the bird dropped the paper and at once turned and dived, caught it in the air and off again with others in pursuit, flying in a wide circle round us. The paper eventually was again dropped and fell among rasps and was lost to them. They all then came back and lighted on the ground feeding as before. One certainly pulled off a small bit of cabbage leaf, dropped it, picked it up and swallowed it. We watched for fifteen to twenty minutes, then the birds all suddenly rose, went off in a S.E. direction and all disappeared.

The Swallows were all young birds, as the forked tails were only partially developed.—C. HERON WATSON, Longforgan.

SOME BIRD RECORDS FROM SUTHERLAND  
AND CAITHNESS.

By EVELYN V. BAXTER and LEONORA JEFFREY RINTOUL.

DURING a fortnight's tour in Sutherland, in the latter half of May 1929, we were able to supplement the records of birds from that county.

The Twite is only recorded as "has bred" in south-east Sutherland, but several pairs were seen on the moors in that division. The Lesser Redpoll appears to be increasing: its presence has not been recorded from either west or north Sutherland, but we found it at Lochinver (west), several pairs at Tongue, a pair in Strath Halladale, while Mr Oldham informs us that in 1928 he found the species in Strath Naver (all north). The status of the Great Tit in south-east Sutherland was given as an "occasional visitor," several were found in a wood near Lairg as well as in Strath Oykell. There is no record for the Fulmar Petrel in S.E. Sutherland, we saw one at Dornoch.

The Slavonian Grebe is evidently extending its range, for we found a little colony of four pairs nesting. We were interested to see two flocks of the Southern Golden Plover—one of eight in the hills above Scourie, and the other of about thirty in Strath Naver. It was unexpected to see this race in flocks so late in the year.

One day a Pomatorhine Skua suddenly appeared at a loch where we were sitting. We watched it for a long time, while it flew over the loch and moor, alighted on the water, swam about and then settled down on the bank in the sunshine. It was mobbed by the Gulls and Lapwings, and a Greylag Goose rose from her nest in the heather and chased the Skua away.

In Caithness, where we were from 25th to 27th May, we saw and heard a Whitethroat at Barogil, saw a pair of Shelduck and an Eider Drake at John o' Groats and a Stockdove near Keiss. The Whitethroat is uncommon in Caithness, the Shelduck has only recently been recorded as breeding, and the Eider and Stockdove have not yet been found nesting.

**Ferruginous and Scaup Ducks in Selkirkshire.**—On 17th February I saw a pair of Ferruginous Ducks (*Nyroca nyroca*) on the Tweed at Melrose. I was close to them and was able to watch them through binoculars at about 50 yards. I also heard their curious guttural quack and saw them in flight. They remained for two or three days, and a good many people noticed the strange brown ducks. Of course it is possible that they may have come from a private collection on some lake, but owing to the severe weather on the Continent I was not surprised to see them. On the 19th I saw one of them again, in flight, and three are reported to have been seen together on the 18th. On the 19th I also saw a very fine Scaup Drake, another uncommon visitor to our part of Tweed—though one was shot here, a female, some years ago. Tufted Ducks, Golden Eyes, and a few Pochards were also on the river and, of course, Mallard.—GILBERT D. DAVIDSON, Melrose.

**Brent Geese at Aberlady Bay, East Lothian.**—(1) At Aberlady on Saturday, 2nd March, a friend and I counted thirty-eight Brent Geese feeding in the Estuary. We approached to within 200 yards of them before they rose, and as they flew seawards they assumed the chevron formation in a surprisingly short time. This formation, however, only lasted for about a minute, the V straightened out suddenly and the birds landed nearly half a mile away from the original feeding-ground.

Many of the birds seen on Saturday were in a somewhat exhausted condition, one, a Redwing, allowing itself to be caught by hand. We noticed a Black-headed Gull feeding on the breast of an immature dead Herring Gull, hunger evidently driving it to this extremity.—WILLIAM SHORT, Edinburgh.

(2) Some time ago I examined from Aberlady, East Lothian, an adult male Brent Goose obtained on 10th December 1927, weight 3 lb. This was the darkest Brent I have yet examined. I have seen a number of Brent from Aberlady, but all were of the light form; whereas in this specimen there is little contrast between the intensity of the black of the upper breast and that of the lower breast and belly. The bird was in rather poor condition and was single. About the same time I also received from the same locality an adult female Red-necked Grebe (*Podiceps griseigena griseigena*), in full winter plumage, obtained on 12th December 1927. There were numerous feathers in the gizzard. The bird was alone.—OLIVER H. WILD, Cheltenham.



## FRESHWATER MUSSELS IN THE RIVER OF WICK.

By CHARLES OLDHAM.

IN a paper entitled "A List of the Land and Freshwater Shells found in the County of Caithness," read before the Royal Physical Society of Edinburgh on 23rd March 1864 (*Proc.*, vol. iii., pp. 162-4), the author, C. W. Peach, says of the Pearl Mussel (*Unio margaritifera*) "River of Wick—rather plentiful." Happening to be in Caithness in July 1927, I spent a day searching the river from Bilbster to Watten. The stream seemed likely enough, but I failed to find *Margaritifera margaritifera* or any other mussel.

At a spot farther down stream, near the junction of the Achairn Burn with the River of Wick, I did, however, find several examples of *Anodonta anatina*, a matter of some interest as the Conchological Society (*vide* its census of 1921 and subsequent additions) had no knowledge of the occurrence of this species in Scotland north of mid-Perth. The shells, which in shape show some affinity to the rare *piscinalis*, are unusually thick, extensively decorticated, of robust form, dark colour, and encrusted with a reddish deposit towards the posterior end. They might indeed, as Mr H. H. Bloomer suggests, have easily been mistaken for *M. margaritifera* by anyone who had only a slight acquaintance with freshwater mussels. Now Peach admittedly had no special knowledge of land and freshwater mollusca, but if all the shells he collected were, as he states in his paper, submitted to J. Gwyn Jeffreys, it seems likely that the mussels he found eighty years ago were really *M. margaritifera*.

On the other hand, if *A. anatina* then lived in the river in anything like its present abundance, it is odd that Peach should have overlooked it. At my instigation, Mr A. Finlayson, and other local naturalists whom he had interested in the subject, hunted the lower reaches of the river, but

although they found *A. anatina* in plenty, they saw no *M. margaritifera*.

I was in Caithness again in July 1928, when Mr Finlayson kindly took me to a place about a mile above the town of Wick and some mile and a half below the spot where I collected my specimens in 1927. Here the shallows teemed with *A. anatina* and shells were scattered on the banks in hundreds. I learned from Mr Finlayson that the Mussels are a favourite food of the gulls that congregate on the adjacent town refuse-tips, and that boys are constantly taking them from the river in the futile hope of finding pearls, as old men tell him they did in their own boyhood.

It seems possible that this practice is a survival from the time when *M. margaritifera*, the real Pearl Mussel, lived in the river—if indeed it really did so—and that the present abundance of *A. anatina* and the apparent absence of *M. margaritifera* are due to changed conditions in the river. Weirs built near the river mouth have, Mr Finlayson told me, impeded the free egress of the alluvial silt brought down by the periodical floods; the lower reaches have now a deposit of fine silt, and what is now marshy ground lush with meadow-sweet and other coarse herbage, was less than forty years ago an expanse of estuarine mud.

Peach left Wick some fifty years ago, taking his collection with him. If it still exists, it may be possible to ascertain definitely whether *M. margaritifera* did live in the River of Wick in his day, but inquiries at the Royal Scottish Museum and at the offices of the Geological Survey (Scotland), where Peach's son, the late Dr B. N. Peach, was so long a member of the staff, have failed to locate it.

SOME LAND AND FRESHWATER MOLLUSCA  
FROM KINCARDINESHIRE.

By A. R. WATERSTON.

DURING a visit to Auchenblae, Kincardineshire, from the 11th August to the 15th September of last year, a collection was made of the land and freshwater shells of the district. The list totals thirty-five species of which five are new records for the county. The latter have already been noted in the *Journal of Conchology*, vol. xviii., No. 10, by the official recorders. I should like here to express my thanks to Professor A. E. Boycott for having named the species and indicated the new records. The majority of the specimens were collected within a mile of the village, and from or along the banks of the River Bervie.

The names used are those given in Ellis, "British Snails," Oxford, 1926. But in the case of *Pisidium*, Stelfox has been followed (see *Journ. Conch.*, vol. xv., 1918, pp. 289-304).

*Pisidium personatum* (Malm.), B. B. Woodward, in dam on Luther water, in gravel, where stream enters.

*Pisidium pulchellum*, Jenyns, with *P. personatum*.

*Limnæa truncatula*, Müll., one young specimen on mud in Luther stream.

*L. pereger*, Müll., common in dam on Luther and also in the Bervie.

\**Ancylastrum fluviatile*, Müll., common in the Luther and its tributaries, also in the River Bervie.

*Vertigo pygmaea*, Drap., on *Luzula* with *C. edentula*.

*Columella edentula*, Drap., common on *Luzula* after rain.

*Lauria cylindracea*, da Costa, on old walls on lichen, also on *Luzula*.

*Cochlicopa lubrica*, Müll., common under stones and wood.

\**Punctum pygmaeum*, Drap., two specimens in a heap of road metal.

*Goniodiscus rotundatus*, Müll., common under stones and rotting wood.

*Arion circumscriptus*, Johnst., common in gardens.

- A. hortensis*, Fér., common in gardens, also on *Luzula* in beech woods.
- A. subfuscus*, Drap., in gardens and in woods.
- A. ater*, Linn., common everywhere in fields, var. *plumbea*, Roebuck, also common.
- \**Trichia striolata*, Pfeiff., common in gardens on *Primula*.
- Ashfordia granulata*, Alder, very common on *Glyceria* and on *Luzula* with *H. subrufescens*.
- \**Hygromia subrufescens*, Miller, common on *Luzula* by roadside.
- Arianta arbustorum*, Linn., a small thin-shelled form, common on the banks of the Luther, normal specimens were taken at Stonehaven on hemlock.
- Cepæa hortensis*, Müll., numerous colonies on nettle and knapweed. Only typical and var. *lutea* Moq. were seen.
- Euconulus fulvus*, Müll., under stones and on old walls in damp situations.
- Retinella radiatula*, Alder, common under stones with *O. cellarius*.
- R. pura* var. *margaritacea*, Jeff., under stones with *V. crystallina*.
- R. nitidula*, Drap., common under stones with *O. cellarius*.
- Oxychilus alliarius*, Miller, common under stones and wood.
- \**O. helveticus*, Blum., a single specimen under a stone with *O. cellarius*.
- O. cellarius*, Müll., under stones, less common than *O. alliarius*.
- Vitrea crystallina*, Müll., under stones and at the roots of grass.
- Vitrina pellucida*, Müll., very common after rain on grass by roadside.
- Agriolimax lævis*, Müll., observed once in wood-yard. As no specimens were brought back this is not yet an official record.
- A. agrestis*, Linn., common in fields.
- Limax maximus*, Linn., common in woodyard and in rotting tree stumps.
- L. marginatus*, Müll., on an old wall feeding on lichen after rain.
- \*New county record.

## NOTES

**Baillon's Crake at Fair Isle.**—A female example of this Crake (*Porzana pusilla intermedia*) was obtained here on 11th May this year. The ovary contained six well-developed eggs. The skin has been forwarded to the Royal Scottish Museum.—GEORGE STOUT, Fair Isle.

[This is the seventh reported occurrence of this small Crake in Scotland, and as far as our information goes, Fair Isle is the most northerly locality in which it has ever been found. Its nearest breeding grounds are in Holland.—EDS.]

**Bar-tailed Godwits in full Summer Dress in Midlothian.**

—The Bar-tailed Godwit in grey and white winter dress is a familiar bird on the shores of the Forth during the cold season, and in early autumn and late spring birds exhibiting traces of the summer plumage occasionally come under observation. Yet I have never seen the bird here in full summer dress until last May, when on the 11th of the month I observed a pair feeding on a mud bank at Threipmuir Reservoir. I watched them for nearly an hour, during which time their long uptilted bills continually probed the soft mud for food. The birds looked extremely handsome, with rich chestnut red on the head, breast, and under parts. I particularly noted the colour of the long bill, the basal half of which was rose-brown and the terminal portion very dark brown. The birds in company with the Godwits on this mud bank were so varied that they are well worth recounting—one Curlew, one Redshank, one Teal, one Ringed Plover, one Pied Wagtail, a pair of Dunlins, and a pair of Common Sandpipers; while Willow Wrens and Chaffinches were singing in the willows where I stood concealed, and overhead Swifts and Swallows were flying to and fro. Without moving from the spot I could also see a Mute Swan sitting on her nest on the opposite bank and several Mallard and Shoveler Ducks farther up the reservoir.—J. KIRKE NASH, Edinburgh.

**Further Notes on the Rookeries of Edinburgh and Midlothian.**—In my account of the rookeries of Greater Edinburgh and Midlothian (SCOTTISH NATURALIST, 1928, p. 69) I said that in addition to old nests I suspected several large rookeries had escaped my attention. I have not had an opportunity of making

much investigation during this last season, but I should like to record the following additions:—

*Midlothian.*

Limefield, near West Calder, 150 nests.  
 Calder House, over 300 nests.  
 Linhouse, 80 nests.  
 Wilkieston, 7 nests.

These were on beech, oak, and fir trees.

*Greater Edinburgh.*

Malleny, 24 nests.  
 Balerno (near railway station), 10 nests.  
 Rovelrig, 18 nests.

Mostly on beech trees. The last named rookery had about fifty nests last year.

In a recent letter, my old friend, the Rev. Robert Godfrey, who has long been resident at Butterworth, C. P., South Africa, gave me some interesting "Notes" of his observations on rookeries in Midlothian during the eighties and nineties of last century. Many of the present rookeries appear in his list, but he mentions several which have long disappeared, such as Nether Howgate, Fairmilehead, St Bernard's Crescent, and West Norton Place. It is somewhat strange that the small rookery at Hart Street which never exceeds two or three nests on an old ash tree and is only irregularly occupied—there were no nests this year—should have continued to exist for such a long time, as Mr Godfrey has a record of it as far back as 1891.—J. KIRKE NASH, Edinburgh

**Rooks' Nests and Clutches.**—On 7th April this year, at a rookery near West Linton, I examined twenty nests. Fourteen of these contained four eggs each, and this was evidently the clutch, as a few eggs taken here and there for variety, all showed advanced incubation. Only one contained five eggs and another had newly hatched chicks. This latter nest, allowing seventeen days for incubation, must have had the clutch by 20th March. All nests examined were thickly lined with sphagnum moss from the surrounding moor, and one bird had added a number of wing feathers from some of its dead relatives, several of which lay about the wood.—DAVID HAMILTON, Edinburgh.

**Bean Geese on Solway Firth.**—On 30th January I was sent a Bean Goose from Glencaple, Dumfriesshire, which was one of seven shot out of a gaggle of thirty or forty on the Solway.—  
HUGH S. GLADSTONE.

**Albinistic Form of Common Buzzard in Fife.**—Through the mediation of Miss Rintoul, there has been presented to the Natural History Department of the Royal Scottish Museum, by Mr John Murray of Perth, a Common Buzzard (*Buteo buteo*) showing a marked tendency towards albinism. Abnormal whiteness is particularly shown on the head, the ear coverts being entirely white, in the broad white margins which fringe the feathers of the back and wing coverts, in the predominantly white rump, tail coverts, base of tail and thighs, and in the large proportion of creamy white on the under surface. This form, known as the "white" Buzzard, is said by Hartert (*Vögel der Paläarktischen Fauna*, vol. ii., p. 1121) to be very common, but according to Witherby's Handbook (vol. ii., p. 142) it would seem to be less frequently met with in this country. The bird in question, a male, was killed at Balbirnie, Markinch, Fife, in July or August about 1909.—JAMES RITCHIE.

**Distribution of the Black-headed Gull in Sutherland.**—Referring to the editorial comment on this subject (SCOTTISH NATURALIST, 1927, p. 131), I would like to mention that on more than one occasion I have noticed the peculiar distribution of this bird in the district in question. My notes of 1921 record it as seen, but not common, both at sea and ashore in the neighbourhood of Kyle of Lochalsh. In the following year it was noticed as very abundant on the east coast, while not seen at all at Scourie and in Assynt, and I well remember that on walking from Rhiconich to Durness it was the first sea-bird seen on the sands of the Kyle of Durness. During my stay at Durness it was always to be found, and the same state of affairs was observed two years later when the district was traversed in the reverse direction. I am almost sure that Harvie-Brown comments on the same circumstances as existing in his day—about forty years ago.—  
H. R. J. CONACHER, Bridge of Weir.

**Early Arrival of Wheatear**—A correspondent, infallible as regards the identification of the Wheatear, saw one in Ayrshire

on the 9th March ; I myself saw one on the 24th ; the early date is remarkable, a day earlier than that of the Aberlady record in the last number of the SCOTTISH NATURALIST (p. 60).

Mr Oliver Pike, who was lecturing in the Channel Islands in late January, noted several there at that early date. We wondered whether they had wintered there, or were perhaps on migration north. It would seem now that the migration of this species had been prematurely influenced by the fine spell of weather that occurred between the two Arctic ones early this year. It would be interesting to have the dates of arrivals from other stations, especially on the south coast of Britain.—F. RICHMOND PATON, Hareshawmuir.

**Large Skate from Firth of Clyde.**—A large specimen of the Common Skate, *Raia batis*, taken in a cod net in Balloch Bay on the east side of the Cumbrae, Firth of Clyde, was landed at Millport on the 27th March, and secured for the Royal Scottish Museum, where a coloured cast is being prepared for exhibition in the British fish collection. The fish measured 5 feet 7 inches across the wings, was 7 feet 1 inch in length to the tip of the tail, and weighed  $2\frac{1}{2}$  cwt. It contained two large egg purses, 10 inches by  $5\frac{1}{2}$  inches. The stomach contained, in addition to the remains of one or two Cod, the head of a Sea-trout. Sticking in the mouth was a large hook such as is used on deep-sea lines. Local fishermen stated that such hooks were not used anywhere in the neighbourhood. It is not usual to find such large specimens taken so close to land, but the fisherman who took the specimen stated that last year he had secured another skate as large, if not larger, at the same spot.—A. C. STEPHEN, Royal Scottish Museum.



## BOOK NOTICES

ROWLAND WARD'S RECORDS OF BIG GAME. Ninth Edition. Edited by J. G. Dollman, B.A., and J. B. Burlace. London: Rowland Ward, Ltd., 1928. Pp. xiv + 523. Price 50s. net.

Since the first edition of this work appeared in 1892, it has been in constant demand as a standard by which the value of trophies of the chase may be gauged. In our own experience it has been invaluable, not only in checking measurements, but in affording brief descriptions of the characters and distribution of the races into which species of game animals are now subdivided. The new edition differs from its predecessors in its greater size, due partly to the inclusion of many new racial forms and partly to an increase in the number of photographic illustrations of heads and antlers. The association of Mr J. G. Dollman of the British Museum as joint-editor ensures that the purely scientific side is accurate, and a feature which ought to be appreciated by travellers and sportsmen is the reproduction of the native names used by the tribes in whose territory the creatures occur. In the case of such well-known antelopes as the Gnus, as many as ten native names may be given. Occasional illustrations, as in the case of a Tiger's body, the antlers of a Moose, the tusks of an Elephant, indicate the proper method of taking measurements, but we feel that an increase of such explanatory diagrams supplementing the instructions in the text, might help still further to standardise measurements.

BIRD-NESTING. By the late J. G. Black. Second Edition. Newcastle-upon-Tyne: Andrew Reid & Co., 1929. Pp. viii + 240. Price 3s. 6d. net.

The author of this work reached his love of Nature, as many another has done, through his love of sport and particularly of shooting and fishing. In 1902 he left Cambridge to become a schoolmaster at Corchester, and the book was written from his intimate knowledge of bird-life primarily to interest his pupils in Nature. Part I. contains useful and thoroughly practical hints on watching birds, seeking for nests, collecting eggs and the like, but it would be a mistake to suppose that it encourages indiscriminate robbing of birds' nests. Its aim is rather to guide the love of nesting, innate in most boys, into human channels of observation and recording. This is made abundantly clear in Part II., which contains fresh notes on the birds themselves, their identification marks, haunts, habit of nest-building, eggs, young. The book, which a Nature-loving schoolboy would appreciate and find helpful, contains thirty-two excellent photographs of nests and young birds.

ON THE ORIGIN OF SPECIES, BY MEANS OF NATURAL SELECTION.  
By Charles Darwin. [A Reprint of the Second Edition.]  
Oxford University Press: London: Humphrey Milford, 1929.  
Pp. lxi + 454. Price, cloth 2s. ; leather 3s. 6d. net.

The *Origin of Species* is a never-failing source of new inspiration and new ideas, and the oftener one reads the more one wonders at the knowledge and insight of its great author. No naturalist's education can be complete without an understanding perusal of the *Origin*. The present edition, one of "The World's Classics" series, contains a preface by Leonard Darwin and a key by Miss Irene Manton to the changes which Darwin made in the chief editions of his work. Our one objection is that the great length of the *Origin* has compelled the publishers to use a size of type too small to be read comfortably by old eyes.

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## EVERY NATURALIST SHOULD READ

The following major articles which have appeared in recent numbers of *The Scottish Naturalist*:—

- Annual Reports on Scottish Ornithology, including Migration.
- Notes from the Scottish Zoological Park.
- The Great Skua in Shetland.
- Some Records of Large Foxes.
- On the Decrease of Blackgame in Scotland.
- The Destruction of Methil Dock-gates by Marine Organisms. (Illustrated.)
- Red Deer in Selkirkshire in Prehistoric Times.
- Studies of Lanarkshire Birds.
- A New Scottish Aquarium. (Illustrated.)
- A Remarkable Whale Invasion.
- The Natural History of Floods.
- List of Birds of the Forth Area.
- Scarcity of the Corncrake.
- The Rookeries of Edinburgh and Midlothian.
- The Garganey—an addition to the Breeding Birds of Scotland.
- Remarkable Decrease of the House-Sparrow.
- Natural History as a Profession.

As well as numerous shorter notices of interesting events in the Wild Life of Scotland.

# The Scottish Naturalist

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## INSTINCT AND INTELLIGENCE IN INSECTS.

THE remarkable habits of insects, more especially of such as live in communities, have long been a source of study and amazement among the entomologists of all times and nationalities. Since the days of King Solomon mankind has continued to marvel at the wonderful activities displayed in the nest of the ant, the hive of the bee, or the fragile, papery home of the social wasp. Again, the equally marvellous architectural skill shown in the construction of the mud nests of the "solitary" wasps, and the provisioning of such nests with food of a very special kind for the nourishing of the future offspring, have given rise to much speculation as to the nature of the mental processes which lie at the foundation of these displays of activity and apparent foresight.

Many volumes, and essays without number, have been written, recording the habits of insects as observed not only under perfectly natural conditions, but also when subjected to artificial confinement and experimental test. One has only to mention the names of Lubbock, Forel, Fabre, Wheeler, Plateau, and the Peckhams, to realise the amount of work that has been done in the attempt to elucidate the nature of mentality in the insect world. And yet with all this observation and experiment we still seem to be as far as ever from a complete understanding of the mind of an insect! Are these wonderful habits the result of

intelligent thought and deduction, or are they due to a purely mechanical response to stimulus—in other words, Is there a true mental process or merely a nervous reflex? Or to put it in still another way, Do insects possess intelligence or do they merely work by instinct?

This is a subject as enormous as it is fascinating, and obviously cannot be adequately dealt with in the few pages at our disposal. It demands a long course of reading and study, and the novice will probably experience some difficulty in approaching such a vast array of apposite literature as we already possess. Our object in calling attention to the subject at the present time is to introduce to the notice of our readers one or two important works which have appeared during the past few months, and which seem to us to serve as an admirable introduction to the study of the mental powers of insects.

The first of these,\* by a talented and well-known author, Major R. W. G. Hingston, deals with a long series of observations made in oriental jungles upon insects under strictly natural conditions; the second is a new and carefully edited edition of a well-known entomological classic by the late Sir John Lubbock (Lord Avebury),† in which the observations are made chiefly upon insects under artificial control. A perusal of these two volumes (and what better holiday-reading could one find?) should give, to any one at all interested in the subject, ample food for reflection, and prepare him at the same time for the more serious study of such abstruse treatises as that by R. E. Snodgrass,‡ and the still more recent memoir on "Tropisms" by N. E. M'Indoo.§

\* *Problems of Instinct and Intelligence*. London: Edward Arnold & Co., 1928, 8vo, pp. 296. Price 10s. 6d. net.

† *Ants, Bees, and Wasps*: new edition, based on seventeenth, edited and annotated by J. G. Myers, Sc.D., F.E.S., London: Kegan Paul, Trench, Trubner & Co., Ltd., 1929, 8vo, pp. 377, 6 plates. Price 10s. 6d. net.

‡ *The Mind of an Insect*: Annual Report of the Smithsonian Institution, 1927, pp. 387-416, 6 text-figures.

§ *Tropisms and Sense Organs of Lepidoptera*: Smithsonian Miscellaneous Collections, Vol. 81, No. 10 (4th April 1929), pp. 59, 16 text-figures.

Major Hingston's work is full of fascination from beginning to end, and in our endeavour to select examples of insect behaviour for the edification of our readers we are checked by an embarrassment of riches. His pages form one continuous series of observations on the most wonderful performances of ant, bee, wasp, beetle, and spider. He first presents us with a demonstration of the problem to be solved—Do the lower animals reason or is their behaviour merely automatic? What is instinct? What is intelligence? He regards both words as being incapable of definition: "Try to define Instinct, and it will be found to be impossible. One man's definition will include what another man's will exclude. For Instinct, like species, is undefinable. It graduates at the one extreme into intelligence, at the other into unconscious reflex action." In spite of this difficulty, however, he makes some interesting assertions which may be summarised here, as they appear to put the matter in a nutshell. He says, firstly, an instinctive action is independent of instruction; secondly, it is unassociated with any reasoning; and thirdly, it has an end in view of which the individual is ignorant. "Instinct, therefore, means blindness and ignorance." Intelligence, on the other hand, means conscious knowledge, a recognition of the relation between cause and effect, and the possession of the faculty of choosing between alternatives.

The numerous examples given in this entrancing volume may be explained in a variety of ways, and the author's classification of the attributes of instinct is both instructive and original. Separate chapters are given, dealing with what he calls the perfection, inflexibility, rhythm, wisdom, folly, limitations, variability, and errors of instinct respectively. One example, taken from the chapter on rhythm, must serve to introduce the reader to the observations and deductions to be found in these delightful pages. The Mason-Wasps work under the influence of a four-fold rhythm—building the cell, laying an egg within, stuffing the cell with caterpillars, and closing it with a lid. In the first experiment related, the author, after the egg has been laid, cuts away the margin of the cell while the insect is away

hunting for caterpillars. She returns the first time "empty-handed," having apparently failed in her quest, and inspects the cell, spending some little time testing it with her antennæ, and from her behaviour apparently realising that the wall of her cell is damaged. She flies off, and we naturally expect she will return with a pellet of mud for repairs, but she brings a caterpillar instead. Repeating her flights she gradually fills the cell with food for her future grub, then closes it without rebuilding the margin, and thus leaves it imperfect. The author pertinently asks why the insect did not repair the damage before storing the cell. That she was quite able to do so is proved by the fact that she had previously been seen to repair a hole. No—she labours purely automatically and by rhythm. Of the four stages in the whole operation, numbers one and two are finished when the Major damages the cell. The insect has commenced stage three and cannot go back to stage one. She is impelled by *instinct* to go through a definite routine and her mental gear-box has apparently no reversing lever!

Examples like the above could be selected to fill many of our pages, but we must pass on to notice very briefly the other works already mentioned. Before doing so, however, it may be worth while quoting the last paragraph in the book, if only to indicate one of the main conclusions arrived at by the author, whose literary style, by the way, is most entertaining and original, being characterised by unusually short, pithy sentences (often of only three or four words) which are very telling. This concluding paragraph reads: "Regarded then from a psychological standpoint, the brain of man and the brain of the insect possess the same fundamental qualities. They differ, however, immensely in degree, because they have evolved along diverging paths. The psychological tree has two great branches, the branch that represents the growth of intelligence, and the branch that represents the growth of instinct. Man stands at the summit of his own branch and thus dominates all creation. But the insect crowns the other branch. In it instinct has reached the highest development. In fact many acts performed by instinct are as wonderful as the acts of reason."



The new edition of Sir John Lubbock's work, alluded to above, as edited and annotated by Dr J. G. Myers, and as illustrated by that prince of draughtsmen, A. J. E. Terzi, is a volume that should find a place in every natural history library. The original work is so well known that it is unnecessary to discuss the details of the various experiments described therein. The special feature (and a most excellent one) of the present edition lies in the editorial notes on important points elucidated of late years either in support of or refuting Lubbock's views and results. These annotations have, whenever possible, been given as actual quotations, and hence form an invaluable supplement to Lubbock's original observations.

The memoir by Snodgrass is well worthy of careful study. He commences with a discussion on the nature of "consciousness," which he asserts is at least potential in all living matter. Then follows a series of sections dealing with the various responses to stimuli, or as they are now called, "tropisms." The reaction to gravity, light, heat, humidity, scent, sound, air and water currents, pressure (sensitivity to contact) are all briefly discussed, after which come two concluding sections, dealing respectively with instinct and intelligence.

M'Indoo's essay on Tropisms furnishes us with a useful summary of what is now known concerning the responses of Lepidoptera (Butterflies and Moths) to the various stimuli—light, sound, scent, and so on. He rightly regards the study of tropisms as an important factor in the *control* of insects, and since such control is now an essential part of agricultural economics the value of a knowledge of the sense organs of insects and their functions is obvious. This memoir is illuminated by a long series of experiments on the behaviour of the Codling Moth in its various stages, but more especially while in the larval condition.

It only remains for us to urge some of our readers to pay some little attention to this fascinating and important subject, and to recommend at the outset an earnest perusal of the volumes and essays referred to in these pages.—P. H. G.

## NOTES

**Great Crested Grebe nesting in Dee.**—At Loch Kinord on 20th July the hunger-cry of a young Great Crested Grebe drew my attention to a half-grown chick which was being fed by one of its parents. At the other side of the loch, some three-quarters of a mile away, was another old bird, again in attendance on a single young one. The old birds may have been a pair and the young ones nest-mates, but on the other hand a circuit of the loch, which I was unable to make, might have disclosed more than one pair of breeding birds, for the big beds of reeds and other aquatic vegetation furnished ideal conditions for this species.—CHAS. OLDHAM, The Bollin, Berkhamsted.

**Crossbill Invasion in 1929.**—It is apparent that what promises to be an extensive invasion of Crossbills from the Continent is in progress during the present summer. The first specimen received at the Royal Scottish Museum was a female of the Continental Crossbill *Loxia curvirostra curvirostra* found dead on the Isle of Foula, Shetland, on 25th June, and forwarded by Mr W. H. Greenaway. Subsequent specimens received, respectively female and male, were obtained on the 4th and 8th July, at Bixter in Shetland by Dr J. C. Bowie. On the 4th of July also, Mr John Bain tells me, thirty Crossbills arrived on the Bass Rock, when the wind was N.E., blowing a fresh breeze and heavy rain was falling. When he left the rock on the 6th, eight of the birds still remained on the island. On the 12th of July a flock of about a dozen was observed in the garden of the Parish Church Manse in Stornoway, and others were seen at Eishken Lodge and in the Lewis Castle grounds, all in Lewis. Finally, Mr Charles Oldham writes on 29th July that he has seen Crossbills in several places in Shetland, on Deeside, in Aberdeenshire, and that he hears of them in England.

It is important in the case of such an invasion that all records of appearances of Crossbills be kept so that the migrations of the birds may be examined in association with the weather conditions on continental Europe and over the North Sea. I should be glad, therefore, to receive any record of Crossbills, giving place, date, number of birds, and any other information, such as numbers of adults and young.—JAMES RITCHIE.

THE HISTORY OF THE WHALE AND SEAL  
FISHERIES OF THE PORT OF ABERDEEN.

By JAMES PYPER, M.A., LL.B.

(Concluded from p. 80.)

Apart from the small total number of ships, the supremacy of Peterhead and the dwindling interest of Hull will be noticed, as also the still lessening number of whales. There were left engaged at the industry from the port, after 1859, the three Arctic Company ships, and the two remaining ships of the Aberdeen Whaling Company. The Arctic Company at any rate had prospered. Their venture of "wintering out" had proved a successful one, and houses were built at the stations of the Company in Northumberland Inlet. Captain Penny's wife spent one winter there with him. He imported another Esquimau to Aberdeen in 1855, and in 1857 took Brother Warmond, a Moravian missionary, out to labour amongst the Esquimaux. Much or all of the success which attended the Arctic Company was due to Penny. The project of "wintering out" commenced by the Company was taken up by Peterhead ships, and also by American whalers. Captain Penny's name is of course familiar to everyone, and his comparatively recent death took place in Aberdeen in 1892, at the age of 83.

For two years, 1861 to 1862, the local fleet was increased by the addition of the *Arctic*, a barque of 203 tons, built in 1855, but she may have had Peterhead owners.

In 1861 the *St Andrew* was lost in a gale at the Straits with all hands, and in 1862 the *Arctic* was crushed between two ice floes and sank, also at the Straits.

The latter year saw the arrival of the *Daniel Webster*, a whaler of New Bedford, U.S.A., which preferred putting in here in consequence of the outbreak of the American Civil War. Her cargo of about 150 tons of oil was discharged in Aberdeen. In 1863 the *Pacific* was lost at the fishing, but her crew was saved, and in the same year a sloop of 42 tons named the *Perseverance*, which had

been sent out by a local Company to winter in the Gulf and try the spring fishing, was also lost. It was her first trip. In October 1862 she had been safely left in an ice harbour, which a gale broke up later, and only one of the crew was saved. It is doubtful whether the *Perseverance* was employed on the whale-fishing or in the cod-fishing which was at this time beginning to be taken up by the port. The size of the vessel inclines one to the latter opinion, but as it is uncertain her name is included here.

There now follows the collapse of the fishing from the port. It will be observed that from 1862 the amount of produce brought by the Arctic Company's ships was decreasing. After that year Captain Penny does not appear to have sailed in command of any of the ships, and in 1863 and 1864 advertisements appear offering the ships of the Arctic Company for sale—the *Alibi* at £2500, the *Sophia* at £1000, and the *Lady Franklin* at £1500. In 1865 the *Lady Franklin* was sold, and that spring only the *Sophia* sailed to the Straits. In 1866 the *Alibi* was transferred to Peterhead owners, and the *Sophia* appears as trading to Archangel. The *Alibi* pursued the fishing from Peterhead for several years, and was one of the last of the Peterhead sailing sealers.

It is impossible now, for accurate information as to the financial returns cannot apparently be obtained, to say why the Arctic Company gave up the fishing, since the prices were still high, but in all probability the cause was scarcity of produce. In 1865 seal oil was £47 per ton, whale oil £51 to £54, and whalebone £480. There may have been difficulties of which we know not, but at any rate the trade had undoubtedly proved too much of a speculation. Steam, which rendered capture easier, had not yet been employed; but the average produce brought home per ship in this period also proves that the overfishing in the early years of the century had led to scarcity of whales. As regards the "wintering out" system, the statement made by the writer of the "Statistical Account of the Peterhead Fisheries," which is printed in the *British Association's Transactions* of 1859, that "the risk and expenses

attending the [wintering] voyages had rendered them as yet unremunerative" had probably proved to be correct.

Peterhead was also finding the trade unremunerative. Their ships numbered 31 in 1857, 28 in 1859, 21 in 1861, 17 in 1863, and only 16 in 1864, a decline of 15 ships in seven years. Her produce also had fallen: 1229 tons of oil in 1858, 566 tons in 1863, and 506 tons in 1864. The decline is not great in average per ship, but the whole movement is downwards. Peterhead however did not abandon the trade, but following the example set by Dundee, commenced the use of steam, and for many years continued in the industry. The first steam whaler was sent from Dundee under the superintendence of Captain Penny.

There was only one other expedition to the north from the port. In 1866 the Aberdeen Seal and Whaling Company was formed, with Mr T. Darling, jun., as manager. The *Kate*, a barque of 239 tons, was purchased from Peterhead owners and sailed in March 1867 to the Straits. She made two voyages, wintering on both occasions—"a system of prosecuting the fishing which is attended with comparatively little expense"—and returned from the second journey in 1870 with 90 tons of blubber, 4 tons of whale fins, and 180 seal skins. Apparently the enterprise was not successful financially, and there may have been other difficulties, for the *Kate* was sold in September 1871 to Messrs Groom of Harwich. After these repeated failures the trade apparently became extinct at the port. There is mention of Mr Crawford Noble of Aberdeen being interested in whaling ventures in the Cumberland Straits during the '70's, but no Aberdeen vessel seems to have sailed in them. As Mr Noble was also connected with Peterhead, vessels from that port may have been engaged by him. One vessel, a German, the *Hermania* of Gester-munde, was engaged by him to take provisions out to a settlement in Northumberland Inlet.

The year 1870 had also seen the arrival of another foreign vessel, troubled like the *Daniel Webster* and the *Neptune* about matters at her home port. The *Albert* of Bremen, which had been prosecuting the North Greenland

fishing, was warned at sea of the dangers of going to Bremen in consequence of the outbreak of the Franco-Prussian War, and came to Aberdeen, intending to discharge her cargo here and lay up till the close of the War. It does not appear that she did unload at Aberdeen, but permission was given by the Customs officials to sailors from the vessel to land their luggage and proceed to Leith to get a Hamburg steamer.

In finishing this narrative of the voyages from 1844 to 1870, two incidental matters should be mentioned. The first is the connection of the port with Arctic exploration, due mainly to Captain Penny's Expedition in 1850. The Government in that year purchased and equipped the *Lady Franklin* and the *Sophia* and sent them to the Arctic to prosecute the search for Sir John Franklin's ships, the *Erebus* and *Terror*. The *Lady Franklin* had been built by Walter Hood and Company, Footdee, for that purpose, being specially strengthened, and was christened by Lady Franklin herself. The *Sophia* was named after Lady Franklin's daughter. Captain Penny was in command of the *Lady Franklin* and Captain Brown was master of the *Sophia*. The ships sailed from the port in April 1850, and returned in September 1851. The winter quarters of Sir John Franklin's ships during their first winter were discovered, but otherwise the quest was unsuccessful, although the expedition had been conducted with great ability and thoroughness. In May 1851 the *Prince Albert* sailed from the port on a similar search, and in July 1857 the steam yacht *Fox*, built by Messrs Hall of Aberdeen and commanded by Captain Leopold M'Lintock (afterwards Sir Leopold M'Lintock), sailed from the port on the journey which was to furnish conclusive proofs of the fate of the Franklin Expedition. The journey of 1850 was, however, the only Franklin Expedition commanded by Captain Penny.

The other matter of interest is the famous case of "Sutter and Others *v.* The Aberdeen Arctic Company," which finally settled the vexed question at the Cumberland Straits as to whether a whale harpooned but abandoned, yet having ropes with "buoys" or "droogs" attached, is

or is not a "loose fish," and therefore open to capture by any other boat's crew which subsequently came across it. The question rested on whether the local custom and law applicable to whale-fishing in the Greenland waters applied to the Cumberland Straits. The case was decided by the Lord Ordinary in favour of the Arctic Company; his decision was reversed by the Inner House, but restored by the House of Lords—by whom it was finally settled that such a whale is a "loose fish," and so liable to capture by any other ship. The other ship in this case was the *Alibi*. The case is reported in 4 Macqueen, pp. 353-373.

*Statement of Number of Ships Sailing from Aberdeen to the Greenland and Davis Straits Whale-Fishing from 1800 to 1840, with Number of Whales caught.*

Year.	Ships.	Whales.	Year.	Ships.	Whales.
1800 . . .	2	16	Brought forward .		1457½
1801 . . .	3	19	1822 . . .	14	93
1802 . . .	3	15	1823 . . .	14	180
1803 . . .	4	10	1824 . . .	14	60
1804 . . .	4	40	1825 . . .	13*	57
1805 . . .	4	37	1826 . . .	12	62
1806 . . .	4	25	1827 . . .	12	145
1807 . . .	4	44	1828 . . .	11	138
1808 . . .	4	62	1829 . . .	11*	85
1809 . . .	4	say 52	1830 . . .	10†	5
1810 . . .	4	50	1831 . . .	6	44
1811 . . .	4	59	1832 . . .	6	93
1812 . . .	9	112	1833 . . .	6	104
1813 . . .	14	51	1834 . . .	6	say 72
1814 . . .	13*	178	1835 . . .	5*	13
1815 . . .	14	79½	1836 . . .	4	18
1816 . . .	14	118	1837 . . .	2	7
1817 . . .	14	49	1838 . . .	2	31
1818 . . .	14*	91	1839 . . .	2	4
1819 . . .	14*	85	1840 . . .	1	0
1820 . . .	15	120	1841 . . .	0	0
1821 . . .	15*	145			
Carry forward . 1457½			Total whales . 2668		

\* 1 Lost.

† 4 Lost.

*Record of Ships Lost from 1800 to 1840.*

1813 . . .	2	1825 . . .	1
1818 . . .	1	1829 . . .	1
1819 . . .	1	1830 . . .	4
1821 . . .	1	1835 . . .	1

Total vessels employed was 20. Of these 12, or 60 per cent., were lost.

*Statement of Ships Sailing to the Greenland and Davis Straits Whale-Fishing and Sealing from 1844 to 1870, with Number of Whales and Seals captured.*

Year.	Ships.	Whales.	Seals.	Year.	Ships.	Whales.	Seals.
1844	1	7	...	1858	6	30	3400
1845	1	19	...	1859	6	30	3700
1846	3	11	1500	1860	5	23	...
1847	4	9	9900	1861	5	?	...
1848	4	say 8	345	1862	5	?	?
1849	4	?	?	1863	5	?	800
1850	3	6	...	1864	3	?	?
1851	2	9	...	1865	1	7	...
1852	2	7	...	1866	0	...	...
1853	3	9	4000	1867	0	...	...
1854	5	50	600	1868	0	...	...
1855	5	4	6044	1869	0	...	...
1856	6	26	8160	1870	0	...	...
1857	6	?	668				

From 1844 to 1870 total vessels employed was 10. Of these 5, being 50 per cent., were lost, viz.—1850, 1; 1861, 1; 1862, 1; 1863, 2.

**The Fledging Period of the Ring-Ouzel.**—Nothing appears to have been recorded concerning the incubation and fledging periods of the Ring-Ouzel; and the following details regarding a nest of this bird found this year on the banks of a hill stream in the Berwickshire Lammemoors may therefore be of interest.

I was fishing up the burn on 10th June and as I approached a certain pool two Ring-Ouzels, cock and hen, left the place, uttering loud alarm notes. The nest was in the usual situation among heather roots under an overhanging bank. It contained one young bird newly hatched (the pieces of its egg-shell, one lying inside the other, were beside it) and three eggs; of the eggs one was cracked across and the young bird was emerging, and the other two were chipped. The hen returned and was very demonstrative; the cock was not again seen.

On 24th June I revisited the nest. On approaching the pool I began to receive the attentions of the hen bird. The nest was empty but the young had evidently recently left it and were hiding in the heather around. Whilst I was at the pool, the anxiety of the mother bird was so great that I had not the heart to search for any of the fledglings. The cock was not seen on this visit.

The fledging period may therefore safely be stated to be not more than 14 days: it does not seem to differ from that of the Blackbird, viz. 13 to 14 days.—J. H. STENHOUSE.



## REPORT ON SCOTTISH ORNITHOLOGY IN 1928.

By EVELYN V. BAXTER and LEONORA JEFFREY RINTOUL.

## INTRODUCTION.

THE Report of 1928 is the last of a series which was initiated in 1879 and has continued ever since. It was begun for the purpose of working out the migratory movements of birds in Britain from observations made at lighthouses and lightships round the coast. From 1892 onwards this Report has been confined to Scotland; its scope has been gradually enlarged to include all sides of Scottish ornithology, and correspondents from all over Scotland, mainland as well as island, have given devoted service by keeping and sending in notes. This continuity of observation has resulted in a greatly increased knowledge of the birds of our country; their distribution, migratory movements, fluctuations in numbers, and other kindred subjects have been studied more fully and comprehensively than could otherwise have been done, and warmest thanks are due to all those who have helped.

The decision to conclude this series of Reports was not lightly taken; much was to be said both for and against carrying on the Report, but it was felt, for the present at any rate, it had served its purpose and that an endeavour should be made to develop Scottish Natural History work on somewhat different lines. The first of these has been indicated by Dr Ritchie in his paper in the SCOTTISH NATURALIST, 1928, p. 169, and from time to time further suggestions for future lines of research will be made. We would bespeak the help of all our former recorders with this new work.

Our grateful thanks are due in the Northern Group to: Sim Baigrie, Bressay, Shetland; J. M'Hardy, Sumburgh Head Lighthouse, Shetland; Charles Oldham, Shetland, Sutherland, and Caithness; Surg. Rear-Admiral J. H.

Stenhouse, Jerome Wilson and George Stout, Fair Isle; Colonel Mackenzie, Muir of Ord. In the Eastern Group to: Dr W. J. Dewar and D. H. Hunter, Arbroath; Professor W. C. M'Intosh, Nevay Park; C. S. Wedderburn, Mugdrum; William Berry, Tayfield; Major R. Berry, Chesterhill; Neil Paton, St Andrews; J. H. Gaskell, Balchrystie; Miss J. Houston, Auchterderran; The Lightkeepers, Bell Rock; John Bain, Bass Rock; Ian Hay, Edinburgh; W. Thomson, Tynninghame. In the Western Group to: George Beveridge, Vallay; John Bain, Hyskeir; Miss Astley, Arisaig; James Bartholomew, Glenorchard; T. Thornton Mackeith, Kilmacolm; T. Malloch, Johnstone; Thomas Hill, Archibald Shanks, W. M'Killop, R. W. S. Wilson, William Jamieson, Nicol Hopkins, W. M'Intosh, T. W. M'Allister, Wm. Rennie, Mrs C. C. Graham, Richard Graham, Miss M. Murray, D. M'Donald, A. Gilliland, John Robertson, J. W. Sutherland, all Glasgow; E. Richmond Paton, Hareshawmuir. In the Southern Group to: J. R. Simpson, Selkirk; Gilbert Davidson, Melrose; A. J. Rintoul, Ancrum; Dr W. M'Conachie, Lauder; Rt. Hon. Earl of Home and Hon. H. Douglas Home, The Hirsell; H. S. Gladstone, Capenoch; J. G. Gordon, Corsemalzie.

No outstanding ornithological event characterised 1928 in Scotland; only one new bird was found, but a good many uncommon visitors were recorded. The most interesting record was that of the first breeding of the Garganey, and there are some valuable notes on the fluctuation in numbers of breeding birds. Migration proceeded on a very normal course and we have some interesting notes on the changing habits of sea-birds.

Among the papers on Scottish Birds which have appeared during the year we may mention—in the SCOTTISH NATURALIST, "A List of the Birds in the Forth Area," "Studies of some Lanarkshire Birds," "The Rookeries of Greater Edinburgh and Midlothian," "Further Observations on the Swift," and in *British Birds* "Notes on the Nesting of the Slavonian Grebe in Scotland." Shorter papers and notes have also added to our knowledge of our country's birds.

The following abbreviations have been used in this Report:—

1. = SCOTTISH NATURALIST.  
 2. = *British Birds* (Magazine).  
 (L.) = Lantern.

#### BIRDS NEW TO SCOTLAND.

On 6th October a male Desert Wheatear, the typical form, was procured on Fair Isle. This is the first time this race has been recorded in Scotland, two other Scottish examples of Desert Wheatears not having been critically examined (1. 1928, 180). The examination in 1928 of specimens got in former years has resulted in the following forms being added to the Scottish avifauna. The American Red-necked Grebe (*Podiceps griseigena holboelli*) from Aultbea, West Ross (Bull. B.O.C. xlvi. 53), and the Eastern Little Bustard (*Otis tetrax orientalis*) from South Kincardine (1. 1929, 26).

#### UNCOMMON VISITORS AND BIRDS NEW TO FAUNAL AREAS.

Some interesting occurrences are recorded in this section and a good many new records made. On 19th September two Greenland Redpolls visited Fair Isle (1. 1929, 9), and one was there on 13th October, while a Scarlet Grosbeak appeared at this station on 10th October (1. 1929, 9). Two Cirl Buntings were seen at Eglinton (Ayrshire) on 8th May (1. 1928, 94), and one caught at Parkhill (Forfarshire) on 27th November. An Ortolan was reported from the Bass Rock on 2nd May, an addition to the East Lothian list, some were on Fair Isle on 4th May, and a young male there on 9th October (1. 1929, 9). Between 21st September and 3rd November, one or two Lapland Buntings were frequently noted at Fair Isle; one Wood-Lark was seen there on 30th January, and two on 24th February. Two Richard's Pipits appeared at Fair Isle on 5th October (1. 1929, 9), and a Petchora Pipit visited this place on 9th October, this being

the second record for Britain (I. 1929, 9). Between 2nd May and 13th June, Blue-headed Wagtails in small numbers were recorded on passage at Fair Isle. A Nuthatch frequented the woods at the Hirsell (Berwickshire) from the end of March to the 19th April, and a Blue Tit was seen in December on Canna (I. 1929, 61). The second occurrence of the Lesser Grey Shrike in Scotland was reported from Fair Isle on 25th May (I. 1928, 127), and a Waxwing was at Kilmany (N. Fife) on 19th January. The following uncommon Warblers were recorded from Fair Isle: Eversmann's Warbler on 30th July (I. 1928, 164), the Yellow-browed Warbler from 20th to 28th September (I. 1929, 9), the Lanceolated Warbler on 22nd September (I. 1929, 9), Blyth's Reed Warbler on 24th September (I. 1929, 9), and four Siberian Lesser Whitethroats between 22nd September and 2nd October. In October a Black Redstart visited the Bass Rock, this being an addition to the E. Lothian list, and Redspotted Bluethroats at the Bell Rock lantern on 2nd September, and at Fair Isle on 25th and 28th September (I. 1929, 9). A Hoopoe arrived at Largo House on 1st May, and a Golden Eagle was seen flying low to the S.E. over Corsemalzie on 14th August. A male Hen-Harrier was seen near Derrie (Wigtownshire) on 24th August; about 23rd August a Honey Buzzard occurred at Chirnside (Berwickshire), (I. 1928, 174). Three Snow Geese frequented the Gruinart Flats, Islay, in winter 1927-28, and two were there in winter 1928-29 (I. 1928, 122, and 1929, 62). A pair of Garganey were seen at the Mortons, N. Fife, on 11th April, and the first breeding of this species in Scotland is reported from Forth (I. 1928, 77). In early January a Surf Scoter was found in the nets in St Andrews Bay (I. 1928, 25), and Smews in Rouken Glen Park on 29th and 30th January and 15th February (I. 1928, 85). Two Red-necked Grebes were reported from Portobello on 20th December, while a Pectoral Sandpiper was shot on Dunnet Head (Caithness) on 3rd September (I. 1928, 168); this is the first record for the area and the 4th for Scotland. Green Sandpipers, single birds, were noted at the Mortons (N. Fife) on 14th August (I. 1928, 133) and 29th August, and at Fair Isle on 19th

August. At the Mortons on 14th August were two Spotted Redshanks (I. 1928, 133), and Black-tailed Godwits were seen near Elliot (Forfarshire) between 7th and 12th September. Little Gulls frequented the shore at Elliot from 24th August to 6th September, while records of the occurrence of the Scandinavian Lesser Black-backed Gull came from St Boswells on 6th May (I. 1928, 94), Tarbert (Argyll), 22nd May (I. 1929, 13), and Papa Westray on 8th August (I. 1929, 13), these being first records respectively for Tweed, Clyde, and Orkney. Northern Guillemots were identified in W. Inverness and S. Argyll; these are the first definitely reported in W. Inverness and Clyde.

#### EXTENSION OF BREEDING RANGE.

Interesting extensions of breeding range were recorded in 1928. Lesser Redpolls were seen in several places in birch woods in Strath Naver and at Bettyhill on 31st July—the first time this species has been recorded from N. Sutherland. The Garganey was found breeding in the Forth Area in June, this being the first recorded nesting of this Duck in Scotland (I. 1928, 77). The breeding of the Eider in Bute was established when Mr John Robertson found a female with two young there on 23rd June (I. 1928, 125). A Great Crested Grebe, with chicks not more than a week old, was seen on a West Lothian loch on 21st October; this is the first time Great Crested Grebes have been recorded as breeding in this county, it is also a very late date for small young. Stockdoves have extended to N. Argyll; we saw several in May at their nesting places on the Atlantic side of the Mull of Cantyre. The increase and spread of the Fulmar continue; they now breed at the end of the cliffs at Peasedean (Forth) and were found nesting inland in Moray (2. xxii. 66), probably a further extension, though the exact locality is not given. Little Terns' nests and eggs were found at a locality in South Ayrshire, where the birds were seen in May 1922 (I. 1928, 126), and Arctic Skuas were found breeding on another island in Orkney.

INCREASE AND DECREASE OF SCOTTISH BREEDING  
BIRDS.

A very interesting paper on "Rookeries in Greater Edinburgh and Midlothian" shows that Rooks have increased markedly in that district since 1921, when Mr Evans made his census. In 1921, 1545 nests were counted in fourteen rookeries, in 1928 there were 1996 nests and in addition fourteen new rookeries since the 1921 list (I. 1928, 69). Further notes on rookeries in the same district are given on page 134. Goldfinches are increasing in Kirkcudbright. They appeared at Monybuie a few years ago and have increased yearly since (I. 1928, 174). Mr Gordon found seven pairs of Blue Tits nesting close to the house at Corsemalzie, an increase in numbers, while Swifts were above the average at Kirkmichael. Mr Charles Oldham considers the Eider has increased considerably both in N. Sutherland and in Shetland. On a visit to Shetland in June some interesting notes were made by Mr Griffiths; he calculated that there are now over a thousand pairs of Gannets nesting on a stack at Muckle Flugga where in 1920 there were only nine pairs, the first having come there in 1917 (Bull. B.O.C. xlix. 100). He also found Great Skuas increasing (*l.c.*). On Sule Skerry, where Fulmars have only been for the last few years, they are increasing at the rate of about one pair a year (I. 1929, 14). They are becoming much more numerous in the Pentland Firth, and are "now one of the commonest and most widely distributed birds nesting in Shetland" (Bull. B.O.C. xlix. 101). Lapwings, Oystercatchers, and Redshanks bred abundantly at Corsemalzie, and Woodpigeons were very numerous in the west of Wigtownshire.

There is no indication of a widespread scarcity in numbers of any one species, although there are indications of decreasing numbers of certain kinds of birds in various parts of the country. The most interesting is that of the House-Sparrows on Shetland and Fair Isle. At Fair Isle, Bressay, and Mid Yell they apparently were attacked by an epidemic and were almost wiped out (I. 1928, 162). Neither the Lesser Redpoll, Long-tailed Tit, nor Chiffchaff bred at

Corsemalzie in 1928. Spotted Flycatchers were scarce there, as were Grey Wagtails in West Angus and E. Perth. Wheat-ears, Stonechats, and Whinchats were fewer than usual at Corsemalzie, and the last-mentioned bird was absent from Strathardle in early June. House-Martins were very scarce at Largo, Balbirnie, and St Andrews (all Fife), and none was seen in Dunkeld on 4th and 5th June.

Mr Gordon reports Ducks of all kinds unusually scarce in Wigtownshire, and we found far fewer Ducks breeding on Lindores Loch (N. Fife) than there used to be. On 22nd May no Great Crested Grebes or nests were seen on either Mochrum or Castle Lochs, though reed beds were searched well. One or two pairs have bred yearly on Mochrum since 1897 and three or four pairs on the Castle Loch since 1898. One pair did breed on Mochrum later. On the White Loch of Myreton they have bred since 1896, but Sir Herbert Maxwell says they were not there in 1928. Redshanks were few at Melrose, and a decrease in the number of Sandwich Terns nesting on Tentsmuir, Fife, is recorded (I. 1928, 126). This may not, however, mean any real diminution in numbers, but merely their usual habit of sporadic nesting. This may also be why no Terns nested on the Lamb in 1928, where both Sandwich and Common Terns have nested since 1921 (I. 1928, 179). Corncrakes are now "comparatively rare" in the Lothians and in other parts (I. 1929, 5), while we hear that "the chief feature of 1928 has been the almost complete disappearance of Blackgame from Corsemalzie and neighbourhood. Quhillart especially has always been a famous moor for them, and up till autumn 1927 there were still many on it. On the 3rd of October I [J. G. Gordon] noted a pack of 100 males at the Gunion Hill, and also on the 2nd November a lot of Blackcock were seen, as well as a pack of 37 females and a large mixed pack. We had a last try on 9th December, but one gun said we need not go out as he had seen them all flying away south the day before; we only saw 5 males and 14 females all in ones and twos on the whole moor, so he was right! And since then they have been very scarce. In 1928 the moor was only driven once, and just 5 males and no females

were seen; hardly any have been seen there all season. On the other moors there are a few, but I have not seen 20 together all season. Very few young were reared. Neighbouring places are about as bad." This is very sad reading as there had been quite an increase there for two or three years before.

#### SUMMER AND NESTING.

The summer of 1928 was a disastrous one for game birds in most parts. We hear of Partridges suffering severely both in Fife and Wigtownshire. Mr Gordon says *all* game suffered and scarcely any young birds were reared. In spite of these rather gloomy general statements a good many notes of early and successful nesting of different species have been sent. A Bullfinch had its nest in a sloe-bush at Cowdenknowes. Tree-Sparrows bred at St Margaret's Hope (S. Fife), Dreghorn Castle, Portobello Cemetery, and Inveresk (1. 1928, 164), and Pied Flycatchers at Bowhill (Selkirk) and the Hirsell (Berwickshire). Few Yellow Wagtails nested at Hareshawmuir, but Wood-Warblers and Garden-Warblers were much in evidence in Selkirk, and all the Hirundinæ and Swifts were there in normal numbers. Mallard and Tufted Ducks were found nesting at Balhousie Reservoir near Largo. An interesting record is that of a nest and eggs of the Common Scoter found on one loch of a group of three on the Mainland, Shetland; although only one nest was found three pairs of Common Scoter and three odd ducks were seen on this group of lochs (2. xxii. 145). For the first time the Stockdove nested in the Botanic Garden, Edinburgh (1. 1928, 121), evidence of their increasing tameness, and a pair also bred in a small pigeon-house on the wall of an outhouse at Lahill, Largo. In May four Woodcocks were heard on several nights, roding in Abbotsford Woods, and a nest of this species with five eggs was found at the Hirsell, all the eggs hatched out successfully. The stormy weather in July was fatal to the young Kittiwakes on Tulum Island, Skye. "In the first week of July all the nests were occupied with small young. In the space of a fortnight of continuous gales and rains



each nest became empty and not one single young Kittiwake has this year been fledged" (2. xxii. 116). A Grouse's nest with 16 eggs was found at Hareshawmuir; and Quail were heard during July and August "in a field of wheat bordering Ravelston Dykes, a busy thoroughfare" in Edinburgh (1. 1928, 134).

On 14th January a House-Sparrow, partly fledged, and two eggs were found in a garden in Arbroath; on 23rd February Rooks were building at Dundee, and on 28th at Auchterderran (Fife). March brings notes of nesting of Missel-Thrushes, Thrushes, Blackbirds, Carrion Crows, Tawny Owls, Herons, Woodpigeons, Lapwings. On 1st April a Wren was found building in clematis at Corsemalzie, and a Mallard's nest with ten eggs at Hareshawmuir on the 2nd; at the former place a Carrion Crow flew off a nest in a fir-tree on 7th April, a Curlew scrape was found on the 11th, and Pheasants' nests with ten, seven, and four eggs on 22nd April, while one was sitting at Glenling on the same day. These are early dates, no doubt accounted for by the mildness of the weather in March. A young Jackdaw, nearly fledged, fell from a nest at Arbroath on 6th April, and the first Gannet's egg was found on the Bass Rock on 14th April. During the month notes come of nests and eggs of all our common nesting birds.

In May the later breeding species had nests. On the 2nd Mr Richmond Paton reports two pairs of Shoveler on his lochs, which he believes attempted to breed and lost their nests; they lingered about the loch till 16th June and then left. It is unfortunate that the nest was not found, as these Ducks have not, as yet, been recorded as breeding in Ayrshire, although they bred just over the county boundary in Renfrewshire. Grouse hatched early on the moor at Corsemalzie, a nest with nine eggs being found hatched out on 4th May. Eight pairs of Hedge-Sparrows bred on the Bass Rock, the young were on the wing on 12th May, and next day a Woodcock with young was found at Gilston (Fife). A colony of Jackdaws nesting in holes and under boulders was found on an island in Loch Fyne on 19th May. On the same island were Mallard, large

numbers of Common Gulls, a few pairs of Herring Gulls, and one pair of Lesser Black-backed Gulls. On 30th May Fulmars' eggs were seen on the cliffs in Kincardineshire. With June come the usual notes of young birds: a Kestrel had a clutch of six eggs at Corsemalzie in a rabbit hole on the 6th. By next day young Willow-Warblers there had flown—an early date. A large brood of fourteen Grouse was also seen there. By this time the early nesting-birds were fledged, but there are a few further notes. On 3rd June a Lesser Redpoll's nest and young were found near Selkirk where they are uncommon as breeding birds; a Wood-Warbler's nest with five young, and a Pied Flycatcher's nesting hole at Bowhill, on the 10th. On 24th June a Skylark's nest with five eggs and a Meadow-Pipit's with six were found on Henderland Farm, Yarrow. On the 26th a Jackdaw at Corsemalzie had two young on the lawn scarcely able to fly and being fed by their parents, next day the second brood of Swallows flew at Lahill. On 7th July, on a loch in Fife, three families of Pintail were seen—they varied in size from half-grown young to tiny, fluffy babies; on this loch were also a Pochard duck with young and several families of Tufted Duck. When in Shetland from 26th June to 18th July Mr Charles Oldham made the following observations. The Shetland Starling was still feeding young in the nest up to 18th July, Black-birds at Dunrossness had young on 10th July, and a pair of Common Sandpipers with downy chicks were seen at Loch of Watten. A few pairs of Black-headed Gulls were nesting on a loch at Walls, the only other nesting colony seen being that at Spiggie. Three or four pairs of Great Skuas, which from their behaviour had young, were seen on Mousa. During a visit to Sutherland and Caithness from 21st July to 6th August, he saw a "family party" of Blue Tits in Stack Valley above Bettyhill on 31st July, and two in Strathbuy on 3rd August. On 21st July two pairs of Spotted Flycatchers had young on the wing in Castletown Woods, Caithness, they were seen in two different places at Reay on 1st August and on 31st July at Bettyhill. Two or three Swallows were seen there on the same day, and some

House-Martins at Lybster about the cliffs, and a pair of Coots with young on Loch Buidhe, four miles west of Thurso. On 31st July a Reed-Bunting was feeding young in the nest at Corsemalzie, and Curlew had a brood on the moor there not yet able to fly—a very late date. On 5th August Woodcock chicks were seen by Yarrow; on the 15th Tufted Ducks, Coots, and Moorhens had young families at the Pot Loch, Selkirk; a pair of Partridges had eight young a few days old at Derrie, Wigtownshire, on the 17th; on the 21st a Woodcock was flushed at Capenoch, which went off carrying a young one; on the 24th a brood of Little Grebes about a week old was seen at Loch Elrig; two days later a Sedge-Warbler was still feeding young at Thrieply. There were a number of nesting notes in September: on the 2nd a brood of House-Martins, in Largo, flew, and the same day Mergansers with small young were seen in the Holy Loch, as well as more advanced broods; on the 20th a Goldfinch brood just out of the nest was reported from Wigtownshire; on the 24th a Partridge covey of eleven, much too young to shoot, was flushed at Barachan; on the 27th a brood of Blackgame at Corsemalzie “had two males hardly coloured at all.” On 6th October, Jackdaws were still dropping sticks down the chimneys at Ardwall; on the 11th a Skylark, at Corsemalzie, had three eggs and one young one just hatched; on the 17th Swallows were still feeding young in the nest there; and lastly, on 28th December, a young Stockdove, just fledged, was found at Lahill, and Pigeons’ egg-shells (fresh) in a wood near Colinsburgh (Fife).

#### WINTER.

The winter of 1927-28 was mild and open; winter visitors arrived in the country in normal numbers as a whole. Some Jays were at the Hirsell all through the winter, and in January there were still some Crossbills at Bowhill. Unusual numbers of Grey-lag Geese wintered in N. Fife, the commonest Goose there in winter being the Pink-footed, and three Snow Geese were seen on Islay (1. 1928, 122). Sir Herbert Maxwell records Gadwall being shot this season in Wigtownshire, where he believes them to be becoming

more common (I. 1928, 122). A Duck shot from a large flock passing over Largo to the north, in mid January, proved to be a Wigeon, while early in the year as many as five Smews were seen at Rouken Glen.

The winter of 1928-29 was much colder, more Pied Wagtails than usual were seen in Largo and neighbourhood, where were also large numbers of male Blackbirds. Grey Geese were very numerous in N. Fife, and two Snow Geese wintered on the Gruinart Flats, Islay, where three were seen in the previous winter (I. 1929, 62). Very large numbers of Wigeon and Tufted Duck were off Wigtownshire, and of Eider at the Bell Rock in December, and quantities of Lapwings in South Fife, no doubt driven down from the centre of Scotland by the hard weather.

#### RINGING.

As the years pass the returns under this heading become more numerous and interesting. This year we have several records of birds found a great distance from the place where they were ringed. Thus we have a Gannet ringed as a young bird on the Bass Rock in August 1926, being recovered near Waag, Faroe Isles, on 2nd June 1928; and a Lapwing ringed at Torrance, Stirlingshire, on 22nd June 1923, was got near Echevarria, Biscay, Spain, on 2nd January 1928, and another bird of the same species ringed at Gartmore, Perth, on 21st June 1927, was recovered at Etcharry, Canton de Sainte Palais, Basse Pyrenées, on 5th January 1928. Many notes come of birds ringed in Scotland and recovered in Ireland: a Song-Thrush ringed at Kirkmahoe, Dumfriesshire, in April 1927, was got again in Cavan in March 1928, a Blackbird ringed at Scone in May 1925 was found in Antrim in March 1928, a Teal ringed as an adult at Stranraer on 28th February 1928 was in Fermanagh in August. A Shag ringed at Edrachillis Bay in July 1927 was found at Loch Bann, Armagh, on 3rd January 1928, having been dead for some weeks. Lapwings ringed at Torrance and Killearn (Stirling) and Hareshawmuir (Ayrshire) as nestlings were also found wintering in Ireland, that at Killearn having been ringed in

1923, that at Hareshawmuir in 1924. Two Woodcock ringed at Scone in April and May 1927 were recovered in Ireland: one in Sligo, the other in Cork in February 1928. Records also come of Lapwings ringed in Scotland and found in winter in Devon and Cornwall, all of which are movements of Scottish-bred birds to the west or south in winter, but more complex are the following: a Song-Thrush ringed as a nestling at Nether Welton, Cumberland, in April 1926, recovered at East Kilbride, Lanark, on 14th March 1928; a Blackbird ringed near Dundee, 23rd May 1928, recovered at Aberdeen late July 1928; another ringed at Carlisle, 21st March 1927, recovered at Preston Hall, Midlothian, 21st July 1928; two Teal ringed as adults at Longtown, Cumberland, in August and October 1925, recovered between Alloa and Stirling, and at Dalmellington, Ayr, both in January 1928; and a Sandwich Tern ringed at Blakeney Point, Norfolk, as a young bird on 30th June 1928, and found at Eggie, seven miles north of Aberdeen, on 27th August of the same year.

A Starling ringed as an adult at Stanwix, Carlisle, on 20th January 1927, and recovered at Wick, Caithness, in February 1928, was probably on its way north to breed overseas. Space does not allow of a complete list being given of all the birds recovered near the places where they were ringed, but reference must be made to a Starling ringed at Broughty-Ferry, 29th December 1923, as an adult, and recovered at Dundee on 8th April 1928; a Blackbird ringed at Kilmacolm in July 1922, and got at the same place in July 1928; another which was ringed at Torrance on 11th May 1924 was found there in February 1928; while a Lapwing ringed at Torrance on 11th June 1917 was recovered where ringed on 25th June 1928. There are reports of Starling, Greenfinch, Chaffinch, Blackbirds, Tawny Owl, Woodpigeons and Lapwings recovered at or near the place of ringing two, three, and four years later. The returns of birds recovered nearby within a year of the date of ringing are, of course, by far the most numerous but cannot be detailed here. We find Cormorants and Shags ringed at the Treshnish Islands and Edrachillis Bay as

nestlings being recovered in various parts of the Outer Hebrides, near Mallaig, near Mull, etc.; a Woodpigeon ringed at Scone being found at St Andrews; a Heron wandering from Almondbank to Brechin; and a Common Gull from Tiree to Oban. For all details of these and other movements of marked birds we would refer our readers to *British Birds* (Magazine), vols xxi., Nos. 11 and 12, and xxii., No. 8, from which the above records are taken.

#### PLUMAGE.

A Jackdaw with white feathers in the middle of both wings was seen at Arbroath on 28th September, and a pure white House-Sparrow at Lundie. Another House-Sparrow, a male, with white rump and white tip to the tail was reported from near Selkirk on 14th October. A beautiful Snow-Bunting, pure white all over, was seen among the rocks on the Atlantic side of the Mull of Cantyre on 22nd May, and a white Missel-Thrush at Arbroath the same day. A buffish-white Blackbird nested in a hedge at Carnoustie, and on 8th November, a male, with white speckled head and shoulders was seen at Kilmacolm. A Robin at Lochwinnoch had white tail and wings, while "the pied Snipe seen in 1926 and 1927 was seen again several times in autumn 1928 at Derrie." At Remony Lodge (Perthshire) in autumn, an albino Red Grouse was seen, and on 29th August and 3rd October a "curious lead-coloured, young Grouse was seen at Corsemalzie."

#### HABITS, FOOD, ETC.

In Mr Stewart's papers, "Studies of some Lanarkshire Birds," there are many interesting notes on the habits and food of the species under consideration; for these the reader should consult the original papers in the SCOTTISH NATURALIST. The same may be said of that on "Further Observations on the Swift." Notes on Starling roosts on Cramond Island, the Forth Bridge, etc., also appeared in the SCOTTISH NATURALIST (1928, 50, and 1929, 55). By experiment it was proved that Swifts can rise from the

ground (1. 1928, 124). The extraordinary tameness of Whooper Swans at Broughty-Ferry is recorded (1. 1929, 26), while observations have been sent on the changing habits of Fulmars and their increasing tendency to come inshore. Stockdoves appear to be becoming almost domesticated: a pair nested in the ivy on Scone Palace (2. xxii. 147), and those at Lahill, Largo, come to feed with the chickens.

At Cowbaki, near Tayport, Grey Plover were feeding in a bare field on 20th October, and on 21st May a Curlew "circled over Loch Fyne, lit on the water and swam about very happily for a long time, then rose easily off the water and flew away." A Woodcock on 2nd April flew out of a clump of yew, about 8 feet up, "with a loud clatter of wings like a Woodpigeon on a small scale" (2. xxii. 23). In July, for some time, Common Terns were seen near Largo, hovering over a potato field, dropping on to it occasionally, and, apparently, picking up and eating something. Flocks of Gulls coming inland to unusual places near Arisaig in late spring proved to be due to a plague of caterpillars, on which the birds were feeding. That the young Black Guillemot does not leave its nesting place until fully feathered is shown by Mr Seton Gordon's observations (2. xxii. 117). A furious attack of a Waterhen on a nearly full-grown chick of a Little Grebe is chronicled in the SCOTTISH NATURALIST, 1928, 164.

Little is known about the diseases which attack birds. Notes of great mortality among House-Sparrows, apparently due to disease, is reported from various parts of Shetland, Fair Isle, and West Perthshire. In the last place this seems to have extended to other birds, such as Robins (1. 1928, 162, and 1929, 10). Many British Song-Thrushes were found dead in and after the cold and snow from 10th to 15th March, and at Aberlady, when a Scots fir-tree was felled, a crack running lengthwise in the trunk was found to be packed full of dead Redwings. A great mortality among young Kittiwakes in Skye, probably due to bad weather, is reported in *British Birds*, xxii. 116.

## MIGRATION CONDITIONS MONTH BY MONTH IN 1928.

*January.*

January was a breezy month with little incident. A good many Swans and large numbers of Geese and Ducks were recorded. Movements of some partial migrants were noted.

*February.*

For the first three weeks the weather conditions continued to be breezy; the wind was from various quarters; in the last week it was lighter. There are notes of the return of Ducks to their breeding lochs and of Waders to their nesting places. Our breeding Thrushes were returning from their wintering places, winter visitors were departing, and the arrival of the first summer visitor is recorded.

*March.*

In the first week of March the movements continued to be of a normal character, but in the second, snow caused a weather movement, the species chiefly affected being Thrushes and Redwings. During the second half of the month more summer visitors are recorded, including very early arrivals of House-Martins. There were also departures of winter visitors, returns to breeding-places of partial migrants, and a good many passage migrants.

*April.*

The wind throughout the month was chiefly from some easterly quarter, summer visitors were arriving, some being distinctly early, and there was a very big arrival in the last week. There are fewer records of winter visitors and some passage migration is noted.

*May.*

In the first week, with easterly winds, there was a big arrival of summer visitors all over the country. Some uncommon visitors are recorded; there were a good many notes of passage migration and a departure of winter visitors. Thereafter, to the end of the month, with the



wind chiefly from some northerly or westerly quarter, the movements were small.

*June.*

There was very little movement in June, some flocking after nesting, and a few passage migrants were recorded.

*July.*

In July there were the usual notes of Warblers beginning to move through the country after nesting. Large flights of Swifts were reported, and from the 25th onwards arrivals of Waders from overseas.

*August.*

The month was characterised by steady movement; there were some departures of summer visitors, chiefly Swifts. Passage through the country of Warblers continued, and there were notes of flocking of Waders and some arrivals from overseas.

*September.*

The character of the movements in August continued in September; there was no rush throughout the month. The wind was largely from some northerly quarter, there were departures of summer visitors, increasing numbers of winter visitors, and some passage migration and uncommon visitors.

*October.*

In October there was still steady movement, increased numbers of winter visitors, a few summer visitors remained; some uncommon visitors and passage migration was noted.

*November.*

With a short spell of east wind in the first week there were a few uncommon visitors at Fair Isle, thereafter the movements were small and, naturally, chiefly concerned with winter visitors, although a few summer visitors still lingered.

*December.*

Little movement is noted in December.

*(To be continued.)*

**Boar-Fish in Moray Firth.**—About 29th July a young Boar-Fish (*Capros aper*)  $4\frac{1}{2}$  inches long was taken 50 miles east of Tarbet Ness in Ross-shire, roughly on the imaginary line marking the legal limit of the Moray Firth. Although Jenkins in his *Fishes of the British Isles* (1925) states that "it is not found in the North Sea," p. 81, Dr Day in his *Fishes of Great Britain* (1880-84, pp. 135-137) mentions several solitary specimens captured in the Moray Firth: Lossiemouth, 1839; Moray Firth, 1852; Covie, Banffshire, 1862. In the Natural History Department of the Royal Scottish Museum the following specimens in addition to the recent record from the Moray Firth are preserved: one from the North Sea presented by Dr Day in 1882 (1882. 37, 32); one taken in a trawl net 23 miles E. of Isle of May about 23rd July 1888, presented by Mr C. Muirhead (1888. 48); and another by the same donor taken 10 miles E. of Isle of May about 2nd April, 1890 (1890. 19). The headquarters of the Boar-Fish centre about the Azores and the Mediterranean Sea; it is very rarely found in Scottish waters, and its presence in the northern North Sea suggests a movement from the Atlantic Ocean by way of north of Scotland.—JAMES RITCHIE.

**Clover Mites (*Bryobia praetiosa*) invading Dwelling-House.**—During April of the present year the tenant of a newly-built and occupied house in Liberton on the outskirts of Edinburgh, brought for identification several mites, an invasion of which had caused the householders some disturbance. The mites appeared in enormous numbers on the outer wall of the house, on the window-sills, and within the house, upon the woodwork of the window and the neighbouring shutters, and since each is less than 1 millimetre in length, roughly about  $\frac{1}{30}$  inch, the fact that they attracted notice and were regarded as troublesome is suggestive as to their multitudes. The mites were Clover Mites (*Bryobia praetiosa*), a species which occurs on the twigs and foliage of many fruit-trees and amongst grass.

I paid a visit to the house and found that close to the building, left as a grass plot, was a portion of the original pasture field in which the house had been built. This was apparently the seat of the trouble. In late autumn females deposit eggs which hatch in spring, and the invasion was due to a migration on the part of the spring brood from the rough grass. In America there are records of large numbers of this species of mite invading houses, but there the invasions have taken place in the autumn (Metcalf and Flint, *Destructive and Useful Insects*, 1928, p. 554). The Edinburgh invasion lasted several weeks, but a thorough spraying of the grass plot with an insecticide put an end to the plague. Although the appearance of the mites in their myriads was annoying, they were not found to do any actual damage within the house.—JAMES RITCHIE.

## THE GANNETS OF THE BASS ROCK.

## ESTIMATED NUMBERS AND A COUNT.

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

THE Gannet colony of the Bass Rock, which Linnæus in 1758 commemorated in his specific name *Pelecanus Bassanus*, now *Sula bassana*, has been recognised as a striking feature of the East Coast summer for many centuries. Although the earliest reference dates reputedly from the middle of the fifteenth century, it can scarcely be doubted that many centuries before that time mariners entering the Firth of Forth from British and continental ports must have been impressed by these birds, and that for several reasons.

Individual Gannets are striking birds on account of their appearance and the abandonment of their diving. In their mass they are imposing because of their rarity, for the Bass Rock boasts the only colony on the east coast of Britain, and the total number of colonies in the British Isles up to the present century, when four small colonies have been added and one old-established colony has become defunct, numbered only nine. The constancy with which the same sites are occupied year after year, and century after century, adds to the interest, for no site has ever been abandoned voluntarily, and, till 1915, no new site has ever been adopted within human memory. But the feature which makes the greatest appeal to the casual wayfarer is the vast multitude of the colonists themselves.

Their numbers have impressed almost every writer who has referred to the Gannets of the Bass. The older chroniclers were content to record their presence "*in magna copia*," as in a footnote in some editions of the fifteenth century "*Scotichronicon*"; or *mira multitudo*, as Major wrote in 1521; or "incredible noumer of Soland Geis," as Boece's translator put it, and, with a caution not always patent in the modern literature of birds, they stuck to generalities and refused to be tied down to figures. A Danish visitor to Scotland in 1535, Peter Swave, recognised the difficulty,

stating that they occurred "*tanta multitudine, ut numerus non facile reperiatur*," in so great a multitude that their number could not be easily ascertained; and Camden in his *Britannia* (1610), following the idea of Dr Caius (1570), says that "their number is such that in a cleere day they take away the sunnes light," a statement that has been repeated more than once since that time.

It says something for the scientific restraint of the recorders of the Bass Gannets that, in spite of the attractiveness of the theme, no estimate of their number was made until Professor John Fleming, of the Free Church College in Edinburgh, wrote his account of the "Zoology of the Bass" in M'Crie's *The Bass Rock: Its Civil and Ecclesiastical History* (1847). Fleming based his estimate upon the number of young Gannets taken from the nests for food and oil: "considering 1800 as rather a high number of young birds annually removed from their nests before being able to fly, and taking into account those old birds which select inaccessible positions for their nests, we shall probably be tolerably near the truth, when we estimate the breeding pairs at 5000," which means an adult population of 10,000.

The most thorough estimate of the numbers based upon an actual attempt at counting is that of Mr William Evans. He took photographs covering the whole range of cliffs, and from these, with his great experience of the Bass and of bird-life in general, endeavoured to count the number of nests. "After many visits to the Rock," he said, in his Presidential Address to the Royal Physical Society in 1906, "and with a series of photographs covering the whole range of cliffs, which I took a few summers ago, before me, I estimate the number of nests at fully 3000, and the number of birds in the colony at between 7000 and 8000" (*Proc. Roy. Phys. Soc.*, vol. xvii.)

The difficulties of such a method of estimation are obvious. The photographs themselves are minutely small relative to the size of the cliffs which they reproduce; the cliffs themselves are thickly spattered with white from the excrement of the birds, so that it is not always possible to distinguish between whitewash and an authentic bird, and

photographs from the sea can scarcely reveal all the possible nesting ledges. The difficulties and uncertainties may be realised from the experiment made by Mr J. H. Gurney of having one of Mr Evans's photographs minutely scrutinised through a large magnifying glass, the result being that where Mr Evans detected 1500 Gannets, the scrutineer discovered only 960. It is only fair to add that the actual count of nests, to which I shall refer later, has proved that Mr Evans's estimate came much nearer the mark than that of the scrutineer, who had not the distinguished Scottish naturalist's experience of the Bass to fall back upon.

Mr J. H. Gurney, himself, in the most thorough account of the Bass colony given in his work on "The Gannet" (1913), from which most of the information here has been obtained, makes a series of ingenious estimations based upon different factors.

Taking a rough average between his scrutineer's and Mr Evans's count, he reckons that a quarter of the breeding area of the cliffs held 1200 adult Gannets. The whole area would, therefore, contain 4800 birds, to which he adds 700 on the wing about the rock, and a guess of 800 at sea on fishing expeditions—a grand total of 6300.

A second estimate he bases upon the number of piebald or two-year-old birds. Of these he saw, during three days on the Bass in 1905, on an average 50 individuals. He considers that for every piebald there were 100 white or adult birds—so that the adult total would be 5000. Add to this the birds that came in at night from fishing, say 750, and another 750 which remained at sea, and the full colony would comprise 6500 Gannets.

A third estimate follows Professor Fleming's method of reckoning from the number of young which used to be killed. Fleming (about 1848) put the number at 1800. Old records published in the *Proceedings of the Berwickshire Field Club* for 1873 give actual numbers: 1118 in 1674, 1060 in 1675, 1150 in 1676, and 985 in 1677. Dr John Walker gives 1296 as taken about 1770; in 1850 John Wolley records 1700, and E. T. Booth puts the number in 1865 at 1500, in 1874 at 800. The highest reliable figure

is Wolley's 1700, which would imply the existence of 3400 parents; and if to this be added 1000 pairs which failed to rear their young and 200 non-breeders, the total becomes 5600 adult Gannets.

A fourth computation is based upon a visual comparison with a Lancashire goose-farm having 8000 geese, and Mr Gurney's impression was that the Solan Geese fell short of the tame Geese by about 1000, making the Bass colony 7000 strong.

Mr Gurney summarises the results of these various estimates as follows:—

By Professor Fleming's estimate . . .	10,000	adult Gannets
„ Mr Evans's estimate . . .	7,500	„ „
„ Mr Evans's photographs . . .	6,300	„ „
„ counting piebald birds . . .	6,500	„ „
„ the young ones formerly taken . . .	5,600	„ „
„ comparison with tame Geese . . .	7,000	„ „

Now let us forsake estimates and consider the first actual count ever made of the Bass colony. A year ago, Mr John Bain, a lightkeeper who for many years has contributed information regarding the movements of birds from various outlying lighthouses in Scotland, and a sound observer, was appointed to the Bass Lighthouse. In discussing with him the possibilities of ornithological work on the Bass Rock, we suggested that an exact survey of the Gannet colony would, on account of the estimates already made, be a useful study, both for its own sake and as affording a sound basis for comparing the size of the colony in future years.

The task has been difficult and arduous, as anyone familiar with the Bass must know, but it has been carried out with the most painstaking thoroughness. Mr Bain, selecting definite points of vantage, divided the cliffs into a series of sections, and with the aid of a binocular glass counted the actual nests section by section. It is obvious that with the close succession of ledges and enormous numbers of birds occasional confusion in counting was inevitable, but whenever such confusion arose Mr Bain forsook the counting for the day, and returned afresh to recount the whole section at a later time. The result is that his count is never likely to be exceeded in accuracy.

From a single ledge in the east rookery, Mr Bain counted no fewer than 1034 nests, and the total enumeration of all the Gannets' nests on the Bass Rock amounted to 4047 nests. This implies a total of 8094 adult breeding birds; but in addition Mr Bain reckoned that 100 pairs were nestless owing to the destruction of eggs by Herring-Gulls. No attempt is made to estimate the numbers of birds at sea, non-breeding adults, or immature birds, but it can be stated with a close approach to accuracy that the adult breeding Gannets on the Bass Rock in the summer of 1929 numbered 8294 individuals.

It will be observed that this count exceeds any of the estimates except Fleming's, even where they include doubtful additions made for non-breeding birds of various categories. The nearest approach is Mr Evans's own photographic count, and that is in accord with one's knowledge of the acuteness and accuracy of Mr Evans's work. But it must be remembered that no colony is likely to be stable year after year, and that fluctuations in numbers are certain to occur, as seems to be indicated by the variations in the numbers of young Gannets taken in earlier years.

On the whole, however, even allowing for the restriction of the breeding area which has taken place on the upper portion of the Rock, it is likely that the Bass colony is probably now at its maximum of size. For the cessation of the taking of the young birds for many years must have added to the numbers of potential breeders, so that the chances are that practically every available site is now occupied. Moreover, it is probably to the surplus caused by the non-taking of the young birds, here or at St Kilda, where the same factors have been in operation, that the settling of Gannets in new Scottish sites is to be attributed: at the Houp of Noss, off Bressay, in 1915, at Muckle Flugga in 1917, at Humla Stack and at the Rumbings, both off Unst, in 1920.

There need only be added some information collected by Mr Bain regarding the arrival and departure of the Gannets at the Bass in 1928 and 1929. In 1928 the general exodus took place in October, but in the beginning of

November about 400 still remained, although by 12th November the numbers were reduced to between 50 and 75. As soon as the last young was fledged on 13th November, all forsook the Rock. Mr Gurney regards the appearance of 200 adult Gannets seen by Mr Laidlaw on 1st November 1906 as an exceptionally late occurrence.

In 1929 the old birds were back at the Rock on 13th January, and the first egg was laid on the last day of March. This also appears to be an exception to the general rule, for the return of the birds is attributed by Mr Gurney to the end of February, although in 1908 Mr J. M. Campbell observed an exceptionally early return during the second week of January.

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**Faceted Hairworm (*Parachordodes violaceus*) in Orkney.**—So far as I know no species of Hairworm has been identified from the Orkney Isles, although it may be that hairworms are common enough there. A specimen found by Mr J. G. Marwick on 27th July, in a deep well near Stromness, and sent by him for identification, therefore, makes the first Orkney record of the group. It is a male Faceted Hairworm (*Parachordodes violaceus*), with ripe spermatozoa. Although this species is perhaps the most widely distributed of Scottish hairworms, its range has not hitherto been shown to extend from south Scotland beyond Perthshire and Argyllshire, so that the Orkney record in addition to extending greatly the British range becomes probably the farthest north record in Europe.  
—JAMES RITCHIE.

**Additions to the Birds of Canna.**—Following my note on the first appearance of the Blue Tit in Canna (May-June 1929), I have now to record the first appearance of the Great Tit there on 3rd February 1929, when Mr Alan P. Thom saw four of these birds perching on the hedges and hanging in characteristic attitude from the under side of the branches. He also states that a dead Storm Petrel was picked up on the south side of the island by his father, who found it lying by the roadside on the 28th June 1928. It had presumably struck a telegraph wire. This also forms a new record for Canna, and recently when sailing with his brother to Hyskier of Canna, they observed six Storm Petrels flying around Humla, which is an outlying islet.—J. KIRKE NASH, Edinburgh.

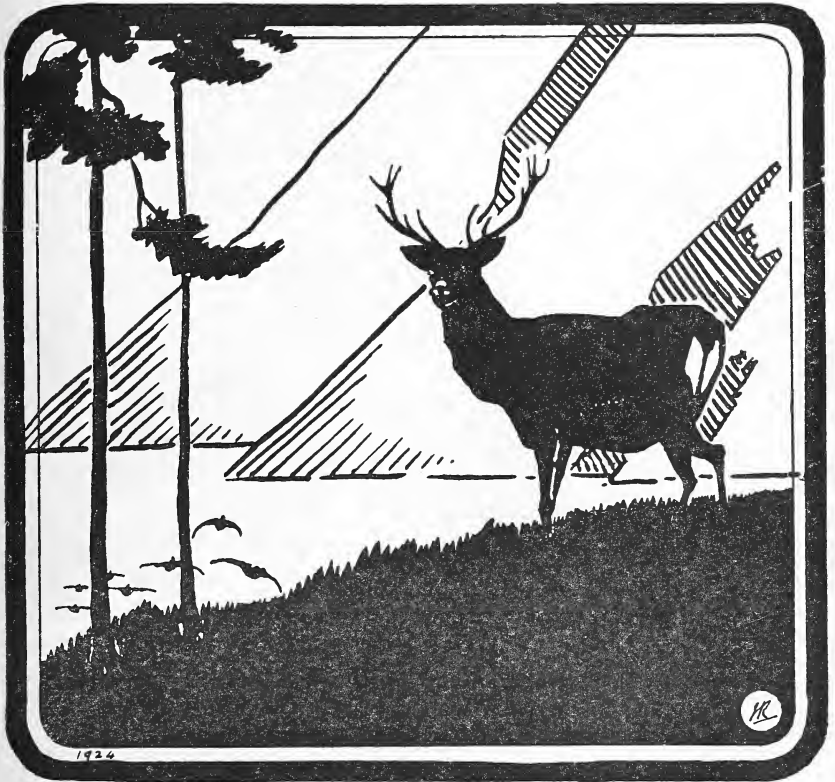




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Annual Reports on Scottish Ornithology, including Migration.

As well as numerous shorter notices of interesting events in the Wild Life of Scotland.

# The Scottish Naturalist

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## WHITE-SIDED DOLPHIN (*LAGENORHYNCHUS ACUTUS*) IN SCOTTISH WATERS.

By CHARLES OLDHAM.

ONLY two of the books that comprise the well-known Vertebrate Fauna of Scotland series record this cetacean. The volume which is concerned with Argyll and the Inner Hebrides (1892) refers somewhat vaguely and without date to one, identified by the Rev. N. Macpherson, "which was lying on the pier at Ardrishaig." The White-sided Dolphin was originally described, in 1828, by J. E. Gray, from an Orkney skull, and an adult female was obtained in Orkney in May 1835,<sup>1</sup> whilst in August 1858 a school of about twenty was captured in Scapa Bay.<sup>2</sup> Their chronicler, Dr A. R. Duguid, stated that this Dolphin is often observed about the Orkneys by fishermen, but is seldom captured. A similar opinion was held by J. G. Moodie-Heddle, as related in the Orkney volume of the Vertebrate Fauna series (1891), who says that three ran ashore at one time at Melsetter in Hoy in 1886.

J. G. Millais, writing in 1906,<sup>3</sup> dissented from these views. He described it as "a straggler to the Orkneys,

<sup>1</sup> T. Bell, *History of British Quadrupeds*, 2nd edit., p. 470.

<sup>2</sup> A. R. Duguid, *Ann. and Mag. Nat. Hist.*, ser. 3, vol. xiv., p. 133.

<sup>3</sup> *The Mammals of Great Britain and Ireland*, vol. iii., p. 338.

Scottish, and Irish coasts," and added, that although he spent several months in each year, between 1880 and 1891, in Orkney he heard of no occurrence there subsequent to 1858. The information embodied in Sir S. F. Harmer's *Report* (No. 10) on *Cetacea stranded on the British Coasts from 1913 to 1926*,<sup>1</sup> supports the opinion of Duguid and Moodie-Heddle that it is not uncommon in Orcadian waters, and makes it abundantly clear that at times it visits the Shetlands in great numbers. In 1919, 1924, and 1926, large schools entered Scalloway Harbour; and it was said that on 6th July 1926 "there were thousands around the boat," a mile or two offshore from that place.

It is probable that the White-sided Dolphin is abundant too during summer in the waters of "Moray" and "Dee," and that the recorded occurrences, a female at Dunrobin in April 1906,<sup>2</sup> and one at Tain in September 1911,<sup>3</sup> do not reflect the true position, for it is surely something more than mere coincidence that in each of the past three years, when holiday-making in Scotland, I have seen many examples in these areas.

The name "pellack" is often used in Orkney for Porpoise or Dolphin indifferently. The Foula boatmen apparently distinguish the two, but, so far as I could make out in conversation with them, they apply the name "Porpoise" to a Dolphin and call the Porpoise "Neisick."<sup>4</sup> Casual observers perhaps seldom discriminate between the two animals, although the comparatively slender and concave back-fin of a Dolphin is an infallible guide, even at a distance, and when the creature does not breach but merely shows its back above the surface as it plunges in its onward course. To discriminate between one kind of Dolphin and another, except at close quarters, is not so simple a matter; but when a school of the White-sided species comes alongside, the shape of the snout and the details of the colour

<sup>1</sup> Issued by the British Museum (*Nat. Hist.*), 1927.

<sup>2</sup> Sir William Turner, *Ann. of Scot. Nat. Hist.*, 1906, p. 129.

<sup>3</sup> William Evans, *SCOTTISH NATURALIST*, 1913, p. 114.

<sup>4</sup> The spelling adopted by Evans and Buckley is adopted here, but the Foula men pronounce the word *Neesick*.

scheme, seen from the steamer's deck as the animals breach, reveal their identity.

My first acquaintance with this Dolphin was made from the mail-boat as she was leaving Stromness Harbour on the morning of 7th July 1927, when a small school cruised for some distance on a course parallel with and quite close to ours. Just a week later, from the top of the cliffs on Dunnet Head I looked down on a school of between fifty and sixty that were passing so close inshore that not only did I see the diagnostic white marks as the Dolphins came to the surface or breached and fell again with a resounding slap into the sea, but discerned their grey, ill-defined shapes as they travelled below the surface. On 16th July, when I was on the cliffs near the Old Man of Wick, about fifteen passed close inshore, going south. In 1928, I travelled on 25th June from Aberdeen to Stromness by the Shetland boat which passed a small school in Aberdeen Bay, and later in the day a much larger one as we were crossing the Moray Firth, about halfway between Fraserburgh and Wick. This year again we passed a small school midway across the Firth on the afternoon of 17th June; and somewhere about the same place on the evening of 18th July as we were coming south four Dolphins careered close alongside for several minutes, affording a fine opportunity to appreciate their amazing speed and agility as they overtook the boat or fell astern, and to see the falcate black-fin, black snout, and oblong, white lateral patch as they breached.

**Pine Marten in Moray.**—We regret to record the unnecessary and cruel slaughter of one of the rarest of Scottish mammals in an area where it has been unknown for half a century. The *Elgin Courant and Courier* of 4th October states that: "While several workmen at Rosebrae Quarry were finishing work on Saturday last they disturbed what appeared to them to be an uncommon animal, and immediately rounded it up and secured a 'kill.' Puzzled as to its identity, they brought it home to make inquiries. It has a splendid coat, and measures 28 inches from the tip of the nose to the point of the tail; the tail was 10 inches long." Mr Buie of the Elgin Museum informs us that the animal is a Pine Marten (*Martes martes*). The newspaper account continues: "It is interesting to note that in that most excellent book on our local fauna by J. A. Harvie-Brown and Thomas E. Buckle, *A Fauna of the Moray Basin*, there is an account of a similar 'kill' in the Oak Wood, when Dr Gordon saw a Pine Marten captured some years before 1844. This book states that the Pine Marten did not appear to be abundant at that date. Captain Dunbar-Brander informed the authors of this book that a pair of Pine Martens were caught in a wood near Burghead about 1866. They were stuffed, and for many years were to be seen in a gunsmith's shop in Elgin.

"The animal has been sent to a taxidermist for setting up, and will be added to the splendid collection of the museum in Elgin."

**Pine Marten in Wigtonshire.**—My attention having been drawn to a notice in the local journals of 4th October of the capture of a Polecat four feet long! I thought that it must have been a Badger, for Mr Maurice Portal wrote to me last year to say that Badgers had reappeared in Portpatrick parish. Accordingly I wrote to Mr Portal for information and received the reply enclosed stating that, "It was a Pine Marten which the trapper got in one of his traps in the bank here. It was only caught by the foot. I hoped it would live so sent it to the London Zoo, but Mr Seth Smith wrote me it died and he was having it made into a cabinet skin for me."

It is astonishing that it should have survived and reappeared in this county. John Millais records the capture of a Pine Marten in Ayrshire in 1874 and another in 1875; but I know of no record of the animal in Galloway, where doubtless it existed of yore. It is, however, a matter of chance whether the slaughter of any rare kind of "vermin" becomes known beyond the scene thereof.

The Polecat I believe to be extinct in Galloway. As a boy I remember some seventy years ago handling a Polecat which had been trapped here, but I have heard of none since.—HERBERT MAXWELL.

THE ICELAND REDPOLL AND ITS OCCURRENCE  
IN SCOTLAND.

AN ADDITION TO THE BRITISH LIST.

By Dr CLAUD B. TICEHURST.

IN 1904 Hantsch described the Redpoll from Iceland as *Acanthis linaria islandica* (*Orn. Monats.*, xii., p. 32). Dr Hartert (*Vog. Pal. Fauna*, xviii., footnote) gives this as a synonym of *linaria linaria*. The Icelandic birds are certainly not the same as the typical race: they are too long in the wing and tail, and stouter in the bill, and more decidedly streaked on the flanks. Breeding birds in worn dress seem to be not different from *rostrata* from Greenland. However, the eight autumn fresh plumage birds I have from Iceland are decidedly paler ochraceous on the upper parts, especially on the hind neck, paler buff below on the throat; the rump too shows more white than in Greenland birds. The bill is sometimes less stout and conical but this is not constant. The coloration of Icelandic birds is in fact much the same as in *linaria linaria*, but the length of wing, and especially of the tail, at once separates *islandica* from the typical race, the latter never having a tail length approaching that of the Icelandic bird.

The question arises as to which form the various specimens of *rostrata* obtained in the Scottish Isles belong. I have recently examined most of these (27 in all) from the collection in the Royal Scottish Museum, and all birds obtained in Fair Isle match well. Icelandic autumn birds, except one, obtained by Wilson on 15th September 1913, which is quite like the Greenland birds, being decidedly darker on the upper parts; two from St Kilda (September 1911), and one Flannan Isles, October 1905, I also place as true *rostrata*. *Acanthis linaria islandica* must then be added to the British list and the status of *rostrata* be amended, it being much the rarer of the two forms. Measurements are as follows:—

9 ♂♂ from Greenland	. . .	W. 78-81	T. 60-63
9 ♂♂ from Iceland	. . .	77-81.5	T. 60-65.

**Immigration of Northern Great Spotted Woodpecker to the Shetland Isles.**—We have received specimens and records of Northern Great Spotted Woodpeckers (*Dryobates m. major*) which indicate a fairly extensive invasion of the northern isles of Scotland. On 20th August the first of the arrivals was seen in Fair Isle by Mr Jerome Wilson. The remainder of the specimens have been examined in the Royal Scottish Museum, and these occurrences are recorded in the words of the senders :—

*In Unst.*—“I am sending you herewith a specimen of the Northern Great Spotted Woodpecker. It was brought to me this afternoon by a lad who shot it on 2nd September on a croft at Haroldswich in the north end of the island of Unst. It was clinging to a rough paling post.

“I think the bird is a mature female. It is the second example I have obtained since coming here thirty years ago; the last one obtained was in September 1901.”—T. EDMONSTON SAXBY, Balta Sound.

*In Foula.*—“I send you herewith a bird which I place as the Northern Great Spotted Woodpecker. It was found on 8th September after being hurt by a cat. There must be at least one other if not two, on the isle, as two different school children each saw one yesterday and this morning.”—WM. HARRY GREENAWAY, Foula.

*At Sumburgh, Mainland.*—“Many thanks for your letter of 12th October and for particulars of the Northern Great Spotted Woodpecker found here on 8th October. I send another Woodpecker, either a male or young bird. It was got in Sumburgh House dining-room, on 18th October, and must have entered by the chimney.

“Yesterday—after a preceding night calm and foggy—the place was alive with migrants, Robins, Gold-crested Wrens, Blackbirds, Fieldfares, Redwings, Thrushes, Pipits, Plovers, etc. The accompanying Great Grey Shrike was got in Sumburgh Gardens.

“There were—from what some men have told me—more Woodpeckers, though I have not come across others than the two sent.

“The winds have not been very favourable for bringing migrants to Shetland. I think the thick fog must have brought them.”—W. LAIDLAW McDUGALL, Sumburgh.



## REPORT ON SCOTTISH ORNITHOLOGY IN 1928.

By EVELYN V. BAXTER and LEONORA JEFFREY RINTOUL.

*(Concluded from page 125.)*MOVEMENTS OF BIRDS IN SCOTLAND IN 1928,  
ARRANGED UNDER SPECIES.

HOODED CROW, *Corvus c. cornix*.—Arrivals were noted at Fair Isle on 7th January, and at Bressay on 26th January and 7th March.

ROOK, *Corvus f. frugilegus*.—Small numbers were on passage at Fair Isle between 24th February and 21st March, and a Rook visited the Bass Rock on 12th July.

JACKDAW, *Colseus monedula spermologus*.—One was at the Bell Rock on 4th November.

STARLING, *Sturnus v. vulgaris*.—Movements of Starlings were reported from Wigtonshire, Hyskeir, Hareshawmuir, and the Bell Rock from 21st February to 27th March. From Lahill came this note, "About the beginning of June, immediately after nesting, every Starling left." There were a few reports of movement from the Bass Rock and Southern Scotland in August, while from 16th October to 9th December there were small numbers passing the Bell Rock pretty frequently. On 7th November great flocks were seen flying very high to the west at Elrig, on 28th November this was observed at Monreith and on 3rd December at Alticig, all in Wigtonshire.

HAWFINCH, *Coccothraustes c. coccothraustes*.—"A few visit St Boswells for a few days each Spring for the last few years but do not stay." A young bird was found dead at Lochmalony (Fife) on 13th September.

GREENFINCH, *Chloris c. chloris*.—Two visited the Bass Rock on 22nd April and one was on Fair Isle on 13th October, while great numbers were seen at Ardwell (Wigtonshire) on 6th October and Faldonside, near Melrose, on 28th October.

BRITISH GOLDFINCH, *Carduelis carduelis britannica*.—Flocks were reported from Wigtonshire to the beginning of March, a Goldfinch at Hareshawmuir on 6th May and three at Beauly about 9th May. Two were at Johnstone on 20th July, and Goldfinches were seen at Monifieth on 28th July. From the end of September

onwards flocks were again observed in Wigtownshire and in Selkirkshire, while three were at Johnstone on 18th December.

TWITE, *Carduelis f. flavirostris*.—On 26th March four Twites arrived at Hyskeir and one at the Bell Rock. A number were seen in Ettrick on 14th October, and a few below Sunderland Hall (Selkirkshire) on 21st October.

MEALY REDPOLL, *Carduelis l. linaria*.—One or two frequented Fair Isle up to the end of February and a few were there on 27th March. One was at the Bell Rock lantern on 24th September and one at Fair Isle on 2nd November.

GREENLAND REDPOLL, *Carduelis linaria rostrata*. See p. 111.

LESSER REDPOLL, *Carduelis linaria cabaret*.—Several seen in Strathnaver on 31st July were the first recorded for North Sutherland.

LINNET, *Carduelis c. cannabina*.—One or two were on the Bass Rock from 26th April to 8th May, while on 28th December one visited Fair Isle.

SCARLET GROSBEAK, *Carpodacus e. erythrinus*. See p. 111.

COMMON CROSSBILL, *Loxia c. curvirostra*.—Crossbills probably all of this form were seen at Bowhill (Selkirkshire) to the end of May and again on 29th July, and twenty, chiefly males, on 12th February at Harehead.

CHAFFINCH, *Fringilla c. œlebs*.—Two were on Fair Isle on 21st January and big flocks in Wigtownshire in February. Constant movement of small numbers of Chaffinches took place at the Bass Rock, Fair Isle, and Bressay from 18th March to 5th May, and a few visited Fair Isle on 25th May. Return movement was noted at Fair Isle and the Bell Rock from 6th October to 3rd November, and stragglers were on Fair Isle on 28th December.

BRAMBLING, *Fringilla montifringilla*.—Northward passage was observed at the Bass Rock and Fair Isle from 19th April to 25th May, and returns to Scotland at Fair Isle between 5th and 23rd October, Hareshawmuir on 22nd, and Faldonside on 28th October, and the Bell Rock on 30th November.

YELLOW BUNTING, *Emberiza c. citrinella*.—One or two were seen at Fair Isle on 25th January, 22nd February, 24th March, 10th and 13th April, and 3rd May, and in autumn on 30th October, 5th and 17th November. A flock of 37 was seen in a hedge at Stairhaven (Wigtownshire) on 31st December.

CIRL BUNTING, *Emberiza cirrus*. See p. 111.

ORTOLAN, *Emberiza hortulana*. See p. 111.

REED-BUNTING, *Emberiza s. schænicius*.—Observed on passage at Fair Isle between 1st and 9th May.

LAPLAND BUNTING, *Calcarius l. lapponicus*. See p. 111.

SNOW-BUNTING, *Plectrophenax n. nivalis*.—In January and February there were a good many records of Snow-Buntings from Bressay and Fair Isle, and on 22nd March one was on Hyskeir. Return movement was reported from Fair Isle between 24th September and 5th November, and on 27th November a large flock was seen near Arbroath.

WOOD-LARK, *Lullula a. arborea*. See p. 111.

SKYLARK, *Alauda a. arvensis*.—A few Skylarks were on Fair Isle in January and large flocks were seen at Barrachan (Wigtownshire) on the 4th of that month. From 13th February to 1st April constant movement was noted at Fair Isle, Bressay, Hyskeir, and the Bell Rock. Autumn records of movement are rather scattered: from 1st September onwards westward passage was observed at Invergowrie. A lot were on the Corsemalzie moors on 13th September, southward movement took place at Arbroath on 18th September, and seven were at the Bell Rock (L) at 3.30 A.M. on 24th September. On 1st October Skylarks were "coming in from the sea" at Arbroath, a huge flock was seen at Ardwell (Wigtownshire) on 6th October, and one or two visited the Bell Rock (L) on 19th and 22nd October.

RICHARD'S PIPIT, *Anthus r. richardi*. See p. 111.

TREE-PIPIT, *Anthus t. trivialis*.—First reported from Rouken Glen on 18th April, Helensburgh on 22nd, Lauder and Selkirk on 26th April. From 3rd to 10th May passage migrants were noted at Fair Isle. The only autumn note was from Invergowrie on 20th August.

MEADOW-PIPIT, *Anthus pratensis*.—Returns were reported from Hareshawmuir on 22nd March and constant movement at Hyskeir from 24th to 29th March. Arrivals had come in at Balcomie (E. Fife) on 2nd April and Selkirk on 7th April. From 13th August to 10th October there were many notes of large numbers on the move in the country, while the Bell Rock lantern was visited on 2nd and 9th September and 19th October.

PETCHORA PIPIT, *Anthus gustavi*. See p. 111.

BLUE-HEADED WAGTAIL, *Motacilla f. flava*. See p. 112.

YELLOW WAGTAIL, *Motacilla flava rayi*.—Records came from Possil Marsh on 29th April, Fair Isle next day, Hareshawmuir on 1st May, Melrose on 3rd, Fair Isle and Darvel on 4th, and the Kelvin, near Summerston, on 5th May. Last seen at Corsemalzie on 26th October.

GREY WAGTAIL, *Motacilla c. cinerea*.—Returned to Hareshawmuir on 25th March and Selkirk on 8th April, while during September a good deal of movement was reported.

WHITE WAGTAIL, *Motacilla a. alba*.—A good deal of movement was noted up the west side of Scotland between 23rd March and 22nd April, from 25th to 29th April one or two were on the Bass Rock, and a few passing Fair Isle from 26th April to 17th May. Several were on the shore in Luce Bay on 5th May and one on an island in Loch Fyne off Minard on 19th May. Autumn migration took place at Fair Isle from 6th August to 22nd September, several were at Elliot (Forfarshire) on 8th September, and seven on the lawn at Corsemalzie on 26th October.

PIED WAGTAIL, *Motacilla alba lugubris*.—A good deal of movement was observed from 4th March to 13th April, chiefly from mainland stations, though Hyskeir and Fair Isle participated. Autumn movement was reported from 16th August to 26th October.

BRITISH NUTHATCH, *Sitta europæa affinis*. See p. 112.

BLUE TITMOUSE, *Parus cæruleus* (subsp. ?).—One was seen on Canna in December (1. 1929, 61).

GOLDEN-CRESTED WREN, *Regulus regulus* (subsp. ?).—The records were all from the Bell Rock this year, viz., one at the lantern at 11 P.M. on 25th March, two at the lantern 4 A.M. on 9th September, 1 on 16th October, and two at the lantern at midnight on 22nd October.

LESSER GREY SHRIKE, *Lanius minor*. See p. 112.

WAXWING, *Bombycilla garrulus*. See p. 112.

SPOTTED FLYCATCHER, *Muscicapa s. striata*.—A very early record was of two at Letham Grange, Forfarshire, on 5th April. Other records of arrival were Selkirk on 28th April, Endrick next day, Corsemalzie on 4th May and Lanark on 5th, with further influxes to 26th May. A passage migrant was on Fair Isle on 8th June. By 23rd August departures were noted and continued

steadily into September, last seen Hareshawmuir on 18th September and Corsemalzie on 20th September.

PIED FLYCATCHER, *Muscicapa h. hypoleuca*.—A male was seen in Glen Moriston on 2nd May, one at Fair Isle on 4th, and three pairs at Bowhill (Selkirkshire) on 13th May, while a female visited the Bass Rock on 2nd June. The only note in autumn was from Fair Isle on 13th September.

CHIFFCHAFF, *Phylloscopus c. collybita*.—Arrivals were reported from Stranraer on 3rd April, Row (Gareloch) on 9th, and Kilmun on 30th April, with further spread up to 15th May.

SCANDINAVIAN CHIFFCHAFF, *Phylloscopus collybita abietinus*.—Passage of Chiffchaffs, probably of this race, was reported from Fair Isle between 15th October and 17th November.

WILLOW WARBLER, *Phylloscopus t. trochilus*.—First reported from Selkirk and Kilmaccolm on 9th April, Hareshawmuir and Bridge of Weir on the 10th, Melrose, the Hirsell, and Corsemalzie on the 11th April. After this further arrivals at nesting places were observed up to 8th May. Passage migrants were noted at Fair Isle from 30th April to 12th May, at the Bell Rock on 24th May, and the Bass on 6th June. Drift through the country had begun by mid-July and departures were in progress during August and up to mid-September. Last seen Corsemalzie on 26th September and the Bass Rock on 27th October.

NORTHERN WILLOW-WARBLER, *Phylloscopus trochilus evermanni*.—Two were recorded from Fair Isle on September (1. 1929, 9).

WOOD-WARBLER, *Phylloscopus s. sibilatrix*.—First seen Johnstone on 25th April, Corsemalzie next day, with further arrivals to 8th May.

EVERSMANN'S WARBLER, *Phylloscopus b. borealis*. See p. 112.

YELLOW-BROWED WARBLER, *Phylloscopus i. inornatus*. See p. 112.

GRASSHOPPER WARBLER, *Locustella n. naevia*.—First seen Helensburgh on 29th April, and Eglinton (Ayrshire) on 8th May.

LANCEOLATED WARBLER, *Locustella lanceolata*. See p. 112.

BLYTH'S REED-WARBLER, *Acrocephalus dumetorum*. See p. 112.

SEDGE-WARBLER, *Acrocephalus schænobaenus*.—First noted at the Hirsell (Berwickshire) on 27th April, at Lochwinnoch and Possil Marsh next day, and at Fair Isle on 1st May. After this there was much immigration recorded up to 11th May. Last

reported in autumn from Loch Elrig (Wigtownshire) on 8th September, and Kingoodie (Angus) next day.

GARDEN WARBLER, *Sylvia borin*.—Was seen on 28th April at Lauder, on 2nd May at Kilmun, and 4th May at Blanefield, with subsequent records of arrival in Southern Scotland up to 19th May.

A passage migrant was reported on Fair Isle on 25th May and another on the Bass Rock on 2nd June.

BLACKCAP, *Sylvia a. atricapilla*.—Was recorded from Mertoun (Roxburghshire) on 6th May, and a single bird from Fair Isle on 12th May.

WHITETHROAT, *Sylvia c. communis*.—First noted on the Bass Rock on 25th April, at Darvel and Helensburgh on 27th, Lauder and Corsemalzie on 28th April; further arrivals were recorded to 9th May. Passage migrants occurred at Fair Isle on 1st, 3rd, and 9th May, and a Whitethroat was at the Bell Rock lantern in fog at 3 A.M. on 30th May. Autumn movement had begun by 31st July, last seen on Fair Isle on 23rd August, and Kingoodie (Angus) on 2nd September.

LESSER WHITETHROAT, *Sylvia c. curruca*.—One was on the Bass Rock on 1st May, several at Fair Isle on the 4th, and one at Peninver (Argyllshire) on 22nd May, while in autumn single birds were reported from Fair Isle on 26th and 29th September.

SIBERIAN LESSER WHITETHROAT, *Sylvia curruca affinis*. See p. 112.

FIELDFARE, *Turdus pilaris*.—From 22nd March throughout April much movement of Fieldfares was noticed at both island and mainland stations. Last seen at Glenorchard and Corsemalzie on 6th May, Fair Isle on 9th, Montrose on 12th, and Hareshawmuir on 22nd May. In autumn a very early record was of a flock at Mount Melville (Fife) on 28th August. The regular movement was first reported on 7th October from Corsemalzie, and 11th October from Hareshawmuir, and a large movement up the Spey Valley at Balavie was noted on 15th October. After this there were further notes of immigration up to 5th November, but the numbers reported were small compared with other years. Many Fieldfares arrived on Fair Isle on 13th December.

CONTINENTAL SONG-THRUSH, *Turdus p. philomelus*.—From 18th February to 13th April a few Thrushes of this race were noted frequently at Fair Isle. On 4th March two of this race were reported from Hareshawmuir, and two at Hyskeir on 22nd and 23rd March.

A Thrush was on the Bass Rock on 19th April, 1st, 3rd, and 6th May, and three on 22nd April: these may have belonged to this form. Arrivals took place at Fair Isle on 27th October and 5th November.

BRITISH SONG-THRUSH, *Turdus philomelus clarkii*.—Returns of our breeding birds were noted at Hareshawmuir on 21st January, Corsemalzie on 12th February, Lahill on 23rd, and Largo on 25th February, while British Song-Thrushes were at the Hyskeir lantern on 27th February and 5th March, and many were at Lahill in deep snow on 11th March. Numbers of Thrushes at Barrachan on 24th September and Ardwell (Wigtownshire) on 6th October were probably movements of our own birds.

REDWING, *Turdus m. musicus*.—In the deep snow of 11th and 12th March great numbers of Redwings were noted in East Fife, and from this time to 9th April there were many notes of northward movement of the species; last seen near Perth on 9th April. First autumn records were from Fair Isle on 29th September, and Johnstone and Clugston (Wigtownshire) on 10th October. From 12th to 15th October numbers were watched at Balavie near Kingussie going up the Spey Valley, and on to 5th November there were many reports of Redwing arrivals. On the morning of 29th December big flocks were passing S.W. at Lahill.

ICELAND REDWING, *Turdus musicus coburni*.—One was got on Fair Isle on 1st October (1. 1929, 9) and this race probably participated in some of the above movements.

RING-OUZEL, *Turdus t. torquatus*.—A few were on Fair Isle on 13th April, and arrivals were noted at Loch Goil on 18th April, Lauder on 26th April, and Yarrow on 6th May. On 16th October at 11 P.M. a Ring-Ouzel struck the Bell Rock lantern.

BLACKBIRD, *Turdus m. merula*.—On 21st February a female appeared on Hyskeir and a good many on Fair Isle next day, and from this time to the end of March a good deal of movement was reported from the Bell Rock, Hyskeir, and the Northern Isles. A female was on the Bass Rock on 26th April and several on Fair Isle on 4th May. Return movement took place from 29th September to 14th November, and was chronicled chiefly at Fair Isle and the Bell Rock. On 12th and 13th December a few arrived at Fair Isle, three were at the Bell Rock lantern at 6 A.M. on 15th December, while on 29th December great numbers of cocks were seen about Lahill and Largo.

WHEATEAR, *Ænantha æ. ænanthe*.—First noted on Eaglesham Moor (Renfrewshire) on 23rd March, Hyskeir on 24th, and Kilburnie on 25th March. After this much movement was reported up to 4th May. Autumn migration was noticed on the Bass Rock as early as 8th August and continued throughout September: last seen Derrie (Mochrum) on 2nd October and the Bell Rock on 26th October.

GREENLAND WHEATEAR, *Ænanthe ænanthe leucorrhœa*.—Was recorded from Corsemalzie on 25th April, Giffnock on 28th April, the Bass Rock on 4th May, and Hareshawmuir two days later.

DESERT WHEATEAR, *Ænanthe d. deserti*. See p. 111.

WHINCHAT, *Saxicola r. rubetra*.—Was reported from Lauder, the Bass Rock, and Loch Goil on 26th April, Kilmacolm, Helensburgh and Onich next day. Further arrivals took place up to mid-May, while passage migrants were noted on Fair Isle on 2nd, 9th, and 25th May, and the Bass Rock on 1st June.

Autumn movement was recorded from the Bass Rock on 16th August and many departures took place between this date and mid-September, while a passage migrant was on Fair Isle as late as 2nd October.

BRITISH STONECHAT, *Saxicola torquata hibernans*.—Constant movements of small numbers were reported from Fair Isle and Hyskeir from 26th February to 5th March, and a female visited Hyskeir from 24th to 26th March.

REDSTART, *Phœnicurus p. phœnicurus*.—A very early Redstart was reported from Fair Isle on 24th March. The regular arrivals began in mid-April, records coming from Faldonside on 15th, Johnstone on 16th, and the Hirsell on 17th April. Further reports of arrivals came from many parts up to 9th May. Passage of small numbers took place on Fair Isle from 30th April to 12th May and a Redstart was on the Bell Rock on 27th May. Autumn passage records were few, being from Fair Isle on 29th August, 15th September, and 5th October.

BLACK REDSTART, *Phœnicurus ochrurus gibraltariensis*. See p. 112.

NORWEGIAN BLUETHROAT, *Luscinia suecica gætkei*. See p. 112.

CONTINENTAL REDBREAST, *Erithacus r. rubecula*.—Small movements of this race were reported from Fair Isle between 18th March and 12th May, and one was on Hyskeir on 23rd March. The only autumn record was of one on Fair Isle on 17th November.



CONTINENTAL HEDGE-SPARROW, *Prunella m. modularis*.—On 14th April one was caught at Sumburgh Head (Shetland) and Hedge-Sparrows, no doubt of this form, were on Fair Isle on 5th and 10th November.

SWALLOW, *Hirundo r. rustica*.—First reported in Ayrshire at West Kilbride on 10th April, at Melrose, Hareshawmuir, and Helensburgh next day, and the Hirsell (Berwickshire) on 12th April. After this there were many notes of arrivals at breeding-places up to mid-May. Single birds occurred at Fair Isle on 26th April and 3rd May and a few on 9th May, while from 25th May to 28th June there were frequent reports of small numbers from this station, the Bell Rock, and Isle of May. On 2nd July six were at Hermaness (Shetland) and several at Fair Isle on 12th July. Much departure was reported during September and October; last seen at Selkirk on 26th October, Lochindores two days later, Largo (Fife) on 4th November, and two passed going south at Arbroath as late as 27th November.

HOUSE-MARTIN, *Delichon u. urbica*.—Very early arrivals were reported from Kilchrenan (Argyllshire) on 18th March and Loch Awe on 22nd March. The next records were at the Hirsell (Berwickshire) on 12th April and Melrose on 15th April, while from 21st April to 16th May a steady influx took place in Scotland. Two were at Fair Isle on 1st May and one on 30th May.

Departures were very apparent in September, two were seen at Largo on 19th October, and two at Canna in the end of October (i. 1926, 61).

SAND-MARTIN, *Riparia r. riparia*.—First noted at Bardowie Loch (Clyde) on 22nd March and the Hirsell (Berwickshire) on 30th March. Arrivals took place during April and up to 6th May, and a Sand-Martin was seen on Fair Isle on 3rd and 4th May. Last seen Invergowrie on 2nd September and near Arbroath on 20th September.

SWIFT, *Apus a. apus*.—The earliest seen were at Selkirk on 24th April, Earlston on 26th, Duns and Kilmacolm on 27th April, with further notes of arrivals at breeding-places to 16th May. By mid-July autumn movement had begun, and after this to the end of August departure was in full swing. A Swift was seen at Fair Isle on 8th, 12th, and 14th September.

NIGHTJAR, *Caprimulgus e. europæus*.—Was recorded from Corsemalzie on 11th May, and Kilchattan Bay (Bute) on 29th May, while one was got at Mochrum on 5th September.

HOPOE, *Upupa e. epops*. See p. 112.

KINGFISHER, *Alcedo atthis ispida*.—One was seen at Loch Elrig (Wigtownshire) on 20th May, "quite a number, three or four in one place" at the Mortons (N. Fife) on 14th August, and one on the Ettrick on 14th October.

WRYNECK, *Jynx t. torquilla*.—All the records were from Fair Isle, viz., one on 2nd May, six on 4th, and two on 9th May.

CUCKOO, *Cuculus c. canorus*.—Was reported on 3rd April at Callander, a very early date. Arrivals were noted at Lauder on 17th April, at Balmore (Stirlingshire) on 20th, and at Possil Marsh and Hareshawmuir on 24th April, and by the middle of May the influx appears to have been complete.

SHORT-EARED OWL, *Asio f. flammeus*.—A Short-eared Owl was on Fair Isle on 2nd January, one at Corsemalzie on 15th October, one on Fair Isle on 27th October and 5th November, and two there on 7th November.

MERLIN, *Falco columbarius aesalon*.—Single birds were reported from Derrie (Mochrum) on 6th January, Hyskeir on 22nd and 24th March, Fair Isle on 13th September, and the Bell Rock on 9th December.

KESTREL, *Falco t. tinnunculus*.—One visited Hyskeir on 22nd February and two were on Fair Isle on 3rd May. Single birds were noted at the latter station on 19th September and 5th October.

GOLDEN EAGLE, *Aquila c. chrysaetus*. See p. 112.

COMMON BUZZARD, *Buteo b. buteo*.—One passing Derrie (Mochrum) on 6th January.

HEN-HARRIER, *Circus c. cyaneus*. See p. 112.

HONEY BUZZARD, *Pernis a. apivorus*. See p. 112.

WHOOPEE SWAN, *Cygnus cygnus*.—A good many Whoopers were noted in January and February, three were seen on Thriepmuir Reservoir on 3rd, 10th, and 17th March (1. 1928, 61), and twenty at Castle Semple Loch on 22nd and 24th March. "Wild Swans" passed Fair Isle on 24th October, 2nd and 11th November, and Glenorchard (Stirlingshire) at 2 A.M. on 3rd December. There were thirty-seven Whoopers on Bardowie Loch (Stirlingshire) on 16th December, thirty to forty on Lochwinnoch on 19th December, and seven flying west at Corsemalzie on 30th December.

BEWICK'S SWAN, *Cygnus b. bewickii*.—Two were at Glenorchard on 11th January, two at Hyskeir on 9th March, and about a dozen on Bardowie Loch on 16th December.

GREY LAG-GOOSE, *Anser anser*.—There were more than usual on the Tay about Mugdrum Island in winter, but they had left by 23rd February, and on 29th February one was on Fair Isle. On 18th August four flew low over Corsemalzie going S.E.; on 25th August about a dozen flew over Balcarres (E. Fife). Nine Grey Lags were on Fair Isle on 17th November.

Much northward movement of "Grey Geese" was reported from 25th February to 2nd May, and return movement between 21st September and 12th November.

WHITE-FRONTED GOOSE, *Anser albifrons*.—From 15th to 23rd February two were on Mugdrum Island (Tay).

BEAN GOOSE, *Anser f. fabalis*.—Four were on Mugdrum Island from 15th to 17th February, seven in a marsh at Torhouse (Wigtownshire) on 1st March, two flew low to the west over Corsemalzie on 24th March, and six flew north at Hareshawmuir on 3rd May.

PINK-FOOTED GOOSE, *Anser brachyrhynchus*.—Large numbers were about Mugdrum Island in February and March, "quite 1000" from 8th to 16th March. On 30th September twenty-nine were seen flying low over Mount Lothian, and huge numbers arrived at Loch Leven on 1st October.

SNOW GOOSE, *Anser h. hyperboreus*. See p. 112.

BARNACLE GOOSE, *Branta leucopsis*.—Four were seen about Hyskeir up to 30th March.

BRENT GOOSE, *Branta b. bernicla*.—One was on Mugdrum Island from 15th February to the end of the month, and three at Aberlady on 5th May (1. 1928, 122). One was at Tayport (N. Fife) on 29th September, fourteen at Fair Isle on 21st October, and twelve there on 1st November.

SHELDUCK, *Tadorna tadorna*.—There were huge flocks in the R. Eden (Fife) on 3rd January and many at Tentsmuir Point on 6th January. Returned to the Kingoodie shore on 29th January, and four adults were on the Pool of Virkie (Shetland) on 10th July.

MALLARD, *Anas p. platyrhynchos*.—On passage at Fair Isle up to 27th March and again from 1st September to 23rd October. First appeared in autumn in the sea off Arbroath on 9th October.

GADWALL, *Anas strepera*.—During the winter of 1927-28 three were shot in Wigtown Bay and three in Luce Bay (1. 1928, 122).

Two were on Loch Elrig on 24th August, about thirty on Carsebreck on 24th September, and a drake was shot at Glenorchard on 24th December.

TEAL, *Anas c. crecca*.—A flock of 200 was on Loch Chesney (Wigtownshire) on 20th February and two on Fair Isle on 3rd May; three there on 1st September and one on 12th September. On 27th December about fifty were on Loch Chesney.

GARGANEY, *Anas querquedula* See p. 112.

WIGEON, *Anas penelope*.—Large numbers were reported in January from Hareshawmuir, Glenorchard, R. Eden (Fife), and the Tay estuary, and on 27th March one visited Fair Isle. A pair was on the Castle Loch (Wigtownshire) on 3rd May, a pair on the lochs at Hareshawmuir on 20th May but these had gone by 1st June. A lot of Wigeon were on Carsebreck (Perthshire) on 24th September, small numbers passing Fair Isle from 3rd to 18th October and many in the sea off Ardwall (Wigtownshire) on 6th October. Numbers were on Lochwinnoch on 19th December, and many at the mouth of R. Luce on 31st December.

PINTAIL, *Anas a. acuta*.—A duck was seen at Invergowrie on 1st January, a pair at Kingoodie on 29th April, and two on Fair Isle on 17th May, while a few were on Carsebreck on 24th September.

SHOVELLER, *Spatula clypeata*.—Had returned to Lochindores by 25th March; two were on Fauldonside Loch on 15th April, and two pairs on the lochs at Hareshawmuir on 2nd May, one or two being seen at these last lochs till 16th June. A good many were on Lindores Loch (N. Fife) on 23rd October, and three on Loch Chesney on 27th December.

POCHARD, *Nyroca f. ferina*.—Some were in the Firth of Forth, off Joppa, on 5th January, eight on the Crail Waterworks on 12th January, and the species had returned to Thrieply Loch by 5th February. Seen on the lochs at Hareshawmuir on 3rd March and 14th July, and a few were on Carsebreck on 24th September. Two visited Fair Isle on 3rd October, and there were many records of wintering birds after 28th October.

TUFTED DUCK, *Nyroca fuligula*.—Some were on the Firth of Forth, off Joppa, on 5th January; Tufted Duck had returned to the Gilston Pond (Fife) by 25th January and to Thrieply Loch by 5th February. Many were on Essenside Loch (Roxburghshire) on 2nd September, and a lot in the sea off Craignarget (Wigtownshire) on 31st December.

SCAUP, *Nyroca m. marila*.—Huge flocks were in the R. Eden (N. Fife) on 3rd January, and hundreds in the Forth, off Joppa, on 5th January. A male was on Loch Chesney on 18th August and one on Fair Isle on 13th October.

GOLDENEYE, *Bucephala c. clangula*.—Four were at the junction of the Ettrick and Yarrow on 11th March, two on Ettrick and two males off Kingoodie (Perthshire) on 8th April, and two on Fair Isle on 10th April. On Lindores Loch (N. Fife) on 21st April an adult drake was displaying to a duck, and there was also an immature drake. On 26th April a pair were on Loch Tulla (Argyllshire), an adult drake on Castle Loch (Wigtownshire) on 3rd May, a young drake at Thrieply on 6th May, and a young drake at Kingoodie on 19th May. A duck was on Headshaw Loch, above Selkirk, on 16th August, and small numbers at Fair Isle on 16th October and 3rd November.

LONG-TAILED DUCK, *Clangula hyemalis*.—Last seen at Golspie on 5th May. First noted at Fair Isle in autumn on 13th October and seen fairly frequently there afterwards. One was shot at the mouth of R. Bladenoch (Wigtownshire) on 17th October (i. 1928, 174), and four were at the Bell Rock on 21st October.

EIDER, *Somateria m. mollissima*.—Last seen at the Bell Rock on 18th May, and several off Carsewall (Wigtownshire) on 6th June. Began to return to the Bell Rock on 9th September, and gradually increased till by 15th November about 400 were present there.

SURF SCOTER, *Oidemia perspicillata*. See p. 112.

GOOSANDER, *Mergus m. merganser*.—A female was at Hareshawmuir on 5th January, and several off Invergowrie on 28th April.

RED-BREASTED MERGANSER, *Mergus serrator*.—Passing Fair Isle in small numbers up to 31st May. On 4th May five were seen on the Piltanton burn and eleven at sea (Wigtownshire), and in early June a drake was on Loch Kinord (Aberdeenshire). Single birds were noted at Fair Isle on 15th October and 5th November.

SMEW, *Mergus albellus*. See p. 112.

GANNET, *Sula bassana*.—One was seen at Bressay (Shetland) on 18th January and there were more there than usual in October. On 4th September a Gannet, nearly dead, was found at Loch Ard (Perthshire).

STORM-PETREL, *Hydrobates pelagicus*.—On 3rd January one was found dead on Fair Isle.

MANX SHEARWATER, *Puffinus p. puffinus*.—Several were at the Hyskeir lantern on 23rd, 24th, and 26th March.

GREAT CRESTED GREBE, *Podiceps c. cristatus*.—Several were in the sea at St Andrews on 3rd January. Had returned to Thrieply on 19th February; a pair were seen on Bardowie Loch (Stirlingshire) on 10th March, a pair on Cauldshiels Loch (Roxburgh) on 15th April, and in early June on Loch Davan and Loch Kinord (Aberdeenshire).

SLAVONIAN GREBE, *Podiceps auritus*.—One was on Lindores Loch on 23rd October and one on Monreith Lake on 28th November.

RED-NECKED GREBE, *Podiceps g. griseigena*. See p. 112.

AMERICAN RED-NECKED GREBE, *Podiceps griseigena holboelli*. See p. 111.

LITTLE GREBE, *Podiceps r. ruficollis*.—Two were on Bowhill Loch (Selkirkshire) on 4th March and 7th April; seen at Lochindores on 25th March, and one was diving in the Holy Loch (Argyllshire) on 27th December.

GREAT NORTHERN DIVER, *Colymbus immer*.—Single birds were reported at the mouth of River Luce on 4th May, on the Atlantic side of the Mull of Cantyre, in summer plumage, on 22nd and 23rd May, and at Machrihanish, in winter dress, on 25th May. One was at Fair Isle on 7th and 8th October.

BLACK-THROATED DIVER, *Colymbus a. arcticus*.—One was going north at Arbroath on 6th March, and there were several between Burntisland and Granton on 8th May. An adult was in Armadale Bay, N. Sutherland, on 5th August and one at Balcomie (Fife) on 29th August.

RED-THROATED DIVER, *Colymbus stellatus*.—On 24th and 25th March one was on Duddingston Loch (1. 1928, 61), one was off Luce sands on 4th May, and several between Burntisland and Granton on 8th May. On 14th May one was on Lunan Bay, single birds in Loch Fyne on 16th and 20th May, Fair Isle on 25th May, and found dead at Stonehaven on 30th May.

WOOD-PIGEON, *Columba p. palumbus*.—Flocks of twenty and seventeen were counted at Corsemalzie on 30th April, and a large flock was seen near Carnbee (Fife) on 10th May. A Wood-Pigeon was on Fair Isle on 12th October and great flocks were seen at Lahill (Fife) on 8th December.

STOCK-DOVE, *Columba œnas*.—A pair on Etrick on 22nd April and some on the Atlantic side of the Mull of Cantyre on 24th and 26th May. On 22nd July one was seen on the dunes in Dunnet Bay, Caithness.

OYSTERCATCHER, *Hæmatopus o. ostralegus*.—One was on Fair Isle on 9th January. From 15th February to 26th March there are many records of northward passage and of arrival at breeding-places inland and on our islands. An Oystercatcher was at the Bell Rock on 24th May, "movement" was noted at Hareshawmuir next day, and "very many; flocks of 150, 65, etc." on Luce Sands on 5th June. On 17th and 20th July passage over Johnstone was reported.

RINGED PLOVER, *Charadrius h. hiaticula*.—Arrivals were noticed at Fair Isle from 12th February to 2nd March, and a flock of eleven on Luce Sands on 4th May.

GOLDEN PLOVER, *Charadrius apricarius*.—It is difficult to disentangle the movements of the two races. There were a lot of notes during February of arrival of Golden Plover at inland stations, no doubt our *Ch. apricarius apricarius* returning to its breeding-places. From 5th March to 10th April there were a good many notes from Hyskeir and Fair Isle, and again at the latter station from 26th April to 1st May; the later ones being probably movements of the Northern *Ch. apricarius altifrons*. Definite records were of one Northern Golden Plover among eight others at Hareshawmuir on 13th April, and seven Northern about a field at Corsemalzie for several days from 12th May.

Two Golden Plover visited Fair Isle on 25th July, and much movement was recorded from 27th August to 9th October; the earlier were probably our own birds returning to the shores, the later no doubt included many of the Northern form, one of which was identified on 4th September at Balcomie (Fife).

GREY PLOVER, *Squatarola s. squatarola*.—Two were shot and others seen on a bare field near the Mortons (N. Fife) on 20th October.

LAPWING, *Vanellus vanellus*.—A good deal of movement of small numbers of Lapwings was noted at Fair Isle from 18th January to 2nd March, and a number of notes came of return to inland breeding grounds in the end of February and beginning of March. A big movement took place at Hyskeir and Fair Isle from 18th to 30th March; some were on the latter island from 10th to 13th April, 2nd to 4th, 10th, and 25th May. Flocking after nesting had

begun by 3rd June, and return movement of small numbers was reported from Fair Isle from 1st September to 10th November. On 23rd November hundreds were passing south in the morning at Lahill.

TURNSTONE, *Arenaria i. interpres*.—On 8th March the Turnstones on Hyskeir left the rock; last seen Fair Isle on 17th May, Mull of Cantyre on 23rd May, Luce Sands on 3rd June, and Corsewall (12) on 6th June. On 30th July "a good many, some in beautiful plumage," were seen at Balcomie, a great many were on Papa Westray (Orkney) on 8th August, and thereafter many notes of arrival on our coasts and islands.

SANDERLING, *Crocethia alba*.—A flock of forty was seen at Piltanton (Wigtownshire) on 3rd May and seven on Luce Sands on 3rd June.

Small numbers occurred on Fair Isle between 25th July and 4th September.

KNOT, *Calidris c. canutus*.—Last seen Luce Sands on 5th May and Scurdyness on 13th May.

CURLEW SANDPIPER, *Calidris testacea*.—A bird of the year was at Balcomie on 4th September.

AMERICAN PECTORAL SANDPIPER, *Calidris maculata*. See p. 112.

PURPLE SANDPIPER, *Calidris m. maritima*.—Last seen in spring on Fair Isle on 25th May, and first seen in autumn on the Bell Rock on 15th September.

COMMON SANDPIPER, *Tringa hypoleuca*.—Arrived at Hareshawmuir on 12th April, Helensburgh on 16th, and Melrose on 19th April; after this there were many records of further arrivals up to 13th May.

GREEN SANDPIPER, *Tringa ochropus*. See p. 112.

SPOTTED REDSHANK, *Tringa erythropus*. See p. 113.

GREENSHANK, *Tringa nebularia*.—One was on the beach at Strathbay (Mill) on 5th August, one at the Mortons (N. Fife) on 14th August (1. 1928, 133), four at Loch Elrig on 22nd August, two at Fair Isle and one at Elliot on 23rd August, one at Fair Isle on 6th September, and one at the Mortons on 15th October.

BAR-TAILED GODWIT, *Limosa l. lapponica*.—A flock of fifteen was seen on Luce Sands as late as 3rd June. By 1st October three were recorded at Arbroath, and huge flocks were on Pettycur Sands (Fife) on 7th November.



BLACK-TAILED GODWIT, *Limosa l. limosa*. See p. 113.

WHIMBREL, *Numenius p. phaeopus*.—Passage was first noted at Hareshawmuir on 20th April and Garheugh (Wigtownshire) on 2nd May, with further records of Whimbrel passing at many stations up to 6th June. On 5th August one was seen at Bonar Bridge and one at Balcomie (Fife) on 4th September.

SNIPE, *Capella g. gallinago*.—Passage of small numbers was observed at Fair Isle and Hyskeir from 7th February to 2nd March. Return movement took place at Fair Isle between 21st August and 30th October, while on 13th September there were lots of very wild Snipe on the moors at Corsemalzie.

JACK SNIPE, *Lymnocyptes minimus*.—Single birds were reported from Fair Isle on 19th January, Hareshawmuir on 11th February and Glen Leug on 27th February, Fair Isle on 11th October, Lochwinnoch on 23rd October, and Corsemalzie on 14th November.

WOODCOCK, *Scelopax r. rusticola*.—One occurred on Fair Isle on 5th February, and two on 29th February, while many were there on 27th March. From 11th October to 12th November there were constant notes of small arrivals at Fair Isle; there were a good many Woodcock at Corsemalzie on 14th November, and one at Fair Isle on 12th December.

SANDWICH TERN, *Sterna s. sandvicensis*.—Two were observed at Gullane Point on 9th April, an early date, one between Burntisland and Granton on 24th April, and ten at Aberlady on 5th May (1. 1928, 122) with further arrivals to 19th May. Four adults were seen at Ackergill (Caithness) on 24th July, and a lot at Brora (Sutherland) on 15th August, the last recorded for the season being at Lower Largo on 6th October.

COMMON TERN, *Sterna h. hirundo*.—First noticed in the Tay Estuary on 29th April, and many between Burntisland and Granton on 8th May. On 3rd July three flew west past Hareshawmuir.

LITTLE GULL, *Larus minutus*. See p. 113.

COMMON GULL, *Larus c. canus*.—Many were noted at Hareshawmuir during January, a few were on Fair Isle on 18th February, and on 24th March there were numbers all the way from Falkland to Pitlochry.

SCANDINAVIAN LESSER BLACK-BACKED GULL, *Larus f. fuscus*. See p. 113.

BRITISH LESSER BLACK-BACKED GULL, *Larus fuscus affinis*.—First reported at Dunoon on 28th February, Glasgow on 9th March, and Corsemalzie on 25th March.

GLAUCOUS GULL, *Larus hyperboreus*.—A few were on Fair Isle during January and on 6th February, and one on 15th February and 19th May. From 30th October to the end of the year there were frequent records of small numbers from Fair Isle.

ICELAND GULL, *Larus leucopterus*.—There were one or two on Fair Isle in January, and one in Granton Harbour on 19th May. Single birds were reported from Fair Isle on 16th November, the Bell Rock on 25th November and 28th December.

LITTLE AUK, *Alle alle*.—On 30th January numbers of Little Auks were seen off Sumburgh Head, and one was caught  $2\frac{1}{2}$  miles inland near Arbroath. In early January several were killed in the nets at St Andrews (i. 1928, 25), and during January and February some were about Fair Isle. From 18th to 24th December there were a few off Fair Isle, and many there on 26th December.

CORNCRAKE, *Crex crex*.—First reported at Arbroath on 26th April, Melrose and Barr Mill next day, and Darvel on 29th April, with further arrivals to 14th May in many places. The last record for the year comes from Barrachan (Wigtownshire) on 24th September.

WATER-RAIL, *Rallus a. aquaticus*.—Single birds were noted at Corsemalzie on 1st February, and at Fair Isle on 11th January, 12th February, and 29th October.

## BIRD-LIFE BY THE ESK AT MUSSELBURGH.

By DAVID HAMILTON.

DAILY at noon for several years back, having a few minutes to spare at Musselburgh, I spent the time by the River Esk observing the bird-life. The time at my disposal allowed me to reach the mouth of the Esk in one direction, or Inveresk Church in the other, and all the following observations were made strictly within these limits. From Inveresk Church to the sea by the riverside is roughly a mile and a half, but the greater part runs through the town of Musselburgh. This reduces the area of observation to less than a mile in length, and all the species mentioned have been seen from the river banks. I soon became aware that bird-life was exceptionally varied for a place so greatly frequented, and noted carefully every species observed. To a casual visitor the place would hardly seem worthy of special reference, as on some days bird-life is scarce and disappointing, and the visitor would go away with a wrong impression. This will be apparent when I mention that the list has now reached one hundred species, and that nearly forty have been found nesting, or attempting to nest. Only those seen personally, and identified with certainty, are mentioned, but any resident naturalist able to take advantage of different times and tides could certainly add to the number.

Several reasons may account for bird-life being so varied on the Esk, chiefly, I think, owing to the changeable conditions prevailing in so small an area. Thus we have the sea, with large expanses of mud-flats, mussel-beds, and sand exposed at low tide, rough links along the shore, and the river-course. Passing through the town we then come to cultivated fields, rough grassland, slopes covered with trees, bushes, and brambles, small plantations, sand-banks at the riverside, and numerous old trees. Above the salmon ladder or the Falls as it is locally known, the river runs sluggish and deep, and this part attracts a great number

of birds. These conditions make it possible for several types of bird-life to exist, according to the ground.

A river-course is always attractive to birds, and some parts of the Esk are extremely sheltered, also the close proximity to the May Island, a recognised migration route, may have some influence. This would apply equally to the River Tyne, and it would be interesting to know if such is the case. Owing to the Esk being so greatly frequented, birds are driven away very often. Shore-shooting and bird-catching also spoil the place greatly, yet few places of equal size can compare with it for the observation of birds. In the following list several types are grouped together for convenience.

THRUSHES.—Missel-Thrush, Song-Thrush, and Black-bird are met with at all times, and all nest in the Haugh.

Fieldfare and Redwing occur in varying numbers during winter months. The Blackbird during winter obtains food by systematically turning over dead leaves, a habit not often observed in the Song-Thrush, and it never seems to emulate the Thrush in breaking snail-shells, yet the Redwing can be seen indulging in both these habits.

WHEATEARS.—During passage movements both Common and Greenland species are met with on the links at the mouth of the Esk. The Common Wheatear is about during the nesting season (1929).

WARBLERS, ETC.—Hedge-Sparrow, Robin, Wren, and Tree-Creeper are about all the year and nest in the Haugh. The Goldcrest is an occasional winter visitor. Common Whitethroat, Garden-Warbler, Sedge-Warbler, and Willow-Wren are summer visitors, and all nest. The Wood-Wren was heard for a few days one summer, this being the only record. The Spotted Flycatcher is common during summer and nests freely.

FINCHES.—Greenfinch, Chaffinch, House-Sparrow, and Tree-Sparrow all nest and are fairly numerous at any time. The Linnet is frequently seen and has nested near Inveresk Church. The Lesser Redpoll and Siskin are met with in the Haugh during winter. During June 1921 a pair of

Goldfinches started a nest in the Haugh, but they suddenly disappeared and were, I think, trapped. On 5th May 1924, a Hawfinch flew down on to the path in the Haugh, where I had an excellent view of it. Another, found dead at Carthall, quite near, was brought to me, and both were possibly birds from Dalkeith grounds.

**BUNTINGS.**—The Yellow Bunting is common and nests. The Reed-Bunting is scarce for a place seemingly suited for it. A pair of Common Buntings occurred about the Haugh one summer, and this species is occasionally seen at other times. The Snow-Bunting is common on the beach at Esk-mouth some winters. It was numerous in the winter of 1928-29.

**WAGTAILS.**—Pied and Grey Wagtails are about all the year, the latter nesting annually in the Haugh. The Pied Wagtail was once seen with a brood of young.

**LARKS and PIPITS.**—The Skylark is common during the non-breeding season on the links near the sea and a few nest in the fields beside the Esk near Inveresk Church. Rock-Pipits are seen on the beach during some winters. The Tree-Pipit was once heard in market gardens in the Haugh. The Meadow-Pipit occurs singly and in small parties, and is often seen on the links at the sea during the winter months, and in the fields bordering the Esk during summer.

**TITS.**—The Blue Tit and Great Tit are in the Haugh all the year, where both nest. A few Cole Tits are seen some winters and small parties of Long-tailed Tits are often seen in the Haugh from August to April.

**SWALLOWS, ETC.**—The common Swallow, Martin and Sand-Martin, and also the Swift can be seen together by the river and all nest in the vicinity.

**CROWS.**—A few Rooks nest beside the Esk in the middle of Musselburgh, and as there are several Rookeries near this bird is plentiful. Numbers of Jackdaws nest in the Haugh, and during winter are common on the beach, where they and the Rooks compete with the Gulls. The Magpie has nested in the Haugh, where a pair can often be seen—

nine birds were seen one winter. Starlings are numerous from Inveresk Church to the sea. This species mixes freely with other birds, and I have seen individuals feeding in company with Dunlin at the side of the Esk. Though entirely different types, there was a similarity in the feverish activity while feeding, and both species seemed equally successful and were entirely indifferent to each other's presence.

VARIOUS SPECIES.—The Cuckoo has been seen twice near Inveresk Church. The Kingfisher was seen daily a few years ago, but lately it has apparently been absent. I once observed a Kingfisher, sitting on the bank level with the river, make an undignified splash into the water with as much success as from the more usual position. On 3rd June 1920, when going along the river side near Inveresk Church, I was rather surprised and delighted to find two Bee-Eaters perched on a fence by the riverside. The following two weeks, when we watched these birds soaring about in the sunshine, catching bees, selecting a nesting site and tunnelling out the hole, will ever be remembered. A full account of this occurrence by Dr W. Eagle Clarke, appeared in the SCOTTISH NATURALIST, October 1920. This is the most important record for the area. The Dipper is rather a scarce bird in this part of the Esk and I have only observed it twice, during the winter. Water pollution may be one cause of its rarity, yet the stream suits other birds of similar habits; lack of nesting sites may be another.

The Tawny Owl is common, and I have found it nesting in four different trees in the Haugh. The Kestrel is often observed near Inveresk Church, and also at the links by the sea. The Heron has twice been seen wading in the river. Partridges and Pheasants are occasionally met with during autumn in fields bordering the Esk. In the deep water above the salmon ladder, Waterhens are common and can often be seen with their chicks. At the same spot the Little Grebe is frequent during the greater part of the year, and as many as five have been seen together. Great Crested Grebes can often be seen out at sea during the winter, and this year one was seen sitting on the beach among some Scaup.

During January 1924, for more than two weeks a Water-Rail frequented the side of the Esk. I had this shy bird under observation for fully ten minutes on several occasions. It was seen walking along the bank and entering the water to swim round an obstruction. Another time it waded up to its breast in the water and fed like a Wader, plunging its bill and head completely under water. Others to whom I mentioned this also had the pleasure of watching this bird.

The Ring-Dove is frequently seen during the winter, and Stockdoves frequented the Haugh for a year or two and then disappeared. A few nests were found at the time, and I imagine they were an overflow from Dalkeith Park where they nest yearly.

WADERS and ALLIED GROUP.—During the non-breeding season various members of this group visit the mud-flats at the mouth of the Esk in large numbers. Ringed Plover, Golden Plover, Oystercatchers, Dunlin, Knots, Redshank, Bar-tailed Godwits, and Curlew are the most abundant. Turnstones were fairly numerous this winter, 1928-29. The Whimbrel is often observed during autumn, its peculiar cry usually attracting one's attention. A Green-shank was observed this year at the Esk mouth, and another was seen farther along the beach a few years ago. Lapwings are seldom seen on the beach, but frequently by the river near Inveresk Church, where they nest in the neighbouring fields. Every year a pair of Common Sandpipers visit the Haugh, where they have nested. At the same place during winter Snipe are often met with, and a few years ago, when a severe frost prevailed, a Woodcock was about for two days.

GULLS and TERNS.—Gulls are numerous during most of the year at Musselburgh. At the mouth of the Esk and in the river, also the fields bordering, Black-headed Gulls, Herring Gulls, and Common Gulls can usually be seen. During the non-breeding season the Great Black-backed Gull is always about the beach. The Lesser Black-back is seen occasionally, but is not common. In June 1925, three Kittiwakes came into the river and started bathing, and

stayed for three days. I got quite near them as they perched on the walls at the Esk mouth. Arctic Skuas have been observed several times chasing the Common Terns that frequent the river mouth in the autumn. The Common Tern can also be seen far up the river, but the Sandwich Tern is only met with by the sea.

DUCKS, ETC. — During the winter and spring months Scaup, Goldeneye, and Mallard are numerous on the sea at the Esk mouth. After the shore-shooting closes they can be seen right into the river. Single birds of all three species are often met with on the pool above the falls in the Haugh. At the same place a Mallard with a brood of young, two Teal Duck, and a male Tufted have been seen. During the severe frost of February this year several Tufted Duck were about the beach and the river, but this species is not common. The Red-breasted Merganser is occasionally seen flying past or fishing close to the river mouth. I saw a fine male bird shot between the river walls. Common and Velvet Scoters were much in evidence during the past winter. During September 1928 several Eider Ducks put in an appearance at the mouth of the Esk, including a few adult males. This is the only time I have seen this species here. Flocks of Pink-footed Geese are often seen flying over Musselburgh. From the mouth of the Esk the Gannet has been observed several times fishing off shore. The Cormorant is common at the river mouth, often coming right into the fresh water. The Red-throated Diver is also frequent, and I have seen several of these birds shot at the river mouth for the mere sake of shooting. A *bona-fide* naturalist would be called in question for taking a single egg, yet this senseless destruction is allowed to go on.

This completes the list up to date (April 1929), and it seems strange that such birds as the Razorbill or Guillemot are not included, but they have never been observed during any of my visits. Several abnormally coloured birds have been observed in the locality, such as a Robin with a white tail, a Jackdaw with white patches on the wings, a House-Sparrow entirely light grey, another of the same species almost black, and a perfect albino Blackbird.



## NOTES

**Golden Oriole in Cockburnspath District.**—I am informed on reliable authority that a Golden Oriole (*Oriolus oriolus*) was observed on 26th, 28th, and 29th June at some sheepfolds between the upland farms of Stotencleugh and Aikengall, in the parish of Oldham Stocks, East Lothian.—ALLAN A. FALCONER, Duns.

**Turtle-Dove in Ardnamurchan, Argyll.**—I am sending you a young Turtle-Dove shot at Salen, Acharacle, on 29th August, when feeding on the ground. There is no record of this species in this (Ardnamurchan) district in Mr Dalgleish's records (1856-96) or in mine (since 1921).—BRUSE CAMPBELL, Acharacle.

**Dusky Redshank in Fife.**—On 26th August 1929 at Balcomie, East Fife, we flushed a Dusky Redshank (*Tringa erythropus*) along with one of the common species. There were a good many other Waders on the rocks, including small numbers of Knots and Turnstones. On our previous visit, on 17th August, there were large numbers of Turnstones, a Greenshank, and a Whimbrel.—LEONORA JEFFREY RINTOUL and EVELYN V. BAXTER.

**Black-tailed Godwits at Hoselaw Loch, Roxburghshire.**—When at Hoselaw Loch, Roxburghshire, on the 29th of April 1929, I saw on an island in the loch, five Black-tailed Godwits (*Limosa l. limosa*), four of which were in summer plumage, the other being much greyer. Though the Black-tailed Godwit has occurred in Berwickshire, there is no previous record for the County of Roxburgh. On the loch there was a party of ten Goosanders, which were inclined to break up into pairs. They are a common winter visitor to the loch, but are not usually seen there so late in the season. Major Somervail, who has watched the birds there for many years, told me he had one record of the Velvet Scoter and one of the Slavonian Grebe having visited the loch. Both of these are additions to the county list.—LEONORA JEFFREY RINTOUL.

**Sandwich Terns in North Argyll.**—When crossing the Sound of Iona on 30th June 1929 I noticed several Sandwich Terns (*Sterna s. sandvicensis*) fishing in the Sound. On catching the fly they flew off to the northward carrying the fish in their beaks as if feeding young. As there is no record of Sandwich Terns breeding in North Argyll or the Inner Hebrides, I think this is worth recording, in hope that it may lead to the discovery of a colony next season.—EVELYN V. BAXTER.

**Lesser Whitethroat (*Sylvia curruca*) nesting in Inverness-shire.**—I wish to record the nesting of the Lesser Whitethroat at Roy Bridge, in Inverness-shire, a county in which the bird is known only to have nested on rare occasions. In July I watched a pair for several days in a rough patch of gorse and silver birch on the south bank of the river Spean. The nest was eventually deserted, and I sent it and the two eggs to Dr Eagle Clarke, who had kindly said he would examine for me, and was glad to hear from him that the eggs were typical specimens of those of the Lesser Whitethroat.—DOROTHY PARKER-RHODES, Finningley Park, Bawtry, Yorkshire.

**Black-headed Bunting at Fair Isle.**—A male example of the Black-headed Bunting (*Emberiza melanocephala*) was obtained here on 27th May last. The skin is now in the possession of J. A. Armitage, Esq., 24 Swift Street, Barnsley.—JEROME WILSON, Fair Isle.

[This is the third recorded occurrence of this bird at Fair Isle, and the fourth in Scotland. It is the first which has been obtained in spring.—ED.]

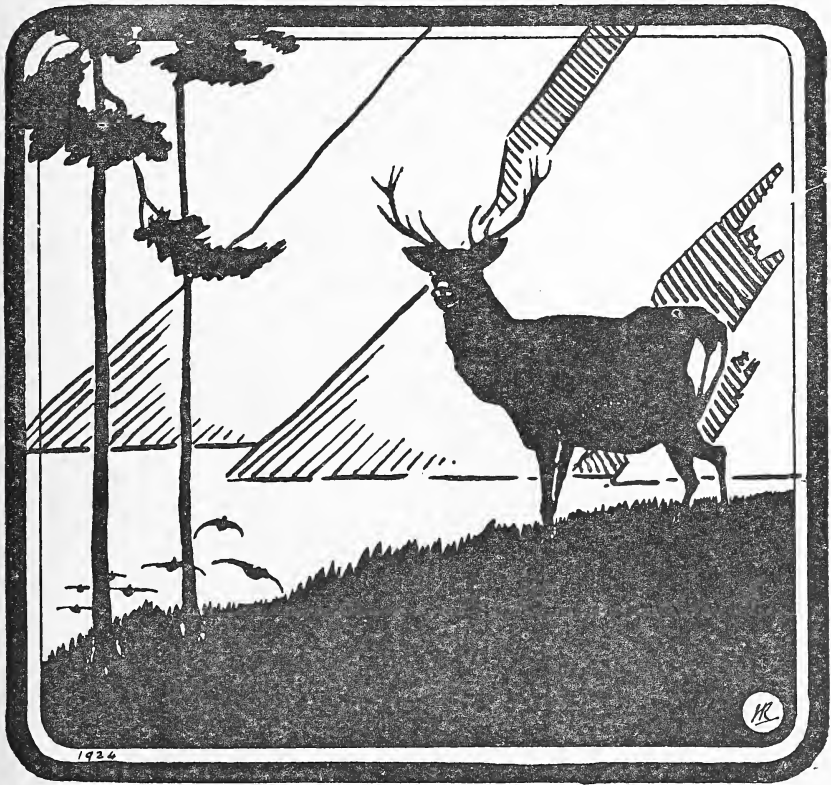
**The Grey Squirrel in Forfar.**—A Grey Squirrel was seen on Friday and Saturday, 30th and 31st August, in the tall fir trees in the grounds of this house, by my wife and some schoolboys. The main road from Perth to Dundee lies alongside and the nearest woods are a mile distant with only ploughed fields between—no hedges.—JOHN E. MACRAE, Invergowrie.

**Curious Feeding Habits of Sand-Martins.**—Sand-Martins, about 150 of them, have swarmed on and around the church tower here next the Rectory, every evening from 26th August to 2nd September, between 6 P.M. and 8.15 P.M., but only for half an hour on any evening. They cling closely to the rough ashlar and to all cornice or carving on the outside of the tower, and yesterday (1st September) also to the slates and gutters, of the east side of the exterior. I think they prey on a hatch of flies found in the green lichen on the tower, and that the red sandstone keeps the warmth of the declining sun long enough to create this evening hatch.

I have seen bats (3 or 4) flying in circles about this tower and spire, over 160 feet up, just like Swallows, this summer on still evenings: I suppose they got flies hatched and carried upwards in the currents of warm air from the sun-heated tower.—JOHN E. MACRAE, Invergowrie.



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## EVERY NATURALIST SHOULD READ

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- The Destruction of Methil Dock-gates by Marine Organisms. (Illustrated.)
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- A Remarkable Whale Invasion.
- The Natural History of Floods.
- List of Birds of the Forth Area.
- Scarcity of the Corncrake.
- The Rookeries of Edinburgh and Midlothian.
- The Garganey—an addition to the Breeding Birds of Scotland.
- Remarkable Decrease of the House-Sparrow.
- Natural History as a Profession.
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- Instinct and Intelligence in Insects.
- The Gannets of the Bass Rock—Estimated Numbers and a Count.
- Annual Reports on Scottish Ornithology, including Migration.

As well as numerous shorter notices of interesting events in the Wild Life of Scotland.

# The Scottish Naturalist

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## THE GOVERNMENT AND NATURAL HISTORY.

IT can scarcely be said that the Governments of the British Isles have shown much interest in the natural history of their own country. Apart from a series of laws protecting wild birds, forced upon them by the great numbers of bird lovers which Britain has always been fortunate to possess, and a solitary law protecting the Grey Seal, they have almost left the fauna and flora to fend for itself. This indifference and passivity would not seem so glaring a deficiency were it not that almost every other country in the world, large or small, has made strenuous efforts to protect its wild creatures, while Britain has stood calmly by.

The other day a vigorous and strong-worded debate took place in the House of Lords about the unnecessary destruction of wild life in some of our African colonies. It was no party affair, for men of every shade of opinion joined in denouncing the slaughter which is said to have taken place. So-called sportsmen have been chasing antelopes and other wild animals and shooting them from motor-cars when the animals were exhausted. This travesty of sport is inexcusable, and Lord Passfield, speaking for the Government, showed that already it was illegal and that efforts were being made, by the appointment of additional wardens, to bring the law-breakers to book.

But to our parochial mind this furious debate and whole-hearted sympathy for the protection of the wild animals in Africa seemed curiously inconsistent with the neglect meted out to inhabitants of our own country. Africa is a great place and a wild place, there are many spots where wild creatures can shelter in safety, not to speak of the reserves where they are nominally under strict protection. Few of the creatures there are in danger of immediate extermination.

How different it is in our own land! Here wild places become fewer and more restricted; there are no reserves where animals may live in security, except the shelter of the deer-forests, for the existence of which naturalists must ever be grateful to the great landed proprietors. As a consequence the rarer members of the fauna become scarcer and scarcer, until they stand on the verge of extinction. It is sad to think that we have lost creatures like the Elk, the Reindeer and the Beaver, but that was in the far past, before wild creatures were valued for themselves. Yet it cannot be doubted that others are following the same path towards extinction.

A hundred years ago the Polecat was a common animal in Scotland; in 1831, 600 Polecat skins were on sale at the Dumfries Fur Fair. But it is now many years since we heard of a Polecat seen anywhere in Scotland—if it is not already extinct the Fomart must be on the very brink of extinction. The Pine Marten follows the same stony road. Once it was a common animal throughout the wooded parts of the country. It still, we are glad to think, retains a foothold, none too secure, in the wilds of northern Scotland, but the occurrence of two individuals, recorded in our last issue, only emphasises its scarcity where once it was familiar. And although in recent years the Wild Cat has shown sporadic appearances in places which it had long forsaken, and although it clings tenaciously to its hold in some of the northern forests, much of its territory has been lost, and, on a broad view, it also must be regarded as moving towards the final goal of all rare and persecuted things.

Now while we rightly concern ourselves with the protection

of our colonial animals which, mark you, the colonies themselves do their best to protect by law, by staffs of wardens, and by the formation of reserves, how dare we venture to pull the mote out of our brother's eye. Has the time not come when we should consider the mote, larger by far, that dims our own eyes? What about our own diminishing fauna of interesting creatures? Let some of the enthusiastic members of the House of Lords, who so strongly championed the animals of Africa which are in no immediate danger of extermination, turn to consider the case of the disappearing mammals of Britain. Or let the equally enthusiastic members of the House of Commons who, a year or two ago, killed a Wild Birds Protection Bill, because it did not prohibit school-boys from taking Black-birds' eggs, consider the case of the Polecat, the Marten and the Wild Cat, and see whether something cannot now be done to make amends for past neglect and save our own British animals from the fate which has already befallen too many of them.—J. R.

## NOTES

**White-sided Dolphin in North Sea.**—A White-sided Dolphin (*Lagenorhynchus acutus*), received at the Royal Scottish Museum from Messrs Sawers, Glasgow, was caught by a Grimsby trawler about 11th November 1929, 150 miles east of Buchan Ness, in Aberdeenshire. It is a young female, 4 feet 2½ inches in length, with a girth of 2 feet 3 inches behind the flippers. As Mr Charles Oldham showed in the last part of the SCOT. NAT. (p. 133), this species is much more common in Scottish waters than has been generally supposed. The present record differs from earlier records, however, in showing that this Dolphin may occur in the winter months as well as in summer, to which all previous records have referred.—JAMES RITCHIE.

**Nightingale in Shetland—Second Scottish Record.**—In a disused aviary in my garden in Lerwick, a Nightingale was found on the morning of 5th September. It had apparently entered through one of the holes in the aviary, which has not been in use since the war. The weather at the time was fine and had been so for two or three days, with a moderate north-westerly wind blowing. The bird was forwarded to the Royal Scottish Museum for identification, and I learn that it was an adult female of the common Nightingale, *Luscinia megarhyncha*.—G. T. KAY, Lerwick.

[The only other definite record of the presence of the Nightingale in Scotland is that of an individual found by Miss Rintoul and Miss Baxter on the Isle of May on 9th May 1911. That bird had over-shot the mark on its spring migration, but the Lerwick bird had apparently been carried far from its normal route at a time when European Nightingales were making for their southern winter quarters.—EDS.]

**Winter Egg-laying of Starling.**—A curious habit of the Starling to drop eggs at unconsidered spots, such as a lawn, has often been recorded, but the persistent dropping of eggs in November indicates unseasonable breeding as well. On 7th November one Starling's egg was found on grass in front of Mr Robert Hislop's house, Hillfoot, Lockerbie; on 20th November at the same place two more; on the 22nd another two, and on the 23rd a final solitary egg. There was no sign of a nest and there were no bushes in the vicinity. Perhaps the open autumn may have induced an advance of the breeding season for one or more individual birds.—J. ARTHUR THOMSON, Aberdeen.



## THE SPREAD OF THE MOUNTAIN HARE IN THE SCOTTISH LOWLANDS AND BORDER COUNTRY.

By Dr JAMES RITCHIE.

THE Mountain Hares which now inhabit the Lowlands of Scotland are not natives in the strict sense of the word. Not so long ago the whole area could boast not a single Mountain Hare, and all such Hares that it possesses to-day are the descendants of individuals deliberately transported from the Highlands by human agency and set free in order to colonise a new district, if they could. Little did the enthusiasts who released their few pairs of Mountain Hares in Manor Parish, on the Pentlands and on Cairntable, dream that they were founding colonies which were to people practically the whole of the southern uplands from the North Sea to the North Channel, from the Firth of Forth to the Solway, and even beyond the Borders into the northern territories of England.

That colonisation, although relatively rapid, must have been at the same time gradual, each new area being first prospected by scouts or overflow population from the older areas adjacent, then settled by permanent colonists, and finally, on the increase of its Hare population, becoming a base for future extensions of range. It is seldom that any gradual and new process in Nature, unless it be imposingly rapid, is noticed or at any rate recorded by its contemporaries, and on this account our knowledge of the actual steps in the colonisation of the southern uplands by the Mountain Hare is of the most scanty nature. Such information as was available I have set out in *The Influence of Man on Animal Life in Scotland* (1920, p. 282), and I have since shown that in the south-west the Mountain Hare has been increasing in number steadily and rapidly during the present century (SCOT. NAT., 1925, p. 47).

Through the kindness of His Grace the Duke of Buccleuch I am now able to add some information obtained

by Mr J. H. Milne Home in response to a series of questions sent to the oldest shepherds on the Buccleuch estates in southern Scotland. The information is interesting because it relates to an area where the spread of the White Hare appeared to have gone unobserved, and because it represents the last chance of obtaining first-hand knowledge of the original movement. Further notes, collected by Mr John Kinghorn, indicate progress across the Borders.

So far as is known, Mountain Hares were set free in a very small number of places in the Lowlands, though it may well be that some cases of transplanting have gone unrecorded. In Manor Parish in Peeblesshire they seem to have been released about 1834, and further colonies were planted in the same county in 1846 and 1847. In 1861 and 1862 a colony was commenced on Cairntable on the borders of Ayrshire and Lanarkshire, and in 1867 or 1868 some were set free on the Pentland Hills. From these few centres the Lowlands appear to have been stocked, and it becomes a matter of interest to inquire when the different areas were first settled. From such records we may discover the rate at which colonisation took place, the part played by each centre of distribution, and the routes followed by the colonists.

Of the three centres the Pentland Hills seem to have remained isolated, with little influence upon the neighbouring areas, for the Lammermoor Hills had already been colonised from another centre before the year of the Pentland Hills transplantation. The apparent insignificance of these hills as a centre of distribution may be due to a real topographical isolation, for the Pentlands stand like an island cut off from the neighbouring ranges. Now the Mountain Hare, although it may be forced in winter down into the high valleys, generally shuns low ground and cultivated areas, so that these, the highways of migration for most animals, may act in the case of a mountain-loving species as real barriers to distribution.

The Cairntable or Glen Buck introduction of 1861 was immediately successful, for five years later, as the late Dr B. N. Peach informed me, the Hares already formed a stable food

supply of the shepherds of the locality. It can be safely assumed that the increasing numbers found an easy passage along the high ground to the Leadhills and so to Queensberry Hill where they were reported in 1865, although it is possible that they were reinforced *en route* by offshoots from the Peeblesshire establishments. To this joint army, if not to the Cairntable colony alone, is due the colonisation of the south-western Lowlands, which reached the verge of the Solway Firth, in the neighbourhood of Kirkgunzeon and Criffel Moors, south-west of Dumfries, between 1878 and 1880, and now extends through the high ground of Dumfriesshire, Kirkcudbrightshire, Wigtownshire, and southern Ayrshire.

The Peeblesshire introductions about 1834, when the Mountain Hare was recorded as an inhabitant of Manor Parish in the *New Statistical Account*, and of 1846 or 1847, when they were set free on the highest hills in the same Parish, played even a greater part in the colonisation of the border country. The dates of the appearance of the Hares, in the Lammermoors about 1860, in a southern offshoot among the Lauderdale moors in Berwickshire about 1864, and in a western offshoot in east Haddingtonshire about 1880, clearly mark the highway of a north-eastern march from Manor-Parish.

South-eastwards from Peeblesshire the extension of range of the Mountain Hare has been even more imposing. It is known to range over the high ground in Selkirkshire, Roxburghshire, and eastern Dumfriesshire, but so far no records have been forthcoming to indicate the periods of its colonisation of these wide districts. It is to this area that I wish particularly to turn; and since the information here set out has been obtained from the oldest shepherds in the area, the men most likely to have come in contact with a denizen of the high grazings, there is little likelihood that the future will furnish much new information regarding a progress, the early stages of which are now almost beyond the memory of living men.

The valley systems afford the most familiar topographical divisions of the Lowlands, and for convenience I have

grouped the series of dates according to the valleys, arranging these in order of receding distance from the centre of distribution in Peeblesshire, since that presumably indicates the general order of the movements of the Hares. Thus we have new data from Moffat Water, Upper Eskdale and Lower Eskdale, Liddesdale, and finally from the Cheviots across the Scottish border.

MOFFAT WATER: *Birkhill*, 1865. — Thomas Beattie, shepherd at Twiglees, writes (20th August 1927): "There are no old people in this Parish or Ettrick now who could have told me when the Mountain Hare first appeared. A few days ago I heard the following from Robert Laidlaw, Davington, who is in his 84th year — he was a young shepherd at Polmoodie in Moffat Water in 1866. John Broadfoot, shepherd at Birkhill, in the same parish, told Laidlaw that he saw the first White Hare in 1865; he had been a shepherd at Birkhill for many years previous to that year."

UPPER ESKDALE: *Lochfell*, 1870-71.—In the same letter Beattie states that: "My first view of a White Hare was with James Moffat, Garwald, on Lochfell [altitude 2256 feet, forming the watershed between Upper Annandale and Upper Eskdale] in the winter of 1870-71. We had greyhounds but saw only one. Some years later I shot six from the Pen to Lochfell. They have never been numerous in Upper Eskdale compared with the Tweed and other places. They do shift to lower ground and remain: I have seen them on Billholm."

*Eskdalemuir*, about 1860; *Bailliehill*, 1873 or 1874.—Mr Thomas Hyslop, shepherd at Lynholm, Westerkirk, Langholm, writes (March 1927): "My father can only recollect once seeing a White Hare on Bailliehill about fifty-three or fifty-four years ago, but he says he can remember quite well when a boy, nearly seventy years ago, of hearing the Nether Cassock shepherds, who stayed overnight at Bailliehill on their way to the Lamb Fairs, speaking about the White Hares being on the Pen of Eskdalemuir. When they first made their appearance he cannot say. Of course not being

amongst them he never took any interest in them. From what he has heard other people say, he thinks there must be a noticeable increase as they seem to be quite numerous on many farms where they were never heard of in former years. Latterly I have seen them on Lynholm myself, although they were always pretty high out. Still I have heard others speak of seeing them as low in as turnip fields during a storm in winter."

LOWER ESKDALE: *Meikledale, Ewes, 1878*.—Of this district, near Langholm, Mr R. Common writes (March 1927): "The first White Hare I ever saw was in the winter of 1878; my dog killed it. I am not aware that they had been seen before that. There has been a very considerable increase recently. They are, however, not so plentiful by a lot as they were three years ago [1924], at which time they were very much in evidence. They have not changed their ground at all, and were only seen in the fields about the time I have stated when they were most plentiful."

*Cooms, Ewes, about 1870*.—Mr David Anderson writes: "My father left Billhope and came to Arkletonshiel. I was at that time going to school [about 1870] and was often at the Cooms and very frequently went to the hill. I can confidently say that they are much more numerous now than they were then. I do not think they shift their ground in winter. They seem to stick tenaciously to the high ground even when the snow lies deep."

LIDDESDALE: *Billhope, 1869*.—Mr David Anderson, shepherd at Cooms, Ewes, writes (March 1927): "I can distinctly recollect the first White Hare I saw. It was when I was quite a boy accompanying my father to the hill at Billhope [on Black Burn] on the farm of Gowanberry. At that time there would be very few White Hares round Hermitage Waterhead. This event must date back about fifty-eight years."

*Newcastleton District, before 1875*.—Mr David Ballantyne, Shaws, Newcastleton, writes (March 1927): "When I started fox-hunting in 1885 on the farms of Sundhope (Greatmoor), Braidly (Cauldcleuch), Roan (Roan Fell), I

used to see not more than about three on each place. I have heard my late father, when fox-hunting in 1875, come in and tell me he had seen a White Hare, and he said it was a rare thing to see one. I have heard the late William Murray, a long time shepherd on Sundhope, say he had seen one on Greatmoor a good many years before these dates. They have increased greatly in numbers, particularly about 1912. Three of us shot 139 in one day and 45 the next forenoon on Leithen Water farm in Peeblesshire. They have also spread to new ground. I remember since there was none except on these high hills I have named, and now they are on the Toftholm, on the top end next Dinley and on the Holm Hill and fields at Newcastleton."

THE CHEVIOT HILLS IN NORTHUMBERLAND.—The Mountain Hare from its Liddesdale colony has crossed the borders into England, but the migration does not seem to have made much headway on English soil, either in extent or in numbers. Mr John Kinghorn's inquiries amongst the shepherds known to him show that a pair was seen on the eastern slopes of Cheviot about 1889, and single individuals or pairs have been seen on the northern slopes in 1915 and 1929. About 1923 two solitary individuals were seen at different places on the English side of the Border south of Auchope, and in 1925 one frequented the high ground west of Harbottle on the Coquet.

Mr Kinghorn notes (letter of 4th October 1929), that "as one goes south [from Cheviot] along the Border line to Carter Bar there is an increase in hares, and from a few miles beyond the Carter Bar to Newcastleton district [in Liddesdale] they are very numerous in all the high land. At the Torris, Ewes, Hermitage and Teviot waters they are also very numerous, and a former gamekeeper from that district informs me that a few years ago there were about twenty White Hares killed to one brown one, whereas forty years ago they were as scarce as in any district here."

*Trend of the Colonisation of the S.E. Lowlands.*

It would be dangerous to dogmatise in interpreting the drift of the Mountain Hare, in view of the scarcity of the

records, of the fact that the dates depend on far-back recollection, and that the first sight of a Mountain Hare may correspond very indifferently with the animal's first invasion of a district. But it may be said generally that in the '50s and '60s of last century the Hares crept southwards from Manor Parish in Peeblesshire, along the ridge where Broad Law and Hart Fell form prominent summits. Brought thus to the high ground at the source of the Black Esk (Lochfell) probably some years before 1870, they turned eastwards and colonised the watershed between Eskdale and Liddesdale in the '70s, the earliest date in this area being 1869 at Billhope, although the general run of the records is from 1873 to 1878. The increase in numbers which Mr Kinghorn noted as progress southwards was made along the Borders from Cheviot, indicates the direction, reversed, of the Hare's movements. From Upper Liddesdale they pushed north-eastwards along the Cheviot Hills, until in 1889 they were established on the eastern slopes of Great Cheviot.

The record at Eskdalemuir about 1860 appears somewhat anomalous among the '70s which surround it. It may indicate that the progress of the Hares was more rapid than the dates as a whole suggest, or it may possibly indicate the district of an independent and unrecorded establishment of Mountain Hares.

## NOTES

**Black Redstart in Peeblesshire.**—On the 25th November I saw a small dark-coloured bird flitting about a scree below an old quarry on a hillside at this place, and on a nearer approach I was interested to see that the stranger was a Black Redstart (*Phoenicurus ochrurus gibraltariensis*). The bird was not particularly shy and I watched it, with binoculars, for a considerable time from a distance of about thirty yards. It was engaged in catching flies. From the very dark coloration I think the bird was an adult male.

So far as I can ascertain there is no previous recorded occurrence of the Black Redstart in Peeblesshire.—T. G. LAIDLAW, Halmyre.

**Leach's Fork-tailed Petrel in Orkney.**—On 19th October an example of this bird (*Oceanodroma leucorhoa*) was found by me dead at Holland, Papa Westray, Orkney. It was identified at the Royal Scottish Museum.—WM. TRAILL, Papa Westray.

**Northward extension of Capercaillie to Sutherland.**—It would appear that the Capercaillie is slowly but gradually extending its range to the north, for Dr Kennedy of Dunbeath, Caithness, tells me that in 1927 he flushed a hen Caper, which flew across the road in front of his car, near Skibo, north of the Dornoch Firth. In 1912 Capercaillies were recorded as being greatly on the increase in the Beaully district of Inverness-shire and the neighbouring part of Ross-shire to Muir of Ord (*Field*, April 1912, p. 744). There it was stated that the spread was due to birds introduced at Guisachan, on the head-stream of River Glass, but it seems just as likely that the persistent introductions which took place in Strathnairn every year from 1894 to 1900, may have had to do, at any rate in part, with this northward extension. Now the birds have pushed their way westward some thirty-five miles west of Dingwall to Achanalt (*Scot. Nat.*, 1929, p. 14) and northward by a well-wooded route by Evanton, towards the northern boundary of Ross. Thence the passage to Sutherland is an easy one, either by direct flight across the Dornoch Firth, or by wandering through the woods of Bonar Bridge and Spinningdale. From the Muir of Ord to Skibo the distance in a direct line, which would be approximately the line of route, is about 27 miles, and this has been covered in about fifteen years.—JAMES RITCHIE.



## A BIRD-COUNT IN LEWIS.

By A. B. DUNCAN, M.B.O.U.

ALTHOUGH every visitor to the Islands of Lewis and Harris must have been struck by the small numbers of birds to be seen, no statistics bearing on this point appear to have been published. The following rough count, therefore, is a first attempt at assessing the bird population.

The count was made by three observers—Rev. J. M. M'William, my brother, J. B. Duncan, and myself—on the 11th of July 1929 from an open Ford car. Owing to the bad roads the car went at a slow pace and so enabled an accurate count to be taken. All birds were counted except gulls, of which three species—Herring, Lesser Black-backed and Common, were constantly in sight.

The first count was taken between Stornoway and Callernish, a distance of some 15 miles. We did not begin the count till after we had left the woods round Stornoway Castle so as not to include the birds of the woodland association. The road lies over a desolate and boggy moorland, with only a few crofts, and more numerous peat stacks by the roadside.

The birds noted were:—

Hooded Crow	.	.	.	2
Starling	.	.	.	15
House-Sparrow	.	.	.	3
Corn-Bunting	.	.	.	3
Skylark	.	.	.	1
Meadow-Pipit	.	.	.	5
Wheatear	.	.	.	18
Hawk (Sp. ?)	.	.	.	1
Landrail	.	.	.	1

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49 or  $3\frac{1}{2}$  birds per mile.

The hawk was probably a Kestrel but was only seen for a moment at a considerable distance. The Corn-Bunting was absent until we reached the west side, the first being seen on one of the standing stones of Callernish.

The second count was taken between Callernish and Galson, a distance of about 25 miles, the road running most of the way along the west coast of Lewis. The land round the road was chiefly crofted, being interspersed with stretches of boggy moorland.

The birds noted were:—

Hooded Crow	.	.	.	4
Starling	.	.	.	146
Corn-Bunting	.	.	.	15
Skylark	.	.	.	5
Meadow-Pipit	.	.	.	9
Song-Thrush	.	.	.	1
Wheatear	.	.	.	14
Wren	.	.	.	1
Lapwing	.	.	.	2

197 or 8 birds per mile.

The third count was taken between Barvas and Stornoway, a distance of some 11 miles. Here the road runs across the centre of the Lewis through barren moorland, with no crofts at all by the roadside.

The birds noted were:—

Raven	.	.	.	1
Hooded Crow	.	.	.	1
Skylark	.	.	.	2
Meadow-Pipit	.	.	.	2
Wheatear	.	.	.	9

15 or  $1\frac{1}{2}$  birds per mile.

There seem to be some points worthy of consideration raised by these figures.

One of the most striking facts is the few large birds noted: out of 331 birds there are only 11—1 Raven, 7 Hooded Crows, 2 Lapwings, and 1 Hawk. It must however, be remembered that a gull of some species was almost always in sight. In addition to the absence of large birds the absence of the Twite is noteworthy, and the Waders are only represented by two Lapwings. It may be added that in a drive of 120 miles from Stornoway to Rodel and back, on 16th July, we only noted two pairs of Lapwings and no Twites.

The point most clearly brought out by these figures is the extent to which the birds are dependent on man and his cultivation. All the birds increased in number in the second count save the Wheatear, and it is possible that the larger number in the first count was due to the peat stacks of the crofters by the roadside.

The solitary Raven was noted in wild country, but that it too may be associated with man is shown by the fact that on 12th July we saw a family party of five Ravens squabbling with Gulls, Rooks, and Jackdaws, for delicacies at the Stornoway rubbish heap.

The numbers of Starlings were probably exaggerated by the fact that they alone were in flocks of young and old—the other birds being all adult. The Meadow-Pipit and the Wren, on the other hand, probably did not do themselves justice in the count as they are retiring species. The song of the Wren struck us as different from that of the mainland birds. We had an excellent opportunity to listen to it while our car was cooling on the hill at Clisham, Harris, where we heard it repeated many times at close range. The song appears to be more of a ripple and less disjointed than that of the mainland Wrens.

The birds of the Stornoway woods were in curious contrast to those of the roadside; they were in full numbers and we noted: Rook, Jackdaw, Starling, Greenfinch, Chaffinch, Goldcrest, Willow-Warbler, Song-Thrush, Blackbird, Robin, Hedge-Sparrow, Wren, Swallow, and Wood-Pigeon.

**Kite in Kincardineshire.**—It is a regrettable fact that a Kite was inadvertently caught, and killed, in a trap set for vermin—on 18th April 1929—at the back of Graystone Wood, near Glendye, in the parish of Strachan, Kincardineshire. Since the patronymic of the Gladstone family is believed to have been derived from the two words, Glead and stane, this occurrence of the Kite near Glendye is of more than usual interest.—HUGH S. GLADSTONE, Thornhill.

**More Great Spotted Woodpeckers in Shetland.**—On 25th October I sent to the Royal Scottish Museum a young male Great Spotted Woodpecker found at Bixter, Shetland. At that time there were several Woodpeckers in the district.—J. C. BOWIE, Bixter.

**Turnstone at Threipmuir Reservoir.**—On 12th April 1929 a Turnstone was observed at Threipmuir Reservoir in the Pentland Hills. The bird was running along the water's edge turning over the smaller stones in the usual manner.—WILLIAM KEMP, Musselburgh.

**Unusual Eggs of Yellow Bunting.**—On 21st July 1929, a Yellow Bunting's nest with three unusual eggs was found near Tawside Castle. The eggs were entirely unspotted and almost pure white in ground colour. Unspotted eggs are occasionally met with, but the ground colour is usually a purplish cream. When found the eggs were highly incubated, a fact readily seen in white eggs, and a visit paid a few days later found the chicks hatched.—DAVID HAMILTON, Edinburgh.

**Rookeries of Edinburgh and Midlothian.**—In the lists that have appeared on this subject no mention is made of the following rookeries.

(1) Queen's Bay Hotel grounds; 14 nests; in existence for two or three years.

(2) Joppa, near Magdalene Burn; over 60 nests; long established.—DAVID HAMILTON, Edinburgh.

**Cormorant at altitude of 900 feet in Perthshire.**—On the morning of 8th October, after several days of very strong winds, I saw a Cormorant flying over the small lake in my garden at Bleaton Hallet, Blairgowrie, heading north up Glenshee. My altitude up here is roughly 900 feet above sea-level, and as the crow flies I am some 30 miles from the sea. It may not be an unusual occurrence, but this is the first time I have seen a Cormorant during the twenty-five years I have lived here, and I have seldom been from home except during the war.—JAMES M'L. MARSHALL, Blairgowrie.

SOME BIRDS OF HISTORICAL INTEREST IN  
THE ROYAL SCOTTISH MUSEUM.I. BIRDS OF THE VOYAGE OF H.M.S. *Adventure* and  
*Beagle*, 1826-30.

By Surgeon Rear-Admiral J. H. STENHOUSE.

BETWEEN the years 1826 and 1830, a survey of the Straits of Magellan and the adjacent coasts of South America was carried out by two of His Majesty's ships, the *Adventure* and the *Beagle*, the latter better known on account of her subsequent commission, when Charles Darwin was on board. The officer in charge of the survey was Captain Phillip Parker King, a keen student of Nature and a good ornithologist. Among the orders issued to the expedition was one directing the officers to form collections of rare, new, or interesting objects of Natural History, such collections to become the property of the nation; and this order was faithfully carried out.

The first collection was sent home from Rio de Janeiro in July 1827. In it were seventy-eight specimens of birds belonging to sixty-one species: these were exhibited at meetings of the Zoological Society of London. Accompanying the birds was a paper by Captain King, which was published in the *Zoological Journal*, vols. iii. and iv. of 1827 and 1828. In this paper no less than twenty-four birds were described as new to science, and in addition another was described as new by Mr Vigors, then Secretary to the Zoological Society.

In 1830 Captain King returned home, bringing with him his second collection. The birds in it were also exhibited at meetings of the Zoological Society, and in December 1830 nine more birds were described as new, whilst subsequently, in 1831, the final instalment of seven new birds was published, both in the *Proceedings of the Zoological Society*. It is to be regretted that no detailed list of this second collection was issued.

However, about eighty-four species of birds, of which forty-one were considered novelties, were in these collections, and though Captain King's descriptions were in many cases meagre, his names stand; many, however, are mere synonyms, since the species described had previously been named. Apparently most of King's skins were given to the Museum of the Zoological Society, but the British Museum received a number, and in 1831 some were presented to the Museum of the University of Edinburgh. The old University Register, which with the Natural History collections of the University was transferred to the Royal Scottish Museum in 1858, in recording the arrival of these birds does not state how many were received.

In 1877 Mr John Gibson, Assistant in the Edinburgh Museum of Science and Art, as the Royal Scottish Museum was then called, published a paper on some of King's birds in the *Proceedings of the Royal Physical Society of Edinburgh*. At that time twenty of the birds were mounted and on exhibition in the Museum, and it is probable that only a very few more were sent north. Gibson did not give a list of them, but discussed the probability of some being King's types. He dealt only with the birds described in the *Zoological Journal*, and did not mention any of those described in the *Proceedings of the Zoological Society* in 1830 and 1831.

At the present day twenty-one of these birds are still in the Royal Scottish Museum, and an account of them is given here, in view of the uncertainty regarding the disposal of King's types. All have been at one time mounted, but are now again remade into skins.

Of the twenty-one, two are undoubted types or co-types; two others are co-types of good species, whilst three are possible types of synonyms.

#### I. ZONOTRICHIA CANICAPILLA, Gould.

Is in very bad condition. There was one in King's first collection, and this he doubtfully referred to *Fringilla australis* of Latham (*Zoological Journal*, vol. iii., p. 429). In the *Voyage of Adventure and Beagle*, vol. i., p. 534, he left the species unidentified, including it and the two following birds under one heading,

"Fringilla (several species, probably new)," a surmise which was correct for more than one of them. The bird was first described by Gould from a specimen brought home by Darwin.

2. PHRYGILUS XANTHOGRAMMUS (Gray).

One example in juvenile plumage is apparently referable to this species. It has a wing measuring 96 mm. and is longer-winged, has a shorter and more conical bill, and is generally darker than a specimen of the allied species *melanodera* in a similar stage of plumage. This species was also first described from a bird collected by Darwin.

3. PHRYGILUS GAYI (Eydoux and Gervais).

An adult skin in poor condition. The back is chestnut-coloured and the bird is referable to the race renamed *patagonicus* by Lowe (*Ibis*, 1923, p. 515). This bird and *xanthogrammus* must have been in the second collection along with a specimen of *Phrygilus melanodera*, now in the British Museum.

4 and 5. TRUPIALIS M. MILITARIS (Linnæus).

*Strnus militaris*, Linn. King, *Zool. Journal*, vol. iii., p. 429.

There are two skins in fair condition, one adult, one immature. Both are of the typical race. As there was only one specimen in King's first collection, there must have been several in the second: the British Museum has also two collected by King.

6. NOTIOPSAR CURÆUS (Molina).

One example of the Chilian Blackbird in good condition. There was one in the first collection which King referred to the genus *Leistes*, but its specific name was not given.

7. TURDUS MAGELLANICUS, King. *Proc. Zool. Soc.*, 1830, p. 14.

This skin is in quite fair condition. It was one of the novelties in King's second collection and the present skin may be regarded as the type, or at least a co-type if others be in existence. It agrees exactly with King's description.

## 8. SEPHANOIDES GALERITUS (Molina).

*Mellisuga Kingii*, Vigors. *Zool. Journal*, vol. iii., p. 432.

This skin is apparently that of a young male. In King's first collection there was only one, obtained at Port Gallant, also a young male, but from Mr Vigors' description a still younger bird than the present specimen. It is probable that this is one of those obtained at Port San Antonio in March 1828. King seems to have been much interested in this species: he did not expect to meet with a Humming-Bird so far south and in such an inclement clime.

## 9. IPOCRANTOR MAGELLANICUS (King).

*Picus magellanicus*, King. *Zool. Journal*, vol. iii., p. 430.

Five of these Woodpeckers, three males and two females, were in the first collection. All were collected at Port Famine. The plumage of the present specimen is that of a hen bird. It can be regarded as at least a co-type.

## 10. GLAUCIDIUM NANUM (King).

*Strix nana*, King. *Zool. Journal*, vol. iii., p. 427.

One skin in good condition is apparently that of the dark phase of an adult bird. There were three examples of this Owl in the first collection, and all from Port Famine. In the British Museum are two skins—one of a young bird, one of an adult; the present bird may, therefore, be regarded as at least a co-type.

## 11. MICROSITTACE FERRUGINEUS (Muller).

*Psittacus smaragdinus* of Gmelin. King, *Zool. Journal*, vol. iii., p. 430.

There is one specimen of this southerly ranging Parrot.

## 12. HENICOGNATHUS LEPTORHYNCHUS (King).

*Psittacara leptorhyncha*, King. *Proc. Zool. Soc.*, 1830, p. 14.

This is another of the novelties in the second collection. The specimen is in good condition. The locality was given on the Museum label as "Straits of Magellan," but this is evidently an error, as King obtained his specimen or specimens of this Parrot at



Chiloe Island. The bird agrees well with the original description, and must be considered the type, or a co-type should there be others in existence. The British Museum does not possess one of King's collecting.

13. POLYBARUS P. PLANCUS (Miller).

*Falco braziliensis* of Latham. King, *Zool. Journal*, vol. iii.,

p. 423.

One bird in excellent condition.

14. CHLOEPHAGA HYBRIDA (Molina).

*Anser magellanicus* [no authority given]. King, *Zool. Journal*, vol. iv., p. 97.

A female specimen in bad condition. There was one in the first collection, and this may be the bird. In the British Museum are an adult male and an immature bird, part of the second collection.

15. ANAS CRISTATA, Gmelin.

*Anas specularioides*, King. *Zool. Journal*, vol. iv., p. 98.

One specimen in fair condition. The type was in the first collection, but it is impossible to say if this is the bird or not; still there is no mention of any in the second collection, though the species was stated to be common at Port Famine. The bird in the Royal Scottish Museum agrees with King's description.

16. TACHYERES CINEREUS (Gmelin), Steamer Duck.

*Oidemia patachonica*, King. *Zool. Journal*, vol. iv., p. 100.

*Micropterus brachypterus* of Latham. King, *Voyage Adventure*, p. 542.

All that remains of this specimen are the head and the wings. There was only one in the first collection, and Gibson considered that this Scottish Museum specimen was King's original bird: it quite agrees with the description given, and therefore is possibly the type of the synonym.

In the second collection there was another Steamer Duck, which King considered belonged to a different species, and which he described as new under the name of *Micropterus patachonicus* (*Proc. Zool. Soc.*, 1830, p. 15). He stated that it was smaller-bodied, could

fly (which the other cannot do), and was redder on the scapulars and breast. Several other authorities have considered that King was quite correct, others say that there are not two species but only one. The balance of opinion, especially among field naturalists, is in favour of there being two. If such be the case, another specific name is required for the flying species, as *patachonicus* is invalid, that name having been first applied to the non-flying species (see *Voyage Adventure and Beagle*, vol. i., p. 542, where King definitely places *Oidemia patachonica* as a synonym of *M. brachypterus*). Probably the name *macropterus* of Giglioli is available.

17. DAPTION CAPENSIS (Linnæus).

*Procellaria capensis* (Linn.). King, *Zool. Journal*, vol. iv., p. 104.

A specimen in fair condition. It was probably collected, not in the Straits of Magellan, but off the mouth of the River Plate, where it was said to have been very numerous.

18. PODICEPS CALIPAREUS, Lesson.

A specimen of this Grebe is in good condition. It formed part of King's second collection, and is referred to in *Voyage of Adventure and Beagle*, p. 539, as *Podiceps* sp.

19. LIMOSA HÆMASTICA (Linnæus).

One specimen in bad condition is that of a bird apparently beginning to assume summer plumage. I am unable to identify it from King's list, but it may be the bird he refers to as ?*Totanus fuscus*.

20. CHIONIS ALBA (Gmelin).

*Chionis forsteri* of Stephens. King, *Zool. Journal*, vol. iv., p. 96.

Is in good condition. There was only one Sheath-bill in King's first collection, and he mentions that it flew on board the *Adventure* when 200 miles from land. The British Museum also has a Sheathbill of King's collecting and it is impossible to say which of the two is the bird met with at sea.

## 21. FULICA LEUCOPTERA, Vieillot.

*Fulica gallinuloides*, King. *Zool. Journal*, vol. iv., p. 96.

Only one specimen was in the first collection, and that must be the type of the synonym. The question of the Royal Scottish Museum example being that bird was discussed by Gibson, who claimed that it fully agreed with King's original description, being a young bird. There are three skins in the British Museum claimed as co-types: this is of course impossible, but if any one of these is the skin of a young bird the question of the type must be left undecided.

One other bird is mentioned by Gibson, who claimed it as the type, but there is another in the British Museum with an equal claim. This was *Strix rufipes* of King, *Syrnium rufipes* of the present day. The bird cannot now be traced. It is possible that it came to pieces years ago in an attempt to dismount it and that it was destroyed; a fate which more recently nearly befell the remains of the Steamer Duck.

## BIRD NOTES FROM ABERLADY, EAST LoTHIAN.

By OLIVER H. WILD, M.B., Ch.B.

FOR some years Ruffs (*Machetes pugnax*) have been reported on autumnal migration from the coast of East Lothian. In September 1929, these birds have appeared in some numbers. I first observed them at Aberlady on 3rd September, when I saw from one to five individuals in company of flocks of Dunlin and Ringed-Plover, which were feeding at shallow pools on the green sward near the high-tide level. On 4th September I was with Mr Charles Connell at Dunbar. Four Ruffs were seen feeding with Dunlin and Ringed-Plover. These birds were very tame, and although flushed repeatedly, settled again in a few moments at the same spot. The latest date on which I saw them was 8th September, at Aberlady, when a flock of about twenty was observed on the sand near the estuary. Old and young birds of both sexes were noticed.

Among some Sanderling (*Calidris arenaria*) seen on 3rd September, was an individual in the rufous summer plumage. On the same date I saw several Curlew-Sandpiper (*Tringa ferruginea*) in the first winter plumage.

A change of habit of the Oyster-catcher (*Hematopus o. ostralegus*) at Aberlady, may be worthy of note. For many years it has been the habit of these birds to settle at high-tide on the islet of Eybrochie, where they waited until the tide had receded sufficiently for them to settle on the sand in the bay. In 1920 they commenced to rest at high-water on the Luffness golf links. In the present year some of these birds are again frequenting Eybrochie at high-water. Has this innovation anything to do with the fouling of the rocks at Eybrochie with grease? There is no grease on the coast of East Lothian this year, but there has been in previous years.

Canadian Geese (*Branta c. canadensis*) have commenced to frequent Aberlady Bay with some regularity. A flock which I estimate to be sixteen in number fly to the sand after

dark and slowly walk shorewards to feed on the green sward near the high-water mark. I am told "these geese come from the Archerfield district, where they breed."

A pair of Little Tern (*Sterna m. minuta*) reared three young at Aberlady this year. Another pair had their eggs taken.

A pair of Swallows (*Hirundo r. rustica*) nested and reared four young in a stranded fishing boat a quarter mile from the high-water mark. This nest would only be about two feet above the water at high-tide.

---

**Variation in Redshank's Eggs.**—Eggs of the Redshank seldom show much variation. During the last twenty years I have examined a fair number of nests, and, with the exception of two found this year, all eggs have been typical. The ground colour of the Redshank's egg is variously described as, yellowish stone, pale cinnamon, or pale ochreous to reddish ochreous. In the two nests above referred to, which were found at Aberlady, each contained one egg different to the others in the clutch. In the first nest, an egg with the ground colour distinctly green, sparingly spotted with small dots of the usual colour, was quite a contrast to the rest of the clutch. Witherby describes this ground colour as seldom occurring. The egg in the second nest was even more abnormal, being a dirty white ground colour, with a dark zone round the large end.—DAVID HAMILTON, Edinburgh.

**New Locality for the Solitary Wasp, *Odynerus parietinus*, Linn.**—I took a single female of this species feeding on flowers of Compositæ in the gardens of Dirleton Castle, East Lothian, on 7th August. This may be of interest as a new locality, since Saunders mentions Perth as its only Scottish occurrence, in his *Hymenoptera Aculeata*.

Other Hymenoptera present were workers of *Bombus lapidarius* and *Vespa norvegica*, gathering tomentum from the woolly involucres of a thistle-like composite (I believe *Centaurea*); and also a male of *Psithyrus barbutellus*, Kirk.—W. B. R. LAIDLAW, Colinton.

[*Odynerus parietinus* was recorded from Comrie, Perthshire, in 1901, and from Bonhill, Dumbartonshire, in 1904. No other Scottish records are known to us.—ED.]

## BOOK NOTICES

FIELD BOOK OF NORTH AMERICAN MAMMALS. By H. E. Anthony, M.A. New York and London: G. P. Putnam's Sons. Pp. xxv + 625. Price 15s. net.

The author has compiled a field book for the naturalist just as such a book should be. It is of reasonable size, small enough to be carried in a pocket on occasion, and yet it contains descriptions sufficient to identify the 1445 species and subspecies of mammals to be found in North America. Nor is it a simple and dry list of characters; the habits and characteristics of typical examples of the better known species are described in detail, and abundance of illustrations, photographs, pen-drawings and coloured figures of species, as well as maps illustrating distribution, enliven the text and contribute to the ease of identification.

THE BRITISH HYDRACARINA. By Chas. D. Soar and W. Williamson. Vol. iii. London: Ray Society, 1929. Pp. viii + 184. Price 37s. 6d.

With the issue of this volume a classic monograph of British Water-mites is completed. To the specialist it is invaluable, for its clear and not too lengthy descriptions, its wealth of illustrations, of which there are twenty plates, and its summary of distribution in this country and abroad, make identification as easy as identification of minute creatures is ever likely to be. But to the general naturalist the work also conveys a lesson; it shows for the first time what great wealth and variety of Water-mites exist in unconsidered ponds and pools, and the many coloured illustrations suggest a range and beauty of colouring which one is unaccustomed to associate with such microscopic creatures. Many new records for Scottish localities are contained in this as in the earlier volumes. The Ray Society and the two authors are to be congratulated on the publication of this monograph; it is an accomplishment which redounds to the credit of two amateur naturalists who had many other calls upon their time, and we are proud to think that a Scottish naturalist shared a large part in the preparation of the work.

MEMOIRS OF A FIELD NATURALIST. By F. Howard Lancum. London: The Burlington Publishing Co., Ltd. [1929]. Pp. 184. Price 6s.

This is a collection of forty-four short natural history essays, or rather extended nature notes. They have none of the real essay's qualities of rounded completeness, but depict odd observations made by their author at all times and places and on almost any odd creature. As a result the collection appears disjointed and somewhat scrappy; but if the sketches are not profound they have the merit of being first-hand observations of wild life written for "the nature lover who takes a simple pleasure in observing the ways of birds, beasts and insects."

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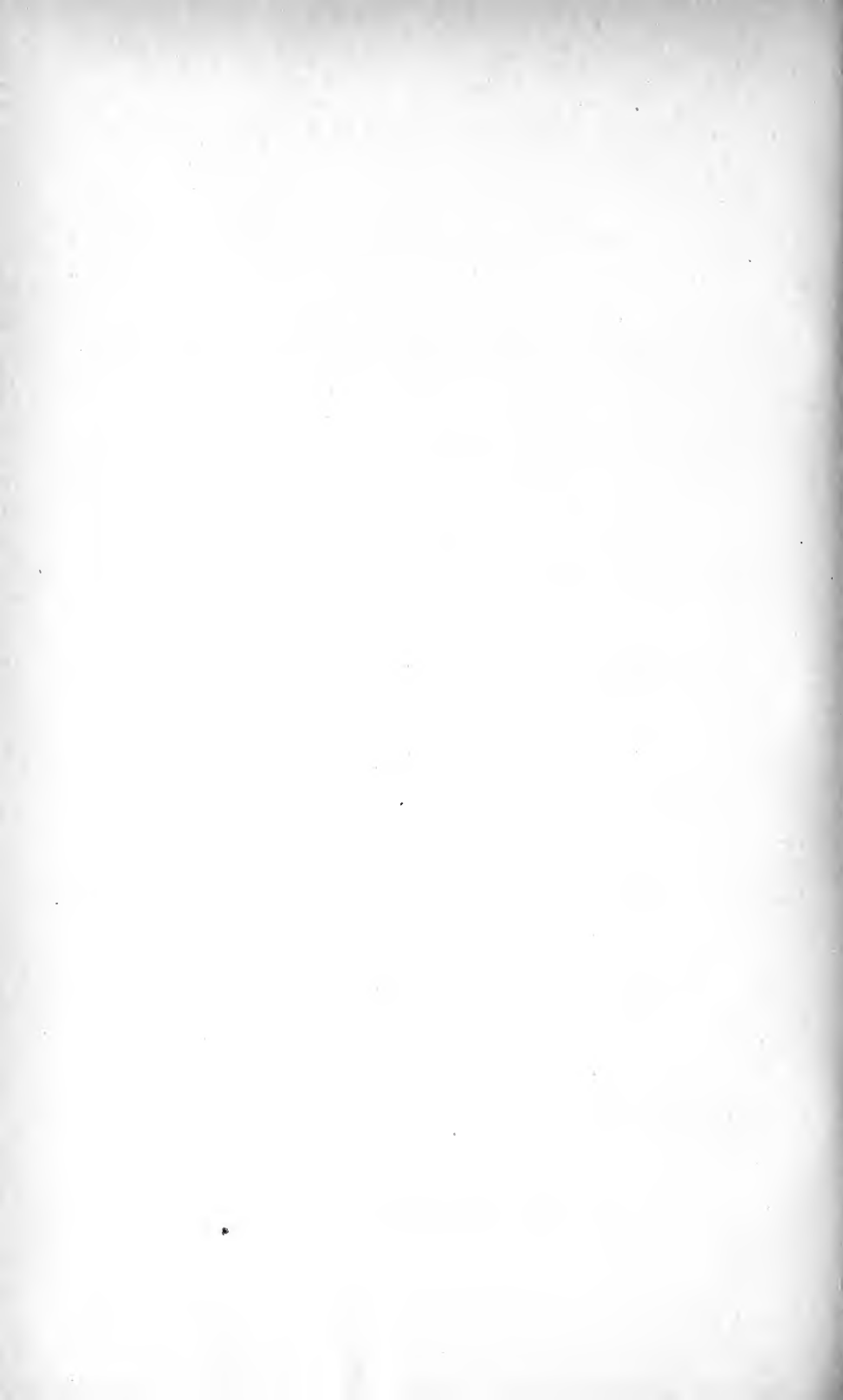
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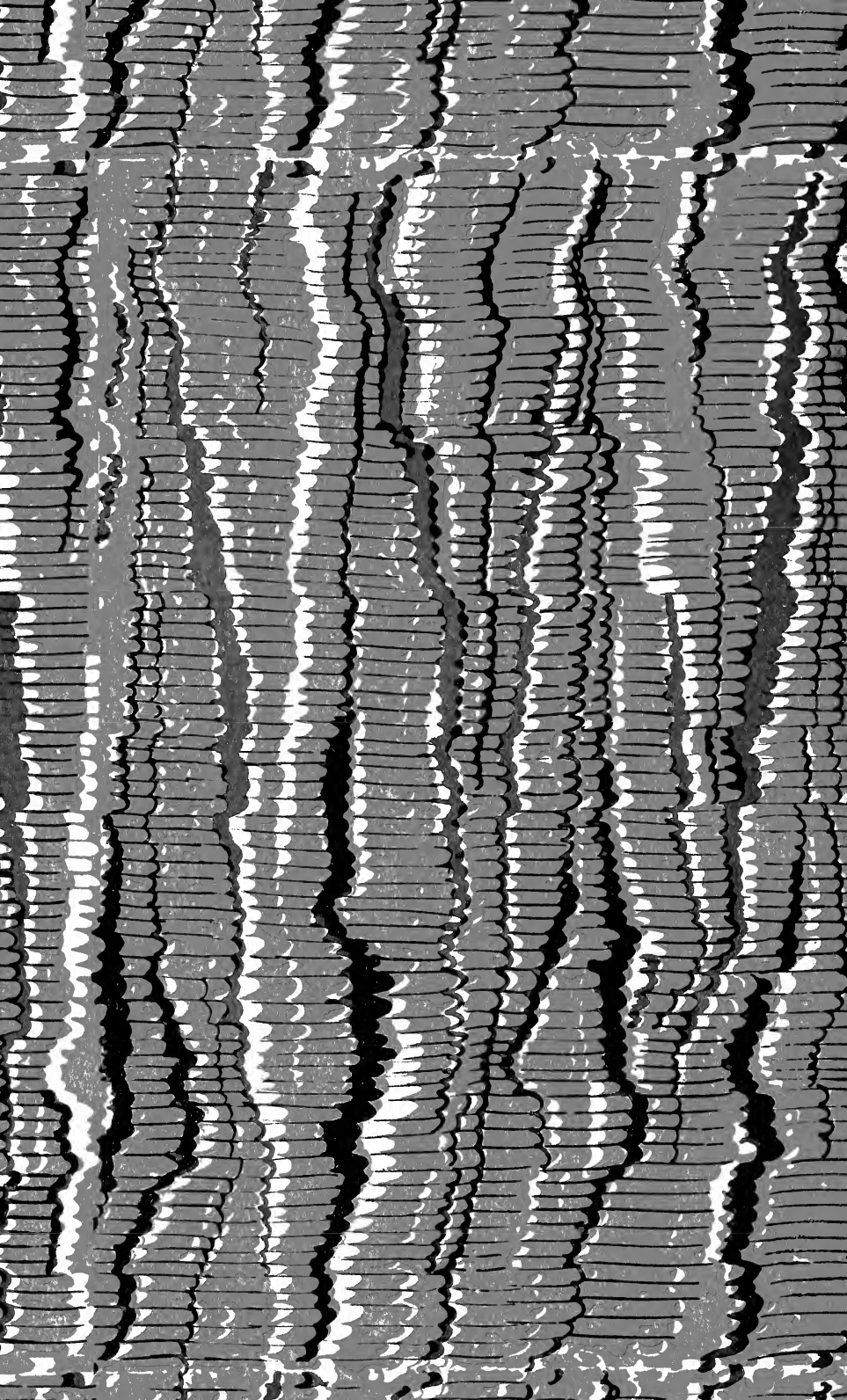


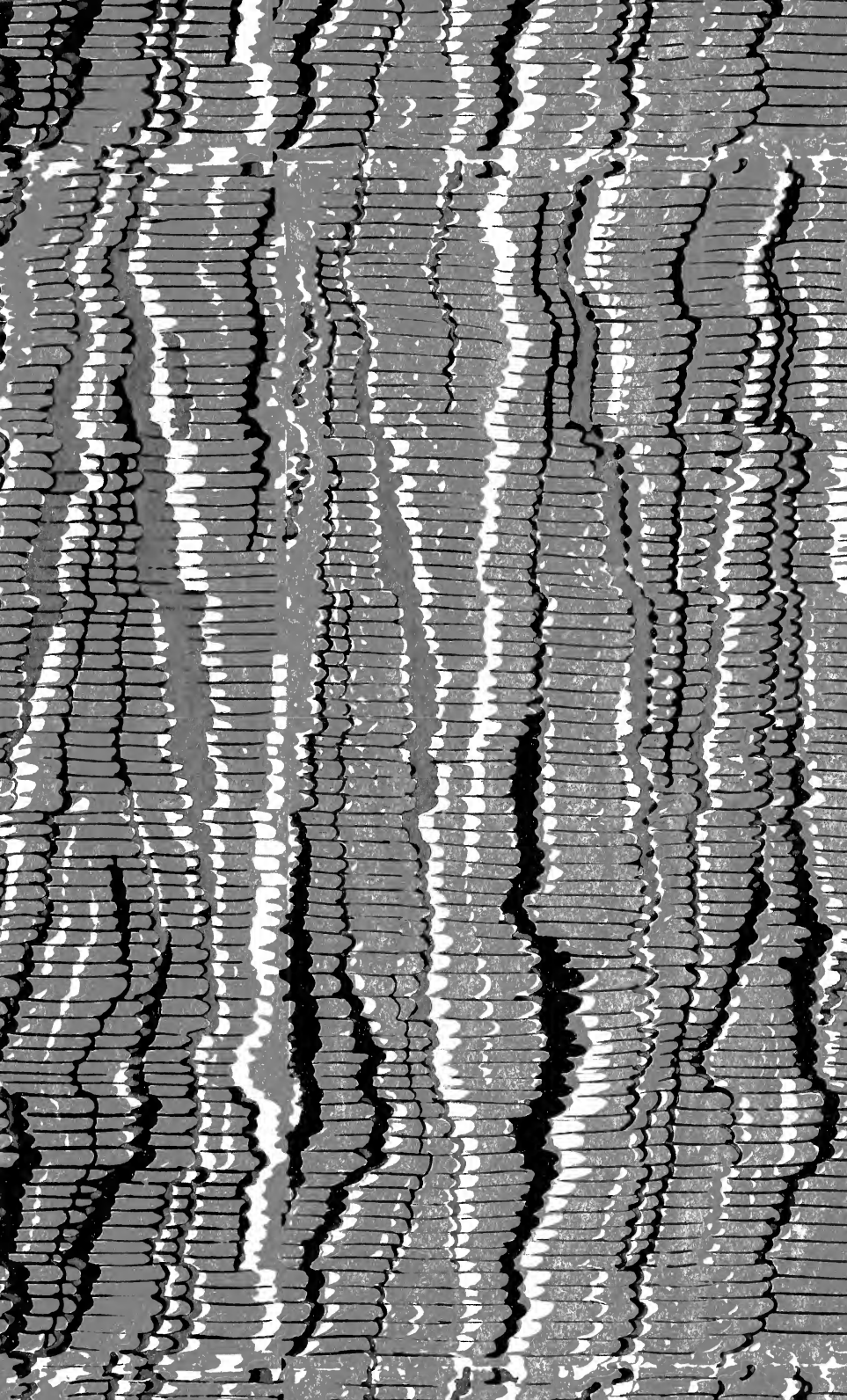












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