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.
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1928

SMITHSONIAN INSTITUTION
280997
U. S. NATIONAL MUSEUM.

EDINBURGH: OLIVER & BOYD, Tweeddale Court
LONDON: GURNEY & JACKSON, 33 Paternoster Row

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No. 169] 1928 [JANUARY-FEBRUARY

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All Articles and Communications intended for publication, and all **Books, etc.**, for notice, should be sent to THE EDITORS, Royal Scottish Museum, Edinburgh.

Subscriptions and Advertisements should be addressed to the Publishers, MESSRS OLIVER AND BOYD, Tweeddale Court, Edinburgh.

Authors of General Articles will receive 25 Reprints (in covers) of their Contributions gratis. Additional Copies, in covers, may be had from the Printers, at the ordinary prices ruling, provided such orders accompany the Manuscript.

EVERY NATURALIST SHOULD READ

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

Records of Birds new to Britain.
A Rat Migration.
Abnormal Coloration of Scottish Mountain Hares. (Illustrated.)
Annual Reports on Scottish Ornithology, including Migration.
White Wild Geese. (Illustrated.)
The Labrador Falcon—a new British Immigrant. (Illustrated.)
Notes on Fishes from the Clyde Area.
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.

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

(*Authors are responsible for nomenclature used.*)

The Scottish Naturalist

No. 169.] 1928 [January-February

THE NATURAL HISTORY OF FLOODS.

The past autumn and the winter which is passing stand out as remarkable for the number and extent of their floods. Scottish and English rivers, yea, and the great Mississippi, have broken their bounds and spread devastation over miles of fertile territory. Devastation so far as man is concerned! but has anyone considered what damage has been done to the more lowly inhabitants of the plains?

A flood lasting for many days and covering a wide expanse must drown out whole populations of creatures. It is on record that the famous Scottish flood of 1829 drowned in their holes most of the Badgers in the lower Spey valley. What happens then to the smaller rodents, the mice and the voles, to the multitudes of submerged moles, and to the creatures less able even than they to escape—the earthworms and all the hosts of invertebrates which people the soil? They must be drowned in their myriads.

Here is a problem worthy of the study of the country naturalist. It suggests many questions. What animals suffer most in the great floods; what numbers of particular species die and what survive; where the whole population of any species is wiped out in a particular area, how is it restored; whence comes the new stock, and how long is it before the population again reaches its normal numbers?

A few years' study and detailed observations, in a strictly limited area, would throw much new light on a problem which has many ramifications.

What of the cause of these floods which become increasingly prevalent in civilised countries? Since the Great Deluge they have been generally looked upon as "acts of God." Of an Aberdeen divine of a former generation, it is said that he used to thank the Maker of Heaven and Earth for the rainbow in the sky "a symbol that Thou wilt not repeat the *disastrous experiment* of sending us another flood." But does not Man share the responsibility of causing floods?

It cannot be denied that the cutting of the forest has altered the aboriginal drainage of civilised lands. Professor Marsh long ago pointed out some of the effects brought about by the removal of the great primeval forests, and later investigation has but confirmed his surmises. A Report of the Forestry Department of India made in 1917 showed that the removal of forest "in the Punjab, in Bengal, and in Assam has altered the flow of rivers, so that after the rains they now rise more rapidly and come down more torrentially. In the Punjab the exposure of the soil by the cutting of trees has caused great landslides, violent floods in the rivers, and the washing away of the cultivated soil."[1]

Now America is taking the lesson to heart, and Raphael Zon, the Director of the Lake States Forest Experimental Station, has pointed out that while the raising of embankments may do something to keep the Mississippi floods in check, they cannot control the flood at its source. This can only be done by afforestation throughout the catchment area. It is the last few inches of water that break the dyke, and a reasonable amount of replanting to replace the forests cut and burned, would remove the danger.

The lesson is one for Great Britain also. The more numerous and more serious floods of recent years may well be connected with the excessive cutting of timber which took place during the War and brought to a climax the devastation of woodland which has been going on for many

[1] Quoted from *Influence of Man on Animal Life in Scotland.*

centuries. Afforestation may mean much more to the country than the provision of valuable timber which is its primary aim. J. R.

* * * *

A Dutch naturalist, Piet Lels, has had the good fortune to see what few Scottish observers have seen, a White Stork in a Scottish valley. He noticed it, circling in the air, as he passed by rail some half-hour's journey south of Symington. He is the less likely to be mistaken since he is thoroughly familiar with the bird in his own country. His record reminds us that a few years ago we received from a correspondent, who was not an ornithologist, a report of a large white bird with red bill and long red legs, which she had seen in a small loch not far from the Solway. The likelihood was that this also was a White Stork, though we scarcely felt justified in publishing the letter as a definite record. It also reminds us that away back in 1416 a pair of Storks actually nested in the top of the church of St Giles in Edinburgh, and remained there throughout the season. The moral of Herr Lels' casual observation from the windows of a train seems to be that, even in our little country, in spite of many keen naturalists, there must be much coming and going of bird-life which passes unnoticed.

* * * *

Dr George Muirhead, who died on 29th January, at the ripe age of eighty-two, was a naturalist of wide interests. His position as factor on extensive estates in Berwickshire and in Aberdeenshire and as Commissioner on the Scottish estates of the Duke of Richmond and Gordon, gave him many opportunities of following his favourite study, and as a result he received more than local recognition as an ornithologist, an expert in salmon breeding and in floriculture. In salt water ponds near the estuary of the Spey he succeeded, more than twenty years ago, in rearing artificially hatched Salmon, through the smolt to the grilse stage, but he will be best remembered for his two volumes on *The Birds of Berwickshire*, published in 1889 and 1895. These were much more comprehensive than the ordinary local fauna, for Dr Muirhead included poetical extracts

as well as historical and traditional lore relating to the county's birds. A few years ago his merit was recognised by the bestowal upon him of the degree of LL.D. by the University of Aberdeen.

The Adder's Venom.—In his note on mosquitoes in Scotland (p. 129), the Editor remarks that "we possess a single species of poisonous snake, which is seldom seen, and the bite of which has never been known to kill a grown person." I am not sure whether this is meant to apply to Scotland only. If the reference is to the whole of Great Britain, a case in which the bite of an adder proved fatal to an adult male came under my own observation, and may be worth recording.

During the summer manœuvres of 1876, my regiment—Royal Ayr and Wigtown Militia—was brigaded with other two Scottish and an Irish Militia regiments. We were encamped for eleven days on Holmwood Common near Dorking. The camp attracted a great number of visitors, one of whom, a young man riding a "bone-shaker" bicycle of the primitive type, having alighted for a stroll through the heather, was bitten by an adder. He was taken into our regimental hospital for treatment, and next day he was reported dead. The weather was extremely hot at the time, which I suppose tended to increase the virulence of the reptile's venom.

As for adders being seldom seen, it is true that they have well-nigh disappeared from cultivated ground; but they seem to be just as numerous as ever among moorland heather. Bright sunshine in March brings them out to bask, usually in pairs.

Some years ago, when waiting at Newton-Stewart station for the night mail for London, I went into the station-master's room and saw on the chimneypiece two bottles of clear glass which had once contained whisky. In each of them was a live adder. Methought it must have been a risky job to pass them through the narrow necks of the bottles. I asked the station-master how came they there. He told me that a surfaceman on the line amused himself by catching adders, which he handled with impunity. This brought to mind the venerable controversy about the adder swallowing its young to shield them from danger. The station-master told me that the aforesaid surfaceman declared that he had seen that performance more than once; whereupon I made the same offer as the late W. Tegetmeier made to Adder Jack of the New Forest, namely, £5 for an adder that had passed its young alive through its œsophagus. In neither case has the reward ever been claimed.—Herbert W. Maxwell, Monreith.

A LIST OF THE BIRDS OF THE FORTH AREA.

By the late WILLIAM EVANS.

With INTRODUCTORY NOTE by JAMES RITCHIE.

AFTER the publication of his *Birds of the West of Scotland*, in 1871, a work which gave a fillip to Scottish ornithology, Mr Robert Gray, who had come to live in Edinburgh, arranged to collaborate with Mr William Evans in the production of a sister volume, *The Birds of the East of Scotland*. This ambitious project, unfortunately, was still far from being realised when the death of Mr Gray brought it to an end.

Meanwhile a new scheme of Scottish faunal areas had originated in the fertile mind of Dr Harvie-Brown, and his plan of arranging for collaboration in the work of dealing with the fauna of each area separately, offered a better prospect of a treatment at once more comprehensive and more detailed, since all the vertebrates were to be included. Thus step by step, fauna by fauna, it was planned that the whole area of the country should be covered; and had this great scheme been accomplished, Scotland would have possessed a detailed account of the distribution of her vertebrate animals such as few countries can boast.

As it is, although the scheme was not completed at the death of Dr Harvie-Brown, the greater part of the work had been finished, and eleven volumes, dealing with ten distinct areas, testify to the value of plan and the energy and persistence of its author. The volumes indicate the extent of the ground covered:—Sutherland, Caithness, and West Cromarty; the Outer Hebrides; the Orkney Islands; Argyll and the Inner Hebrides; the Moray Basin; the Shetland Islands; the North-West Highlands and Skye; the Tay Basin and Strathmore; the Tweed Area; and to these may be added the less comprehensive Birds of Iona

and Mull, and the Fauna of Dee by George Sim, which was originally intended to form one of the series.

Mr William Evans was selected to write one of the most important volumes in this impressive series—*The Fauna of the Forth Area.* No selection could have been happier, for by natural predilection and the discipline of years Mr Evans was perhaps the most widely versed field naturalist of his day in Scotland, and to his knowledge he added unfailing accuracy in observation. In spite of many interests he worked steadily towards the completion of the Fauna. In 1892 he published "The Mammalian Fauna of the Edinburgh District," an excellent work which had appeared in the *Proceedings of the Royal Physical Society* (vol. ii. 1890-91), and his subsequent Presidential Address to that Society on "Our Present Knowledge of the Fauna of the Forth Area," delivered in 1906, showed an extraordinary grasp of the various components of a fauna, far more comprehensive than the "vertebrate faunas" of Harvie-Brown.

It will always be a matter of regret to his friends and to Scottish ornithologists that his work on the birds of the Forth Area, at which he laboured during his last years of failing health, was not completed, and that much of his vast knowledge of the Forth birds was lost at his death in 1922. Fortunately he had made for his own use a summary list of the birds of the area. Here he had recorded in tabular form the records available for each county in the area, with a few simple symbols indicating their status.

Through the kindness of his son and daughter, Mr Edgar Evans and Miss Ethel Evans, we have now the opportunity of publishing this valuable list.

As several years had elapsed since the list was compiled, and as it seemed to be desirable to bring the records up-to-date, Miss Evelyn V. Baxter and Miss Leonora Jeffrey Rintoul kindly consented to add such information as had accumulated in the meantime. It has been considered best, however, to retain Mr Evan's list as he completed it, and the additional records will be found as an appendix.

The following symbols are used throughout the list:—

b = breeds.
B = formerly bred, or old breeding record.
× = regular visitor or occasional visitor.
x = rare visitor or very old record of visiting.

Species.	Haddington + corner of Berwickshire.	Edinburgh.	Linlithgow.	East Stirling.	South-West Perth and Clackmannan.	South Fife and Kinross (exclusive of Isle of May).	Isle of May.
PASSERES.							
Raven	b	b	*B*	b	b	*B*	...
Carrion-Crow	b	b	b	b	b	b	×
Hooded Crow	b	*B*	*B*	b	b	b	×
Rook	b	b	b	b	b	b	×
Jackdaw	b	b	b	b	b	b	×
Magpie	b	b	b	b	b	b	...
Jay, British	*B*	*B*	b	b	b	b	...
Chough	*B*	...	...	...	×	...	...
Starling	b	b	b	b	b	b	b
Rose-coloured Pastor	*x*	...	*x*	...	...	...	...
Golden Oriole	*x*	*x*	*x*	...	*x*	*x*	*x*
Hawfinch	b	b	b	×	...	×	...
Greenfinch	b	b	b	b	b	b	×
Chaffinch	b	b	b	b	b	b	×
Brambling	×	×	×	×	×	×	×
Goldfinch, British	b	b	× b?	b	b	b	...
Siskin	×	×	×	×	b	×	×
Linnet	b	b	b	b	b	b	b
Twite	×	b	×	b	b	×	×
Mealy Redpoll (including Holböll's Redpoll)	×	×	×	×	...	×	×
Lesser Redpoll	× b	b	×	b	b	b	×
Serin Finch	...	×	...	...	...	...	...
Scarlet Grosbeak	...	...	...	...	...	...	×
Bullfinch, British	b	b	b	b	b	b	...
Northern Bullfinch	×	...	...	...	...	×	×
Crossbill	×	×	× *B*	× *B*	×	×	...
House-Sparrow	b	b	b	b	b	b	×
Tree-Sparrow	b	b	b	...	...	b	b
Corn-Bunting	b	b	b	b	b	b	×
Yellow Hammer	b	b	b	b	b	b	×
[Cirl Bunting]	...	*x* ?	...	...	...	...	...
Black-headed Bunting	...	...	...	...	...	×	...
Ortolan Bunting	...	...	...	...	...	...	×
Little Bunting	...	...	...	...	...	...	×
Reed-Bunting	b	b	b	b	b	b	×
Lapland Bunting	× ?	...	...	...	...	...	×
Snow-Bunting	×	×	×	×	×	×	×
Sky-Lark	b	b	b	b	b	b	×
Wood-Lark	...	...	...	..	...	...	×
Shore-Lark	×	...	...	...	...	×	×

Species.	Haddington + corner of Berwickshire.	Edinburgh.	Linlithgow.	East Stirling.	South-West Perth and Clackmannan.	South Fife and Kinross (exclusive of Isle of May).	Isle of May.
PASSERES.							
Pied Wagtail	b	b	b	b	b	b	b
White Wagtail	×	×	×	×	×	×	×
Grey Wagtail	b	b	b	b	b	b	×
Yellow or Ray's Wagtail	×	b	× *B*	× b	b	...	×
Blue-headed Wagtail	×	*x*	...	...	...	...	×
Grey-headed Wagtail	...	...	...	...	...	...	×
Tree-Pipit	b	b	b	b	b	b	×
Meadow-Pipit	b	b	b	b	b	b	× b
[Red-throated Pipit]	...	× ?	...	...	...	...	...
Richard's Pipit	...	×	...	...	...	...	× ?
Rock-Pipit	b	b	×	×	×	b	b
[Scandinavian Rock-Pipit]	× ?	...	...	...	...	...	...
Wren	b	b	b	b	b	b	×
Tree-Creeper, British	b	b	b	b	b	b	...
Nuthatch	×	...	...	...	...	...	...
Great Titmouse, Continental	...	...	...	...	...	...	×
Great Titmouse, British	b	b	b	b	b	b	...
Coal-Titmouse, British	b	b	b	b	b	b	×
Willow-Titmouse, British	b	b	b	b	b	b	...
Blue-Titmouse, British	b	b	b	b	b	b	×
[Crested Titmouse]	...	× ?	...	...	× ?	...	...
Long-tailed Titmouse, British	b	b	b	b	b	b	×
Goldcrest	b	b	b	b	b	b	×
Great Grey Shrike	×	×	×	×	×	×	×
Red-backed Shrike	×	...	...	...	×	...	×
Woodchat Shrike	...	...	...	...	...	...	×
Waxwing	×	×	×	×	×	×	...
Dipper	b	b	b	b	b	b	×
Hedge-Sparrow	b	b	b	b	b	b	× b
Hedge-Sparrow, Continental race	...	...	...	...	...	...	×
Whitethroat	b	b	b	b	b	b	×
Lesser Whitethroat	× *B* ?	...	*x* ?	...	...	...	×
Garden-Warbler	b	b		b	b	b	×
Blackcap	b	b	b	b	b	× b ?	×
Barred Warbler	...	...	...	...	...	...	×
Grasshopper-Warbler	b	b	*B*	×	b	...	×
[Reed-Warbler]	...	...	...	...	...	...	...
Sedge-Warbler	b	b	b	b	b	b	×
Melodious Warbler	...	...	...	...	...	...	×
Willow-Warbler	b	b	b	b	b	b	×
Willow Warbler, Northern race	×	...	...	..	...	...	×
Wood-Warbler	b	b	b	b	b	b	×
Chiffchaff	b	×	× *B*	b	b	b	×
Chiffchaff, Scandinavian race	...	...	...	...	...	...	×
Siberian Chiffchaff	...	...	...	...	...	...	×
Yellow-browed Warbler	...	...	...	...	...	...	×
Missel Thrush	b	b	b	b	b	b	×
Song Thrush, British race	b	b	b	b	b	b	× b
Song Thrush, Continental race	×	...	...	...	...	...	×

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PASSERES.							
Redwing	×	×	×	×	×	×	×
Fieldfare	×	×	×	×	×	×	×
Blackbird	b	b	b	b	b	b	b
Ring-Ouzel	b	b	*B*	b	b	b	×
Redstart	b	b	b	b	b	b	×
Black Redstart	...	...	...	×	...	×	×
Robin, British race	b	b	b	b	b	b	×
Robin, Continental race	×	...	...	...	...	...	×
Nightingale	...	...	...	...	...	...	×
Bluethroat, Norwegian	×	...	...	...	...	...	×
Bluethroat, Lapland	...	...	...	...	...	...	×
Stonechat	b	b	b	b	b	b	×
Indian Stonechat	...	...	...	...	...	...	×
Whinchat	b	b	b	b	b	b	×
Wheatear	b	b	b	b	b	b	× b
Wheatear, Greenland race	×	×	...	...	...	...	×
Desert Wheatear	...	...	...	...	×	...	...
Pied Wheatear	...	...	...	...	...	...	×
Spotted Flycatcher	b	b	b	b	b	b	×
Pied Flycatcher	b	b	...	×	×	×	×
Red-breasted Flycatcher	...	...	...	...	...	...	×
Swallow	b	b	b	b	b	b	×
House-Martin	b	b	b	b	b	b	×
Sand-Martin	b	b	b	b	b	b	×
WOODPECKERS, ETC.							
Great Spotted Woodpecker, British race	b	b	×	×	b	×	...
Great Spotted Woodpecker, Northern race	...	...	...	...	...	...	×
[Green Woodpecker]	× ?	...	...	...	...	...	...
Wryneck	×	*x*	...	...	...	...	×
Cuckoo	b	b	b	b	b	b	×
Swift	b	b	b	b	b	b	×
Nightjar	b	×	× *B*	b	b	b	×
Hoopoe	×	×	×	×	×	×	×
Kingfisher	b	b	b	b	b	b	×
Roller	×	×	...	...	...	×	×
OWLS.							
Barn-Owl	b	b	b	b	b	b	...
Long-eared Owl	b	b	b	b	b	b	×
Short-eared Owl	× b	× b	×	×	×	×	×
Tawny Owl	b	b	b	b	b	b	×
[Snowy Owl]	...	...	...	...	...	??	...
[Hawk Owl—race ?]	...	??	...	...	...	...	...
Tengmalm's Owl	...	×	...	...	...	...	...
Scops Owl	...	...	...	...	...	×	...
[Eagle Owl]	...	...	...	...	...	*x* ?	...
Little Owl	...	...	...	...	...	×	...

Species.	Haddington + part of Berwickshire.	Edinburgh.	Linlithgow.	North and East Stirling.	South-West Perth and Clackmannan.	South Fife and Kinross (exclusive of Isle of May).	Isle of May.
Diurnal Birds of Prey.							
Marsh Harrier	×	...	...	×	...	...	...
Hen Harrier	×	×	×	×	×	×	...
Montagu's Harrier	×	...	...	...	...	...	...
Buzzard	×	×	×	×	b	×	×
Rough-legged Buzzard	×	×	×	×	...	×	...
Golden Eagle	×	...	...	×	b	×	...
White-tailed Eagle	×	...	...	...	...	...	...
Goshawk	...	×	...	...	...	×	...
Sparrow-Hawk	b	b	b	b	b	b	...
Kite	×	...	×	× *B* ?	×	×	...
Honey-Buzzard	×	×	×	×	...	×	...
Iceland Falcon	...	×	...	...	...	...	...
Peregrine Falcon	b	×	×	b	b	× *B*	× b
Hobby	×	×	...	...	× b ?	...	...
Merlin	× b	b	b	b	b	b	×
Red-legged Falcon	...	...	...	...	...	×	...
Kestrel	b	b	b	b	b	b	×
Osprey	×	×	...	×	*B*	×	...
Cormorants, etc.							
Cormorant	×	×	×	×	×	×	×
Shag	b	×	×	...	×	×	b
Gannet	b	×	×	×	×	×	×
Geese, etc.							
Grey-Lag Goose	×	...	...	×	...	×	...
Bean Goose	×	...	...	×	...	×	...
White-fronted Goose	×	...	...	...	...	×	×
Pink-footed Goose	×	×	×	×	×	×	×
Brent Goose	×	×	×	×	...	×	×
Barnacle Goose	×	×	×	×	...	×	×
Canada Goose	b	b	×	...	...	b	...
Whooper Swan	×	×	×	×	×	×	×
Bewick's Swan	×	...	×	×	...	×	...
Mute Swan	b	b	b	b	b	b	...
Common Sheld-Duck	b	b	× b	× b	×	b	×
Ruddy Sheld-Duck	...	...	...	...	...	×	...
Wild Duck or Mallard	b	b	b	b	b	b	×
Gadwall	...	× b ?	...	...	×	b	...
Garganey	...	...	...	×	...	...	...
Teal	b	b	b	b	b	b	×
Wigeon	×	× b ?	×	×	× b	b	×
Shoveler	b	b	×	×	b	b	×
Pintail	×	× b ?	×	×	×	b	×
White-eyed Pochard	...	×	...	...	...	...	...
Pochard	×	×	×	× b ?	b	b	×
Scaup	×	×	×	×	×	×	...

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Geese, etc.							
Tufted Duck	b	b	b	b	b	b	×
Golden-eye	×	×	×	×	×	×	...
Long-tailed Duck	×	×	×	×	...	×	×
Eider-Duck	b	×	...	...	...	× *B*	b
King-Eider	×	...	...	...	...	...	×
Common Scoter	×	×	×	...	...	×	×
Velvet Scoter	×	×	×	...	...	×	×
Surf Scoter	...	×	...	...	...	...	...
Goosander	×	×	×	×	b	×	...
Red-breasted Merganser	×	×	×	×	b	×	×
Smew	×	×	...	...	...	×	...
Herons, etc.							
Heron	b	b	×	b	b	b	×
Purple Heron	×	...	...	...	...	...	...
Great White Heron	×	...	...	...	×	...	...
Squacco Heron	...	×	...	× ?	...	...	...
Little Bittern	×	...	...	...	...	...	...
Night-Heron	...	...	...	...	×	...	...
Bittern	×	×	×	×	×	...	...
White Stork	...	*B*	...	...	...	...	...
Spoonbill	×	...	...	...	...	...	...
Glossy Ibis	...	...	...	...	...	×	...
Plovers, etc.							
Great Bustard	*x*	...	...	...	...	...	...
Grey Phalarope	×	×	...	...	...	...	...
Red-necked Phalarope	×	...	...	...	...	×	...
Woodcock	b	b	b	b	b	b	×
Common Snipe	b	b	b	b	b	b	×
Great Snipe	×	...	...	×	×	...	...
Jack Snipe	×	×	×	×	×	×	×
Knot	×	×	×	×	...	×	×
Little Stint	×	×	×	×	...	×	...
[Temminck's Stint]	× ?	...	...	...	...	...	...
Purple Sandpiper	×	×	...	×	...	×	×
Dunlin	b	b	b	b	b	b	×
Curlew Sandpiper	×	×	×	×	...	×	×
Sanderling	×	×	×	×	...	×	...
Ruff	×	×	×	×	...	×	×
Redshank	b	b	b	b	b	b	× b
Spotted Redshank	×	...	×	...	...	×	...
Greenshank	×	×	×	×	×	×	...
Common Sandpiper	b	b	b	b	b	b	...
Green Sandpiper	×	×	×	×	...	×	...
Wood-Sandpiper	×	×	...	...	...	×	...
Red-breasted Snipe	...	...	...	...	...	×	...

Species.	Haddington + part of Berwickshire.	Edinburgh.	Linlithgow.	North and East Stirling.	South-West Perth and Clackmannan.	South Fife and Kinross (exclusive of Isle of May.)	Isle of May.
Plovers, etc.							
Black-tailed Godwit	×	×	...	×?	...	...	×
Bar-tailed Godwit	×	×	×	×	...	×	×
Curlew	b	b	b	b	b	b	×
Whimbrel	×	×	×	×	×	×	×
Avocet	...	...	...	...	...	×	...
Golden Plover	b	b	b	b	b	b	×
Grey Plover	×	×	×	×	×	×	...
Ringed Plover	b	×	× b	×	×	b	×
Dotterel	×	×	×	×	× b?	×	×
Lapwing	b	b	b	b	b	b	×
Oyster-catcher	b	×	×	×	b	b	b
Turnstone	×	×	×	×	...	×	×
Gulls, etc.							
Common Gull	×	×	×	×	×	× b?	×
Herring-Gull	b	×	×	×	×	×	b
Great Black-backed Gull	× *B*?	×	×	×	×	×	×
Lesser Black-backed Gull, British	b	×	×	×	b	× b	×
Lesser Black-backed Gull, Scandinavian	...	×	...	×	...	...	...
Glaucous Gull	×	×	×	×	×	×	×
Iceland Gull	×	×	...	×	...	×	...
Black-headed Gull	b	b	b	b	b	b	×
Little Gull	×	×	...	...	...	×	×
Sabine's Gull	×	×	...	...	...	×	...
Ivory Gull	...	...	...	...	...	×	...
Kittiwake	b	×	×	×	×	×	b
Common Tern	b	b	×	×	×	b	× *B*
Arctic Tern	b	×	...	...	...	×	× *B*
Roseate Tern	×	*x*	...	...	...	...	*xB*
Little Tern	b	×	×	×	...	× b	×
Sandwich Tern	× b	× b	×	...	...	×	× *B*
Black Tern	×	×	...	×	...	×	...
Great Skua	×	×	...	...	...	×	×
Arctic or Richardson's Skua	×	×	×	×	×	×	×
Buffon's Skua	×	...	×	...	...	...	...
Pomatorhine Skua	×	×	×	×	...	...	×
Auks, etc.							
Razorbill	b	×	×	×	...	×	b
Common Guillemot	b	×	×	×	×	×	b
Brunnich's Guillemot	×	...	...	...	...	...	...
Black Guillemot	× *B*	×	...	...	...	×	× *B*
Little Auk	×	×	×	×	×	×	×
Puffin	b	×	×	...	...	×	b

Species.	Haddington + part of Berwickshire.	Edinburgh.	Linlithgow.	North and East Stirling.	South-West Perth and Clackmannan.	South Fife and Kinross (exclusive of Isle of May).	Isle of May.
Petrels, etc.							
Storm-Petrel	× b	×	×	×	×	×	×
Fork-tailed or Leach's Petrel	×	×	...	...	...	...	×
Manx Shearwater	×	×	×	×	...	×	×
Levantine Shearwater	×	...	...	...	...	...	...
Sooty Shearwater	×	...	...	...	...	×	×
Great Shearwater	×	...	...	...	...	...	...
Fulmar	×	×	×	...	...	×	×
Divers and Grebes.							
Black-throated Diver	×	×	×	...	...	×	...
Great Northern Diver	×	×	×	×	...	×	×
Red-throated Diver	×	×	×	×	×	×	×
Great Crested Grebe	×	b	×	× b	b	b	...
Red-necked Grebe	×	×	×	×	...	×	...
Slavonian Grebe	×	×	×	×	×	×	×
Black-necked Grebe	×	×	×	×	...	×	...
Little Grebe	b	b	b	b	b	b	×
Rails, etc.							
Water-Rail	×	× b	× b ?	x b ?	b	×	×
Spotted Crake	×	×	×	×	×	×	...
Corn-Crake	b	b	b	b	b	b	×
Moor-Hen	b	b	b	b	b	b	×
Coot	b	b	b	b	b	b	×
Pigeons.							
Stock-Dove	b	b	b	b	b	b	×
Ring-Dove (Wood-Pigeon)	b	b	b	b	b	b	×
Rock-Dove	b	...	...	...	...	...	× b ?
Turtle-Dove	×	×	×	×	×	×	×
[Eastern Turtle-Dove]	×	...	...	...	...	...	...
Sand-Grouse.							
Pallas' Sand-Grouse	×	×	×	×	×	×	×
Game-Birds.							
Pheasant	b	b	b	b	b	b	...
Red-legged Partridge	×	...	...	...	...	...	...
Partridge	b	b	b	b	b	b	...
Quail	b	b	×	×	...	× b ?	...
Capercaillie	×	×	×	b	b	b	...
Black Grouse	b	b	b	b	b	b	...
Red Grouse	b	b	b	b	b	b	...
Ptarmigan	...	...	...	b	b	...	...

Appendix to Mr Evans' List.

The following additions, compiled by Miss Baxter and Miss Rintoul, bring the records from the Forth Area down to the year 1927:—

Carrion Crow. A pair have bred on the Isle of May for several years.

Rose-coloured Pastor. One was seen near Anstruther, South Fife.

House Sparrow. Now breeds on the Isle of May.

Tree Sparrow. No longer breeds on the Isle of May.

Wood Lark. Has occurred South Fife.

British Tree Creeper. Has occurred twice on Isle of May.

Great Titmouse (Continental). Has occurred on sea-braes, East Lothian.

Red-backed Shrike. Several authentic records for South Fife.

Hedge Sparrow. Has bred on the Isle of May but does not do so regularly.

Lesser Whitethroat. Two near Crail, South Fife.

Willow-Warbler. Has bred, Isle of May.

Yellow-browed Warbler. One South Fife.

British Song Thrush. Does not now breed Isle of May.

Continental Song Thrush. South Fife.

Continental Robin. South Fife.

Black Redstart. Has occurred Midlothian.

Both Lapland and Norwegian Bluethroat have occurred on the Isle of May. Latter has occurred in East Lothian and Midlothian.

Greenland Wheatear. A passage migrant in South Fife.

British Great Spotted Woodpecker. Now breeds South Fife and Linlithgow.

Wryneck. Has occurred in South Fife and Clackmannan.

Roller. We have no record for the Isle of May.

Short-eared Owl Has bred South Fife.

Hen Harrier. Has occurred Isle of May, and used to breed East Lothian, East Stirling, and Clackmannan.

Sparrow Hawk. Has occurred on the Isle of May.

Kite. Used to breed East Stirling, South Perth, and Clackmannan.

Osprey. Has occurred twice Isle of May.

Ruddy Shelduck. Has occurred Midlothian.

Gadwall. Has bred East Lothian.

Red-crested Pochard. Has occurred Midlothian.
Pochard. Has bred Midlothian.
Eider. Breeds South Fife; used to breed Inchmickery.
Red-breasted Merganser. Breeds East Stirling.
Smew. Has occurred Isle of May.
Bittern. Old records Kinross.
Common Sandpiper. Occurs Isle of May on double passage.
Black-tailed Godwit. Has occurred South Fife.
Ringed Plover. Breeds Midlothian.
Lapwing. Has bred Isle of May.
Scandinavian Lesser Black-backed Gull. Has occurred South Fife and Isle of May.
Iceland Gull. Has occurred West Lothian and Isle of May.
Sabine's Gull Has occurred West Lothian.
Common Tern. Now breeds Isle of May.
Sandwich Tern. Bred 1926 Isle of May.
Pomatorhine Skua. Has occurred South Fife.
Buffon's Skua. Has occurred Isle of May.
Razorbill. Has occurred South Perth.
Puffin. Has occurred South Perth.
Fork-tailed Petrel. Has occurred South Fife.
Fulmar. Now breeds East Lothian and Isle of May.
Black-throated Diver. Occurs South Perth.
Red-necked Grebe. Has occurred South Perth and Isle of May.

Scottish Whale Records.—(1) On 28th November 1927, I received from Mr A. Neal, District Officer, H.M. Coastguard, Banff, a single tooth of a whale, the body of which, in a highly decomposed state, was stranded at Gardenstown, Banff, on 25th November. The carcass was buried at once by the sanitary authorities and only a few teeth were saved. The tooth appears to me to be that of the False Killer Whale, *Pseudorca crassidens*, of which the only known British specimens were those stranded in the Dornoch Firth in October of the same year, and referred to in a leading article in our last number (1927, p. 161). Doubtless the Gardenstown specimen belonged to the same school.

(2) Many references and speculations appeared in Scottish newspapers to the skull of an unknown and mysterious creature which appeared projecting from the Culbin sands near Findhorn in late November. On examination the skull turned out to be that of a Lesser Rorqual, the most common of all British whalebone whales.—James Ritchie.

Eastern Short-toed Lark at Fair Isle—Second Recorded Occurrence in the British Isles.—Mr Jerome Wilson has recently forwarded to the Royal Scottish Museum a Short-toed Lark shot by him at Fair Isle on October 1927. The specimen, which unfortunately is not sexed, but is probably a male (wing 92 mm.) was suspected to belong to the Eastern race: this identification has been very kindly verified at Tring by Dr Hartert, to whom the bird was forwarded.

This is the second recorded occurrence in the British Isles: the first was obtained, also at Fair Isle, on 11th November 1907.

It differs from the typical European race of the Short-toed Lark in being paler and greyer and is usually less spotted on the breast. Its breeding grounds are in western Asia, whence it migrates to the south westward through Asia Minor and Greece to Egypt and Nubia: it has been reported from the Sahara and as far south as Darfur.—J. H. STENHOUSE.

Persistent Stay of Crossbills.—Towards the end of last June, a small flock (eleven birds I think) of Crossbills came to my garden at Bleaton Hallet, Blairgowrie. They remained with me for not far short of six months, till the storm set in in the middle of December. Since then I have not seen any. As far as I could see, there was not a red bird among them.—JAMES M'L. MARSHALL, Blairgowrie.

Crossbills at Bowhill, Selkirkshire.—Crossbills were first observed at Bowhill by the head gardener and others on the estate about the beginning of July 1927. At first flocks of from thirty to forty birds were seen in flights from tree to tree and their call-note was a distinct addition to the woodland sounds. They were observed feeding mostly on birch trees, always near the tree-tops, but at times they were seen on Scotch firs. Once or twice adult birds were observed feeding young ones in the trees. It was at the end of July that I first had the pleasure of seeing these lovely birds, when about a score of them were feeding in some very tall larch trees. On 8th October a young friend and I had about a dozen birds under close observation for nearly half an hour. Until the middle of November the Crossbills have been observed at intervals around Bowhill House in the very extensive woods there. After a time, however, the birds were observed in much smaller parties than at first.—J. R. SIMPSON, Earlston.

Crossbill in Orkney.—On 7th August 1927, I saw a Crossbill near Longhope in Hoy. It appeared to be looking for food among the sea-weed high up on the shore.—EVELYN V. BAXTER.

THE INCREASING SCARCITY OF THE LAND-RAIL OR CORNCRAKE.

By Oliver H. Wild, M.B., Ch.B., M.B.O.U.

The Land-Rail is a bird which is rapidly becoming scarcer in many parts of Britain, and a comparison of associated factors in two widely separated districts, in Gloucestershire and Islay, may throw some light on this subject.

The Land-Rail is still to be found in the vicinity of Gloucester and Cheltenham. It still occurs on the neighbouring hills, where a pair nested successfully in 1926 and in 1927. Prior to this I have not seen or heard a bird for many years in the Cheltenham district. It occurs more frequently near Gloucester on the banks of the Severn, where it used to be very common in the lush meadows bordering the river, both on migration in May and later as a nesting species. There is no doubt that only a small number of the birds which arrive in May stop to breed, the bulk passing on to nest elsewhere.

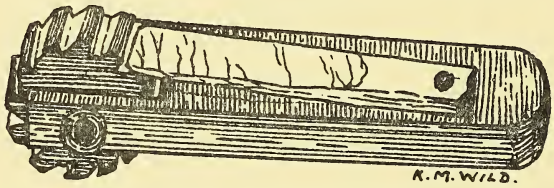
In such numbers did it appear in years prior to 1914, that fowlers made a practice of taking it, their method being of the simplest kind. On the arrival of the bird in early May the meadows were full of Land-Rails, which advertised their presence by their raucous note. The fowler enticed the bird by imitating its note, thus calling it within a few yards, when he slaughtered it with a gun-shot or with a blow from a stick. I have known twelve birds secured in this way in one morning and sometimes more were obtained. The fowler frequently fired just ahead of the wake made by the bird as it moved through the grass.

Various devices were used to entice the birds. Some fowlers imitated the call cleverly by mouth, others employed a rusty nail and a comb. I append a sketch of an ingenious call made by an old poacher who indulged in this pastime every May, and who used to obtain sixpence each for the birds, for which there was a ready sale. The instrument consists of a wooden wheel, furnished with cogs, which revolves between the prongs of a wooden fork. The

cogs are impinged upon by a ratchet of thin ash which is fixed to the handle of the fork. The sound is produced by the fowler rubbing the wheel on the front of his flexed thigh.

It is difficult to account for the present scarcity of the Land-Rail. I think it may be due to a certain extent to the use of modern mowing machines, which cut the grass so closely to the ground that there is little cover left for the birds to skulk in. Again the hen bird will often sit on her nest till mutilated by the blades of the machine.

In July 1926 I witnessed the mowing of the last strip of meadow to be cut on the banks of a reach of the Severn. Forty Land-Rails, old and young, were killed with sticks



Call used for enticing Land-Rails near Gloucester. ($\frac{1}{3}$ nat. size.)

as the last few yards of grass fell. If we regard eight as an average family, the slaughter represents the extermination of five broods, and as the meadow was the last field to be mown in that area, the Land-Rail population must have been on the verge of extermination, because all the birds of the district were congregated in the last available cover to be found.

In the summer of 1926, the Rev. J. M. M'William and I visited Islay, one of the Inner Hebrides. Here we noticed that Land-Rails abounded. Small patches of mowing grass, often only one or two acres in extent are to be found in many parts of the island, but each held a pair or more of Land-Rails. On inquiry I found that mowing was performed usually by scythe and not till August, a time when the young Land-Rails would be able to look after themselves. I regard the modern American close-cutting mowing machine as the chief enemy of the species, combined with an unwarrantable persecution in the breeding season by human beings.

STUDIES OF SOME LANARKSHIRE BIRDS.

The Carrion Crow.

By Waletr Stewart.

The Carrion Crow, no doubt indigenous to Lanarkshire from time immemorial, has by country people long been confused with other members of the crow family. Often frequenting districts where the better known Rook abounds, it is not surprising that its likeness to immature members of that species, has resulted in its sharing the sobriquet "Craw" with them. In this area as in other parts of the south of Scotland the Carrion Crow is often misnamed the "Hoodie." In the *New Statistical Account of Scotland* it is recorded from the parishes of Hamilton and Cadder; while in a paper on the "Birds of Carmichael Parish" (*Ann. Scot. Nat. Hist.*, 1897, pp. 201-18) the Rev. Jas. D. W. Gibson records that there were "three nests at least in the parish last season," and that in winter "a flock of a dozen may at times be counted."

A much more numerous bird in bygone times, the gradual extension of game-preserved land has in many places all but exterminated it. In many parts of the Middle and Lower Wards, however, where little or no game-preserving takes place, isolated pairs of Carrion Crows are still to be found leading almost unmolested lives, their only enemies being bird-nesting boys. But in the Upper Ward, where game-preserving is general, the Carrion Crow is the pariah of the feathered race.

In Lanarkshire this bird is a very early builder, but as a rule nests do not contain eggs before the first week in April. With few exceptions the tall Scots-fir is the chosen tree, and in nearly every case heather and wool the nesting material used. Once chosen, it is remarkable how tenaciously some of these nesting trees are adhered to, for often the gamekeeper succeeds in destroying both nesting birds and removing every vestige of nesting material, yet the following spring finds a fresh pair at the nesting site.

Although the interbreeding of this bird with the Grey Crow has been recorded from many parts of Scotland, not till 1924 did we have any suspicion that such cases occurred in Lanarkshire. For two or three years previous to this, a pair of Carrion Crows, of slightly diminutive size, had regularly nested in a particular part of Shotts "Hills"; but in February on one occasion we observed three in the usual haunt, one of which was being attacked and buffeted by the other two. As it was late in the afternoon and the light was bad, we unfortunately omitted to examine them with binoculars, and did not visit this place again until early July, when one day we passed very close to five of these birds feeding very intently in a rough pasture field. Something about their appearance arrested our attention, and on examining them with binoculars at about one hundred yards distance we found the party to consist of one adult bird with Grey Crow markings (only the colour was a creamy dun instead of grey), one adult Carrion Crow of slightly diminutive size, and three young birds which looked like normal coloured immature Carrion Crows. Some days later we again examined this parti-coloured Crow, but remained in doubt as to whether it was a "sport" Grey Crow or a Grey-Crow × Carrion Crow hybrid. From its size we concluded it was a male. All five birds disappeared early in autumn, and what was doubly unfortunate, the nesting territory was unoccupied during the following breeding season.

In nearly all districts during recent years the changing habits of Rooks have been commented on; yet strange to relate the habits of Carrion Crows also seem to be undergoing some change and modification in the opposite direction, resulting in their often being tolerated by the Rooks in outlying coniferous rookeries. In 1835 (*Statistical Account of Scotland*) the Rev. W. Patrick-Hamilton, writes of Herons being attacked in Hamilton Haughs when returning from their fishing expeditions, and robbed of their fish; yet in contrast Stephen Mitchell, Esq., of Gilkerscleugh, writes to me in 1922 that "Herons and Carrion Cows nest in Boghouse wood nearby."

The fact that this most persecuted of birds, which has earned so notorious a reputation as an egg and young bird thief, should seek to nest under the ægis of two well-known tree-nesting birds, may point to some desperate attempt at race preservation.

Of secretive habits, seldom leaving its day-time haunts before twilight, the Carrion Crow's roosting habits have always remained a little obscure; but there is no doubt that a winter-roost is occupied *en masse* in similar fashion to the Rook. Probably the most remarkable of these winter-roosts yet recorded was found by the late Capt. S. E. Brock near the Bathgate Hills (SCOTTISH NATURALIST, 1913, p. 188) in the winter of 1912-13, the number roosting nightly being estimated at 500. Subsequent observations have now proved that a large number of these birds are drawn from north and north-east Lanarkshire, as on a January evening in 1922 a flock of over fifty Carrion Crows passed eastward over the county boundary at Auchengray, flying in a direct line for this roost some eight miles distant; and again in early February another flock of about two dozen passed northward over the county boundary at West Calder, also flying in the direction of this roost. Between these two points many smaller parties have been seen, always the direction of their flight leaving no doubt as to their destination. This Carrion Crow roost lies directly under a Rook flight-way, along which pass flocks of these birds bound for their winter roost at Avontoun, Linlithgow, some four miles distant.

In Upper Tweeddale is another Carrion Crow winter roost, in this case also on high ground, near the Rook winter roost at Mossfennan, in the parish of Broughton-Glenholm-Kilbucho; and as this one is situated in the heart of game-preserved country it is not surprising that it is of much smaller dimensions. Lying some three miles east of the county boundary it draws quite a large percentage of its roosting population from south-eastern Lanarkshire.

Within the famous Rook winter roost at Lee, is a small section (which we have not had opportunity to locate) entirely occupied by a few hundred Carrion Crows; these it

would seem being drawn from a fairly wide area of the county, for on clear moonlight nights they are seen to arrive from many directions long after the Rooks have settled to their repose. From the following places they have been seen departing at dusk in the direction of this winter roost: small flock of less than a score near Thankerton; flock of over thirty near the Douglas-Roberton parish boundary; straggling flock of over a score near Yonderton, Lesmahagow; and small flock of about a dozen near Carstairs.

During September we have observed small parties of roosting-birds in a coniferous wood near Leadhills (probably a temporary autumn roost), their winter roost no doubt being near the Rook winter roost at Dalswinton, Dumfriesshire. On high ground near Blantyre, many years ago during winter we observed Carrion Crows at a very late hour in the evening, and came to the conclusion that they roosted on the spot, but recently while motoring past the Hamilton Rook winter roost we have seen Carrion Crows arriving in almost total darkness.

In districts where this bird has become numerous it has been known to adopt a granivorous diet and to nest gregariously. In Lanarkshire, however, it is rarely known to consume grain, but is a most ruthless destroyer of almost every living thing, including fallen sheep, young lambs, young and old rabbits and hares, and birds of all kinds, with their eggs and young. Amongst game-birds the Grey Hen proves an easy prey compared with the female Red Grouse, which has always the male bird close at hand to assist her in protecting her eggs or chicks; but even they have sometimes to own defeat, as the following incident shows. On 4th June 1922 while my son and myself were motoring across Thankerton Moor our attention was drawn to a desperate encounter between a Carrion Crow and a male Red Grouse, the Crow making determined downward fluttering swoops at some Grouse chicks in the heather, each time to be countered by the brave cock, the two clashing at about ten feet from the ground. Pulling up within two hundred yards of the spot, we watched the encounter with breathless interest, each time the birds

clashed the Crow would sail upward, and the Grouse return to ground. All the while two female Red Grouse kept running about in a demented state trying to protect first one, then another of the chicks. The cunning of the Crow at last prevailed, the enraged male Grouse missed his mark, shot upwards, and in an instant the Crow landed and snatched up a chick. At this we rushed towards it, hallowing and shouting, causing it to drop the chick, which it desperately retrieved from almost at our feet and made for a large coniferous wood nearby. The two female Grouse were in charge of about a dozen chicks two or three days old; but no other male was in evidence, a fact probably attributable to the huge network of telegraph wires which runs along the side of the highway.

Bird-Life in an Office Garden.—It is not to be expected that the study of bird-life from an office window will be likely to enlarge our knowledge of ornithological problems, but at the same time it may result in observations which are not without interest.

The office garden in question is situated in Duke Street, Edinburgh, and abuts on the larger gardens of Abercromby Place and Queen Street. There are certain regular visitors at all seasons—the Blackbird and Song-Thrush which breed, the Chaffinch, Greenfinch, House and Hedge Sparrows, Wren, Robin and Starling. The Great Tit is not so frequently seen as the Blue species, a pair of which reared a brood this year in the adjoining garden. The old birds were building on the 2nd of May and at this time—September—the young are still frequently in the ground. Missel Thrushes also breed in the neighbourhood and a pair visit the garden at irregular intervals. Herring, Black-headed and Common Gulls are frequently seen in flight, and in summer Swifts are frequently over the garden.

This year—on 4th August—a well-known cry drew the writer's attention to the unusual sight of a Sandwich Tern over Abercromby Place. A Tawny Owl has only once been observed, although they frequent the neighbourhood. On that occasion a company of Blackbirds and Tits mobbed the unfortunate bird until it departed from the garden.

The remaining birds on which comment may be made are migratory, and of these only Willow-Warblers are regular visitors.

Every year in the early days of August they make their appearance in the garden, feed there for a short time and then pass on. These regular appearances seem to emphasise the halting character of the return migratory journey in contrast to the probably longer flights of the Spring movement. This year an exceptionally combative specimen visited the garden on the 1st of September. No small birds seemed exempt from its attentions and it attacked Tits, Chaffinches and Sparrows, apparently without provocation.

Two other occurrences may be noted. During the forenoon of 2nd May 1925 a male Redstart stopped in the garden and on 16th August of this year a Cuckoo (probably a young bird) made a brief halt. Redwings were observed in December 1923 and February of 1924 in the western portion of Queen Street Gardens, occurrences which are, however, rather outwith the scope of these notes.—Charles G. Connell, Edinburgh.

Two Birds new to Canna, Inverness-shire.—Mr Allan C. Thom, Junior, of Canna, writes that two species new to the island have appeared this year, viz., the Turtle-Dove and the Goldfinch—one example of each. The former bird came under observation of 6th June as it was feeding in a turnip field at Tarbet on the southern shore, while the latter was seen on 4th October near the same spot as the Crossbills, referred to in another note.—J. Kirke Nash, Edinburgh.

Nesting of Little Tern at Aberlady, East Lothian.—About 14th June 1927, Mr J. T. Brodie found a nest of the Little Tern with two eggs on the foreshore at Aberlady, East Lothian. On 16th June the eggs hatched and two young were seen. The site was visited regularly from this time till 11th July, when one of the adult birds was found dead near the nesting site and forwarded to me. The bird proved to be a female which had received a wound at the nape of the neck, as if it had been pecked by some other bird. Mr Brodie was unable to find the young which had become quite big and active, but he saw one adult not far from the spot. I have examined the egg shells from this nest. Mr C. Connell has since told me that he also found this nest in June. Mr Brodie has reason to think that a second pair of Little Terns nested at Aberlady in 1927 further from the shore, as he several times saw a Little Tern carrying food towards the sand-hills. He also states that he found a nest of this species with two eggs in 1926 at the same spot. These eggs disappeared.—Oliver H. Wild, Cheltenham.

DECREASE OF TREE SPARROWS.

By Evelyn V. Baxter and Leonora Jeffrey Rintoul.

Is the Tree Sparrow in process of becoming extinct as a Scottish breeding bird? This is a question which has been interesting us for some time, and we should much value information as to fluctuation in numbers, pointing either to increase or decrease, from any part of Scotland. Our own experience shows a considerable decrease in this part of the country; the breeding colony on the Isle of May is extinct, as are also those at Crail and Craighead Farm, near the East Neuk of Fife. We have not seen a Tree Sparrow at Leuchars for years, and where we saw them near Stonehaven, Kincardineshire, in 1914, we could not find them in 1920.

Surgeon Rear-Admiral Stenhouse records that the Tree Sparrow has now ceased to breed on Fair Isle, and the Rev. J. M. M'William says it no longer nests in Bute. The Tree Sparrow, though local, used to be widely distributed over Scotland, and in view of the facts which we have mentioned above we think its present position is well worth investigation. We therefore appeal for any information on this subject; we should like to know whether the old colonies are still in existence, and whether they are keeping up their numbers, also whether any new colonies have been formed. Where decreases are noted we should be glad to hear of any possible reason.

Surf Scoter in St Andrews Bay.—Early in January many birds were driven into the Bay by the stormy weather. Amongst them were three Little Auks of which I saw one, got another, and heard of the third. Among the many unfortunate birds drowned in the fixed cod-nets, was a Surf Scoter which I found myself; but it was in an old net that had been washed about for days in the storm, and was unfit for preservation.—D'Arcy W. Thomson.

Hoopoe in Dumfriesshire.—While driving a car in Eskdalemuir, Dumfriesshire, on the road between the Black Esk and White Esk, I saw a bird which I am sure was a Hoopoe. The date was Tuesday, 13th September. It was raining and I thought I was going to run over the bird, which was sitting on the road. It was wet and seemed tired.—A. G. Moffat, Edinburgh.

The Age of a Pied Blackbird.—For five years a piebald Blackbird had been watched and fed in an Edinburgh suburb, when it was killed, on 5th August, by a cat. The dead bird, unfortunately damaged beyond repair, was brought to the Royal Scottish Museum by the observer, Miss Macleod; in its plumage white largely predominated, so that it was a conspicuous bird known throughout the district. It is interesting to learn that in spite of this conspicuousness, which must have increased the risks to which it was subject, the Pied Blackbird survived amidst the dangers of city life for five years. Of course the extent of a Blackbird's life may exceed this figure: Major S. S. Flower gives records of from 7 to 11¼ years, and Mr J. H. Gurney recorded two examples which had survived 20 years or slightly more.—James Ritchie.

Raven Nesting in a Tree.—To find a Raven's nest nowadays in a tree is an event which demands record. The nest in question was built of old larch twigs and branches, lined with sheep's wool, in a larch tree growing at the head of Dalwhat Water in Dumfriesshire. It is remarkable that within half a mile there is a crag which would appear to have been a preferable site, and this tree has never before been utilised. The nest was built about twenty feet from the ground and commanded a grand view of the valley. I was told that the nest contained five eggs, but when I saw it on 5th May 1927 these had been destroyed and I never even saw the birds.—Hugh S. Gladstone, Capenoch.

Ruff and Curlew-Sandpiper, Aberlady, East Lothian.—The following birds were obtained at Aberlady, East Lothian, and have been forwarded to me for identification.

An adult male Ruff in full winter plumage. This was a single bird shot on 18th August 1927. Its gizzard contained elytra of beetles.

A Curlew-Sandpiper shot out of a flock of Dunlin on 7th September 1927. The bird had been seen for five days previous to this. It was a female in juvenile plumage.—Oliver H. Wild, Cheltenham.

Piratical Habits of Gulls.—It is now many years since we first observed and recorded the piratical habit of the Black-headed Gull in attempting to deprive Lapwings and Golden Plovers of their food when feeding in the fields. On 8th October last on the shore of Dalmeny we observed with much interest a similar habit exhibited by the Common Gull, the victim in this case being the Redshank.

During the time we had them under observation we noted

about a dozen attempts by these Gulls to deprive the Redshanks feeding on the shore of their booty.

The same plan of action seems to be adopted in every instance. Standing near its intended victim the aggressor patiently waits until a tit-bit has been secured when it immediately gives chase with a persistence resembling that of a Skua; but so far as we could see the Redshank's rapid flight enabled it to evade these unwelcome attentions and retain its hard-won meal.—David Hamilton and J. Kirke Nash, Edinburgh.

Slavonian Grebe at Duddingston Loch, Midlothian.—On 26th December 1927, I observed a Slavonian Grebe at Duddingston Loch, and two days later Mr Kirke Nash was good enough to confirm the identification. When first seen it appeared a black or grey and white bird swimming leisurely off the glebe at Duddingston Church. Later on it mixed with the very large flock of Pochard then on the water and compared with them its size could be determined with fair accuracy. In the water it swims in fairly upright position and dives with the typical plunge of the grebe family. The plumage, that of an adult in winter dress, appeared white on the neck, breast, and under parts, and grey and dark grey on the upper parts, some barring being visible on the side, and white being visible on the wings when these were flapped in the air. The bill is fairly short and of strong appearance, and the legs, observed on preening, appeared to be of a dark colour. It is understood that the Grebe frequented the Loch for one or two days until the freezing of the water drove it away.—Charles G. Connell, Edinburgh.

A House-Martin's Adapted Nest.—The original nest, built under the eaves between a water rone and a stone ledge of a house at Earlston, was of the orthodox House-Martin type, but one day it fell to the ground and was broken in pieces. Inside were four young birds almost fully fledged, and strange to say they were to all appearance quite uninjured. The young birds with the softer material lining the nest were placed inside a wooden box, which was then securely wired to the rone. For two or three hours the parents refused to enter the new nest, but eventually the calls of the young birds could not be resisted, and once more they were fed at regular intervals. Apparently, however, the improvised nest did not meet with the approval of the Martins, probably because it was too open and airy, for in a short time the open spaces at the front, rear, and side were filled in with mud. For over a week this

unique nest was used, and on several occasions I observed that during the early part of the day the nest was empty, but towards nightfall the young birds with their snow-white breasts were seen at the entrance, eagerly watching for the return of their parents.—J. R. Simpson, Earlston.

Common and Velvet Scoter in Orkney.—The Common Scoter has not been recorded as breeding in Orkney, but in 1927 on 4th August I had a very good view of a duck of this species with three half-grown young near Finstown. I think there can be no doubt that they had been bred somewhere in these islands. Next day I saw a pair of Velvet Scoters on the Loch of Stennis.—Evelyn V. Baxter.

The Recent Immigration of Ray's Bream to Scottish Waters.—Ray's Bream, *Brama raii*, or "hen-fish," as it is sometimes called, is an inhabitant of the warm and salt waters of the Mediterranean and Atlantic, and is said to make an annual migration to British waters. At times it may even wander into the North Sea, but there conditions do not seem favourable for its prolonged existence, as many of the recorded specimens were found washed ashore, often after stormy weather, in a dead or dying condition.

Last year seems to have been an unusually favourable one for the immigration of this fish. From the end of October to the middle of November 1927, several specimens were forwarded to the Royal Scottish Museum for examination, and the capture of others was reported from the Firth of Forth and from the eastern portion of the North Sea. Specimens were also recorded in the daily Press from various parts of the Scottish coast. The fish had probably come up the west of Scotland with the Atlantic drift, some passing down the east coast of Scotland, others passing on and down the deep water along the Norwegian Coast. The fish examined were all very uniform in size, ranging from 23 to 24 inches in length, and the stomachs were found to be empty of food.

The individuals sent or reported to the Royal Scottish Museum were taken in the following areas:—Aberlady, one washed ashore, 11.11.27 (Mr Jamieson); Hunspoint, South Queensferry, one taken, 28.10.27 (Mr Campbell); Firth of Forth, three taken, 28.10.27 to 17.11.27 (Mr Campbell); 220 miles E.N.E. May Island, two taken, 11.11.27 (Mr Young); 180 miles E.N.E., Girdleness (the Patch), one taken (Capt. Swanney).—A. C. Stephen, Royal Scottish Museum.

Humble Bees of Iona.—I should like to record the following Humble Bees taken on Iona between 16th June and 23rd June 1925:—

Bombus derhamellus (2).	*Bombus hortorum.*
Bombus agrorum.	*Bombus distinguendus.*
Bombus muscorum.	*Psithyrus distinctus.*

The *distinguendus* queen I captured in a very flowery meadow, with buttercups, daisies, etc., and a stream running through it. I am under the impression that another large yellow bee in the same field, which I pursued but failed to catch, belonged to the same species. Of the other bees the greater number were caught in the little gardens in "the street." The weather was for the most part windy and cold, and there were very few bees about. Indeed those caught were a very large proportion of the specimens seen. I am indebted to Dr O. H. Wild for the identification of the specimens.—Alice M. M'William, Rothesay.

An Old Record of the Carabid Beetle, Anchomenus sahlbergi, Chaud., from Renfrewshire.—This beetle is a native of Eastern Siberia and only receives a place in the European list of Coleoptera in view of the fact that it has occurred in the West of Scotland, so any information bearing upon its history in this country is of interest. A number of years ago the late Rev. J. E. Somerville kindly gave me some of his duplicate beetles and amongst them was a very dark *Anchomenus* which appeared to agree with the description of *sahlbergi*. This specimen according to the data provided with it, was taken by Mr Somerville in Renfrewshire on the south bank of the river Clyde during a collecting expedition made by him during August 1860. I ultimately submitted the beetle to Mr G. C. Champion who stated that in his opinion it was a dark variety of *sahlbergi*. The three specimens upon which *sahlbergi* was originally introduced to the British list by Dr W. W. Fowler (*Ent. Mo. Mag.*, xxii., 265) were taken by Mr Henderson of Glasgow in Dumbartonshire on the north side of the Clyde about the year 1867, but it had previously been found in the same locality by the late Mr T. G. Bishop in 1864. Mr Somerville's capture in 1860 ante-dates these, and he was probably the first to find *sahlbergi* in this country. In recent years three specimens have been found by Mr J. E. Murphy also on the south side of the river (*Ent. Mo. Mag.*, liv., 33). It is difficult to account for the presence of this Siberian insect on the banks of the Clyde, except perhaps upon the assumption that it was

originally introduced by shipping, but Mr Murphy's recent captures, following upon Mr Somerville's discovery in 1860, would seem to indicate that there is a chance of its having become established in Renfrewshire.—Anderson Fergusson, Glasgow.

Caithness Mollusca, Pisidium henslowanum (Shepp.).—In July last I found *Pisidium henslowanum* in some abundance in the sandy bed of the Loch of Mey, a shallow lake at sea level on the north coast of Caithness. The shells were of an unusual form, globose and with rounded outline, in these respects and in the hinge-characters curiously like *P. lilljeborgii*, indeed some specimens which lack the appendiculæ that characterise normal *henslowanum* may be *lilljeborgii*. The other Pisidia living in association with the *henslowanum* were *casertanum*, *subtruncatum*, *nitidum*, and *hibernicum*.

During the past decade a good deal of attention has been paid by conchologists to the Pisidia and we are gradually winning to accurate knowledge of the specific differences of these puzzlingly variable little bivalve molluscs. Old determinations have, in the light of what we now know, proved again and again to be fallacious; and when, in 1921, the Conchological Society published a *Census of the Distribution of British Land and Freshwater Mollusca*, all the older records were scrapped, and the distribution tables, as far as they related to *Pisidium*, were based upon material that had been identified by modern methods. These tables afforded an approximately correct idea of the distribution of the Pisidia in England, Wales, and Ireland, but information regarding Scotland was then, and still is, woefully deficient. *P. henslowanum* was recorded only from the counties of Renfrew, Lanark, and Edinburgh—all in Southern Scotland—and its occurrence in Caithness, whilst constituting an interesting addition to its known range, will when the Pisidia of the intervening districts come to be studied, probably be less anomalous than it seems to be now. It is hardly likely to be comparable with the occurrence of the mollusc, *Throdocia fluviatilis*, in Loch Harray, Orkney, a particularly interesting case of discontinuous distribution. Definite information about the Pisidia of Scotland is much needed, and Mr A. W. Stelfox of the National Museum of Ireland, Dublin, and Mr R. A. Phillips of 7 Magdala Terrace, Gardiners Hill, Cork, the Conchological Society's referees for Pisidia, will be glad to see for purposes of identification and registration any Scottish specimens, particularly those from lakes and mountain tarns. — Chas. Oldham, Berkhamsted, Herts.

BOOK NOTICES

MANUAL OF BRITISH BIRDS. By Howard Saunders. Third Edition, revised and enlarged by W. Eagle Clarke, I.S.O., LL.D. London and Edinburgh: Gurney & Jackson, 1927. Pp. viii + 834. Price 30s. net.

Ornithologists have been awaiting with lively anticipation the appearance of Dr Eagle Clarke's revision of Saunders' *Manual*, a work which for many years stood by itself as a handbook to British birds. They will not be disappointed. Many changes from the edition of twenty-six years ago are apparent at first glance. The volume is much bulkier and heavier, the paper is of different texture, the illustrations no longer stand at the top of the pages, and the descriptions of species follow upon one another instead of occupying each two pages.

For all these changes there are good reasons. In the second edition there were described 384 birds which had been recorded from the British Isles, now the number is 500, owing largely to the development of a more critical examination of the birds and the consequent recognition of geographical races. Many illustrations of species new to these islands have been added in photo-process, and the reproduction of these has demanded a paper of finer surface. Finally, it was a wise move to depart from the stereotyped two pages per species, and to allot to each form such space as its importance demanded. Nevertheless the descriptions still remain as concise as possible, there is no redundancy, and, what is more to the average bird-lover, they remain as readable as ever. There are now 405 illustrations.

The descriptions themselves show changes due to the progress of knowledge. It is a small matter that many of the scientific names have changed, since, fortunately for science itself, the habits of animals are not influenced by the waywardness of nomenclature. But more attention is paid to the distinctive features of the plumages of adult and young birds, and great pains have been taken to bring the recorded distribution in the British Isles up to date.

Dr Eagle Clarke is to be congratulated on the accomplishment of this very successful revision, which brings Saunders' *Manual* back to its own as the best single volume account of British birds, and the most useful for the ordinary ornithologist and naturalist.

THE BIRDS OF THE ISLAND OF BUTE. By Rev. J. M. M'William. London: H. F. & G. Witherby, 1927. Pp. 128. Price 8s. 6d. net.

Scotland takes a high place in respect of the extent to which its territory has been covered by accounts of bird life, and this volume makes an excellent addition to the series of local avifaunas. The area covered is a small one, but its importance lies in that it is a unit, and Mr M'William has seized upon this aspect of its significance. In an

interesting introduction, which discusses much more than the topography of Bute, he indicates that in an island the ordinary processes of faunal change are more intense and more easily traced than in mainland areas where boundaries are ill-defined, and throughout, in introduction and the notes on species, he adopts a biological outlook which adds to the suggestiveness of his records. Thus he touches upon such matters as the diurnal migrations across the sea of Rooks and Starlings, the numbers of the bird population, the numbers of game and "vermin" killed, and the variations in the size of clutches.

From the Island have been recorded 168 species, and the author reckons that in the autumn there may be as many as 400,000 birds on Bute. This work is of much more significance than an ordinary local bird list.

How Birds Live. By E. M. Nicholson. London: Williams & Norgate, Ltd., 1927. Pp. 139. Price 3s. 6d. net.

This is pre-eminently a naturalists' book, and it ought to stimulate that type of open-air observation for which the field naturalist is specially equipped and which, properly checked and systematised, promises to add greatly in the near future to the deeper understanding of bird habits. It does not treat, as the title might suggest, with the physiological activities of birds, but chapter after chapter takes up this and that aspect of bird life—the struggle for existence, the territory theory, bird song, migration, courtship—interpreted in the light of recent advances in theory. The Appendices giving data of casualties among nests and nestlings and of bird population are amongst the most valuable items in this informative book.

Handbook of the Echinoderms of the British Isles. By Th. Mortensen, Ph.D. Oxford University Press (Humphrey Milford), 1927. Pp. ix+471. Price 38s. 6d.

Dr Mortensen is known the world over as an authority upon the identification of Echinoderms—Starfishes, Sea-Urchins, Brittle-Stars, Sea-Cucumbers and Sea-Lilies—and it is not surprising to find that this work is an outstanding contribution to the knowledge of the marine fauna of the British Isles. The author interprets the area widely, since he includes all the species which have been found in the seas about the British Isles down to the greatest depths, all the echinoderm fauna, indeed, of the north-east Atlantic Ocean. This plan has very distinct merits, for though it brings within the scope of the volume many species which have not been found within the "British area," it simplifies the troubles of the systematic student by including every known species which is likely to be found there. The descriptions of the animals themselves are not unnecessarily detailed, the keys for identification are simpler and more easily applied than in previous accounts of the British forms, and the clear and definitive line figures and photographs add greatly to the value of the book as a guide to the accurate discrimination of species.

THE NATURALIST

A Monthly Illustrated Journal of Natural History for the North of England

Edited by T. SHEPPARD, M.Sc., F.G.S., The Museums, Hull, and T. W. WOODHEAD, Ph.D., M.Sc., F.L.S., Technical Col., Huddersfield.

With the assistance, as Referees in Special Departments, of

JOHN W. TAYLOR, M.Sc.; RILEY FORTUNE, F.Z.S.

All Communications to be addressed to—

THE EDITORS, "THE NATURALIST," THE MUSEUMS, HULL

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CONTENTS

PAGE

The Natural History of Floods; and other Editorial Notes . 1

List of the Birds of the Forth Area—*The late William Evans* (with an Introductory Note by James Ritchie) . . 5

Increasing Scarcity of the Landrail or Corncrake—*Oliver L. Wild, M.B., Ch.B., M.B.O.U.* (Illustrated) . . 17

Studies of Some Lanarkshire Birds—The Carrion Crow—*Walter Stewart* 19

Decrease of Tree Sparrows—*Evelyn V. Baxter and Leonora Jeffrey Rintoul* 25

Notes:

The Adder's Venom—*Rt. Hon. Sir Herbert Maxwell*, 4; Scottish Whale Records—*Dr James Ritchie*, 15; Eastern Short-toed Lark at Fair Isle—*Admiral J. H. Stenhouse*, 16; Persistent Stay of Crossbills—*James M'L. Marshall*, 16; Crossbills at Bowhill, Selkirkshire—*J. R. Simpson*, 16; Crossbill in Orkney—*Evelyn V. Baxter*, 16; Bird-Life in an Office Garden—*Charles G. Connell*, 23; Two Birds new to Canna, Inverness-shire—*J. Kirke Nash*, 24; Nesting of Little Tern at Aberlady, East Lothian—*Dr O. H. Wild*, 24; Surf Scoter in St Andrews Bay—*Prof. D'Arcy W. Thompson*, 25; Hoopoe in Dumfriesshire—*A. G. Moffat*, 25; The Age of a Pied Blackbird—*Dr James Ritchie*, 26; Raven Nesting in a Tree—*Hugh S. Gladstone*, 26; Ruff and Curlew-Sandpiper at Aberlady, East Lothian—*Dr O. H. Wild*, 26; Piratical Habits of Gulls—*J. Kirke Nash*, 26; Slavonian Grebe at Duddingston Loch, Midlothian—*Chas. G. Connell*, 27; A House-Martin's Adapted Nest—*J. R. Simpson*, 27; Common and Velvet Scoter in Orkney—*Evelyn V. Baxter*, 28; The Recent Immigration of Ray's Bream to Scottish Waters—*A. C. Stephen*, 28; Humble Bees of Iona—*Alice M. M'William*, 29; An Old Record of the Carabid Beetle, *Anchomenus sahlbergi*, from Renfrewshire—*Anderson Fergusson*, 29; Caithness Mollusca, *Pisidium henslowanum*—*Chas. Oldham*, 30.

Book Notices 31

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The Annual Subscription for 1928, payable in advance, 12s. 6d. post free, should be addressed to the Publishers, Oliver and Boyd, Tweeddale Court, Edinburgh.

COVERS FOR BINDING "THE SCOTTISH NATURALIST."

Special Cloth Cases for Binding the 1927 Volume can be supplied at 1s. 6d. each (by post 1s. 9d.), by Oliver and Boyd, Tweeddale Court, Edinburgh.

PRINTED BY OLIVER AND BOYD, EDINBURGH.

503.41

The Scottish Naturalist

No. 170] 1928 [March-April

EDINBURGH: OLIVER & BOYD, Tweeddale Court
LONDON: GURNEY & JACKSON, 33 Paternoster Row

Price 2s. 3d. Annual Subscription, payable in advance, 12s. 6d. post free

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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.

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

(Authors are responsible for nomenclature used.)

The Scottish Naturalist

No. 170.] 1928 [March-April

THE YOUNG IDEA AND ITS TRAINING.

Some years ago in this magazine we discussed the position of "The Youthful Naturalist" (1923, p. 170), and pointed out that in spite of the nature-teaching which had been established in schools, young enthusiasts less frequently made their appearance or appealed for help in museums. I think it may be taken as certain that collections of birds' eggs and butterflies are less frequently amassed by schoolboys than formerly. This may partly be due to the precarious protection afforded by the Wild Birds Protection Acts, partly to new distractions of an inventive age which draws the thoughts of youth to motor-cycles, motor-cars, and all things mechanical. But it may also be due to a new outlook, based upon a greater regard for living things, and a greater desire to watch the living creature rather than hoard its dead relics.

It can hardly be doubted that the mass of fresh and interesting information about Nature and her ways, contained in books written by skilled writers and scientists, and we cannot forbear mentioning the good work of Professor J. Arthur Thomson in this connection, as well as the attractive exhibits of up-to-date museums, are creating in the public an intense thirst for nature knowledge, and with it a new appreciation of the value of living things. Never has there

been so great an output of nature writing, and the output is but a measure of the demand. From the grown-up the interest is captured by the child.

Thus while we find that fewer youthful collectors bring their collections for comparison to the museums, the country hedgerows are still scanned by the school-boy, and the bushy braes on Arthur's Seat are still quartered in the search for nests. If wanton destruction also continues, we trust it is only the last kick of a dragon that will soon be dead. The opening of a small but attractive aquarium in the Royal Scottish Museum has served to illustrate the intense interest taken by children in living things. Day after day the same school-boys may be seen peering at the exhibits, or returning to follow the unfolding life of the frog's spawn; and children who never dreamed of bringing dead creatures for identification, now deposit in the tanks their living captures, sticklebacks and minnows, shore crabs and edible crabs, young plaice and bull-heads, sea-anemones and sea-slugs.

The new outlook is all to the good. It deserves every encouragement. What is being done to guide the young idea along this promising path? Here the nature study of schools, properly conducted, can do much. But other countries do not leave the matter to the official teachers. In our own country outside bodies are doing good work. The Royal Society for the Protection of Birds has its annual "Bird and Tree" competition, setting aside prizes and a Challenge Shield for the best school essays on nature subjects; the Girl Guides of Edinburgh have organised a competition for the best observations on the birds of Duddingston Loch Sanctuary, and so on, a series of excellent but isolated efforts.

If we turn to America we find an appreciation of the desirability of training the children, and a practical effort at guidance, beside which all our schemes seem puny. We have no means of judging the full extent of the movement, but we have received from various sources occasional pamphlets which suggest its scope. In Canada, the Government has interested itself in the movement, and the Depart-

ment of the Interior issues free pamphlets on such subjcets as "Attracting Birds with Food and Water," "Bird Houses and their Occupants," and "Lessons on Bird Protection," the last including short articles on the value of birds to man, how birds are protected, and how children can assist, and being "authorized by all the Provinces for use in the schools of Canada."

In the United States, not only does the Federal Government issue similar publications, but the States play independent parts. Thus I have before me three "Nature leaflets" issued for children by the Board of Agriculture of Massachusetts. They are simply written and attractive pamphlets, "Hints for Out-door Bird Study," and include simple directions as to how to identify the birds, how to find birds, and how to approach birds. Can we imagine a British Board of Agriculture endeavouring to assist the farmer in this simple, indirect, and yet effective way?

Private bodies are no less active. The Audubon Societies issue many suitable "Bulletins," including a suggestive "Bird Study in Elementary Schools," and the museums have built up self-contained organisations for the furtherance of nature study amongst the young. The far-reaching effect of museum efforts alone is suggested by the work of the American Museum of Natural History in New York, which in 1926 (the latest report issued) gave illustrated lectures to 138,514 school children, and carried on a school service within the museum and in the schools of Greater New York, which reached 5,859,529 boys and girls.

The Americans see the value of catching them young.

J. R.

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The Second Annual Report on the Bird Sanctuary at Duddingston Loch in Edinburgh has been published by H.M. Stationery Office (Price 6d. net). Thanks to the wise steps taken by the Government at the suggestion of the Advisory Committee, the sanctuary promises to become more and more the haunt of nesting and migrating birds,

as the bushes and trees planted for shelter and food-supply gradually come to maturity. The records of the official observers add to the known number of species frequenting the loch, the list of which now includes thirty breeding species, thirty-three regular visitors, and twenty-three casual visitors. An interesting summary of the plant life of the loch is included in the Report.

* * * *

The latest part of the Transactions and Proceedings of the Perthshire Society of Natural Science, dealing with Session 1926-27, includes the first definite record of the Surf Scoter for the Tay Area, various short notes on the occurrence in Perthshire of mammalia, including the Wild Cat, and their parasites, and papers on Perthshire plants and foreign shells.

Polecat in Argyllshire.—The following paragraph appeared in *The Scotsman* of 12th April 1928:—

"Sportsmen, gamekeepers, naturalists, and all interested in animal life will be interested to learn (writes a correspondent) that a Polecat has been trapped in Glencrepisdale, Morvern, Argyllshire, by Mr John Anderson, gamekeeper to Commander Mark Newton, R.N. Not for many decades has a Polecat been seen in the Highlands, and very few of present-day gamekeepers have ever seen one. This fact led many to assert that the species was extinct, if not in all Scotland, at least in the Highlands.

"The Polecat, which is akin to the weasel, is much larger than the weasel, stoat, or marten, and has been known to fight for and retain its prey against the attack of the wild-cat.

"The specimen caught by Mr Anderson was well developed, with a beautiful fur. The weasel and the stoat show no diminution in numbers all over the North of Scotland, but the marten appears to be fast dying off."

THE TREE-SPARROW AROUND EDINBURGH.

By David Hamilton.

Though recorded in the vicinity over thirty years ago, the Tree-Sparrow, up to 1912, was by no means a familiar bird near Edinburgh. In May of that year it was found nesting, for the first time in Midlothian, by the late Mr W. Evans, at Craiglockhart. It nested there for a few succeeding years, then seemed to desert the place. During the last ten years it has gradually become more numerous, and at the present time it can be met with almost any day.

Whilst never seen in the busy parts of the town like the House-Sparrow, it can be observed well within the city boundaries, and it has nested in several places within a two-mile radius from the centre of the town. It can also be met with on the outskirts, on almost an entire circle round Edinburgh; and its distribution suggests that it may have spread to the Edinburgh district from both an easterly and a westerly direction.

A list of the places where I have seen this bird during the last few years may be of interest. On the north side between Granton and Leith it seems absent, owing to lack of suitable conditions; but immediately beyond Leith, in an easterly direction, it occurs on Craigentinny Links near Restalrig, where I have known it for several years during the nesting season. At Joppa it nests on a farm beside the Brunstane Burn, and I often see the birds at different places on the Milton Road.

Beside the Esk at Musselburgh in the Haugh it has nested for the last five years, is common at Inveresk, and I found it feeding young at Fawside Castle. Between Musselburgh and Niddry I have met with small flocks in the fields. At Duddingston it nests in the Policy grounds, also at Easter Duddingston House, and has been seen at the southern portion of the Duddingston Loch bird sanctuary.

On 17th March 1928 I saw a flock of thirty-two at

Craigmillar Castle, and on the same day over a dozen at Greenend. Three birds were seen at a hen-run at Liberton during the following week. On the road from Braid Hills to Carlops, birds have been observed at Comiston House, Lothian Burn, Hillend, and at farms out to Flotterstone. They occur on the Water of Leith at Redhall, and on farms out to Balerno and beyond. Flocks have been seen near the canal below Baberton, and also between that place and Saughton; and at Corstorphine a flock of forty birds was noted at a farm during the winter months.

Over Corstorphine Hill, at the entrance to Craigcrook Castle, I saw six birds on 29th February 1928, and at Drylaw Farm, between Davidson's Mains and Royston, two birds in the stackyard on 3rd March 1928.

This completes my list, but I am certain there are other places where this bird can be found, and it would be interesting to have the experience of other observers, especially since there seems to be a decrease of Tree-Sparrows elsewhere.

Remains of the Great Extinct Ox in Perthshire.—Recently the proprietor of Mugdrum Island in the river Tay, observed the tip of a horn-core protruding from the mud of the island, and, having dug up the core and the fragment of skull to which it was attached, presented his find to the Perthshire Natural History Museum. The horn-core, which I have had an opportunity of examining, through the kindness of the Curator, Mr John Ritchie, is the right horn-core of the Great Extinct Ox or Urus, *Bos primigenius*. Before the tip had been broken off, the core, now 17 inches long, must have measured some 21 inches, and the horn-sheath itself must have been more than 2 feet long. The diameter of the base of the core must have been about 9 inches. The flatness of the fragment of frontal bone attached to the core is characteristic of the Urus.

Remains of this Ox have been found in various places in Perthshire; from Drummond Castle in the south, to Moulin and Atholl in the north, in both marl deposits and peat.—James Ritchie.

THE COURTSHIP AND BREEDING OF THE FULMAR.

By Professor JOHN TAIT, M.D., D.Sc.

WE print the following notes, extracted from a letter received from Dr John Tait, Professor of Physiology in M'Gill University, Montreal, as giving impressions gathered during a six weeks' residence in the company of Fulmars in Orkney:—

When I first came to Stronsay, Orkney, in June 1927, Fulmar Petrels, in pairs, were everywhere sitting on the house, squatting on the surrounding field, and so on. They are most entertaining animals to watch and are extraordinarily tame. On the ocean they are soundless or voiceless. In courting they make a quacking sound, which is heard everywhere in the earlier summer. Many a time when I'd be walking with a wooden box of matches in my pocket, I'd think I heard their distant quack-quack-quack, crick-crick-crick. It was only the matches, but that gives you an idea of the distant sound.

I never saw them feed during this time and they spent well over a month courting. They'd sit on the sea more or less motionless. Suddenly one would move to the other and the pair with their heads together would crick-crick-crick, or squawk for a time. A third bird might come in. Then there would be a jealousy display, but I never could make out which was male and which female. By hours on end they'd sit on a chimney head, now and again squawking. They are easily the most fond of each other of any birds one sees, possibly because in the off season they lead a rather detached life. I came to be very fond of the birds.

In July one pair nested on our island just below five feet of grassy bank in a bit of a hole—no nest, one single white egg. The mother sat very close. When approached (she was at the level of our feet) she'd spit like mad. She could eject oily fluid (stomach contents) to three or four feet

distance and go on spitting at every demonstration on our part. When the nestling hatched it too could spit like fury, and we'd sometimes make it empty its whole stomach in this way. It was a fluffy grey thing like a baby's "puff," and while we were there (*i.e.* till mid-August) it stayed white and fluffy, quite unlike a "Scorie." The father bird had meantime vamped apparently. The mother used to go on long and distant hunts for food. She had the characteristic difficulty in walking up to the young one, when she returned, and would take quite five minutes to walk a couple of feet after a successful landing on the beach. Curious that with ability to glide should go footlessness; it reminds one of a dragon-fly.

Raid by Rats on Nests at Scone Palace.—Every year there nest in the ivy on the wall of my home a large number of Starlings, most of whose offspring I "ring" under the "British Birds" scheme. On 1st May last year (1927) about 4 P.M., there was great perturbation among the Starlings and a couple of Rats were seen trying to climb the ivy, but the birds succeeded by their determined attacks in driving them off. These Rats must have been the scouts of a much larger body, for that night I heard a great commotion going on among the Starlings, many of whose nests are often within a few feet of my bedroom window. I paid little attention at the time. The morning revealed a sad state of things: practically every nest all round the house, and others in the old tree-stumps nearby, had been destroyed, and broken egg-shells lay everywhere on the ground. I got a ladder and investigated many of the nests: in three I found the mangled remains of the old bird, torn to pieces as she tried to defend her nest. The nests of anything up to forty Starlings had been pillaged, as well as those of three Jackdaws, many Sparrows, and possibly a Stockdove. No one seems to have seen what must have been a travelling pack of Rats, as there are hardly any near the house. Later in the year over 300 were killed in a dryer in a single day, about a couple of miles from here. They have been a plague hereabouts lately.—SCONE.

STUDIES OF SOME LANARKSHIRE BIRDS.

The Hooded Crow, the Chough, and the Magpie.

By Walter Stewart.

In Lanarkshire the Grey Crow, or Grey Hoodie as it is sometimes called, has remained a comparatively unknown bird. No mention of it is made by county writers of either Statistical Accounts of Scotland, neither do we find it recorded as a Lanarkshire bird by Robert Gray (*Birds of the West of Scotland*, 1871). Outside the county boundary, however, we find Magillivray (*British Birds*, 1837, vol. i.) quoting Mr Durham Weir of Boghead, Bathgate, as follows:—"Hooded Crows are seldom seen in my neighbourhood. During the long period of ten years I have known only five of their nests. They were built on the top of high old Scots-fir trees."

Some fifty years later, the Grey Crow was not unknown on high ground of West Calder parish during summer, for in the late eighties we climbed to one of their nests, on a very tall Scots-fir, and secured an egg for our collection, and we well recollect seeing both birds as they circled round the tree. About the same period, in the Cairns Castle, Causewayend, and Crosswoodhill districts we saw newly shot Grey Crows in July. Writing on the "Birds of Carmichael Parish" (*Ann. Scot. Nat. Hist.*, 1897, pp. 201-219) the Rev. James D. W. Gibson, B.D., describes this bird as "Rare. Specimen killed by Mr T. Cranston; preserved in Carmichael House. Another was killed this year on Tinto (Mr T. Cranston); it has also been killed on Scout Hill, Symington (Mr Ed. Stoddart)."

In more recent times we have heard of Grey Crows nesting in the Dolphinton district, and the shooting of young Grey Crows in August vouched for; but when the matter came to be thoroughly sifted we could find no authentic instance of a pair of these Crows nesting; indeed

we have not seen a pure Grey Crow in the county, between the dates of 1st April and 1st October.*

A winter visitant to Lanarkshire, remnants of two geographical sections of the Grey Crow meet within the county's borders. From North-west Europe comes the larger or main section, the route of penetration being along the Pentland Hills into Dunsyre, Carnwath, Walston, and Biggar, while farther south a few straggling migrants penetrate into the Wandell and Crawford districts, through wild hilly country around the head waters of the Tweed. On the western side of the county we receive a small straggling influx of a race indigenous to the Western Highlands and Islands. Throughout the winter isolated instances of Hooded Crows roosting at the Lee winter roost, no doubt birds of both races, are known; and at Symington, where there is a large sheep-slaughtering establishment, and where Rooks and Carrion Crows have an almost daily rendezvous, they make sporadic appearances.

The fact that the Grey Crow cuts such a poor figure as a Lanarkshire bird must be our excuse for essaying to describe this bird at home, in typical Grey Crow country, in a more remote part of "Clyde." The ground in question is a tract lying along the eastern side of upper Loch Fyne, roughly five miles long by two and a half broad. It is intersected by some half dozen hill burns, which in some parts make a rapid descent into Loch Fyne, through deep wooded gullies, the lower ground being covered with natural birch and oak woods interspersed with a field or two.

Each of these deep gullies of the little hill burns probably provides upwards of a mile of suitable nesting ground, the nests being built on small birch, rowan, Scots-fir, and spruce (birch decidedly the favourite), most of the trees so slender as to preclude the possibility of climbing them; but from directly above, on the steep bank, it was often possible to examine the contents of the nests with "full-screwed-out" binoculars.

* Except a pair seen repeatedly on Woodhall, Bothwell, until very late in April 1927.

Within this area during the first three post-war years, we found in May 1919, 29 pairs of Hoodies nesting; in 1920, 21 pairs; and in 1921, 17 pairs. As evidence of their well-known egg-stealing propensities the surrounding moor was almost destitute of game, except in one part where a pair of Common Buzzards were nesting, and where one pair of Red Grouse, and one Grey Hen, were each rearing a brood, under the ægis of these strange protectors. Of the protection afforded by these large hawks we had almost daily evidence, for rarely did a Grey Crow get within half a mile of the Buzzard's nesting place. In this particular gully in 1919 we found eight Grey Crows' nests, all occupied, in less than a mile stretch; but in the following year not one new nest had been built.

The Grey Crow is not an early breeder in these parts, hatching usually taking place about the end of May; but when we consider that the oak-leaf caterpillar is the young Hoodies' principal food for about the first ten or twelve days, we are forced to admit that the time of hatching is most opportune. Another great advantage is the fact that the birches and rowans are now fast assuming their verdant curtains, behind which nests and young are soon hid. We must not omit to mention the wonderful silence practised by these young birds, in marked contrast to the young of other species.

In common with the Magpie, when it nests on a slender tree, we never find the Grey Crow repairing the nest for a second year's occupancy, consequently in these mountain gullies where it nests, the spot often assumes the appearance of a miniature "rookery," there always being several old nests in close proximity to the occupied one.

Although this bird is omnivorous in its diet, in these parts the bulk of its food is procured on the seashore, between high and low tide marks.

The Chough.

About the Chough as a Lanarkshire bird there is little to record. Known in the past to have possessed a few

inland breeding places, one of which, writes Robert Gray (*Birds of the West of Scotland*, 1871, p. 162), was the "Corra Linn falls on the Clyde" about 1774, another Campsie Fells in Stirlingshire, where the Rev. John Lapslie records it as a "diminishing species," about 1794. In the *New Statistical Account of Scotland* the Rev. William Goldie of Crawfordjohn (1836) writes, "In the winter of 1834 a *Corvus graculus* or Red-legged Crow appeared in the vicinity of the village and was shot."

We next hear of it just outwith the county boundary, the late William Evans writing of a specimen in his possession (*Ann. Scot. Nat. Hist.*, 1910, p. 181) reported to have been shot near Stoneypath Farm, West Linton, about the year 1872; and again from another abutting parish Mr Henry D. Simpson, The Priory, Peebles (SCOT. NAT., 1920, p. 55), records the shooting of a Chough in Drummelzier, adding that "two Choughs were seen at the time when the one was got, and the second bird has been seen nearly every day since in the same locality"; and in a footnote the Editors write, "Since we received this note from Mr Simpson, Mr F. R. S. Balfour of Dawych, Stobo, has informed us that the keeper shot the Chough in mistake for a Carrion Crow, and that strict instructions have been given not to molest the remaining bird."

In 1915, and again in 1920, we were informed that Choughs, each time a pair, had been seen in two widely separated and remote parts of Lanarkshire, on both occasions emerging from old pit shafts; but so far it has not been our good fortune to meet with this rare bird in Lanarkshire wilds.

The history of the Chough in southern Scotland during the past hundred years presents one of the most tragic chapters in the annals of bird-life, and it may now be said to have reached that dangerous "rara avis" stage when all sorts of gunmen and collectors will expedite its extinction as a British bird. Nearly all accounts seem to agree that everywhere the places it once frequented or now tenants in diminishing numbers, swarm with the ubiquitous Jackdaw, and strange to relate it is everywhere said to live on the

friendliest terms with that bird. The Jackdaw we know to be both predatory and parasitic; predatory, when preying on the young and eggs of birds which it can easily and openly overcome; parasitic, where it lives in seeming neighbourliness and amity with its victims, such as semi-wild domestic pigeons and Stock Doves. That the Chough is treated in the latter manner we have no doubt.

The Magpie.

Few birds have entered more into native folklore and rhyme than the sprightly handsome Magpie, about which a certain amount of superstition always seems to have clung. Of the many rhymes which it has inspired, perhaps the best known is—

> "One for joy, two for grief,
> Three a wedding, four a death,"

that alternate version—

> "One for sorrow, two for mirth,
> Three a wedding, four a birth,"

not being so well known in Lanarkshire. What bird-nesting boy when robbing the Magpie of its eggs or young, has not stilled his conscience with the thought "that it itself is a confirmed robber of small birds, eggs and young"?

In the *New Statistical Account for Scotland* it is mentioned by writers of the Lanarkshire parishes of Hamilton, Cadder, Douglas, and Wandell and Lamington; and in a *Few Rough Notes on Douglas Parish*, 1860, the author writes that "There is not a Magpie in the parish. No sooner does one enter than it is shot." In *Birds of the West of Scotland*, 1871, p. 185, Robert Gray states that "twenty years ago it was abundant in the neighbourhood of Glasgow." Writing on the "Birds of Carmichael Parish" (*Ann. Scot. Nat. Hist.*, 1897, pp. 201-218), the Rev. James D. W. Gibson, B.D., says: "The Magpie is occasionally seen in pairs in spring making ineffectual attempts to establish itself in the parish."

Although in game-preserving districts a much persecuted bird, yet over large tracts of the county we find the Magpie

very common. Thanks to its early-building habit we were able, while taking our rookery census in 1922, to collect the necessary data relating to its status and distribution. This, briefly, we found to be as follows—around Glasgow, common; Cadder, extremely plentiful; The Monklands, Shotts, Cambusnethan, Bothwell, Blantyre, Hamilton, East Kilbride, Cambuslang, Rutherglen, and Carmunnock, evenly distributed; Glassford, Stonehouse, Dalserf, and Avondale, common; the higher grounds of Carluke, Carstairs, and Carnwath, a few scattered pairs; but in the remaining south and south-east parishes it becomes exceedingly rare, indeed in one or two it is practically non-existent. Within many small policies of the Middle and Lower Wards, we found it, if not exactly encouraged, at least tolerated, and around scores of the farm-steadings a pair was nesting.

As the Magpie shows a decided aversion, except on rare occasions, to use a nest for more than one season, the result is sometimes an accumulation of old nests in varying stages of demolition which, viewed from a distance, looks like a small rookery. Indeed on one occasion, while taking our rookery census, we were caused to deviate several miles, only to find that two pairs of Magpies were nesting at the farm-steading, accompanied by six old nests.

In the north-western district we found several nests in old beech trees, the majority of them bulky structures; for as a rule when a site of this kind is chosen it suffices for several years' occupancy. In the low ground of Clyde valley, and of some of its tributaries, preference is shown for the poplar as the nesting tree. In the higher districts nests are often built in hawthorn, either hedge or isolated bush, and at Blackhall, Cambusnethan, we found one in a heap of unburned thorns, the nest being exactly four feet from the ground. No doubt they had been dispossessed from their selected nesting site by the cutting of the hedge.

Much has been written about the dome on the Magpie's nest, and different opinions expressed regarding the purpose it fulfils. That it is an entirely separate structure, of quite different material from the nest proper, is a fact not so well known. That the piling of this huge heap of thorn twigs

above the nest is a protective habit, acquired by this weaker member of the "corvine" family against its enemies, there can be no doubt, and the distance which the Magpie will fly to procure these thorn twigs is amazing. About thirty-five years ago a pair of these birds nested in an isolated coniferous wood near the boundary of the parishes of Douglas and Crawfordjohn, and were observed carrying this part of the nesting material from the neighbourhood of Douglas village, three miles distant.

Another peculiar habit shown by this remarkable bird is the yearly congregations at certain places during the latter half of winter, these gatherings being significant from the fact that they are entirely different from the usual roosting parties seen at certain places in the autumn and early winter. They might rather be described as sportive and ceremonial occasions, the wonderful antics of the birds, for the time being, turning the places into Magpie playgrounds. Different opinions as to the purpose of these occasions have been expressed by past writers, many holding the notion that they were simply roosting parties, others that they were congregations of migratory birds, but it has fallen to Mr Fred. J. Stubbs (*British Birds*, vol. iii., p. 34) to point out what is probably the true explanation: Darwin in his *Descent of Man* quotes the Rev. H. Darwin Fox to the effect that in former years these birds used to congregate from all parts of Delamere Forest to celebrate the "great Magpie marriage." Mr Stubbs, who has studied these wonderful gatherings, of which he gives an exhaustive account, has no doubt that the true purpose is nuptial.

Careful observation on our part at two of these congregating places in Lanarkshire, has enabled us to establish the fact that the Magpies gradually dwindled in numbers from about St Valentine's Day. This we first discovered in the spring of 1923, when on 8th February we visited Garnkirk and found over sixty magpies congregated within a very circumscribed area, but returning on the 22nd inst. found less than half that number. Throughout the surrounding district nests were already being built and the Magpies in possession (it is a well-known fact that this bird completes

its nest some considerable time before producing eggs). At Bredisholm our experience was somewhat similar, as on 6th February we found over forty present, but on the 20th only about fourteen, and in this district also, nests were being built.

If it be correct to assume that the purpose of these gatherings is nuptial, then we may also assume that this is Nature's way of re-shuffling and re-mating this very sedentary bird. Further there is little doubt that these nuptial centres have acquired some sort of traditional continuity, for year after year, in summer, we find them frequented by immature and non-breeding birds, that are no doubt requisitioned to fill casualty gaps. Magillivray (*British Birds*, 1837, vol. i., p. 571), quoting Mr Weir of Boghead, Bathgate, writes of "a shy old male" which he deprived of three successive females who sat on the same eggs, and was amazed at the remarkable rapidity which that bird had their places filled. Another case was reported to Mr Weir by Mr John Mellish, gamekeeper of Polkemmet, West Lothian, of six successive Magpies which sat on the same eggs, shot from a nest behind the old parish Church of Mid-Calder. Now, Boghead, Mr Weir's place, is less than five miles from two nuptial centres, Gavieside and Bedlormie, which exist to-day, and no doubt did so in Mr Weir's time ; while Mid-Calder is less than four miles from Gavieside, where forty years ago over one hundred Magpies were yearly congregated.

The following congregating grounds are situated within the county:—Cadder, at Garnkirk and Chryston often over sixty Magpies; Old Monkland, at Bredisholm usually about forty; Blantyre, between Calder Glen and Blantyre Ferme always over thirty; Avondale, at Castle Brocket once over forty — we have heard, however, of larger congregations in previous years; Glassford, fairly large flocks reported.

The following are situated near the Lanarkshire boundary:—Torphichen, West Lothian, at Bedlormie often over thirty; West Calder, Mid-Lothian, at Gavieside in the "eighties" the gatherings always exceeded one hundred. In recent years they have been much smaller.

The following peculiar incident which occurred in the Blantyre district we reported at the time (*Field*, 7th May 1910): "A pair of nesting Magpies were dispossessed by a pair of Rooks, which in turn deserted the nest after a boy had climbed to it. About a week later the Magpies returned and transferred the nest to a new site about fifty yards distant, working with such expedition that they completed it in two days."

In its feeding habits the Magpie is omnivorous, taking toll of the nests of the majority of wild birds, invading the poultry yard also in its hunt for eggs and chicks, and in winter not despising even grain. From the farmer's point of view, however, it has its redeeming points. It misses no opportunity of preying upon rabbits and rats of all sizes, several instances of which we have witnessed, the most recent in October 1923, when a full-grown rabbit was the victim. Hearing the scolding of some Magpies in a field, our attention was drawn to the curious behaviour of a large rabbit, which kept running round in a circle; a friend who accompanied me remarked that it was being attacked by a weasel. We at once found, however, that the three Magpies were the attacking party, and that the rabbit was already blind.

We have previously mentioned the Magpie's very sedentary habits, and in Lanarkshire the maximum movements of immature birds consist of pushing their way into districts where game is preserved, and where a warm reception awaits them. Migratory movements are entirely absent.

Unusual Development of Roe Deer Calf.—Mr A. M. Wolfenden sends us an observation of an early Roe calf. While he was on the hills in the neighbourhood of Kingussie with one of the keepers in December 1927, they "heard the cry of the calf, and wondering what it was, went on to find the mother Roe trying to get the little fellow away by giving it a push with her head. Considering the very bad weather we have had, surely this is a record for the early calving of Roe." Mr Wolfenden's note is of more than ordinary interest in view of the anomalous breeding of Roe deer. The pairing season is in July and August, and as a rule the young

are born in the following May and June. This, however, does not mean that the true gestation period lasts over ten months. On the contrary there is evidence that germinal development does not actually begin till December, and the probability is that fertilisation of the egg takes place at that time by sperms which have lain quiescent since the mating season six months before. The true period of gestation would therefore be also about six months. Now if the mating of Mr Wolfenden's mother Roe took place at the ordinary season, the December calf was born about six months afterwards, that is after the true gestation period. This can only mean that for some reason abnormal development took place, that the six months' dormant period after pairing was omitted from this life-cycle, and that fertilisation and development of the egg took place immediately on pairing, an abnormal reversion to a normal occurrence. The fact that the new-born calf had to face the rigours of winter and spring, suggests how valuable the staving off of the gestation period must have been for the survival of Roe deer.—James Ritchie.

Pilot Whale Stranded in the Firth of Forth.—A whale, which came ashore, alive, on Saturday, 3rd March, on the Belhaven sands about two miles west of Dunbar, and which was stranded by the ebb-tide, was not a Bottle-nose Whale, as has been reported in the Press, but a small example of the Pilot Whale or Black Fish. The Belhaven specimen, a young male, was 13 feet 2 inches in length and about $8\frac{1}{2}$ feet in girth. It exhibited all the characters of the Pilot Whale—swollen forehead, eleven pairs of teeth, and white, heart-shaped mark on the throat.—A. C. Stephen, Royal Scottish Museum.

Common Porpoise in the Firth of Forth.—A Common Porpoise, *Phocæna phocæna*, was cast up on the beach at Gosford House, Longniddry, on 31st March. It was a male individual and measured 5 feet $1\frac{1}{4}$ inches in length.—A. C. Stephen, Royal Scottish Museum.

Starlings Roosting on the Forth Bridge.—On 7th January this year, when I was walking over the Forth Bridge, my attention was drawn to a large number of Starlings, by their whistling and squealing. They were perched on the topmost parts of the Bridge, chiefly on the span nearest the Fife side, though a few were also on the middle span. It was getting dark at the time, and on the return walk to Dalmeny they could still be heard. It appears that the birds were using this exposed position as a roosting place.—David Hamilton, Edinburgh.

THE MIGRATIONS OF THE HERRING.

By A. C. Stephen, B.Sc.

To Britain and the peoples dwelling round the shores of the North Sea the Herring is probably the most important of the sea fishes. Its pursuit and capture alone give employment to many, while our shore towns, in a number of cases, owe their present size and importance to their being centres of herring fishing and curing. Notwithstanding the importance of the Herring, there is much about its life history still to be learned. Its migrations, especially, are but very imperfectly understood, in spite of the endeavours of many able men to elucidate them. Dr A. C. Johansen writes in a recent paper on the migrations of the Herring (*Journal du Conseil*, vol. ii. No. 1), "the migrations of the Herring constitute a problem which has occupied the attentions of naturalists for some time past albeit with no very noteworthy result."

The migrations of the Herring have aroused extreme interest both on account of their great economic importance and of their erratic nature. In the earlier state of our knowledge the appearances and disappearances of Herring shoals from a particular part of the sea were attributed to "migrations," but we now know from comparatively recent methods of investigation such as scale readings, that other causes are at work, and that the frequency of the Herring in any place will depend to a great extent on the variations in the survival of the brood of some previous year.

Part of the lack of success in elucidating the Herring migrations is due to the delicate nature of the fish itself. It is very difficult to affix a mark to the Herring, as has been done with good results in the case of the Cod and Plaice, and so indirect methods must be used. It has been found that Herring spawned under different conditions show structural differences such as variation in number of vertebræ, fin-rays, and keeled scales, and that once formed these remain the same throughout the lifetime of the individual.

Migration may take place both vertically and horizontally. Fishing experiments have shown that Herring larvæ make diurnal vertical migrations, being normally much more plentiful in the surface waters at night than during the day. The same undoubtedly applies also to the adult fish, in this case probably because the pelagic organisms on which they feed make such diurnal migrations. The horizontal migrations are as yet but imperfectly understood, but Dr Johansen's conclusion is that each race of Herring has its own particular area of migration. In some cases the area is of great extent, in others it is small. The Norwegian spring Herring, for instance, may move from the south-west coasts of Norway up to the North Cape and the Barents Sea and back again, while some races spawning in the Kattegat never seem to leave those waters.

Crossbill in Ayrshire.—I cannot recall any notice of the invasion of this species being observed in Ayrshire. This impels me to send you a quotation from a letter from my friend Dr Cairnie of Largs. He saw one in the Brisbane Glen, Largs, on 30th July 1927, "evidently an immature bird—greenish-yellow on the rump being the most noticeable feature. I watched it at close quarters as it alighted on a marsh thistle, wrenched off one of the heads and perched on the roadside fence, where it held the flower head under its feet and proceeded to pick out the seeds. It permitted me to approach within a few feet."—JOHN PATERSON, Glasgow.

Great Snipe in Lanarkshire.—The recorder of a Great Snipe (*Gallinago media*) shot in Lanarkshire, 13th August 1927 (SCOTTISH NATURALIST, 1927, p. 188), has been led to believe it is the first got in that county. This journal for 1920, p. 31, quotes *The Field* for one shot at Allershaw, Elvanfoot, Lanarkshire, on 10th September 1919. It is stated in *British Birds*, xiii., 198, that it was identified by Mr Hugh Wormald. Mr Amos, who was then an old man, and had been for a long period keeper to the Earl of Home, told me, thirty-three years ago, that one had been shot in Douglasdale. One is stated to have been seen at Hogganfield Loch in December 1909 (*Glasgow Naturalist*, xi., 55) by Messrs Alexander Ross and William Rennie.—JOHN PATERSON, Glasgow.

A SIMPLE KEY TO THE CRABS (*BRACHYURA*) OF BRITAIN AND THE NORTH-EAST ATLANTIC.

By MICHAEL PERKINS, M.A., F.E.S. (Mackinnon Research Student of the Royal Society).

From the Zoological Laboratory, Cambridge.

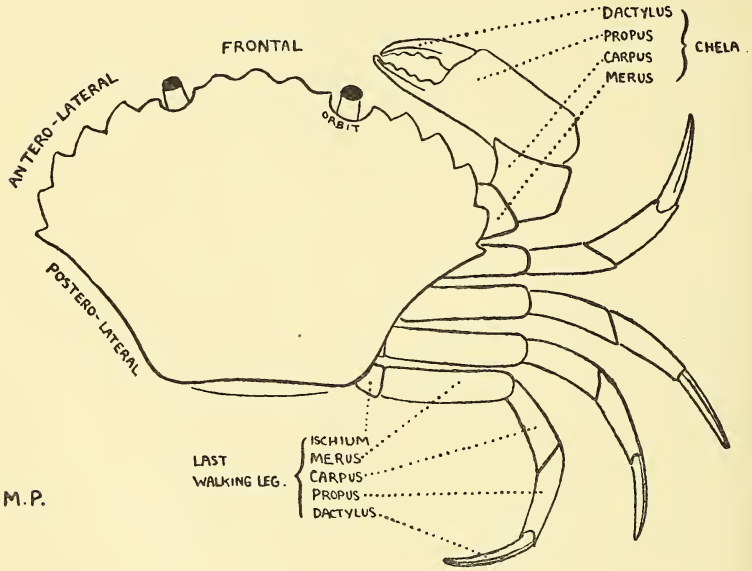
THE original intention of this key was to supply a means of identifying British crabs, my attention having been called to this as a long-felt need of our naturalists. When, however, I came to draw up a list of the crabs which should be included, I felt that with marine animals more than any other it is impossible to draw any satisfactory line between regular inhabitants and wanderers. Not only are there no bounds in the floor of the all-embracing ocean, but there are also surface currents which may bring specimens over long distances dead or alive; thus it is probable that the regular presence of *Planes minutus* in our fauna is due to the Gulf Stream; *Gonoplax angulata*, and several rare spider crabs, may only come within our reach as a result of long wandering on the bottom; whilst other species which have wandered, usually from the south, to near-by points where they may even settle and breed (as *Pachygrapsus marmoratus* to Brest and Roscoff, and *Pisa armata* to Arromanches in Normandy), may yet be found on our shores. For these reasons a key to identification should be of wider scope than a regular faunistic list, lest specimens of great interest may come to be overlooked through misdetermination, on account of which it seemed best to include every crab which might possibly be discovered on British coasts as a result of the normal processes of nature. We have here, then, all the crabs which have been found in the North-East Atlantic (by which the British Isles are bathed) from Gibraltar to the Arctic circle, that is to say in all Europe outside the Mediterranean and included in the Lusitanian, Celtic, Scandinavian, and Sub-Arctic Provinces.

In order that the list may also have a narrower faunistic importance for ourselves, I have marked with an * all crabs

which have any real right to be regarded as members of the British fauna.

The key has been constructed so far as possible on non-technical lines in the hope that it will be equally easy and useful to specialist and neophyte; nevertheless brevity has demanded the use of one or two technical terms which the accompanying diagram should make clear.

Following this policy I have concentrated on such



characters as are readily perceived and understood, neglecting those which (in spite of great systematic importance) are properly appreciated only by experienced workers; the key is therefore no guide to relationship, and to meet this deficiency a classification of the genera is appended.

The dimensions given are intended as a rough guide to the length (tip of rostrum to posterior margin of carapace) of specimens at the upper limit of growth, since the only value of size for purposes of identification arises when a specimen is considerably larger than the maximum of a pecies for which it may be mistaken.

The manner of using dichotomous keys is probably familiar to most; it will be sufficient to point out that each step has an "opposite number." The key is read straight through, and on arriving at a clause which does not fit the specimen in question, a jump is made to the clause, the number of which is given in brackets.

1 (9). Last pair of legs abruptly small and often scarcely functional, carried dorsally.

2 (5). Last legs very small and slender.

3 (4). Second pair of legs also small, last pair visible. Body clothed with hair. 3·5 cm.
Dorippe lanata., Bosca.

4 (3). Second pair of legs in series, last pair scarcely visible. Body not hairy but very spinous. 13 cm.
**Lithodes maia.*, L.

5 (2). Last legs more uniform and in series, stouter.

7 (8). Legs stouter. Body very hairy. 6·5 cm.
**Dromia vulgaris*, M. Edwardes.

8 (7). Legs more slender. Body not hairy. 12 cm.
Chionœcetes phalangium, F.

9 (1). Last pair of legs uniform with the remainder.

10 (35). Front of carapace between eyes even, without teeth or prominences or rostrum.

11 (32). Terminal segment of last pair of legs not expanded into paddles.

12 (15). Carapace without antero-lateral teeth, oval and not at all angulate. Gen. *Pinnotheres.*

13 (14). Smaller and paler, brown-spotted; terminal segments of legs 2-4, not hairy on superior margin; carapace of males with the front projecting, of females more oval. 1 cm. **P. pisum*, Pennant (in *Mytilus*, etc.).

14 (13). Larger and darker, brown-banded; all the leg segments hairy on superior margin; carapace of males with front emarginate, of females tending to the quadrangular. 2 cm.
In *Pinna*—**P. veterum*, Bosca.
(In *Modiolus*—*P. modioli*, van Beneden.)

15 (12). Carapace with teeth or points at the antero-lateral angles.

16 (27). Carapace with strong or sharp angles, teeth sharply pointed.

17 (26). Carapace not longer than broad, rectangular or trapezoidal.

18 (21). Lateral region of the carapace extending very little beyond the line of the eyes, which are near its antero-lateral angle.

19 (20). Very small, pale; carapace narrowed posteriorly, scutiform; chelæ simple, not spinous. 1·5 cm.
**Planes* (*Nautilograpsus*) *minutus*, F.
(= *linneana*, Leach).

20 (19). Much larger, mottled with crimson or brown; carapace scarcely narrowed behind; chelæ ridged or spinous. 4 cm.
Pachygrapsus marmoratus, F.
(= *Grapsus varius*, Latreille).

21 (18). Lateral region of the carapace extending well outside the line of the eyes which are carried on long stalks.

22 (23). Terminal 3 segments of all the legs hairy; chelæ asymmetrical in male, elongate; antero-lateral angle-teeth smaller. 3 cm.
Gelasimus tangeri, M. Edwardes.

23 (22). Terminal 3 segments of the last two pairs of legs naked.

24 (25). Propus and carpus of the second walking legs not hairy; chelæ asymmetrical in male, stouter and shorter; antero-lateral angle-teeth smaller. 3 cm.
Ocypoda cursor, Bell.

25 (24). Propus and carpus of the second legs hairy; chelæ nearly equal in both sexes, more slender; antero-lateral angle-teeth more pronounced. 2·5 cm.
**Gonoplax angulata*, F.

26 (17). Carapace longer than it is broad, lateral region extending beyond the line of the eye, with 3 antero-lateral or lateral teeth. 2·5 cm.
**Thia polita*, Leach.

27 (16). Carapace not strongly or sharply angled, more regularly oval. Carapace naked, with 4 blunt teeth or tubercles on antero-lateral margin.
Gen. *Xantho.*

28 (31). Terminal 3 segments of all the legs hairy on their superior margins.

29 (30). Front of carapace horizontal and straight; chelæ not strongly tuberculate, pincers brown; merus of legs not denticulate on superior margin. 4 cm.
**X. hydrophilus*, Herbst.
(= *rivulosa*, M. Edwardes).

30 (29). Front of carapace deflexed; chelæ strongly tuberculate, pincers black; merus of legs denticulate along superior margin. 2·5 cm.
**X. tuberculata*, Couch ms. (= *Couchii*, Bell).

31 (28). Terminal 3 segments of legs without hairs on superior margin; front of carapace deflexed; chelæ pitted rather than tuberculate, pincers black; merus of walking legs not denticulate. 4 cm. **X. incisus*, Leach (= *floridus*, Montagu).

32 (11). Terminal segment of last legs flattened or explanate, forming paddles which are ridged longitudinally. Carapace flattened, naked.

33 (34). Front slightly convex. 2·5 cm.
**Portunus arcuatus*, Leach.

34 (35). Front slightly concave. 2·5 cm.
**P. arcuatus* v. *emarginatus*, Leach.

35 (10). Front of carapace toothed or denticulate, or produced as a rostrum.

36 (43). Front with more than six small teeth.

37 (38). Carapace flat. Terminal segment of last legs expanded as paddles, longitudinally ridged. Carapace hairy in a fine coat. 5 cm.
**Portunus puber*, L.

38 (37). Carapace swollen. Terminal segment of last legs not flattened.

39 (40). Antero-lateral teeth complex, many barbed; superior margin of orbits toothed. 7·5 cm.
Eriphia spinifrons, Herbst.

40 (39). Antero-lateral teeth simple; chelæ markedly asymmetrical; carapace hairy with a coarse coat.
Gen. *Pilumnus*.

41 (42). Superior margin of orbits toothed. 2·5 cm.
P. spinifer, M. Edwardes.

42 (41). Superior margin of orbits not toothed. 2 cm.
**P. hirtellus*, Leach.

43 (36). Front of carapace with few teeth.

44 (75). Front of carapace with 3-5 teeth or divisions.

45 (56). Terminal segment of last legs not expanded into paddles.

46 (51). Carapace as long as it is broad, with complex or crenated frontal teeth.

47 (50). 7 or more crenated antero-lateral teeth.
Gen. *Atelecyclus*.

48 (49). Carapace finely granular but not furrowed; space between outermost of the 3 frontal teeth and the eyes wider. 3·5 cm.
**A. heterodon*, Leach (= *septemdentatus*, Montagu).

49 (48). Carapace furrowed; space between outer of the 3 frontal teeth and eyes narrower. 3·5 cm.
A. cruentatus, Desmarest.

50 (47). Carapace less circular, with complex many pointed frontal teeth and 5 simple antero-lateral teeth. 1 cm. *Acanthopus planissimus*, Herbst.

51 (46). Carapace broader than it is long; with both frontal and antero-lateral teeth or lobes simple, not crenated.

52 (53). Frontal and antero-lateral teeth very blunt, reduced almost to lobes or tubercles. 12 cm.
**Cancer pagurus*, L.

53 (52). Antero-lateral teeth strong and pointed.

54 (55). Smaller; carapace longer, more irregular and rugged; abdomen relatively narrow in both sexes, somewhat parallel sided. 2 cm.
**Pirimela denticulata*, Montagu.

55 (54). Larger; carapace broader and more regular. Abdomen triangular in male, very broad in female. 4·5 cm. **Carcinus mœnas*, Pennant.

56 (45). Terminal segment of last legs expanded into paddles.

57 (62). Carapace as long as or longer than broad.

58 (59). Carapace but little narrowed behind, postero-lateral margin but little incurved, almost circular and very flat. Ridges on chelæ simple. 4 cm.
**Polybius Henslowi*, Leach.

59 (58). Carapace much narrowed behind, with postero-lateral margins incurved, distinctly longer than broad. Gen. *Portumnus* (= *Platyonichus* pars.).

60 (61). Frontal region smaller and less projecting; carapace longer. 2·5 cm.
**P. latipes*, Pennant (= *variegatus*, Leach).

61 (60). Frontal region larger and more produced; carapace shorter. 2·5 cm.
**P. nasutus*, Latreille (= *biguttatus*, Risso).

62 (57). Carapace broader than it is long (in *Portunus pusillus* the diameters may be nearly equal), much narrowed behind with incurved postero-lateral margins. Gen. *Portunus* (pars.).

63 (64). Last antero-lateral teeth enlarged out of series with the remainder; carapace very tuberculate and uneven; paddles with a longitudinal ridge. 3 cm.
P. tuberculatus, Roux.

64 (63). Last antero-lateral teeth not enlarged.

(*To be continued.*)

Dates of Arrival of the Ring-Ouzel.—For some years I have been trying to obtain the exact dates of the arrival of our first summer migrant, the Ring-Ouzel, but was met with the difficulty that it would first be seen on the uninhabited fells and high moors visited by few people during the early days of March. All the books say that it arrives from its winter quarters in the Mediterranean on the south-west coast of England, but as it is practically always seen first in the north of England, it looks as if the first migration, at any rate, arrives on the north-east coast of England, or that if it arrives on the *south-east* coast it moves up north without stopping there at all, although the 1907 record alone points to the latter. The following are the dates when it was first recorded, all these dates being in March except where stated otherwise.

In 1905, Derby 20th, Yorks 25th; 1906, Yorks 21st and 25th; 1907, Yorks 21st, Somerset and Essex 23rd; 1908, Yorks 23rd and 24th; 1909, Shropshire 9th, Derby 13th; 1910, Cheshire-Derby Border 11th, S.W. Yorks 13th; 1911, no record until 4th April from Norfolk; 1912, Westmorland 29th; 1916, N. Donegal, N. Ireland 17th (the most northerly record); 1919, N. Lancs 29th; 1923, Cumberland 13th; 1924, Cumberland 23rd; 1927, Mid-Lancashire 7th, and Lancs-Cumberland Border 12th; 1928, Westmorland 6th (pair), 7th (many).

As I was quite sure that the bird arrived much earlier than had ever been recorded, I paid special attention to it during this spring and that of last year to find, as the dates show, that as early as 7th March the species may be well established in the north of England.

For the south of England the first record for instance for 1909 was 5th April, viz., from South Wales, and in 1910 30th March saw the first one in Cornwall. For the earlier years I am indebted to the British Ornithologists' Club's Bulletin, and for the later ones to *The Field* and to correspondents, in addition to my own observations.

That some Ring-Ouzels remain in Devon and Somerset during a mild winter there is little doubt, but for them to remain in the North is most unusual, although my friend the Rev. E. U. Savage records one on the Westmorland Fells as late as 29th November last year (1927).

With regard to the migration of the Ring-Ouzel, it may be of interest to state that one of a brood of three which I marked with rings on Dent Fells in the West Riding of Yorkshire on 23rd May 1927, was recovered on 24th September in the same year at Eugut Navarra), N.E. Spain, about 40 miles inland from San Sebastian and close to the Pyrenees.—H. W. Robinson, Lancaster.

Bird Notes from East Lothian, 1927.—On a large expanse of beach and sandhill on the East Lothian coast, a small patch about the size of a football pitch seemed to be specially favoured by the birds in the locality. There were there over a dozen nests of Ringed Plover, all quite near each other and practically in a small colony, as compact as the nests of the same number of Lesser Tern also in the same place. In addition about thirty nests of Common Tern and a single nest of the Black-headed Gull were found.

The Gull must have been in possession first as it had two chicks, while the other species all had eggs, the season being the middle of June. Judging by the attention the Gull received from the Terns while I was there, it must have had a rough time, but it refused to leave its chicks.

On a rocky part of the coast near, Eider Duck must have nested in large numbers, as at every turn of the coast groups of half-grown birds and adult females were disturbed. In one bay I counted eighty young birds, and also saw an adult bird. This last was entirely of a light-grey colour, similar to the tint of the wing of a Herring Gull.—David Hamilton, Edinburgh.

The Blackcap Warbler in South Fife.—The "Report on Scottish Ornithology in 1926" (Scottish Naturalist, 1927, p. 137) refers to the Blackcap Warbler (*Sylvia atricapilla*) having nested at Burntisland, and the comment is made that it "is usually known in South Fife only as a passage migrant." In 1915 I was in Dunfermline on most of the Saturdays during that summer, and sometimes for week-ends. On those occasions I often went to Pittencrieff Park there, and for as long as my visits lasted, I heard regularly in the glen there a fine Blackcap which, judging by its ebullience, was happily mated.—John Paterson, Glasgow.

Red-throated Diver on Duddingston Loch, Midlothian.—I have to record the presence of a solitary bird of this species on the Loch at Duddingston on 24th March 1928. The bird was in winter plumage. Mr J. Kirke Nash, who saw the bird on the following day, confirmed the identification. — P. W. G. Gunn, Edinburgh.

Whoopers on the Pentlands.—Three Whoopers stayed at Threipmuir Reservoir during the early part of March 1928. I observed them on the 3rd, 10th, and 17th of the month. They were fairly wary, but, even at a distance, the usual text-book characteristics of lemon bill lined with black, straightened necks, and wings laid flat on the back were clearly visible. Three Mutes in close proximity gave, as a final indication of identity, a measure of the Whoopers' size.—P. W. G. Gunn, Edinburgh.

BOOK NOTICES

Creative Education in School, College, University, and Museum. By Dr Henry Fairfield Osborn. London and New York: Charles Scribner's Sons, 1927. Pp. 358. Price $2.50.

The President of the American Museum of Natural History and former Professor of Zoology of Columbia University has had long and wide experience of education in many aspects. These collected addresses and articles from different sources embody his considered thesis as to the fundamental aim of education, whether it be in School, University, or Museum. And this is that, since the oldest of the distinctively human faculties is the power of origination and creation, the cultivation of this power should, at every stage of human development, be the chief end of education, to which all other forces should contribute. He lays great stress upon the joy which follows creative work, and indicates how the great educative institutions of the present day are taking their place in advancing and may further advance the usefulness and happiness of mankind, by stimulating and guiding the inquiring or scientific spirit. It is a readable and suggestive book.

The Elements of General Zoology. By Professor W. J. Dakin, D.Sc., F.Z.S. Oxford University Press, 1927. Pp. xvi + 496. Price 12s. 6d. net.

The general get-up and the appearance of the diagrammatic figures of this volume suggest that it is an ordinary text-book of zoology, more instructive than interesting. But it takes little perusal to show that it is something different, and that its method and matter are admirably adapted to the naturalist who desires to have a wide comprehension of the ways of animal life as a background to his own particular study. The sub-title indicates its special aim, "a guide to the study of animal biology, correlating function and structure, with notes on practical exercises," and its method is, after discussing separately the single-celled Protozoa, to consider the common functions of the many-celled animals. This of necessity demands a consideration of the structures which do the work, but pure description is reduced to a minimum, and the result is a series of comparative accounts showing how the various creatures, from sponges to mammals, have attained different devices for the more perfect performance, in their own peculiar conditions, of functions common to all.

The book is interesting as well as enlightening, and the many simple tests it suggests will appeal to the naturalist and amateur microscopist. The diagrams are very clearly annotated and helpful; some are

attributed to the wrong source, for example the sea-anemone on a hermit-crab (p. 416), attributed to Borradaile, is a well-known figure from Andres, and the radiolarians (p. 37), attributed to Dendy, are uncommonly like a plate by Haeckel. The wealth of examples to be found throughout the book, its suggestiveness, and not least its remarkably low price, make it, in addition to its value to the naturalist, an admirable handbook for teachers of biology in schools.

A Bird Book for the Pocket. By Edmund Sandars. Oxford University Press (Humphrey Milford), 1927. Pp. 246. Price 7s. 6d. net.

The author has achieved several new features in this little book on British birds. He has been able to compress the description and illustration of over 200 of the regular British resident and migrant birds into a volume which will really slip into an ordinary pocket. The descriptions are masterpieces of condensation, yet they give all the essential facts needful in identification by habit. For identification by appearance he leaves the coloured figures, each opposite the relative text, to speak for themselves. To tell the truth they speak rather loudly, but that appears to be due to some defect of the colour printing which has over-emphasised the reds and blues. The bird figures are often stiff and unnatural in pose, but if they be regarded as simple colour diagrams of specific characters rather than as pictures of artistic merit, they will probably meet the purpose for which the author intended them. In this light the book can be recommended as the simplest and easiest cheap pocket guide to the identification of the common British birds.

Popular Handbook of Indian Birds. By Hugh Whistler, F.L.S., F.Z.S., late Indian (Imperial) Police. London and Edinburgh: Gurney & Jackson, 1928. Pp. 464. Price 15s. net. (10 Rs. Indian currency).

Few ornithologists are so well qualified to write about Indian Birds as is Mr Whistler. His ambition in producing this book was to provide a means by which the new arrival in India could readily identify the familiar birds of that country and he has fully succeeded in his purpose. The descriptions of the selected birds, which include representatives of nearly all the avian families, are concise but sufficient, and in many instances are amplified by drawings. In addition there are seventeen plates, four of which are in colour. That these are from the pencil of Mr Grönvold is a sufficient guarantee of their excellence. The book is very low priced. It should be part of the outfit of every griffin, and many older Indian residents who are interested in birds will find its possession a very great advantage.

THE BIOLOGY OF INSECTS. By George H. Carpenter, D.Sc. London: Sidgwick & Jackson, Ltd., 1928. Pp. 473+xv, figs. 88. Price 16s. net.

As we should expect, from the reputation of the author, this is a sound and thoroughly up-to-date treatise on insects viewed as living beings. Details of morphology and anatomy are less prominent than in the usual entomological text-book, and are only dealt with in relation to some special adaptation for a specific purpose. The earlier chapters deal with feeding, breathing, movements, sensations, and behaviour, and are followed by a comprehensive account of reproduction and heredity, growth and transformation. Then come many interesting details of family and social life, adaptations, relationships, and the many problems and theories concerning variation, natural selection, "Mendelism," and the relation of insects to other organisms and to man. The volume is a treasure-house of information on every aspect of an insect's life, the examples to elucidate the various points being admirably chosen, while the text, which is not always easy reading, is elucidated by a number of well-executed drawings and photographs. The book can be highly recommended as a thoroughly trustworthy digest of what is known at the present day regarding the life phenomena of the insect world.

A BRITISH GARDEN FLORA. By Lt.-Col. J. W. C. Kirk, D.S.O., B.A., F.R.H.S. London: Edward Arnold & Co., 1927. Pp. 584 and figs. 223. Price 42s. net.

This useful volume has been prepared for the use of gardeners and lovers of gardens, to enable them to gain some knowledge of the structure and relationships of the various plants they cultivate. The first part of the volume consists of about thirty pages on the general structure and classification of plants, and is just sufficient to give the reader an elementary idea of botanical science and to enable him to use the second (and principal) part of the volume with profit. Part II. commences with an excellent key to the Families of Flowering Plants, simple to use and thoroughly accurate. Then follow the Families themselves, *seratim*, each with an easy key to the genera contained therein. Each genus is briefly described, and in it usually one or two of the principal cultivated species are mentioned. A useful feature is the pronunciation and meaning of every generic name. The illustrations, mostly original and drawn from living specimens, are excellent and very helpful, and the same may be said of the book itself, which should find a place in every gardener's library.

THE NATURALIST

A Monthly Illustrated Journal of Natural History for the North of England

Edited by T. SHEPPARD, M.Sc., F.G.S., The Museums, Hull, and
T. W. WOODHEAD, Ph.D., M.Sc., F.L.S., Technical Col., Huddersfield.

With the assistance, as Referees in Special Departments, of

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CONTENTS

PAGE

The Young Idea and its Training; and other Editorial Notes 33

The Tree-Sparrow around Edinburgh—*David Hamilton* . 37

Courtship and Breeding of the Fulmar—*Professor John Tait, M.D., D.Sc.* 39

Studies of Some Lanarkshire Birds—The Hooded Crow, the Chough, and the Magpie—*Walter Stewart* . . 41

Migrations of the Herring—*A. C. Stephen, B.Sc.* . . 51

A Simple Key to the Crabs (*Brachyura*) of Britain and the North-East Atlantic (*To be continued*)—*Michael Perkins, M.A., F.E.S.* 53

Notes:

Polecat in Argyllshire, 36; Remains of the Great Extinct Ox in Perthshire—*Dr James Ritchie*, 38; Raid by Rats on Nests at Scone Palace—*Lord Scone*, 40: Unusual Development of Roe Deer Calf—*Dr James Ritchie*, 49; Pilot Whale Stranded in the Firth of Forth, *and* Common Porpoise in the Firth of Forth—*A. C. Stephen*, 50; Starlings Roosting on the Forth Bridge—*David Hamilton*, 50; Crossbill in Ayrshire, *and* Great Snipe in Lanarkshire—*John Paterson*, 52; Dates of Arrival of Ring-Ouzel—*H. W. Robinson*, 60; Bird Notes from East Lothian, 1927—*David Hamilton*, 61; The Blackcap Warbler in South Fife—*John Paterson*, 61; Red-Throated Diver on Duddingston Loch, *and* Whoopers on the Pentlands—*P. W. G. Gunn*, 61.

Book Notices 62

PUBLISHERS' NOTE.

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COVERS FOR BINDING "THE SCOTTISH NATURALIST."

Special Cloth Cases for Binding the 1927 Volume can be supplied at 1s. 6d. each (by post 1s. 9d.), by Oliver and Boyd, Tweeddale Court, Edinburgh.

PRINTED BY OLIVER AND BOYD, EDINBURGH.

The Scottish Naturalist

No. 171] 1928 [May-June

INSTITUTION
JUL 19 1928
TIONAL MUSEUM

EDINBURGH: OLIVER & BOYD, Tweeddale Court
LONDON: GURNEY & JACKSON, 33 Paternoster Row

Price 2s. 3d. Annual Subscription, payable in advance, **12s.** *6d. post free*

The Scottish Naturalist

A Magazine devoted to Zoology

With which is incorporated

"The Annals of Scottish Natural History"

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Subscriptions and Advertisements should be addressed to the Publishers, MESSRS OLIVER AND BOYD, Tweeddale Court, Edinburgh.

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EVERY NATURALIST SHOULD READ

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

Abnormal Coloration of Scottish Mountain Hares. (Illustrated.)
Annual Reports on Scottish Ornithology, including Migration.
White Wild Geese. (Illustrated.)
The Labrador Falcon—a new British Immigrant. (Illustrated.)
Notes on Fishes from the Clyde Area.
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.

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

(Authors are responsible for nomenclature used.)

The Scottish Naturalist

No. 171.] 1928 [May-June

ZOOS AND MUSEUMS.

Within a few days of each other there were issued in May two reports which ought to be (and are not) read by every Scottish naturalist—the *Annual Report of the Zoological Society of Scotland* and the *Report of the Director of the Royal Scottish Museum for* 1927. Here are two great institutions situated in the Scottish capital, the Zoo and the Museum, each catering in its own way for the recreation and the instruction of the people of Scotland, and particularly for the great mass of men, women, and children who feel that deep seated interest in Nature, which in more primitive times formed the foundation of religions.

What contrasts the two present! The one a new institution not long entered its 'teens, the other in its seventieth year with a century's history storied in its very beginnings; the one with its life and movement and noise, its sunshine (or it may be rain), the other with its dead beasts, its silent and shaded galleries; the one, and no Scot would miss the point, charging a poll tax for admission, the other throwing its arms wide to admit all and sundry without money and without price; and the corollary, the one self-supporting, the other a gift of the State.

Both institutions have taken strong hold of the Scottish people. The visitors to the Zoological Park in the year

just closed numbered 346,452, and paid (with Fellows' subscriptions) £15,800 for admission; the numbers entering the free Museum were not so very much greater—468,504; but both numbers far exceeded the totals of the previous year.

What is the attraction drawing such multitudes season after season? We need not pretend, although both Zoo and Museum are designed for the instruction of the people, that all the vast multitude, or indeed its majority, enters the doors for the sake of edification. In the Museum can be seen all the animals shown in the Zoo and many more, yet it is probably safe to say that in spite of the deterrent of an entrance fee, more people go to see the Zoo animals than visit the Natural History Department of the Museum. The reason is that the bulk of the visitors to both places seek, not edification, but entertainment, and the voices and movements and antics of live creatures afford much more entertainment than the dead animal, however attractively its carcase may be arranged. One has only to watch the drift of the crowds at the Zoo on a busy day to convince oneself of the leading motive of the visitors. It is about the feeding Sea-lions, or the Lions proper, about the swimming and sparring Polar Bears, and most of all about the antics of the monkey house, that the people congregate—on the lookout for amusement.

It is a profound mistake, however, to suppose, as I have heard it said again and again, that a zoological museum is but a "dead zoo," a poor second to the other. The two types of collections, the living and the dead, in no wise compete, for they are designed to serve quite different ends. When the zoo has shown us the appearance of an animal and its simpler habits its work is accomplished; often it can show neither the animal nor the habit we wish to see, should we be seeking the elusive or seclusive creature which prefers to conceal itself during our visit. The museum has a much more comprehensive duty to perform. It must, of course, show its animals, and it often shows them in characteristic life-like poses, but what it loses in hilarious entertainment it gains in decorous instruction.

Its creatures are arranged so that a purview of the whole animal kingdom may be made with ease, and one creature may be compared with its close relatives or contrasted with more distant connections. But the chief asset of the museum collection is its historical sense. It can show, just because its contents can be placed in settled contiguity, the course of evolution in the world, whether it be the evolution of the prehistoric animals of the rocks, or the unfolding of the life-history of a single existing creature. J. R.

* * * *

A long desired step has been taken by Parliament for the protection of the Lapwing, one of the most useful and at the same time most innocuous of native birds. On 28th March Royal Assent was given to a Bill which prohibits during the close season, from 1st March to 31st August, the selling for human consumption, or the possession with a view to such sale, of the Lapwing or its eggs. This restriction ought to check in some measure the decrease of a bird of agricultural importance, and with the other measures taken, particularly in Scotland, for its protection during the whole year, ought gradually to be reflected in increasing numbers of breeding pairs.

* * * *

The Lapwing has recently afforded an amazing instance of long distance migration. It is not an American bird, yet in December 20 to 23 flocks of large size, numbering in one case about 500 individuals and in another twice as many, appeared in Newfoundland. The birds were British birds, for one bore a *British Birds* marking ring, and had been born in Cumberland; and Mr H. F. Witherby shows (*British Birds*, vol. 22, p. 6) that the migration was accomplished owing to a gale, blowing at 55 miles an hour, which carried the birds due west. It could only be during the most favourable circumstances that a relatively poor flier, like the Lapwing, could cover some 2200 miles at a stretch.

* * * *

Paisley Museum has just issued a short guide to its collections. Apart from its unique series of old Paisley shawls, the museum collections are well worth seeing, since in recent years much has been done to bring the natural history series up to date. Some 750 specimens of British birds are shown, and the modern life groups of deer, foxes, and nesting birds are excellently conceived and mounted.

* * * *

The death of Dr John Horne, on 30th May, in his 81st year, marks the close of an epoch in Scottish geology. The work he accomplished with Dr B. N. Peach and other colleagues has received world-wide recognition. Unlike Peach he devoted his energies almost entirely to problems of pure geology, and although he was no naturalist, his discovery along with Peach of the remains of an arctic fauna in the Bone Cave at Allt-nan-Uamh near Inchnadamph, has been of great significance, and has led, within the last two years, to the discovery for the first time of the presence of Palæolithic Man in Scotland. His cheerful presence and the generous help he so willingly gave to younger workers will be sorely missed.

THE ROOKERIES OF GREATER EDINBURGH AND MIDLOTHIAN.

By J. Kirke Nash, L.D.S.Ed.

"The clinkum-clank of Sabbath bells,
Noo to the hoastin' rookery swells."

Edinburgh Rookeries.

The great extension of the boundaries of the City of Edinburgh in 1920, with the prospect of marked changes in flora and fauna through the rapid spread of the population from the more congested centre into the newly acquired surrounding area, suggested to the late Mr William Evans the idea of taking a census of the Greater Edinburgh rookeries during the following spring, before the prevailing natural conditions yielded to the ever-encroaching advance of human influence, as he felt sure the facts he recorded then, would become increasingly valuable as the years rolled on.

Though the rook is an early nester, there are always laggards in every colony, and Mr Evans delayed his observations till April so as to ensure as complete a census as possible. To count a rookery of any size with absolute certainty is a difficult undertaking; as he remarks it is hardly possible, a statement with which anyone who has made the attempt will agree. Nevertheless his accuracy of observation was such that we have the greatest confidence in accepting his figures (Scot. Nat., 1922, p. 9).

Having noted that several rookeries had ceased to exist this season I decided, after the lapse of seven years, that the time was opportune for taking a fresh census, and in doing so I have endeavoured to the best of my ability to emulate his accuracy. With the exception of the rookeries at Duddingston and Corstorphine, which I counted at the end of March, all the others were visited during April.

The disappearance of rookeries and the great disturbance from extensive building operations, with consequent loss of feeding grounds within the area, led me at first to expect

a considerable reduction in numbers; but as the enumeration proceeded, showing marked fluctuations in the individual rookeries, this first impression gave way to the belief that the total figures would probably work out with almost equal results. The final results, however, have not borne out these anticipations, there being a marked increase, as the comparative lists show.

Rookeries compared, 1921 *and* 1928.

	Nests 1928.	Nests 1921.
1. Barnton; at west gate of park: White House and adjacent grounds	120	207
2. Braid Hermitage; at entrance gate Braid Road 11 and on opposite side of burn at Greenbank 11	22	23
3. Colinton Dell; in the grounds of Colinton House on right bank of Water of Leith and at Hailes on the left	262	363
4. Comiston House; within the policies 189 and at Hunter's Tryst 3	192	128
5. Corstorphine; in grounds of Convalescent Home and in Zoological Park, etc.	78	52
6. Craigleith; at Royal Victoria Hospital	54	33
7. Cramond House; mostly within the grounds	248	84
8. Drum; near Gilmerton—the largest rookery in the area	386	110
9. Duddingston; in Duddingston Park (mainly at N.E. corner) in plantation on east side of cross road and at the Mill	194	193
10. Liberton; about the church and manse. No nests at Mount Vernon for the last two years	114	83
11. Morningside; Woodburn Sanatorium 114 Millbank, etc. 15	129	71
12. Newington; Blacket Place and East Mayfield	0	68
13. Niddrie House; within the grounds at the Wisp 36 at Niddrie Mill 34	70	40
14. Woodhall; at Juniper Green	127	90
	1996	1545

Additional Rookeries not in the 1921 *List.*

15. Craiglockhart House	67
16. Craighouse Asylum grounds	34
17. Drylaw House	9
18. Central Edinburgh; Hart Street	2
19. Granton Quarry	1
20. Granton Harbour	25

21. Royston Castle	24
22. Saughton Mains	17
23. Portobello Railway Station	4
24. St Leonard's (King's Park)	5
25. Colinton ; road to Juniper Green	28
26. Colinton ; near Convent	9
27. Grange cricket field	7
28. Restalrig House	1
	2229

Some Fluctuations in Numbers.

During 1886 Mr Evans took an earlier census of the rookeries in the Edinburgh area of that date which showed a total of 680 nests, and when he made his investigations in 1921 the nests in the same area barely reached 200. Several of the largest rookeries of his first census had entirely disappeared. Mention may be made of one or two.

The Arboretum at the Botanic Garden in 1886 had 160 nests, while Parsons Green had 120. I distinctly remember the latter rookery as a boy. Its site is now occupied by a large block of tenement houses, a fate that has befallen several others. It is more difficult, however, to account for the gradual diminution and extinction of the Arboretum rookery in 1921. It was suggested that the tree-tops had become too brittle; but that does not appear to have been the case as the rooks returned after a few years' interval, and in 1927 there were 33 nests. This year again the site is entirely deserted. Some years ago when we had no rooks there a small rookery of 9 nests appeared for one season on the big elms at old Comely Bank, and in the Grange cricket field behind Raeburn Place a small colony has been in existence for a few years. At present there are 7 nests, and it is interesting to observe that Mr Robert Godfrey in 1894 made a note of rooks' nests at both places, 4 at Comely Bank and 19 at Raeburn Place. In central Edinburgh 2 nests occur on trees in Hart Street. Five years ago 4 or 5 nests were built on elms at Warriston Crescent and, curiously enough, were never occupied. Three years later 2 nests appeared at Canonmills and 2

at Inverleith Terrace. All of these were clearly offshoots from the Arboretum.

I found no rookeries in the Leith district with the exception of a solitary nest near Restalrig House, but I am told that in the early seventies of last century there was a large rookery at the foot of Restalrig Road close to Leith Links in the grounds of Lady Fife's House. All trace of this site has long disappeared through the builders' encroachments. There was also a small rookery at Seafield.

New Rookeries and Extinct Rookeries.

In addition to the rookeries compared in the 1921 and the 1928 lists, a number of others have come into existence since the earlier date or had been overlooked at the time. The rookery in the grounds of Craiglockhart House close to the village of Slateford is one of long standing, and this season it had 67 nests. The one at Craighouse Asylum, also an old rookery, numbered 34 nests. On the west side of Drylaw House about a mile to the east of Davidson's Mains a rookery of 9 nests exists. I can recall many years ago that this rookery was much larger, but a number of the trees on which the birds nested were felled and the colony became considerably reduced. There was also a fair sized rookery near the marine quarry at Granton below Granton House. This year it is represented by one solitary nest on which I saw the sitting bird fed by its mate. An offshoot from this rookery came into being ten or twelve years ago on trees a little to the east of the picturesque ruin of Royston Castle which, sad to relate, was destroyed through the indifference of the Edinburgh Town Council. This season showed 24 nests on two trees, while still further east I encountered another rookery of 25 nests immediately behind Granton Harbour. On the west side of the city I found 17 nests on a group of beech trees at Saughton Mains, and at Portobello near the railway station there are 4 nests doubtless an offshoot from Duddingston; also on a cluster of small trees on the border of the King's Park at St Leonards, a new rookery of 5 nests appeared this season. Apart from the large rookery in the "Dell" there are two

small rookeries at Colinton, one with 28 nests on the road leading to Juniper Green and another with 9 nests on the right bank of the river near the Convent of the Good Shepherd. These additional colonies number altogether 233 nests. This gives a complete total of 2229 nests, so that on the basis of this census we have 4458 breeding birds within the present city boundaries.

A rookery of about a dozen nests was a feature of the East Meadows near Hope Park Terrace for the past few years, but is non-existent this season owing to the deliberate destruction of the nests. There was also a rookery at Ravelston in pre-war days, but the manufacture of poison gas at Craigleith during the war drove the birds away and they never returned. We regret to say the old rookery at Blacket Place and East Mayfield has also come to an end. Dr Ritchie informs me he has evidence that this rookery has been in continuous existence for at least sixty years, and that its final disappearance is due, first to the shooting of rooks, which interfered with the food and chicks of the poultry at Newington House, and secondly to the erection this year of a hostel for blind women on part of the Newington House ground.

Under the changing conditions throughout the country, many of the big rookeries are getting broken up as time goes on and nesting is becoming more sporadic. Will the rook of the future become less gregarious in its habits?

Notwithstanding the disappearance of rookeries, it is a matter of considerable interest to find the rook population in the area has distinctly increased. It is possible that nesting in small scattered groups may account for this to some extent, as the large communities attracted much more attention and led to a large destruction of "branchers" and old birds from the annual visits of the local sportsmen. An example of this may be given. About thirty years ago in the very large rookery which existed in the old wood between the two rivers in Dalkeith Park nearly every tree had nests on it, and on one occasion as many as 112 dozen young birds were killed in a few hours. Many attempts, I understand, were made to get rid of this large rookery without success,

until as a final and successful effort sailors from Leith were engaged to climb the trees and pull down all the old nests.

Midlothian Rookeries.

The larger project of estimating the number of rookeries in the county of Midlothian has also engaged my attention this season, but lack of time and opportunity to devote to so large an area compelled me to a considerable extent to rely upon assistance kindly given me by keepers and others in the various districts. The information obtained from the eastern section of the county has been very satisfactory, but I fear a good deal more must be learned of rookeries in the west before a complete census can be claimed for the whole area.

The following list arranged according to parishes indicates to some extent the general distribution of rookeries throughout the county:—

Parish.	Locality.	Number of Nests
Newton	Edmonston	40
	Monkton	4
Inveresk	Pinkie House	108
	Musselburgh and Fisherrow, 3 small town rookeries	38
	Newhailes	248
	No rookeries on Carberry estate.	
Dalkeith	Dalkeith Park	20
	Sandy Rigs 70	
	Home Farm 36	119
	Cowden Bogs 13	
	Eskbank	20
Lasswade	Roslin	175
	Springfield	200
	No rookeries on Melville estate.	
Cockpen	Broomieknowe	45
Cramond	Turnhouse	40
	Leny Port	4
Kirkliston	Ingliston House	130
Ratho	Ratho Hall	300
	Dalmahoy	150
Kirknewton	Kirknewton Manse	12
	Meadowbank	300
	Nearly all the above are from personal knowledge.	
Currie	Hermiston House	4
Crichton	Pathhead Ford	40
	2 rookeries	15

Borthwick	Near Dewarton (2 rookeries)	60
	Lion and Elephant Gate, Arniston	8
	Harvieston	500
	Fushie Bridge	100
	Castleton	150
Temple	Yorkston	400
	Moorfoot	40
Penicuik	Penicuik House—3 rookeries (60, 40, 20)	120
	Valleyfield	100
Stow	Village of Stow	300
	Bowland—3 rookeries (170, 70, 25)	265
	Sunnybank	200
	Burnhouse	400
	Mitchelston	600
Mid-Calder	Mid-Calder village	30

Throughout the greater part of the county the trees usually selected for nesting purposes are elm, beech, sycamore, and oak, but in the south-east fir is a favoured tree, and this I have also found used in the parishes of Penicuik and Kirknewton. At Sandy Rigs in Dalkeith Park a fair number of nests are on holly. This is the only instance I have come across of holly being used by rooks. At Turnhouse I noted a few nests on horse chestnut.

I am sure that many odd nests scattered here and there and even rookeries are to be found in districts of which I have no definite particulars, and I shall be glad to receive information of nesting, no matter how small the group, in any part of the county, so as to arrive at as complete a census as possible.

From what I have learned there appears to be more antipathy to the rook in the western than in the eastern area. Whether this is influenced by game preserving or agricultural economics it would be hard to tell.

Walrus at Gairloch.—*The Scotsman* of 12th May 1928 contained the following interesting record:—"On Tuesday, 1st inst., passers-by had the unique experience of seeing the dead body of a Walrus left stranded on the sandy beach at the head of the loch near the Drill Hall at Gairloch, Ross-shire. The creature, which appeared to be an adult, about the size of an ordinary cow, had the usual tough hide with patchy brown hair, bristling whiskers, and the formidable tusks characteristic of the species. The interesting question, from a naturalist's point of view, is: What mysterious laws of nature induced the animal to wander so far from its native Arctic to meet its death—there were no apparent marks of violence—in the comparatively warm waters of Wester Ross?—J. M'C."

[Previous records of Scottish Walruses appeared in the SCOTTISH NATURALIST, 1926, p. 140, and in 1921, where a complete list of the 24 occurrences known from the British Isles was published. —EDS.]

Wild Cats in Forfarshire.—"A female wild cat, measuring three feet from nose to tip of tail, was caught on 16th January 1928 in a rabbit-trap on the eastern slope of Mount Blair, at Fortar, Glenisla, by a shepherd, who at once took means to destroy it. This is the seventh wild cat captured on Mount Blair within four months—a male on the eastern side in September, and a female and four kittens on the western side in December. It is sixty-five years since the species were last known to have been seen in this locality."—*The Scotsman*, 19th January 1928.

Lesser Rorqual stranded in Lewis.—A message has been received from the Receiver of Wreck, Stornoway, stating that a Lesser Rorqual was stranded at Sheshader about 1st June. It presented the characteristic features—white baleen with white fringes, and flippers white on the outer sides. Its length was about 20 feet.—JAMES RITCHIE.

Crossbills in Ayrshire.—Referring to Mr John Paterson's note on the occurrence of the Crossbill in Ayrshire, p. 52, it is evident that the exhaustive series of notes on the irruption of the Crossbill to Great Britain, in *British Birds* magazine, September 1927 onwards, has been overlooked. Amongst the many records for Scotland there are several for Ayrshire.—E. RICHMOND PATON, Hareshawmuir.

THE GARGANEY—AN ADDITION TO THE BREEDING BIRDS OF SCOTLAND.

By James Ritchie, M.A., D.Sc., F.R.S.E.

The Garganey or Summer Teal (*Anas querquedula*) is one of the surface-feeding ducks which most favours as a breeding area the northern regions of Europe and Asia outside the rigours of the Arctic Circle. But it is far from confined to these colder latitudes, for in Europe, although Norway, Sweden, and northern Russia may be regarded as its head-quarters, it nests in diminished numbers as far south as Italy, Greece, and the Black Sea. Like its close relative, the Teal, it is a great wanderer, and like it also shows in its winter journeys a preference for warmer climes than are favoured by most of the surface-feeding ducks, since it migrates from its European range to northern and even tropical Africa.

In the British Isles it is a rare bird, generally seen in March and April on its return journey from the south to its breeding quarters; and since its rarity increases from east to west, so that in Wales and Ireland it is a very rare visitor, it would appear that the front of the northward migration lies towards central Europe, the British Isles being swept only by the western flank of the movement. Yet definite areas in England have been colonised by the Garganey, and regular nesting takes place in the Norfolk Broads, as well as in Suffolk and Kent, while sporadic breeding has occurred as far north as Yorkshire (1882 and 1908) and Durham (1880-7).

To Scotland the Garganey is a rare visitor. Miss Baxter and Miss Rintoul in their *Geographical Distribution and Status of Birds in Scotland* (1928, p. 241) record scattered appearances in only thirteen counties, and in the Forth area it has hitherto been seen only in East Stirlingshire.

It is therefore of peculiar interest that we should be able to record the presence and the breeding of the Garganey—the first nesting record of the species for Scotland—in the

Forth area, in a place eminently suited for the breeding of ducks, which we shall not specify further than that it was not in the county where the bird was formerly seen.

The history of the discovery is of more than usual interest. In mid-April I was told by Mr Usher that he had seen a Teal-like duck, with a prominent eye-stripe, which he suspected was a Garganey. Considering that the date was late for ordinary migration and that in any case the presence of so rare a bird was worthy of confirmation, I suggested the desirability of further exploration to three well-known ornithologists with immediate results. On 21st April Mr J. Kirke Nash and Mr P. J. C. Macgregor in company confirmed the presence of a Garganey drake, the eye-streak of which was perfectly evident as it stood amongst reeds. On 5th May Mr Nash again saw the drake, this time in company with two ducks. The late date and the presence of the females suggested the strong possibility of nesting; but although Dr Eagle Clarke saw the two ducks, and on 26th May Mr Nash again saw the drake and one duck and heard the characteristic crackling note of the breeding male which suggested the old name Cricket-Teal, no nest was found.

The welding of the final link in the chain of discovery was almost casual. On 11th June Mr Nash had occasion to see on business Mr Wm. Short, also a keen observer of Nature. In the course of conversation the latter mentioned that he had found at a certain place the nest of a Teal, with seven eggs. His identification was based upon a hasty glimpse of the duck as she scuttled off the nest on his accidental approach while watching another bird. County and locality agreed, and Mr Nash's suspicions, aroused by the coincidence of site, were confirmed when a small sample of the nest-down was produced, and was seen to be the characteristic white-tipped down of the Garganey. Mr Short's contribution to the discovery, therefore, is as follows:—On 12th May two "Teals'" nests seen, one on the point of hatching, the other the undoubted Garganey's nest with seven eggs. It is highly probable, considering the birds present in the locality, that the other nest was

also a Garganey's nest. Mr Short, with an enthusiastic school-boy friend, Master Brotherston, again visited the nest on 15th May, when the accompanying photograph was taken—the eggs were chipping and on the point of hatching.

On 12th June, the day after chance information had revealed the nesting of the Garganey, in company with Mr Kirke Nash and Mr Short, I visited the spot, saw the nest, and removed its derelict remains to the Royal Scottish Museum. The down with its white centres and long white

Photo by] [*Master Brotherston.*

NEST OF GARGANEY IN FORTH AREA.
15th May 1928.

tips was Garganey-down, and the few feathers in the nest had a dark central area of the "hair brown" tint of Ridgway's series (Plate 46), surrounded by a broad white fringe which measured at least 5 mm. across, exactly like those described and figured by Heatley Noble, as characteristic of that species.* Some broken remains of shells and egg membranes suggested that the young birds had hatched, as they were about to do when last seen, four weeks earlier.

* "On the Identification of Duck's Eggs," *British Birds*, vol. 2, p. 22, Plate 1, fig. 6.

The essential steps of the story may be summarised as follows:—

14*th April*—Probable presence of Garganey reported.
21*st April*—Presence of Garganey drake confirmed.
5*th May*—Drake and two ducks seen.
12*th May*—Nest discovered with seven eggs.
15*th May*—Eggs chipping.

There can be little doubt from the condition of the eggs on 15th May, and from the presence of broken shells and shell membranes on 12th June that the chicks did actually hatch, and it is possible that an earlier nest also hatched off. So far as I know, however, no observer has yet seen the chicks.

Mallard Duck Assumes Drake's Plumage.—A Mallard duck, which is now nine years old, was hatched out and still lives in the Forest of Gaick, Inverness-shire, and until two years ago had as mate the drake. There were only the two birds in Gaick so there is no possibility of any mistake being made, and before the drake died—two years ago, the duck laid five eggs. Since then she has laid no more, and after her first moult, following the death of the drake, she suddenly altered the colour of her neck feathers to a dark chestnut and her head and back feathers also showed a decided change.

She has now almost changed from the colourings of the ordinary Mallard duck to those of the Mallard drake and has developed the four central upper tail coverts, black and curly. After the next moult she (or would you call it he), will in all likelihood be a perfect specimen of the male Mallard.—A. M. Wolfenden, Kingussie.

Wild Duck Assuming Drake's Plumage. — On 12th November 1927, Mr Adam Birrell sent me a Wild Duck assuming the plumage of the Mallard drake which had been shot the day before in Fleet Bay, Kirkcudbrightshire. I sent the bird to the Animal Breeding Research Department in the University of Edinburgh, and the Director reports that the ovary was atrophied and reduced to a small mass of heavily pigmented connective tissue. In his opinion it was reasonable to suppose that the plumage would have become completely transformed at the time of the next moult.—H. S. Gladstone, Capenoch.

STUDIES OF SOME LANARKSHIRE BIRDS.

The Starling.

By Walter Stewart.

Very little is known of the Starling's early status and distribution in Lanarkshire, but from published accounts it would seem that colonisation of these parts commenced just about one hundred years ago. These early accounts are extremely meagre, the Old Statistical Account of Scotland, towards the end of the eighteenth century, making no mention of it as a Lanarkshire bird, while in the New Statistical Account it is said to have occurred in the following places:—Biggar (1835) "The Starling used to be scarce, but has built for the last two years on the tower of the church;" Douglas (1835) "Starlings sometimes appear;" Govan (1840) "Starlings less common;" Hamilton (1835), "Starlings common;" and Wandell and Lamington (1840) "A few Starlings have also been occasionally seen, and some were captured for pets."

At Carmichael House, about this time, there would seem to have been in existence a fairly large colony, for in Magillivray's *British Birds* (1837, vol. i., p. 604) Mr Weir of Boghead, Bathgate, writes of visiting this place "about the end of May 1835, being very anxious to secure a pair for stuffing."

In *Birds of the West of Scotland* (1871, p. 157), Robert Gray states that "within the City of Glasgow thousands of Starlings live throughout the year," but that "thirty years ago it was comparatively a scarce bird over the whole Scottish mainland." Writing on the "Starling in Scotland" (*Ann. Scot. Nat. Hist.*, 1895, pp. 2-22) Harvie Brown, referring to Lanarkshire (1840) says, "it is still spoken of as a rare bird in most instances," while the Rev. D. W. Gibson ("Birds of Carmichael Parish," *Ann. Scot. Nat. Hist.*, 1897, pp. 201-18) writes that it "has increased greatly within recent years, and is still increasing;" also that it sometimes appears in immense flocks during spring migration—March 17-18, 1897."

In "Birds of Glasgow District" (*Glasgow Naturalist*, 1910, p. 49) Mr John Paterson says: "The Starling is abundant and has been so in my recollection for forty years." The late Dr John Grieve wrote about 1843-5: "On the top of almost all the houses hereabouts boxes are placed for them to build in," a reference to North-East Glasgow. In my recollection of thirty to forty years ago the same thing could be said of South-East Glasgow. I shall always retain a vivid and pleasant recollection of the Starling since just before my school-days commenced in the late seventies. From our cottage at Hermand, in the Midlothian parish of West Calder, five nesting places of that bird could be seen, and the coming and going of the parents when tending their young, proved a never failing source of interest to the juvenile mind, especially that wonderful act of avian sanitation, the removal from the nest of the young bird's droppings.

At the Hermand estate offices there were several artificially constructed Starling's nesting holes, said to have been made at the express orders of the then owner of the estate—Lord Hermand, the famous judge—in 1797, when the buildings were erected. The entrance hole was about four inches square, and the well of the nest about fourteen inches deep, all being situated at heights approaching twelve feet. Many stories were told of this æsthetic and humane judge, whose love for trees, flowers, and birds is said to have been such as often to interfere with his punctual arrival at church; indeed it is said that he once arrived when the congregation was "scailing." It is unfortunate that we have no early accounts of the Starling's arrival at this place, for there is no doubt that an early colony existed, and may even have been founded by introduction.

In Lanarkshire to-day Starlings are almost as ubiquitous as House Sparrows, they have certainly become quite as domesticated, forming themselves into small colonies and living pretty much on the bounty of the inhabitants, occasionally making short excursions into the fields, when seeking a change of food. At a former place of abode, in Airdrie, for quite a dozen years we had a small colony of

these birds (about eight pairs), whose numbers did not increase despite the fact that several young were reared each year. These birds led a well-ordered mode of life, similar to our local Rooks, dividing the year into two almost equal parts. During the summer six months, which included nidification, the day was spent in the gardens and surrounding fields, and the nights either at the nest or in an ivy-clad wall nearby. Immediately the cold nights arrived (early in October) they commenced to roost under cover immediately above the bedroom we occupied, and on extra cold nights in winter we could hear them fighting for a place on the rafter nearest to the chimney. They were not early risers, 8.30 A.M. being quite an average time in the dead of winter to hear the patter of their feet on the laths above, as they hopped to the place of exit under the eaves. Seldom a morning passed without a fight taking place at this spot.

In summer the young are dismissed immediately they can fend for themselves, having previously been taught how to search for caterpillars in the hedges. They then form themselves into small packs, and as the season advances these merge with others into flocks of considerable dimensions, which in late autumn are further augmented by immense flocks of migrants from the Continent. Roosting now takes place *en masse*, the place chosen, usually for several consecutive years if not interfered with, being some low-lying shrubbery or young fir plantation, which is always damaged, usually beyond recovery.

Quite the most remarkable Starling roost which we have known was within the City of Glasgow, the afflicted place being that very handsome edifice at the corner where Morrison Street and Crookstone Street converge, and in which the headquarters of the Scottish Wholesale Co-operative Society are situated. Here thousands upon thousands of these birds have congregated nightly for the past few winters, which resulted in the architectural features of this fine building being badly defaced. Nets have been tried with only partial success. In *Birds of the West of Scotland* (p. 157) Robert Gray writes of an equally strange roost on the River Clyde, where thousands of Starlings

roosted nightly in the barrel-shaped beacons which mark the sailing channel.

During recent years Starling roosts have been known in the Ogg's Castle district of Liberton; Calder Water district of Avondale; Baillieston and Drumpellier districts of Old Monkland; and the Woodhall district of Bothwell. At the latter place, in the winter of 1923-4, Mr Whitelaw had an immense number of very valuable shrubs completely ruined. Shooting was carried on incessantly until ultimately the birds were got rid of.

Fairly large flocks, probably non-breeders, are often seen in early summer, but so far we have not found them roosting at any of the above-mentioned places.

Like the Jackdaw, the Starling is wonderfully adaptive in its choice of nesting sites, especially in places where normal sites are insufficient to supply the demand. In one or two parts of the Middle Ward open nests have been found in shrubberies, yews, and even in spruce-firs, while in the Upper Ward it now emulates the Jackdaw by nesting in rabbit-burrows. No nesting holes large enough for their purpose are allowed to remain unoccupied, even when occupied by other birds like the Great Tit or Great Spotted Woodpecker, both of which we know to have been ousted in Lanarkshire.

It cannot be said to be conservative in its feeding habits; in fact it is really omnivorous, and is known to devour both eggs and callow young of small ground-nesting birds. In the autumn of 1906 we first knew of their fondness for fruit, on that occasion witnessing the almost total destruction of the fruit of a pear-tree by a flock of about thirty. During the whole time they kept up an incessant noise. On the other hand there is no doubt that an immense amount of harmful grubs and insects is destroyed by this very useful bird.

Like the Dipper and the Robin, the Starling cultivates the very pleasing habit of singing in winter time; indeed in severe weather we have often seen members of our small home colony, after being regaled with household scraps mount on to the clothes poles and chimney cans, and pour forth their song.

SOME RECORDS OF THE SMEW FROM THE CLYDE AREA.

By JOHN PATERSON.

LITTLE is known of the occurrence of the Smew (*Mergus albellus*) in the Clyde Area. Mr Tom Malloch, Johnstone, sent particulars to the *Glasgow Citizen* of 8th March 1924, of two birds of this species seen by him on 21st February 1924, on a Renfrewshire Loch, presumably Lochwinnoch. On 24th November 1927 I saw two on a boating pond at Rouken Glen Park, just south of the Glasgow boundary. On 4th December the park ranger told me that three of those visitors had been seen that morning. I saw three myself on the 8th. The new bird was evidently a young male, appearing larger and showing more white. By the 15th the pond was frozen over, and while it remained so nothing more was seen by me of the birds. However, they seem to have returned on the break up of the ice, and I heard that four had been seen frequently thereafter, and even five once or twice. The weather was very unpropitious, and I saw nothing more of them till the 29th January, when I saw the young male now obviously grown a bit, and appearing white rather than grey on the sides, a very conspicuous bird. Next day I saw four for the first time, and on 15th February there was one on the pond which I saw. From first to last they have been very shy, taking to flight on the least provocation.

Strange to say, rummaging in my papers in connection with this note, I came across a pencilled note referring to 1901, initialled J. T., that is J. Taylor, who was long keeper on the Upper Pollock Estates, and is now retired, which contains these words: "The keeper at Patterton (Cleghorn) in the beginning of August shot a duck which some one has identified as a Smew. . . . The keeper has had the bird preserved." Patterton is only a mile from Rouken Glen Boat Pond.

The Smew has been long known to visit Loch Lomond. Gray said it occurred repeatedly and mentions having

handled one from there. Mr Lumsden said it had been once or twice shot on the loch (*Proc. Nat. Hist. Soc. Glasgow*, iii., p. 59) and that one shot many years ago was in the collection at Rossdhu (*Nat. Hist. of Loch Lomond*, p. 50). This exhausts what I know of its occurrence in Dumbartonshire, and it is an old story now.

In Ayrshire the late Chas. Berry, the fisherman naturalist of Lendalfoot, had one under observation there in a small creek for eight days in December 1903. Mr Nicol Hopkins saw one in April 1911, in Troon Harbour. I have no information about any occurrences in Bute, Lanark, and Argyll. The Taynish record in the *Fauna of Argyll* refers to Loch Sween on the Atlantic side.

Peregrine Falcon nesting in Midlothian.—Miss Evans sends us the following interesting record of the nesting of the Peregrine Falcon in Midlothian, copied from the notebook of the late Mr William Evans. "Nest with four fresh (or nearly so) eggs on south side of second ravine on west side of Moorfoot Glen in Midlothian. H. Raeburn, 17th April 1920, brought me one of the eggs, which was a couple of days incubated.

"Two eggs broken, and one still in nest on 23rd April (G. Forrest). Male bird shot on or about 7th April; male and female at nest on 17th.

"A pair of Peregrines nested in this ravine in 1919 and reared young, one of which was shot. (I have seen tarsus and foot and wing."—W. E.)

Fertility of a Water-Hen.—For many years Water-hens have frequented the pond in the Royal Botanic Garden, and as they damage the aquatic plants to some extent, they have been shot or driven away from time to time, but the pond is never long without a pair of these birds. Two seasons ago Mr Alexander M'Cutcheon, who superintends this section of the garden, had the first clutch of nine eggs removed as breeding is not encouraged. After a short interval the birds repaired the same nest, and when three eggs were laid it occurred to him to try the experiment of keeping the bird from sitting by removing an egg as soon as a fresh one was added. This was carried out until the extraordinary number of forty-four eggs had been laid before the patience and fertility of the bird became exhausted.—J. Kirke Nash, Edinburgh.

A SIMPLE KEY TO THE CRABS (*BRACHYURA*) OF BRITAIN AND THE NORTH-EAST ATLANTIC.

By MICHAEL PERKINS, M.A., F.E.S. (Mackinnon Research Student of the Royal Society)

From the Zoological Laboratory, Cambridge.

(*Continued from* p. 59.)

65 (66). With a longitudinal ridge on the paddles, frontal teeth crenulated at edges, carapace wrinkled. 4 cm. **P. corrugatus*, Pennant.

66 (65). Paddles not ridged.

67 (70). Ridges on chelæ noticeably tuberculate.

68 (69). Carapace rougher and broader, especially behind; orbits larger; paddles obtusely pointed with inner margin more or less straight. 4 cm. **P. depurator*, L.

69 (68). Carapace smoother and longer, more narrowed behind; orbits smaller; paddles more sharply pointed with inner margin curved throughout. 3 cm. **P. holsatus*, F.

70 (67). Ridges on chelæ not or obsoletely tuberculate.

71 (72). Larger; carapace shorter with frontal region less produced having narrower and more distinct teeth, the central tooth being uniform; paddles relatively broader. 3 cm. **P. marmoreus*, Leach.

72 (71). Smaller; carapace longer with frontal region more produced having broader and less distinct teeth; paddles relatively narrower.

73 (74). Central frontal tooth projecting beyond the others. 1·5 cm. **P. pusillus*, Leach.

74 (73). More elongate, central frontal tooth not projecting. 1·5 cm. *P. pusillus* v. *maculatus*, Risso.

75 (44). 6, 4, or 2 frontal teeth, or with a pair fused into a rostrum.

76 (83). Terminal segment of last legs expanded into paddles.

77 (78). Carapace longer than it is broad; antero-lateral teeth small and uniform in size.

**Platyonichus latipes*, Pennant, var.

78 (77). Carapace broader than long, trapezoidal; last antero-lateral tooth larger than the others.

79 (80). Carapace relatively broader, less rectangular; anterior margin of the very large last antero-lateral tooth hairy; paddles broader and obtusely pointed, ridged; chelæ not spinous. 2·5 cm.

Lupa hastata, L.

80 (79). Carapace more rectangular. Last lateral tooth not hairy; paddles narrower, acuminate, not ridged.

Gen. *Bathynectes*.

81 (82). Last antero-lateral tooth longer; frontal teeth larger. Chelæ spinous. 5·6 cm.

B. superbus, Costa (= *Thranites velox*, Bovallius).

82 (81). Last antero-lateral tooth shorter; frontal teeth smaller. Chelæ simple. 2·5 cm.

**B. longipes*, Risso.

83 (76). Terminal segment of last legs not expanded into paddles.

84 (99). Carapace narrowed as much or more behind than in front; not triangular.

85 (98). Carapace not or scarcely longer than broad. Antennæ normal in length.

86 (91). Carapace oval or rectangular, little narrowed in front and broader than long; larger crabs.

87 (90). Not hairy; legs slender, last pair not reduced.

88 (89). Legs long; carapace flat, narrowed most behind, with 3 very strong antero-lateral teeth. 6·0 cm.

Geryon tridens, Krøyer.

89 (88). Legs relatively short; carapace inflated, narrowed more in front than behind, granular, no antero-lateral teeth, but a fairly strong postero-lateral series. 7·0 cm. *Calappa granulata*, F.

90 (87). Legs stout, last pair somewhat reduced; carapace inflated, densely clothed with hair. 6·5 cm.
**Dromia vulgaris*, M. Edwardes.

91 (86). Carapace strongly narrowed both in front and behind, lozenge-shaped. Smaller crabs.
Gen. *Ebalia*.

92 (93). Antero-lateral margins strongly incurved; granulation fine; chelæ short and stout, merus but twice as long as broad. 1 cm.
**E. tumefacta*, Montagu (=*Bryerii*, Leach).

93 (92). Antero-lateral margins but slightly incurved; granulation strong; chelæ more elongate.

94 (95). Antero-lateral margin with a marked fissure dividing it into two lobes. 1·5 cm.
**E. tuberosus*, Pennant (=*Pennantii*, Leach).

95 (94). No antero-lateral fissure.

96 (97). Carapace with five clear tubercles on dorsum; frontal tubercles larger and wider apart; chelæ. stouter. 1 cm. **E. cranchii*, Leach.

97 (96). Carapace without obvious tubercles on dorsum; frontal tubercles smaller and closer; chelæ more slender. 1·5 cm.
**E. nux*, M. Edwardes and Norman.

98 (85). Carapace longer than broad; antennæ very long; chelæ of male very long. 4 cm.
**Corystes cassivelaunus*, Pennant.

99 (84). Carapace narrowed more in front than behind, triangular.

100 (139). Frontal tubercles or points of rostrum separated.

101 (120). Points of rostrum separated but not divergent, short.

102 (103). Legs small and body heavy, tending to oval in shape. 7·0 cm. *Calappa granulata*, F.

103 (102). Legs long and body small, more triangular.

104 (109). Points of rostrum longer than broad.

105 (106). Points of rostrum wide apart, legs short. 2·0 cm.
Acanthonyx lunulatus, Latreille.

106 (105). Points of rostrum close together, legs long; abdomen of male parallel sided; larger bodied crabs. Gen. *Hyas*.

107 (108). Carapace more inflated behind, not sharply constricted or incised above base of chelæ. 3·5 cm. **H. araneus*, L.

108 (107). Carapace less inflated behind, sharply incised above base of chelæ. 3 cm.
**H. coarctatus*, Leach.

109 (104). Points of rostrum scarcely so long as broad.

110 (111). Legs pubescent with rows of tubercles, last legs reduced; size may be very large. 12 cm.
Chionocœtes opilio, Krøyer.

111 (110). Legs not regularly tuberculate; small crabs.

112 (113). Legs short with long hairs and strongly curved terminal segments. 1·2 cm.
**Achœus cranchii*, Leach.

113 (112). Legs long, with short hairs only, with straighter terminal segments; abdomen of male with 3rd segment abruptly wider. Gen. *Inachus*.

114 (117). Merus of walking legs obviously hairy.

115 (116). Median posterior area of carapace narrow and relatively little inflated; thorax of male without a polished boss beneath. 2·5 cm.
**I. dorynchus*, Leach.

116 (115). Median posterior area of carapace inflated and nearly equal to the lateral inflations; thorax of male with a bilobed polished boss beneath. 3 cm.
I. thoracicus, Roux.

117 (114). Merus of walking legs with hairs suppressed.

118 (119). Chelæ stouter, no polished boss beneath thorax of male. 2·5 cm.
**I. dorsettensis*, Pennant (= *scorpio*, F.).

119 (118). Chelæ more slender. Thorax of male with a small circular polished boss beneath.
**I. leptochirus*, Leach.

120 (101). Points of rostrum divergent.

121 (138). More triangular; with some spines of the carapace markedly prominent; usually smaller crabs.

122 (129). Legs very slender with merus more than six times as long as broad.

123 (126). Chelæ spinous; carapace spinous.

124 (125). Legs not spinous but hairy; propus of chelæ with few spines. Rostrum short, distance between points less than their length; carapace with few hairs only, legs very long. 2 cm.
Lipsognathus Thompsoni, M. Edwardes and Norman.

125 (124). Legs spinous hairy; propus of chelæ with many spines. Rostrum long and widely divergent. 2 cm. *Ergasticus clouei*, M. Edwardes.

126 (123). Chelæ not spinous; rostrum long and widely divergent.

127 (128). Carapace with very long spines, clothed with a few hairs only. 4·5 cm.
Amathia rissoana, Roux.

128 (127). Carapace with shorter spines, thickly clothed with hairs and vesicles. 3 cm.
Scyramathia carpenteri, M. Edwardes and Norman.

129 (122). Legs stouter, merus not more than six times as long as broad.

130 (131). Carapace and legs closely set all over with strong irregular spines, no hairs. 2 cm.
**Eurynome aspera*, Pennant.

131 (130). Carapace or legs hairy, with fewer and more scattered large spines; spines on the legs small if present.

132 (133). No spines on dorsum of carapace which is more regular; terminal segment of legs with a series of teeth on inner margin. 2 cm.
Acanthonyx lunulatus, Latreille.

133 (132). Terminal segment of legs not toothed; dorsum of carapace irregular, often with large spines. Gen. *Pisa* (*Arctopsis*).

134 (135). Four very prominent spines on each side of carapace which is less pilose in the adult; points of rostrum more divergent. 5. cm. **P. tetraodon*, Pennant.

135 (134). One large spine at posterior end of each side of carapace, which is more pilose in adult.

136 (137). Dorsum of carapace not scored or furrowed; points of rostrum diverging but little. 5 cm. **P. biaculeatus*, Montagu (= *Gibbsii*, Leach) (= ? *tribulus*, L.).

137 (136). Dorsum of carapace furrowed or scored. 6 cm. *P. armata*, Latr.

138 (121). Nearly orbicular; no markedly prominent spines on carapace which is covered all over with hooked hairs; body may be very large. 16-18 cm. *Maia squinado*, Rondelet.

139 (100). Points of rostrum fused or nearly so into a single-pointed projection.

140 (141). Chelæ very long, exceeding the legs; rostrum very short. 2 cm. *Lambrus massena*, Roux.

141 (140). Chelæ not so long as the legs, which are very long and slender, rostrum relatively long. Gen. *Macropodia* (= *Stenorhynchus*).

142 (143). Rostrum much shorter than the antennæ, its length being equal to about twice the width between the eyes; merus of chelæ less spinous. 2 cm. **M. rostratus*, *L.* (= *phalangium*, Leach).

143 (142). Length of rostrum 3 or 4 times the width between the eyes, nearly as long as the antennæ in males; merus of chelæ with more obvious spines.

144 (145). Rostrum longer, straight or nearly so. 2 cm. **M. longirostris*, F. (= *tenuirostris*, Leach).

145 (144). Rostrum shorter, with a marked downwards curve. 2 cm.

**M. longirostris*, F. *v. Aegyptia*, M. Edwardes.

Systematic classification of the genera.

BRACHYURA.

Anomola—		
Lithodinea	Lithodidæ	*Lithodes*, Latreille.
Dromiinea	Dromiidæ	*Dromia*, Fabricius.
Oxystomata	Dorippidæ	*Dorippe*, Fabricius.
	Calappidæ	*Calappa*, Fabricius.
	Leucosiidæ	*Ebalia*, Leach.
Brachygnatha—		
Catometopa	Pinnotheridæ	*Pinnotheres*, Latreille.
„	Grapsidæ	*Pachygrapsus*, Randall.
„	„	*Planes*, Leach.
„	Plagusiidæ	*Acanthopus*, de Haan.
„	Ocypodidæ	*Ocypoda*, Fabricius.
„	„	*Gelasimus*, Latreille.
„	Gonoplacidæ	*Gonoplax*, Leach.
„	Geryonidæ	*Geryon*, Krøyer.
Cyclometopa	Corystidæ	*Corystes*, Latreille.
„	Atelecyclidæ	*Thia*, Leach.
„	„	*Atelecyclus*, Leach.
„	Portunidæ	*Portumnus*, Leach.
„	„	*Polybius*, Leach.
„	„	*Portunus*, Fabricius.
„	„	*Bathynectes*, Stimpson.
„	„	*Lupa*, Leach.
„	Carcinidæ	*Carcinus*, Leach.
„	„	*Pirimela*, Leach.
„	Cancridæ	*Cancer*, Linnæus.
„	Xanthidæ	*Xantho*, Leach.
„	„	*Eriphia*, Latreille.
„	„	*Pilumnus*, Leach.
Oxyrhyncha	Maiidæ	*Maia*, Lamarck.
„	„	*Pisa*, Leach.
„	„	*Acanthonyx*, Latreille.

Oxyrhyncha	Maiidæ	*Hyas*, Leach.
„	„	*Chionœcetes*, Krøyer.
„	„	*Amathia*, Roux.
„	„	*Scyramathia*, M. Edwardes.
„	„	*Ergasticus*, M. Edwardes.
„	Inachidæ	*Lipsognathus*, M. Edwardes.
„	„	*Inachus*, Fabricius.
„	„	*Macropodia*, Leach.
„	Parthenopidæ	*Eurynome*, Leach.
„	„	*Lambrus*, Leach.

Cirl Bunting in S.W. Scotland. — The Cirl Bunting is described as a rare vagrant in Scotland, only five or six records having been admitted up to the present. On the 8th of May this year Mr Oliver Pike and I had the good fortune to have two of these rare Buntings under close observation for the best part of an hour. The male, when we first saw him amongst the rushes of a subsided loch, was within three yards of us; the head, throat and rumped being particularly noticed.

Bearing in mind that the Cirl Bunting is a vagrant and not a migrant in the true sense of the word, there is a remote possibility of the pair remaining to nest. Therefore, it will be as well not to disclose the locality, beyond saying that the district was near the coast of Ayrshire.—E. Richmond Paton, Hareshawmuir.

Scandinavian Lesser Black-backed Gulls in the Tweed Area.—On Sunday, 6th May 1928, I saw two Scandinavian Lesser Black-backed Gulls by the side of the Tweed below St Boswells. I had a very good view of them down sun and could distinctly see the very dark mantle. As they were on the north bank of the river they were in Berwickshire, and the record is the first for the Tweed Area.—Leonora Jeffrey Rintoul.

Little Terns in East Lothian.—In addition to the nests recorded by Dr Wild (Scottish Naturalist, 1928, p. 24) there were, at another point on the East Lothian Coast, at least three pairs of Little Terns nesting. I saw the eggs or young of two pairs. In close proximity to the Little Terns, besides Common Terns' and Ringed Plovers' nests, a pair of Black-headed Gulls obviously had young, though I failed to find these. I do not recall the noting of this species as a nester anywhere on the Lothian coast. Quite close

also, an Oystercatcher had laid three eggs on some shingle. I paid three visits to the spot and, although the eggs were always warm to the touch, on no occasion did I see the wary owners. This extraordinary wariness is in very strong contrast to the Oystercatcher's excessive perturbability when its young are hatched.—P. W. G. Gunn, Edinburgh.

A Rare Cat-fish (Anarrhichas latifrons), off the Shetland Isles.—An example of a rare Cat-fish (*Anarrhichas latifrons*) 42 inches in length, about 32 inches in girth, and weighing 46 lb. was captured about the 11th April, fifty miles east of the Out Skerries, Shetland, and forwarded to the Royal Scottish Museum for identification by Mr David Ross, Fishmonger, Edinburgh.

The "blue sea-cat," as this fish is called by Smitt in his *History of the Scandinavian Fishes*, is an inhabitant of Arctic seas, occurring on the coasts of Greenland, Iceland, and Norwegian Finmark. The present record, therefore, is well south of its normal area of distribution.

The colour is evidently very variable. In the present specimen the colour was quite different on each side of the body, on the right there was a narrow zigzag band of "bone brown" close to the tail, and a large irregular area of the same colour with darker shades occupied the upper fore-half of the body. The rest of this side including the right side of the head, was light "greyish-olive." On the left side of the body the area of bone brown was much larger, covering the left side of the head and all but the last third of the body, which was light greyish-olive, with several large irregular patches of bone brown. The colours indicated are those so-named in Ridgway's *Colour Standards and Colour Nomenclature*.—A. C. Stephen, Royal Scottish Museum.

A Gluttonous Pike.—It is not wise to bite off more than one can chew. On 17th April two Pike, weighing 7 lb. a-piece, were washed ashore in the White Loch of Myrtoun, Wigtownshire, both firmly locked together head to head. One had endeavoured to swallow the other, but by some misjudgment had tackled a fellow of its own size, so that, having engulfed the head, it discovered that it could neither continue the process of swallowing nor let go. Held fast in this strange embrace both Pike starved to death. I have somewhere, if I could but lay my hand on it, a photograph sent to me, I think, by the late Mr P. D. Malloch of Perth, showing two Pike from Loch Tay in a connection precisely similar to that of this Wigtownshire pair.—Herbert Maxwell, Monreith.

BOOK NOTICE

THE GEOGRAPHICAL DISTRIBUTION AND STATUS OF BIRDS IN SCOTLAND. By Evelyn V. Baxter and Leonora Jeffrey Rintoul. Oliver and Boyd, Edinburgh, 1928. Pp. viii + 425. Price 15s. net.

Scotland has been well served by its ornithologists, for few countries of similar size can boast so many carefully compiled local lists of birds. No attempt had been made, however, to connect the scattered information of these lists, so that, except in the case of a few species, such as the introduced Capercaillie, it was impossible to tell the distribution of even the commonest of birds throughout the whole country.

In a most thorough manner Miss Baxter and Miss Rintoul have accomplished this great task. It has demanded a vast amount of delving in the literature of Scottish zoology, not only of modern times but of the far past, for we note records of a Stork in 1416, a Great Bustard in 1526, and of a Crane, a bone of which was found in the Roman Camp at Newstead.

From its very nature the book is not intended to be a readable book; it is essentially a work of reference; but any ornithologist who cares to analyse its pages will find it full of information of great interest and help in his study. For the first time we learn that the birds recorded from Scotland number 393 species and races, as contrasted with the 500 recorded from the British Isles; and no county need now be ignorant of its bird fauna, for a simple abstraction of data will give the complete recorded list from any Scottish county.

The arrangement is a simple one. Each page is devoted to one species, and contains a list of all the Scottish counties and sub-county divisions, arranged under their appropriate faunal area. Opposite each county where a species has been observed, a symbol is placed indicating its status as a breeder, winter or summer visitor, or passage migrant. The records are carried down to the end of 1927, but the arrangement is an elastic one, and further additions may be made as they occur, so that a worker can keep the records of his own or other counties up-to-date.

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With the assistance, as Referees in Special Departments, of

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CONTENTS

PAGE

Zoos and Museums; and other Editorial Notes . . 65

The Rookeries of Greater Edinburgh and Midlothian—*J. Kirke Nash, L.D.S.Ed.* 69

The Garganey — an Addition to the Breeding Birds of Scotland (*Illustrated*) — *James Ritchie, M.A., D.Sc., F.R.S.E.* 77

Studies of Some Lanarkshire Birds—The Starling—*Walter Stewart* 81

Some Records of Smew from the Clyde Area—*John Paterson* 85

A Simple Key to the Crabs (*Brachyura*) of Britain and the North-East Atlantic (*concluded*)—*Michael Perkins, M.A., F.E.S.* 87

Notes:

Walrus at Gairloch, 76; Wild Cats in Forfarshire, 76; Lesser Rorqual stranded in Lewis—*Dr James Ritchie*, 76; Crossbills in Ayrshire—*E. Richmond Paton*, 76; Mallard Duck assumes Drake's plumage—*A. M. Wolfenden*, 80; Wild Duck assuming Drake's plumage—*H. S. Gladstone*, 80; Peregrine Falcon nesting in Midlothian—*the late Wm. Evans*, 86; Fertility of a Water-Hen—*J. Kirke Nash*, 86; Cirl Bunting in S.W. Scotland—*E. Richmond Paton*, 94; Scandinavian Lesser Black-backed Gulls in the Tweed Area—*Leonora Jeffrey Rintoul*, 94; Little Terns in East Lothian—*P. W. G. Gunn*, 94; A Rare Cat-fish, *Anarrhichas latifrons*, off the Shetland Isles—*A. C. Stephen*, 95; A Gluttonous Pike—*Rt. Hon. Sir Herbert Maxwell*, 95

Book Notice 96

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The Scottish Naturalist

SEP 17 1928
NATIONAL MUSEUM

No. 172] 1928 [JULY-AUGUST

EDINBURGH: OLIVER & BOYD, TWEEDDALE COURT
LONDON: GURNEY & JACKSON, 33 PATERNOSTER ROW

Price 2s. 3d. Annual Subscription, payable in advance, 12s. 6d. post free

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A Magazine devoted to Zoology

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EDITED BY

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The Scottish Naturalist

No. 172.] 1928 [JULY-AUGUST

STUDIES OF SOME LANARKSHIRE BIRDS.

THE JAY.

By WALTER STEWART.

TIME was when the harsh, discordant chatter of the handsome Jay was by no means a rare sound in Lanarkshire woods, but thanks to years of persecution at the hands of game-keepers, gardeners, nurserymen, and fly-fishing tackle-makers, it is now as an indigenous bird quite extinct.

In *New Statistical Account of Scotland*, the Rev. Thomas Lockerby, Cadder, writing in 1836, records it as a bird of that parish, and in *A Few Rough Notes on Douglas Parish*, 1860, the author says "there are jays in the plantations." Writing in 1875, the late E. R. Alston says he got it from Bothwell, and at that time it was still nesting at Hamilton.

Just across the county border, in the Midlothian parish of West Calder, two to three pairs were still nesting so late as 1886, one nest in a strip of fir plantation near the village, and one or two pairs were nesting in woods on the Baads Estate. We have no recollection of young Jays being reared, as unfortunately the parish at that time possessed far too many youthful egg-collectors (the writer included).

Eventually the stock of Jays were all shot by local poachers, who found a ready market for them amongst local fishers, and also fishing tackle-makers in Edinburgh.

About the year 1899, one of these birds was shot in Blantyre district by a local gun-man, who disposed of its wings to two local fishers.

[In the spring of 1904, in a wood in the Cleughearn district of East Kilbride, we came across the remains of a previous year's nest built in a small spruce which we are certain had belonged to no other bird but the Jay.]

Writing on the "Birds of East Renfrewshire" (*Glasgow Naturalist*, 1911), Mr John Robertson records the shooting of a Jay some forty years before, at Stonebyres Wood, Eaglesham, just across the county boundary from Cleughearn.

Mr William Rennie has kindly informed me that the Jay has appeared very recently in the Kelvin Valley a little to the north of the city; also that it has been reported from the orchard district of Clyde, which may refer to the following. In the early days of April 1922, while taking our "Rookery Census," we were certain of having heard Jays on one occasion, and mentioned the fact to one of the game-keepers, who, although unaware of their presence, confided to us that a pair of these birds made quite a long sojourn at a certain wood, nearly a mile distant, during the winter of 1921-22.

When we consider the remarkable silence practised by a pair of nesting Jays, we may almost hazard the guess, or hope that they have really bred in Lanarkshire quite recently.

The Jay's menu is extremely varied, fruit of all kinds in season, nuts and acorns being greedily consumed; also to peas and some of the finer vegetables much damage is done. At other times of the year its food is quite similar to that of the Magpie, and there is no doubt these very destructive feeding habits have largely contributed to its undoing.

The Rose-Coloured Pastor.

Visits of this beautiful vagrant to Lanarkshire have been rare indeed, in fact sixty years have almost elapsed since one was last recorded. In *Birds of the West of Scotland* (1871, p. 80), Robert Gray writes: "In 1853 a pair, male and female, which I examined were shot in the outskirts of Glasgow, and were presented to the Andersonian Museum by Dr Hugh Colquhoun; and on 7th August 1868 I had an

opportunity of seeing a male specimen, which had been shot on the previous day, by one of Mr Harvey's servants at Hundred-Acre Farm, within two miles of the city."

The Stock-Dove.

The early history of this dove is one long record of confusion with its congeners the Ring-Dove and the Rock-Dove.

In White of Selborne's time we find it known as the Wood-Pigeon (*C. œnas*), and in that naturalist's correspondence with Thos. Pennant (letter 44) the following passages occur:—

"For my own part I readily concur with you in supposing that the house-doves are derived from the small blue-rock pigeon for many reasons. In the first place, the wild Stock-Dove is manifestly larger than the common house-dove, against the rule of domestication which generally enlarges the breed."

And again—

"I have consulted a sportsman now in his seventy-eighth year who tells me that fifty or sixty years back, when the beechen-woods were much more extensive than at present, the number of Wood Pigeons (*C. œnas*) was astounding," . . . he also adds, "which I was not aware of, that often there were among them little parties of small blue doves which he calls rockiers."

Obviously the old naturalist of Selborne was entirely unacquainted with the Stock-Dove, which he describes as "manifestly larger than the common house-dove," and there is little doubt that the Wood-Pigeon in "astounding numbers" were really migrant Ring-Doves; and the little parties of "small blue doves" the true Stock-Doves.

Some fifty years later we find Macgillivray (*British Birds*, 1837), in an endeavour to clear away some of this confusion, writing as follows:—

"The Blue-backed Dove which in descriptive works still bears the name of 'Stock-Dove' given to it at a time when it was believed to be the origin of the domestic races, and of the same species as the Rock-Dove already described, is in form, size, and general appearance so similar to the species just named, that one readily finds an excuse for those who erroneously considered them identical. They were first clearly distinguished and separated by M. Temminck."

Yet in spite of this we find Robert Gray (*Birds of the West of Scotland*, 1837) writing of parti-coloured Rock-Doves "found on the mainland in the neighbourhood of cultivated lands and farm houses." Can we doubt that the little blue dove, with the broken, ill-defined wing-bars, which we know as the Stock-Dove was not identical with those parti-coloured rock building doves referred to.

In more recent times the Stock-Dove still remained overlooked in many districts.

Our earliest acquaintance with this species was in the West Calder district of Midlothian about the year 1884, when at Limefield we found a nest with two white eggs, under a whin bush on the very edge of the old quarry, which, boy-like—not having seen the bird—we concluded must belong to some species of Owl; and again about this time at Hermand House nearby a pair of Pigeons nested in the dense growth of twigs at the foot of a giant lime.

About the years 1894-95 many pairs of these doves nested on the rocky banks of the Esk at Dalhousie Castle, and in the neighbouring grain fields, before harvest time, many "blue rockies," as they were termed, fell to the gun of a professional pigeon-shooter locally known as "Cushie Bauldy." But to return to Lanarkshire—a pair of small blue doves had for a long number of years nested in an ivy-clad tree near Calder Glen House, Blantyre. These we identified as Stock-Doves in 1910.

About this time we had a very interesting conversation with a colliery worker named Brodie—a very intelligent man, who had behaved heroically as a rescuer at the Blantyre Colliery explosion some thirty years earlier. For over thirty years he had been privileged to carry a gun over several of the farms, and he assured me that during all this time he had shot the little "blue rock" (two of which he had in his game bag) both on the braird and the stubble.

Mr Pettigrew of Malcolmwood Farm had also shot "blue rocks" for a long number of years, likewise on braird and stubble.

At Calderwood Castle we one day picked up an empty, hatched, egg-shell from under the rocks, and on showing it

to an old estate retainer, he at once pronounced it as a "rock-doo's." Asked if they had nested long on Calderwood Estate, he replied, "Since I was a laddie and guid kens hoo lang afore it."

Mr Turnbull, head-keeper, was sure they had not increased since he came to Calderwood in 1898. At that time they were fairly plentiful. Several years ago we interviewed Mr Sybill, retired head-keeper of Coulter Allers (now deceased). He had known the Stock-Dove to nest in rabbit-burrows on the hillsides almost as long as he could remember. Numbers of them yearly fell victims to the Peregrine Falcons of Coulter Fell. Although the question of the Stock-Dove's antiquity as a Lanarkshire bird may be somewhat difficult to settle, nevertheless we think it would be rash to assume that it is by any means a recent addition to the county's avifauna; rather would we believe that it followed the ubiquitous rabbit into these wild uplands and that any extension of range into populous, agricultural districts is occasioned by outside pressure, such as a too rapid increase of underground-nesting Jackdaws depriving them of their nesting sites in the rocks, and rabbit-burrows in wild hilly country.

To revert to the published history of the Stock-Dove, we find Harvie Brown (*Ann. Scot. Nat. Hist.*, 1894) sketching its increase in distribution in Scotland, and three years later in the same magazine (pp. 214-215) we find it mentioned as a Lanarkshire bird by the Rev. J. D. W. Gibson of Carmichael parish, who thinks that a pair of doves which flew round the manse garden in January last belonged to this species, and he further mentioned that "Mr D. Pringle informs me that there were two nests of this species this season near his house" [in Fiddler's Glen, Braidwood, Carluke].

Nothing further relating to our subject appeared until the paper by R. S. & N. W. Wilson ("The Stock-Dove in Clyde Area," *Glasgow Naturalist*, 1909), which contains—in addition to the above—the following Lanarkshire records. Stock-Dove flushed from her nest on 22nd May "just where the Dipple joins the Avon, the first we had ever seen."

(*Flora and Fauna of Clyde Area*, 1901, p. 116). They also found it nesting in Cartland Crags, Mouse Water on 9th May 1903, and record it to be "still holding its own in 1906, despite the numerous Jackdaws which swarm there." And further —"In the Blantyre district it had also established itself. Mr Walter Stewart records (*Ann. Scot. Nat. Hist.*, 1909, p. 115) that acting on information received in 1906 from an acquaintance about the Rock-Dove, he found two nests of the Stock-Dove in 1907, and knew of four pairs breeding in 1908."

In the following year we recorded a substantial increase in the breeding stock of these doves in the district (*Glasgow Naturalist*, 1909, p. 30). Since the beginning of the century a slow but gradual decline in numbers has taken place in its natural habitat—the wild hilly country of the Upper Ward, although in wooded glens it is still holding its own; but against this a remarkable increase and extension of range has taken place into the populous Middle and Lower Wards, and in its choice of nesting sites it proves itself almost as adaptive as the Jackdaw or Starling, in whose company we often find it nesting, indeed at Blantyre Priory in an old hollow-at-the-root ash tree we found all three nesting in 1911.

In a small rabbit-hole at the foundation of this ancient building we have repeatedly handled a sitting Stock-Dove, and replaced it on its nest with no more ado than if it had been a domestic dove. In the old quarry across the river from Bothwell Castle we found a pair nesting on a ledge almost too narrow to hold the pair of eggs; and on both sides of the river the ivy-clad tree is often nested in, indeed for beauty of site one of these nests could hardly be surpassed. This nest was built in a sort of flower-basket shaped bunch of ivy, and hung suspended on a branch which stretched across a deepish part of the river opposite the Swiss Cottage. These doves, like the majority of this species when nesting, soon became quite tame, and to watch the nest and the sitting dove gently swaying in the breeze was one of the prettiest sights in bird-life which we have yet seen. One young dove was successfully reared.

The glens of all three Calders have now their quota of nesting Stock-Doves, and in several parts of that bleak district of Shotts, isolated pairs are found nesting in rocky bluffs, notably at Forrestburn Crag, where there is a small colony of Jackdaws, and usually a pair of Kestrels. Visiting this place in July 1926, we found the Kestrels rearing young but neither "doves" nor "daws" in evidence, and were somewhat disagreeably surprised to find that, in addition to several species of small birds, Stock-Doves had actually figured on their menu. Throughout the whole source of the Avon and its tributary burns this dove is numerous, and in many of the giant oaks of the ancient forest of Cadzow it nests alongside with Jackdaws.

The glens of the Avon and Rotten Calder may very probably have been the avenues through which the Stock-Dove originally spread into Clydesdale. Our earliest records are certainly from Ayrshire, indeed it is our opinion that the poet Burns—who was no mean ornithologist—did not write meaninglessly in his beautiful song "Afton Water" in describing this dove's wild note: "Thou Stock-Dove whose echo resounds thro' the glen." Stock-Doves are common in Glen Afton to-day, and we do not doubt have been so for time immemorial.

It is in the early morning or late evening that this dove's call is heard at its loudest, especially if the place be a wild mountain glen. Whilst indulging in his courting display the notes of the male dove as he pirouettes round in front of his mate have a wonderful ventriloquial sound, which is difficult to describe. In wild hilly country of the Upper Ward we have watched this display through powerful binoculars at long distances, even up to a mile, and such was the illusion produced, the sounds really seemed to emit from a dove at no greater distance than the binoculars showed. Again, in the narrow wooded glen quite a different effect is produced. From the rocky banks of the Calder at Calderwood Castle before dusk on a summer evening we have watched this display at quite close range, the Stock-Doves being perched on the flat branch of a spruce, whose top just reached our level. From this position we found the

notes re-echo and reverberate to such an extent as to become totally jumbled-up, coming seemingly from everywhere but the real source—in fact to close one's eyes for a few seconds actually give the impression of listening to the braying of a pack of hounds in the distance.

The males often indulge in stand-up fights, the whacks of their wings seeming astonishingly loud in the stillness of the evening. That this Stock-Dove does not receive toleration from the rabbit, the following incident witnessed by myself and my son will show. In the neighbourhood of Biggar in April 1922, a pair of amorous Stock-Doves were much interrupted by a full grown rabbit, which attacked them in a determined manner wherever the doves would alight, and the male commence his courting display. This continued for some time, the rabbit sitting up on his haunches until he located them, when he would at once race towards them. In the end they were forced to take refuge by alighting on a fence, and refused to be chased farther, at which the rabbit hopped off and did not molest them further.

Except in the south-eastern district, migratory movements are almost nil. In the Biggar and Dolphinton districts we have often in autumn and winter seen flocks amounting to an excess of the breeding stock; but in the Middle and Lower Wards only little parties of from four to eight are observed.

Regarding the feeding habits of this dove we can say very little, but find in one or two essentials they differ slightly from the Ring-Dove in that they show no liking for butter-cup seed, but prefer mustard seed instead, in addition to that of several grasses. Like the Ring-Dove, however, they are fond of all sorts of grain.

REPORT ON SCOTTISH ORNITHOLOGY IN 1927.

By Evelyn V. Baxter and Leonora Jeffrey Rintoul.

Introduction.

It is now almost half a century since records of the movements of birds in Scotland began to be systematically kept and Reports drawn up. With 1928 the fifty years will be complete, and it is proposed to make the report of that year the final one in the present form. When the report began it dealt with migration only, but of late years it has been extended and now includes all branches of Scottish ornithology. One result of these extended observations has been to suggest several lines of inquiry which might well be further developed, and it is hoped to work along these in future, instead of along the general lines of a report. We would, therefore, ask all our recorders to keep notes as heretofore up to the end of 1928, and hope that, thereafter, they will all continue to help with such inquiries as may be instituted. The notes sent in 1927 were as numerous and comprehensive as usual, and we thank our recorders very cordially for them.

Our best thanks are due in the Northern Group of localities to: Sim Baigrie, Bressay; Surg. Rear-Admiral J. H. Stenhouse, Jerome Wilson and George Stout, Fair Isle; J. Moore, Holburn Head Lighthouse; Charles Oldham, Caithness, etc. In the Eastern Group to: Major A. Stables, Elgin; D. Hunter, Arbroath; Henry Boase, Dundee; Lord Scone, Perthshire; Captain A. H. R. Wilson, Bridge of Earn; C. H. Heron Watson, Longforgan; Professor W. M'Intosh, Nevay; J. D. M'Gilvray, Bell Rock; William Berry, Tayfield; Doris M. Wilson, St Andrews; F. M. K. Simpson, St Andrews; Charles S. Wedderburn, Mugdrum; J. C. Laidlay, Lindores; George M'Combie, Markinch; J. H. Gaskell, Balchrystie; Major R. W. H. Anderson, Colinsburgh; R. Johnston Shaw, Colinsburgh; Lt.-Col. N. E. Baxter, Gilston; C. J. Connell,

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The outstanding event of 1927 was the immigration of Crossbills, which began about the end of June and is reported from localities in many parts of Scotland. A new bird was added to the Scottish list but fewer uncommon visitors are recorded than in most years. The cold and sunless summer was not conducive to successful nesting, many young birds being killed by the cold and wet. Valuable records have again rewarded Mr Witherby's untiring efforts in the Ringing scheme, some of which refer to Scottish birds.

Interesting papers have appeared in 1927, relating to birds in Scotland; of these we may mention—in the SCOTTISH NATURALIST, "On the Decrease of Blackgame in Scotland," "The British Willow Titmouse in the Clyde Area," "Bird Notes from Fair Isle," "Studies of Some Lanarkshire Birds," and "Some Abnormal Eggs of Wild Birds." In *British Birds* (Magazine), "The Altitude of Birds in the Cairngorm Hills," "The Westward Flight of Autumn Migrants in the Tay Estuary," "Local Migration in Autumn in South-West Forfarshire," "The Supposed Nesting of the Velvet Scoter, Long-tailed Duck and Scaup in Scotland." Many short notes in both journals have added to our knowledge of Scottish ornithology.

The following abbreviations have been used in this Report:—

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

BIRD NEW TO SCOTLAND.

The only addition to the Scottish avifauna in 1927 is the Black-winged Pratincole, a female of which was got on Fair Isle on 18th May (1. 1927, 111). The Black-winged Pratincole has been got several times in England, although it has not hitherto been recorded in Scotland.

BIRDS NEW TO FAUNAL AREAS AND UNCOMMON VISITORS.

A fair number of Uncommon Visitors were noted in 1927, a large proportion, as usual, at Fair Isle, where excellent observations continue to be made. A Magpie, killed in a trap on Islay in early summer, is a first record for the Inner Hebrides. Several Northern Bullfinches were on Fair Isle from 24th October to 2nd November, Scarlet Grosbeaks were recorded there on 3rd, 23rd and 24th September, and a Two-barred Crossbill on 2nd and 5th September. An Ortolan was on Fair Isle on 21st and 22nd May, two on 7th and one on 10th September, a Rustic Bunting was got at Finstown, Orkney, on 13th October (2. xxi. 282), a Little Bunting visited Fair Isle on 1st October and another on 29th October. Lapland Buntings paid this island visits in spring and autumn, single birds on 18th May, 16th September, and 20th October, and eight on 17th September, as did an Eastern Short-toed Lark on 29th October (1. 1928, 16), this being the second record of this bird for Fair Isle and Britain. Wood-larks were reported frequently at Fair Isle in January and February, three on 8th, 21st and 23rd March and 1st April, and one on 2nd June. On 27th October a Shore Lark was noted at this station, and one or two Blue-headed Wagtails on several days between 3rd and 29th September.

Several Waxwings were noted in November; one early in the month at Dalguise, Perthshire (1. 1927, 188), about twenty at Dunglass Mill, Cockburnspath on 15th and 20th, one about mid-November in Unst, seven in Penmanshiel Woods, Cockburnspath on 27th November, while on 27th December several were seen in Dunglass policies, at Pease Bridge and elsewhere in that district.

A Yellow-browed Warbler was seen on Fair Isle on 25th September and 8th October, an Icterine Warbler on 2nd June and another on 21st August, a Barred Warbler on 2nd September, several on 8th and one on 23rd September, and an Eastern Lesser Whitethroat on 8th September, all on Fair Isle.

Black Redstarts, single birds in each case, visited Fair Isle on 24th September and the Isle of May on 26th September, while a Bluethroat occurred on the Bell Rock on 27th July and one or two at Fair Isle frequently from 5th September to 2nd October. At Eskdalemuir, Dumfriesshire, a Hoopoe was seen on 13th September (1. 1928, 25), and three Snowy Owls at Glen Feshie, Inverness-shire, on 1st May (2. xxi. 95). Early in the year a Rough-legged Buzzard was got at Moy Hall (1. 1927, 63), and there were several about the Lammermuirs; a Hen-Harrier was reported at New Abbey, Kirkcudbright, on 5th May, one at Brechin the first week of October (2. xxi. 187), and one in Wigtownshire on 12th October, while a female was about Barr (Ayrshire) from early November to 7th December. A White-tailed Eagle was noted at Aviemore on 23rd May (2. xxi. 96), while an Eagle on Fair Isle on 8th and 9th April may have been of this species. In 1927 an Osprey was found dead at Skibo, Sutherlandshire.

On 20th July a White Stork was seen from the train half hour south of Symington, Lanarkshire (Ardea, xvi., 134), four Garganey at Morton Loch (N. Fife) on 16th April and a pair there on 19th April, while a female shot at Benbecula on 10th November is the first record for the Outer Hebrides (2. xxi. 284). Five King Eider were observed off Tentsmuir Point (N. Fife) on 29th December, and a Surf Scoter was caught at Montrose on 1st March (2. xxi. 262), and Smews

were seen in Rouken Glen on 24th November, 4th and 8th December (1. 1928, 85).

A Wood Sandpiper occurred on Fair Isle on 11th May, and one to three Green Sandpipers frequented this island from 13th to 27th August when "a gale drove them off." A Green Sandpiper was at Morton Loch (N. Fife) on 6th September, and two by Leader for several days from 7th October, one at the Hirsel in December. A Spotted Redshank visited Bute on 27th September (1. 1927, 189), and Great Snipe (single birds in each case) were recorded from Douglas Castle, Lanarkshire, on 13th August (1. 1927, 188), Hallyburton, Forfarshire, on 8th September (2. xxi. 160), and Fair Isle on 13th and 23rd September and 1st October. Roseate Terns were observed at one of their old haunts, and a Spotted Crake was shot at Moncreiffe (Perthshire) on 15th October (2. xxi. 187).

Extension of Breeding Range.

What may be considered an extension of breeding range is found at Deerness, Orkney, where Thrushes and Blackbirds were unknown as breeding birds, until a thick hedge of escallonias was planted and grew up. Now Thrushes are fairly plentiful and Blackbirds numerous—a direct result of suitable nesting sites being available. The Great Spotted Woodpecker has been steadily extending its range, and Major Stables (Elgin) tells us: "It is spreading west and nests have been found in Nairnshire, Inverness (close to the town) and in Ross-shire, just over the Inverness-Ross border." It has not before been recorded as nesting in Nairnshire, and not in Ross-shire of recent years, although there are old records of its having bred there in days gone by. The first record of the Shelduck nesting in Caithness is sent to us by Mr Charles Oldham, who found a pair with small young ones swimming off the low rocks in Dunnet Bay on 14th July, "The salmon fishers had no name for the birds and said that this pair was the first they had ever seen." A pair with eight young were seen in Sinclair Bay, near Wick, on 15th July. A female Common Scoter with three half-grown young were seen at Finstown,

Orkney, on 4th August; there would seem to be no doubt that the birds were hatched somewhere in the islands (1. 1928, 28). Great Crested Grebes were found nesting on Loch Doine, Perthshire, on 13th June, the first record we have from this locality, and Fulmars have spread to the Treshnish Islands and Bulgach Island, where they were found nesting by Mr Bryce Duncan.

Increase and Decrease of Scottish Breeding Birds.

We have not very many notes of increase in numbers of birds breeding in Scotland in 1927. Mr Thornton Mackeith tells us that Jays used to be very rare at Ruskie, Perthshire, when he was a boy, and are now, on one estate at least, so common as to be a pest. Greenfinches and Chaffinches were exceptionally numerous about Scone, and very satisfactory records of increase in the numbers of Goldfinches come from various parts of Perthshire, from South Ayrshire, from Lauderdale, and from Melrose. At the last-named Bullfinches too are becoming more common. Tree Sparrows are increasing in Lauderdale, and during the last ten years have gradually become more numerous, and at the present time can be met with almost any day in the neighbourhood of Edinburgh (1. 1928, 37). This is very interesting in view of the decreases elsewhere in Scotland, and we shall be glad to have notes of this species from other parts of the country. Linnets, Skylarks, and Blue Tits were numerous at Corsemalzie (Wigtownshire), Goldcrests and Lesser Redpolls were unusually plentiful about Pitgavenny, Elgin, and Great Spotted Woodpeckers are increasing as breeding birds in Morayshire. As usual, of late years, we have records of increase in the number of our breeding Duck; there was a great increase in the number of Teal at Moncreiffe and of Shoveler and Pochard in the Methven and Almondbank district (all Perthshire). Lapwings nested plentifully at Corsemalzie, they were more numerous than usual at Nevay Park, and Oyster-catchers and Redshank were also numerous at Corsemalzie. Dunlin

were increasing at Aberlady Bay, where there were probably about eight nesting pairs this year, and Blackcock were more numerous in Upper Strathspey than they have been for a number of years.

The notes of decrease in numbers of breeding birds are few and local this year. Long-tailed Tits were not seen at Pitgavenny, Elgin, between April and October, Mr Gordon found few Willow-Warblers and Wood-Warblers at Corsemalzie, but they were numerous at Castle Kennedy a few miles away, and Chiffchaffs, of which a pair or two usually breed at Corsemalzie, were only heard there three times in 1927, but on 28th May quite a number were at Castle Kennedy. Willow-Warblers usually nest on the terrace at Lahill, but none was there this summer although they were quite plentiful in the woods outside; these can hardly be called a decrease in the number of birds, but the facts seem to us interesting and worth noting as they show that numbers may vary locally for no apparent reason. House-Sparrows were rather scarce at Scone, and Tree-Sparrows are decreasing at Melrose and are extinct as breeding birds on Bute (Birds of the Island of Bute, 42). Other birds which were scarce at Corsemalzie this season were Whitethroats, Spotted Flycatchers, Wheatears, and Swallows, while Long-tailed Tits were only seen twice. House-Martins and Great Spotted Woodpeckers were scarce about Melrose, and House-Martins at Logiealmond; where in 1925 there were fourteen nests, this year there were but three (2. xxi. 156).

At Mochrum Loch and in Forfarshire breeding Duck are reported as less numerous than usual. Teal are decreasing on Eigg, very few Golden Plover and Dunlin were seen on the moors at Corsemalzie, and Snipe did not nest on Fair Isle this year. Common Terns and Kittiwakes have ceased to breed on Hyskeir, and Corncrakes, of which we have records of a decrease over a wide area for several years, were scarce at Corsemalzie. Professor M'Intosh tells us that Blackgame are no longer seen at Nevay Park; this he attributes to the felling of a neighbouring wood.

Summer and Nesting.

There are an unusual number of very early nesting records in 1927; but the very cold weather in late spring and early summer killed many young, and we have notes of young Great Tits drowned in their nesting hole at Lahill, Mallard and Shoveler ducklings a few days old being found dead on the Muir of Rossie (Forfarshire) on 24th May; a young Redshank was also found dead, and our correspondent says he believes these casualties to have been caused by the severe night frosts. At Fair Isle Snipe were on the island at the end of April and looked like nesting there again, but there was a terrible blizzard on the 27th; next day there were many Snipe on the island which all passed on, and no more were seen on Fair Isle this summer. Rear-Admiral Stenhouse, who sends us this note, adds that he did not see Golden Plover after the storm either; although they may have been on the island and breeding, the Snipe were not. A lot of young Black-headed Gulls were picked up dead at Corsemalzie on 27th June, believed to be killed by the cold and wet, and Lt.-Commander Hughes Onslow, writing from South Ayrshire, says: "Poor Blackgame, I fear that hereabouts their broods were completely destroyed by the awful weather during the last fortnight of June. It is most disappointing in a year when they really seemed on the mend, but nothing young could have survived such weather, and partridges will be equally bad." The great storm of 28th January had an effect on the breeding birds, although in another way. In many places whole woods were blown down and birds such as Rooks and Herons which nest in colonies lost their old homes and had to migrate elsewhere, sometimes to a considerable distance. A note was kept of the number of nests found at Gilston, E. Fife. 126 were found in the plantations round the house, by far the most numerous being Thrushes. Lord Scone found the Swallows and House-Martins showed great lack of enthusiasm in breeding; many Swallows and most House-Martins had only one brood, and some of the House-Martins did not lay till the end of June (2. xxi. 156). One or

two Spotted Flycatchers were at Melsetter, Orkney, on 6th August, a Thrush was nesting at Lyking on the 5th, and a pair of Swallows in the barn at Melsetter. Many Short-eared Owls nest on the moss at Deerness, where they are said to eat the young Snipe. Pochard with well-grown young were seen at Bea Loch, Sanday, on 11th August, and thirty-four males and a few ducks and young on Loch Kirbister on the 15th. A lot of Tufted Duck and young were on Loch Bea on the 11th; "crowds of Eider with babies, some quite small, others well grown" on Loch Stennis on the 5th. On the 5th Mergansers with tiny babies and some three-quarters grown young were on Loch Harray, and a female with small ducklings on Loch Bea on the 11th.

While on a yachting trip to the Inner Hebrides in May and June, Mr Bryce Duncan found Swifts breeding in the crannies of the cliffs on Eigg, two pairs of Buzzards on Eigg and one on the islands off Arisaig; on Sgat Island where Eider have been recorded as nesting of recent years, only one robbed nest was found. Wader, Terns, and Gulls were found breeding on most of the islands visited, while numbers of Shags, Guillemots, and Razorbills were found on those which have cliffs suited to their habits.

In Upper Redesdale, a Cheviot valley, the call of the Hawfinch was heard frequently during the summer, and in the second week of July a brood was seen flitting about the wood, and ten days later, twelve birds were counted crossing a bit of open ground between two plantations. Although no nest was found, this would appear to be sufficient evidence to prove that they must have nested there. Siskins were common beside the Dee near Braemar on 11th June, and were also at Bridge of Gaur, Rannoch, on 7th July. Bullfinches were frequently in evidence in Barr Parish in July; they are described as "uncommon breeders" in that parish, and no brood was seen this season. The principal ornithological event of the summer was the immigration of Crossbills; these are recorded from many parts of Scotland. They were first seen in Caithness in June, and from then onwards many flocks are noted. From Selkirk we have the following note on 6th August: "Crossbills have frequented Bowhill

all the summer and recently a young Crossbill was seen being fed by its parents." Fuller details of this immigration will be found in the second part of this Report. Spotted Flycatchers were seen in Caithness on 8th and 10th July, while a Wood-Warbler was singing in oak trees on the south bank of the Dee, near Dinnet, on the 4th. This bird occurs occasionally in Aberdeen in summer, but has not yet been found nesting. Redwings, in full song, were heard and seen by Dr McConachie in the Highlands on 15th and 22nd June, while Mr Oldham reports a few Swallows and Swifts seen about the town and Castle of Thurso, but none at Wick or elsewhere in Caithness. A pair of Great Spotted Woodpeckers were in the Black Wood, Rannoch, on 7th July, and Kingfishers are reported from parts of the borders in summer. On 17th June a Whooper Swan was seen on a loch in Inverness-shire (i. 1927, 188), and at least 150 Pochards on Loch Scramdale, Caithness, on 8th July, all as far as could be made out were males; three males were observed on another loch on 12th July. Goldeneye are recorded in summer from lochs in Caithness, Aberdeen, and Fife; although this duck has not yet been found nesting, we would urge all who are interested to keep a lookout for it. Tufted Duck, Goosander, and Merganser were seen on Deeside lochs, and Great Crested Grebes in the same district under conditions which suggested nesting. Black-throated Divers were seen on a loch in Inverness-shire in July, and we are told that numbers of Lapwings were breeding in Stirling, S.W. Perth, Kinross, and Clackmannan in 1927, a very encouraging report. A great many Woodcock bred in Lauderdale this year, and in notes in the SCOTTISH NATURALIST, 1928, 24, 61, and 94, we find that many Eider Duck, Ringed Plover, Lesser Terns, Common Terns, etc., were nesting on the coast of East Lothian at several localities. Sandwich Terns were seen in Caithness; two adults fishing in the surf, Dunnet Bay, on 14th and 15th July, on the 17th four adults were fishing just outside the surf in Sinclair's Bay, Wick, and on the 19th July three or four adults were fishing close inshore at Golspie, Sutherland. Roseate Terns nested this year at an old nesting haunt.

Two young Woodpigeons, a week old, another three weeks old, were blown down with their nests at Glenorchard, in the great gale of 28th January, and on 6th February a fresh egg of the same species was found at Strathairly, Fife. On the 16th Woodpigeons were seen "inspecting last year's nest in the cypress" at Corsemalzie, and on the 28th they were building in the cypress. On 22nd February they were building at Glenorchard, and on the 27th Rooks were building and Stockdoves "grunting in the nesting hole" there. Woodpigeons laid at Scone in the end of February, but a good many young were killed by the cold in late March and early April. In March nesting notes were normal: we have records of nests and eggs of Jackdaws, Magpies, Missel Thrushes, Song Thrushes, Blackbirds, Lapwings, etc. On 1st March Woodcock were paired and "croaking during the evening flight" at Moncreiffe, and a bird of this species had a full clutch on the 10th at Lynedoch, Perthshire. There were several Stockdoves' nests with eggs at Scone in mid-March, and on the 17th there were nine Herons' nests on the island in Mochrum Loch, three of which had three eggs, one two, and five one. A Hedge-Sparrow at Scone laid its first egg on 21st March, and on the 30th 230 Rooks' nests were found in one wood and 200 in another at Glenorchard.

Throughout April come notes of nesting of all our common birds, many of which are early. On the 1st a Gannet's egg was found on the Bass (I. 1927, 95), a very early date, on the 3rd a Thrush was feeding young at Dundee. Long-tailed Tits at Kilmun, Argyllshire, were building on 5th April; on the 7th they were putting in the feather lining, but eggs were not found in the nest till the 24th. A brood of young Ravens was hatched on 8th April, and on the 10th a Redshank, at Corsemalzie, had four eggs; on the same day a Heronry in Mull was found and the young in the nests were apparently a week old. At Scone, on the 17th, a Mallard with a brood about a week old was seen, and on the 21st a dead Hawfinch was found at Dalskaith, Dumfriesshire, where these birds nested last year (I. 1927, 95). On the 24th two broods of young Wood-

cock, one two or three weeks old, the other four or five days, are reported from Barr, Ayrshire. The first Long-tailed Tit's nest seen at Kilmacolm for nineteen years was found on 7th May, and a Raven's nest built in a tree is reported from Dalwhat Water, Dumfriesshire, on 15th May, an unusual site for a nest of these birds at the present day (1. 1928, 26). A Barn Owl had eggs in the roof of a ruined cottage on the 17th, and on 25th a Short-eared Owl's nest with four eggs was found in Ayrshire; there are very few records of this bird nesting in Ayrshire, and we should be glad of further information as to its distribution there. A Merlin built "in an old Corbie's nest" in a Scots-fir on the moor at New Abbey, Dumfries; she had four eggs on 26th May, and Mr Stewart tells us the nest was occupied last year by a Long-eared Owl and the year before by a Kestrel. A Shoveler's nest with nine eggs was found on the moor of Rossie on 24th May, while on 29th a Woodcock at New Abbey had four eggs, a late date, and next day a Great Black-backed Gull's nest with three eggs was found at Corsemalzie, where the bird is uncommon as a nesting species. With the exception of the above notes, the returns for May show nothing of outstanding interest and refer to the nesting of all the usual resident birds and summer visitors. June brings reports of nests and young of nearly all species. Of these we may mention Siskins seen at Bowhill, Selkirk, during this month, these birds being uncommon there in the breeding season. We also have records of 100 Sandwich Terns' nests at one nesting place on the east coast and of a large colony at another part. The first Tern's eggs were not found on Hyskeir till 19th June; the birds were leaving the rock on 25th July, "half the nests still with eggs and a number of young a few days old." July brings little of interest. Most species had finished nesting, but we find Oystercatchers just hatching at Port William shore on the 1st, a Corncrake's nest with nine eggs found at Vallay on the 13th, and the Shags on the Bass Rock still with eggs and young next day. On 18th July a brood of young Mergansers was seen on Loch Scalloch, and young Sedge-Warblers at Barr on 29th. That evening two baby Moorhens

were found in the well below the gas-weight at Northfield, Colinsburgh; they were hatched in a shrubbery behind the house, a considerable distance from any water. The mother Moorhen had frequented the garden and taken a daily bath in the pigeons' water dish. The little ones were heard cheeping in the gas-house and after some search found in the well, rescued, and sent on their way. On 8th August a Cuckoo about ten days old was found in a Meadow Pipit's nest on Selkirk golf course; it left the nest on the 17th. On the 18th a Nightjar was flushed from two small young at Corsemalzie, and a Stonechat had a family of six young at Balelone, North Uist, on the 22nd. On 15th September at Corsemalzie, a covey of Partridges a week old was found, while a Woodpigeon was sitting on young, at Rouken Glen, on 21st September. Several Rooks were carrying sticks to their nests at Glenorchard, on 3rd October, and Lord Scone reports the last brood of Swallows left the nest at Scone on the 10th, the latest date he has known. On 25th October, at Barachan, Mochrum, a covey of Partridges, "rather too small to shoot," was flushed; on 26th November a Rook, in the Kirkton Den rookery, Largo, was seen carrying a twig in its bill, and on the 30th one was standing on its nest there.

Winter.

The winter of 1926-27 was fairly open; there was no great amount of snow but the end of January was very stormy and unsettled. No very great number of winter visitors is anywhere recorded, but this may have been due to the open winter which allowed of their being distributed over the whole country. Woodlarks wintered on Fair Isle and several Rough-legged Buzzards were seen on the Lammermuirs till February. An interesting note is sent to us by Miss Astley, Arisaig. Writing on 1st April 1927, she says: "I am venturing to write to you about some Swans which have come here two years running. About half a mile from this house there is a small loch called Loch-nan-Eala (the Loch of the Swans). More than sixty years ago my father cut a small canal from this loch to the

sea, draining away most of the water and diminishing its size considerably. Two years ago this canal was dammed up so as to enlarge the loch again. Shortly after this some Swans and several species of duck appeared. . . . I was beginning to entertain hopes of a Swannery but, to my great disappointment, the Swans left in a body in March. They reappeared last winter (1926-27) in larger numbers, as many as 17 having been counted. Last month they were both seen and heard flying past this house, in the direction of the loch, in the early morning, but a few days ago they again took their departure." Miss Astley adds that she does not know whether Swans frequented the loch prior to the water having been drawn off, but the name certainly leads one to believe that they did. Many Geese are recorded from the Tay this season. In the winter of 1926-27 in eleven days' shooting one gun got 8 Grey-lag Geese and 71 Pinkfooted Geese; this he says is his "record total." Duck on the other hand seem to have been less numerous than usual. From the Lake of Menteith we hear that "duck are *very scarce* this winter—so much so that the sportsmen round the lake are all talking about it," and our own observations showed Duck to be fewer than usual in many of their winter haunts.

In winter 1927-28 there was no spell of hard weather, but there was a certain amount of frost and snow in the second half of December which caused the usual weather movements to our coastal regions. Many Turdinæ are reported from East Fife, numbers of Woodcock at Aberfoyle and Old Luce, and Snipe at Loch Elrig. Lord Scone writes: "For the first time in history Geese started to feed in the fields at Scone in October and continued till driven off by severe weather in December; a few have since returned. At one period nearly 700 were feeding in the one field they preferred; more often it was 200-300, sometimes many fewer." One which was shot proved to be an 8 lb. Greg-lag. Duck were again very scarce on the Lake of Menteith, but Mr Thornton Mackeith tells us that they have taken possession of a stretch of the river Forth not very far away. Admiral Stenhouse sends us the following notes from

Fair Isle: "Purple Sandpipers and Redshanks have been fairly abundant since 1st November. Snipe have also been plentiful until the last week of December; they were very scarce in the first half of November. Rock Doves were to be seen after 3rd December, and on 12th 16 were seen at one place. Hooded Crows more than in past years, Curlew also here since 1st November, eleven the largest flock. Starlings a few, House-Sparrows very few, Rock Pipits about a dozen. Fieldfares and Blackbirds have been present the last two months. Three Robins were also resident, and Wrens abundant." Large wintering flocks of Lapwings and Woodpigeons are reported from various parts.

Ringing.

There are a great many interesting notes of marked birds to be recorded this year. Several had travelled a long way from the place where they were ringed, and so we have reports of a Wheatear ringed at Port of Menteith, Perthshire, 8th June 1926, recovered at Chaves (Traz-os-Montes), Portugal, in January 1927, and a Swallow ringed at Almondbank, Perth, 15th August 1926, and recovered at sea 150 miles N.E. of Lowestoft, Suffolk, 20th May 1927, possibly while on its way back to its old home. A very interesting recovery is a Rough-legged Buzzard captured at Moy Hall, Inverness, which was ringed as a young bird in the nest on 13th July 1926, on the mountain Mullfjället, Jämtland, Sweden (I. 1927, 63). This is the first time a bird of this species ringed in Sweden has been recovered in Scotland. Of two Gannets ringed on the Bass Rock in July 1926, one was got at Aljesur (Algarve), Portugal, in December 1927, the other at Hourdel (Baie de Somme), France, in November 1927. Two more ringed at the same time and place were recovered in France in 1926. These records were not published in time to be included in the 1926 Report, so are mentioned here being of such special interest, taken in conjunction with the movements in 1927. A Lapwing ringed at Torrance, 5th June 1926, was recovered at Arcais (Deux Sevres), France, 20th March 1927, and another ringed

there on 28th May 1925 at Loirac, Medoc (Gironde), France, 22nd December 1927; while a Sandwich Tern ringed at Tentsmuir on 30th June 1923 was recovered at Goulven Bay, Finisterre, France, on 20th September 1926, and is also included here for completeness. The above all show movements of our breeding birds to the south in autumn and winter. The following are less easy to classify: a Gannet ringed on the Bass Rock, in August 1927, was recovered at Oslofjord, Norway, on 4th November, and another, ringed at the Bass Rock in June 1927, was recovered at Udney, Aberdeen, in October 1927. A Razorbill, ringed at Bulgach Island, Sutherland, on 7th July, was got at Oslofjord on 16th October, and it is interesting to note that another, ringed at Handa on 29th June 1926, was recovered in Norway on 21st September of that year. Other birds found a considerable distance from the place of ringing are a Heron ringed at Almondbank 6th June 1927, and recovered in the Isle of Skye 12th September 1927; a Teal ringed at Longtown, Cumberland, 3rd March 1925, as an adult, and got again at Lochend near Glasgow in late January 1927; a Lapwing ringed at Torrance 13th June 1920 got at Bodmin, Cornwall, in late December 1927, and another bird of the same species ringed at Logiealmond in June 1926 was recovered at St Keverne (W. Cornwall) on 4th January 1927. A Woodcock ringed at Meigle, Perth, on 11th June 1926 was recovered at Mauchline, Ayrshire, on 14th October 1927. Space does not allow us to give details of all the birds ringed in Scotland and recovered in Ireland in winter. Records come of Song Thrushes, Blackbirds, a Shag, a Curlew, and numerous Lapwings all being recovered in Ireland; the Shag was only four months old, two of the Lapwings, on the other hand, were ringed in 1923. Two notes of which we should like to give full details are a Gannet ringed at Ailsa Craig on 28th July 1924 and recovered off Hook Head, Wexford, on 3rd June 1927, and a Moorhen ringed at Torrance on 3rd September 1927, recovered at Stewartstown, Tyrone, on 26th November 1927, a very interesting record. The list of birds recovered near or at the place of ringing, in 1927,

is a very long one, and we are regretfully obliged to content ourselves with a very brief reference to them. The birds which had carried rings for the longest period were a Lapwing ringed at Torrance in June 1915, recovered there in June 1927, and a Woodpigeon ringed at Torrance in June 1920 recovered there in September 1927; a Shag and a Razorbill both ringed on Handa on 25th June 1923 were found there on 24th June 1927. Very interesting returns come of Shags ringed at Eddrachillis Bay and on the Treshnish Islands in June, and recovered the same year from Lochcarron, Annan, Lake Windermere, S. Uist, N. Uist, off Glenelg, Mallaig, Sound of Arisaig, Loch Broom, Mull, Tiree, Coll, Harris, and Barra. There are many more good records contained in the papers from which the above are taken, and we would refer our readers to these, which may be found in *British Birds* (Mag.) vol. xxi., Nos. 3, 4, 11, and 12,

(*To be continued.*)

NOTES

Mungoose in Clyde Area.—On the first of June I received a small mammal from Mr Paul, Gamekeeper, Duntreath Estate, Blanefield. This animal was found in a trap, and being a stranger to the neighbourhood was sent to us for identification and mounting. The specimen proved to be an adult male Mungoose, in splendid condition.

We were considerably surprised when some five weeks later we received a further example from Mr Leitch, Gamekeeper, Edinbarnet, Duntocher, this time a specimen barely half-grown. This beast was seen several times and accounted for half a dozen chickens before it was trapped.

Have these animals escaped from captivity, or is it possible that they have been breeding in the district?

Duntocher and Blanefield are about six miles apart, but the estates are less than that.—D. Wotherspoon, Glasgow.

Stock-Dove breeding in Royal Botanic Garden.—The Wood Pigeon has long been resident in the Botanic Garden, and it was a matter of much interest when the Stock-Dove first made

its appearance here two years ago. Since then I have looked for its establishment as a breeding species, and this season has fulfilled the expectation; a pair built a nest in the bole of an old elm tree.—J. Kirke Nash, Edinburgh.

Early Arrival of Sandwich Terns and Late Stay of Brent Geese.—When at Aberlady on 5th May the familiar notes of Sandwich Terns reached my ear. Somewhat sceptical, I approached the beach, where a large flock of Oyster-catchers were congregated and beside them stood a group of ten Sandwich Terns. About half a mile higher up the estuary three Brent Geese were observed at the same time standing on the edge of the saltings.—J. Kirke Nash, Edinburgh.

The Gadwall in Galloway.—Last winter a friend brought a male Gadwall (*Anas strepera*, Linn.) to me for identification. He had shot it at flight, and although he is a well-experienced sportsman and has done much wildfowl shooting in Ireland, Uist, and elsewhere, he had never seen a bird of that kind before. Until recently the Gadwall has been reckoned an uncommon bird in south-west Scotland. I can remember only one being shot some years ago at Monreith; but the species seems now to be on the increase on this part of the coast, for I have been informed of three being shot during the past season at Logan on Luce Bay and three others in Wigtown Bay. It has been recorded how, so long ago as 1850, when the Gadwall had become a very scarce bird in West Norfolk, the late Mr Andrew Fountaine pinioned a pair which not only nested and reared a brood, but attracted other pairs to do likewise, with the result that the late Lord Lilford was able to state that "the numbers on one property alone are roughly computed at fifteen hundred."—Herbert Maxwell, Monreith.

Snow Geese in Argyllshire.—As Snow Geese are such rare visitors to Great Britain, I may be allowed to record the presence of those frequenting Argyllshire during the past winter of 1927-28. There were three of them, and they were seen almost daily on the Gruinart Flats, Islay, Argyllshire, with the Bernacle Geese, which were very numerous. From their size as compared with the Bernacle, they were more likely to be Lesser Snow Geese (*Anser hyperboreus hyperboreus*) than the Greater Snow Geese (*A. h. nivalis*). Mr James MacKillop, of the Islay Estate Office, has kindly given me the following particulars concerning them. They were there for several months and remained until about the middle of April. The birds sometimes kept to themselves, but

usually were with the Bernacles and fed on the same ground. The question was raised as to whether they were Lesser or Greater Snow Geese, and Mr MacKillop instructed the keepers to try and shoot one for identification; but as the birds fed on miles of flat land and were difficult to approach, this was not done. In the SCOTTISH NATURALIST of 1921, Dr W. Eagle Clarke recorded the first and only record of the larger species in Scotland and Britain.—H. W. ROBINSON, Lancaster.

Basking Shark in the Solway Firth.—The lower jaw of a large animal stranded near Gretna about 13th April, and recorded in the newspapers as a whale, was received at the Royal Scottish Museum for identification. It showed that the creature, which measured 19 feet in length and was estimated to weigh about 2 tons, was a Basking Shark—a lethargic species which inhabits the North Atlantic Ocean and occasionally makes its appearance in Scottish waters.—JAMES RITCHIE.

Great Silver Smelt in North Sea.—Eight examples of this somewhat rare fish, sometimes known as the Siil Smelt, *Argentina silus*, were landed at Granton, and one was sent to the Royal Scottish Museum for identification by Mr John Young. They were captured on 6th June by a trawler working 240 miles E.N.E. of the Isle of May, that is on the edge of the Norwegian Deep, almost due east of Buchan Ness. The Great Silver Smelt is a northern form which frequents deep water, and the present capture was made at the southern limit of its range.—JAMES RITCHIE.

The Smew (*Mergus albellus*) **in Argyll.**—I notice from the interesting communication of Mr John Paterson about the Smew on pp. 85-86 of the SCOTTISH NATURALIST (May and June 1928) that information is wanted about the occurrence of the bird in Argyll.

In June 1913 I noticed in the dining-room of the Hotel Scalasaig, Colonsay, a stuffed specimen of the Smew. It was preserved in a glass-fronted case. The late Mr Black of the hotel told me that it had been obtained on Colonsay, and was presented to him a good many years previous to that time. Although the hotel has changed hands since then it is possible that the stuffed Smew may still be there.

On 9th June 1924 when at Kilchoman, Islay, I found upon the sandy shore an adult specimen of the Smew. It had been dead some time and its body had been washed in by the Atlantic waves. It did not seem to have been injured, but was probably water-soaked in time of storm.—SYMINGTON GRIEVE, Edinburgh.

Great Pipe-fish in Firth of Tay.—A specimen of the Great Pipe-fish (*Syngnathus acus*) was obtained alive in May by the salmon-fishers in their salmon net at the mouth of the River Earn. It is now in the Museum at Perth.—JOHN RITCHIE, Perth.

Natural Destruction of Life in the Sea.—I wonder if you would be so good as to enlighten me as to the enclosed shrimp-like animals. I was at Holm, in East Mainland of Orkney, fishing for sea-trout the other day, and my boatman called my attention to the shore, which was literally *pink* with masses of these shrimps which had been left by the tide. The bay was about half a mile across, and the whole foreshore was covered with the shrimps, which in places were 1 in. to 1½ in. deep, and could have been removed by the cartload in spite of the fact that the gulls (by no means uncommon up here) had already taken heavy toll of them. High up the beach the shrimps were dead, but close down to the sea they were still alive and kicking. There have been very cold E. and NE. winds up here lately, and last Saturday night there was a very severe black frost which may possibly account for the phenomenon. The shore on which they were washed up has been a lee shore during recent winds.—PATRICK H. MACKENZIE, Evie.

[The shrimps are Schizopod crustaceans, belonging to the species *Meganyctiphanes norvegica*. They are tolerably common off the coasts of western Europe from Norway to the Mediterranean Sea, and this and the fact that they live in great shoals and inhabit coastal waters, occur neither in the open sea nor at great depths, accounts for their being driven ashore by a persistent wind.—EDS.]

Additions to the List of Birds of the Forth Area.—In the list by the late William Evans (SCOTTISH NATURALIST, 1928, pp. 5-15) the record of the Bee-Eater in Midlothian was overlooked. —D. HAMILTON, Edinburgh.

I might mention, with reference to Mr Evans' notes on the Lothians avifauna, that:—Sandwich Terns have bred in very fair numbers in the Forth area since 1924.

The Water-Rail nested in East Lothian recently. I can't give the exact date. This is not my own record, but the information of a keeper on whom I can rely.—P. W. G. GUNN.

Swift rising from the ground.—The belief that a Swift cannot rise from the ground is still to be met with, though there is no reason for it.

On three occasions recently a captured Swift has been brought to me. On the first occasion I placed it on a level piece of ground,

It immediately spread out its wings and rose slowly into the air; the wings were fully spread out, not raised above the head, as stated by T. A. Coward. When only about two or three inches above the ground the bird appeared to hover for an instant then planed slowly away without difficulty.

On the second occasion I again placed the bird on the ground, but previous to releasing it I spread out its wings to their fullest extent. This apparently placed the bird at a disadvantage for a moment, because it fluttered awkwardly along the ground for a few feet, after which it had no difficulty in rising.

On the third occasion I kept the bird indoors for the purpose of testing its power to rise from a smooth surface. A door was opened wide and a large pane of clear glass laid on the floor. The Swift was then placed on the glass with its face towards the open door. It immediately planed into its natural element, slowly at first, but deliberately, and with an entire absence of fluttering previous to taking wing.—J. R. Simpson, Selkirk.

Albino Moles.—During ploughing operations in a field on Cowden Estate, near Dollar, on Thursday, 12th July, two white moles were turned up. Both were captured and one was sent at my request to the Royal Scottish Museum.—Miss Christie, Cowden, Dollar.

[The specimen, which, when it reached the Museum was quite unfit for preservation, was a large adult mole, cream-coloured on the back and flanks and having the belly suffused with a deep reddish-orange tint. There is no information to enable us to decide whether the two individuals were a pair, though that seems possible.—Eds.]

The Eider Nesting in Bute.—At St Ninian's Bay, Island of Bute, on 23rd June 1928, I saw a female Eider with two half-grown young. The three birds were feeding in the shallow water of the bay, and the young seemed as proficient in the art of diving for food as their mother, though they did not remain so long under the water.

Expected for several years, this, so far as I know, is the first instance of the Eider breeding in Bute. The Rev. Mr M'William in his book *The Birds of the Island of Bute*, published last autumn, wrote: "Probably the Eider will, before long, be found nesting in Bute and Arran."—John Robertson, Glasgow.

Breeding of the Little Tern in the Clyde Area.—Robert Gray in the *Birds of the West of Scotland*, published in 1871, records five species of Tern as nesting on Inchmoan, or Inchmoin,

Loch Lomond, among these the Lesser Tern, of which he writes: "On Loch Lomond there are a few pairs annually found breeding on Inchmoin—a low, flat, and marshy island . . . but a situation like this is entirely exceptional." In 1876 Gray contributed an article "On the Birds of Glasgow and its Vicinity," to *Notes on the Fauna and Flora of the West of Scotland* (Blackie & Son). In this article he says: "Terns are also very numerous in spring, the two most frequently met with being the Common and Arctic Terns." "The Sandwich Tern is not found nearer than Loch Lomond." "The Black Tern has occurred in the same district." "The Roseate Tern, a large colony of which formerly existed in the Cumbrae Islands, has entirely left that locality." "A small colony on Inchmoin, Loch Lomond, has also disappeared." He does not mention the Lesser Tern. The omission is significant. I have no doubt that between 1871 and 1876 he had found that his record in the *Birds of the West of Scotland* was wrong and ought to be expunged.

Since Gray's time Little Terns, adults as well as young able to fly, have frequently been seen on the Ayrshire coast, but nothing about their nesting was published till 1923, when in the SCOTTISH NATURALIST, p. 52, the Rev. Mr M'William recorded the occurrence of two pairs of Little Terns in South Ayrshire in May 1922, which, he was convinced, were going to breed, though he had to leave before any eggs were laid. On 17th June this year (1928) my son and I visited the same locality, where we saw five Little Terns in the air at once, and found two nests each with two eggs, as well as a fractured egg lying derelict on the shingle. On mentioning our visit to Mr E. Richmond Paton he informed me that he knew of their nesting at the same place in 1923. I am not aware that the bird nests anywhere in the Clyde area but Ayrshire, where it has probably bred in small numbers for a very long period.—JOHN ROBERTSON, Glasgow.

Decrease of Sandwich Terns at Tentsmuir, Fife.—I was at Tentsmuir on Saturday, 16th June, but found the moor disappointing as compared with last June. There were two or three colonies of Sandwich Tern with from 100 to 200 nests in each last year, and this year we only found one with 8 nests. One colony was completely destroyed last year, which may account for the disappearance. We found quite a number of Eider Ducks' nests, and Common and Arctic Tern, also Black-headed Gull were very plentiful. There were a great number of dead Tern found lying on the moor. The keeper's opinion is that they stab each other in the back.—WILLIAM SHORT, Edinburgh.

Belgian-Ringed Bird at Fair Isle.—On 8th September 1927 Mr James Stout shot at Fair Isle a male Turtle Dove (*Streptopelia t. turtur*), which from its plumage was apparently a bird of the year. It bore on its right leg an aluminium ring, marked

BELGE 26 4653348.

The occurrence was reported to the Editor of the *Gerfaut*, the Belgian Ornithological Journal, who passed the information on to the Director of the Royal Natural History Museum at Brussels, and from the latter I have received a letter stating that they are unable to trace the origin of this bird's ringing and that this is the third ringed bird from the same source which has been reported; but that the details are being widely published in the Belgian papers and he hopes that the ringer may be induced to disclose his identity and furnish information as to when and where the bird was ringed. The skin and ring are now in the Royal Scottish Museum.—J. H. Stenhouse.

Lesser Grey Shrike at Fair Isle.—An adult male example of the Lesser Grey Shrike was obtained here on 25th May this year. The skin has been forwarded to the Royal Scottish Museum.—Jerome Wilson, Fair Isle.

[Though this Southern European Butcher-Bird has been met with sixteen times in England, this is only the second reported occurrence of the species in Scotland; the previous capture was also at Fair Isle, and on 3rd June 1913.—Eds.]

* * * *

The whaling and sealing industry, which at one period formed an important section of Scottish sea-faring life, is now dead and gone in its old guise, for the whaling which is now carried on from the Shetland Isles has little in common with the old fishery. The adventures of the old whalers have often been recounted, but we commend to notice what may very likely be the last authentic story of whaling life to be told by a Scottish skipper. Captain James Fairweather, with whom we have had the pleasure of discussing various aspects of his observations in the Arctic Regions, is one of the last three survivors of the Scottish whaling skippers, and a first instalment of his account of his fifty-two years of sea-faring life amongst the seals and whales of the polar regions appears in the August number of *The Scots Magazine*.—Eds.

BOOK NOTICE

ROMANCES OF NATURAL HISTORY. By J. J. Simpson, M.A., D.Sc. Cardiff: William Lewis (Printers) Ltd. Pp. 108 and 34 Illustrations. Price 3s. 6d.

This little volume is founded upon a series of ten minute "broadcast" chats sent out from the Cardiff Station and dealing with various subjects of popular interest. Upon the whole the chapters are well and accurately written, but there are evidences of hasty writing and proof-reading, and some of the errors that have missed correction are rather serious. For example, on p. 82, the word "Aphides" is used for the family name of the Bees, and on p. 80 (second line from bottom) a quotation is rendered ludicrous by the omission of an *e*, so that "motion" appears instead of the obvious "emotion." On p. 79 there are two misprints—"chiliceræ" and "trachæ," and on p. 36 the specific name of the case-making Clothes Moth is mis-spelled. Exception must be taken to the statement on p. 70 that the spiracles "lead into coiled tubes called tracheæ." The tracheæ themselves are *not* coiled, but they have a coiled or spiral lining! Lastly, on p. 72, the account of the formation of the puparium of the House-fly is quite misleading. These blemishes are, however, easily removed, although somewhat marring what is otherwise an excellent and informative little book.

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A Monthly Illustrated Journal of Natural History for the North of England

Edited by T. SHEPPARD, M.Sc., F.G.S., The Museums, Hull, and
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CONTENTS

PAGE

Studies of Some Lanarkshire Birds—The Jay, The Rose-coloured Pastor, The Stock-Dove—*Walter Stewart* . 97

Report on Scottish Ornithology in 1927—*Evelyn V. Baxter* and *Leonora Jeffrey Rintoul* 105

Notes:

Mungoose in Clyde Area—*D. Wotherspoon*, 121; Stock-Dove breeding in Royal Botanic Garden—*J. Kirke Nash*, 121; Early Arrival of Sandwich Terns and Late Stay of Brent Geese—*J. Kirke Nash*, 122; The Gadwall in Galloway—*Rt. Hon. Sir Herbert Maxwell*, 122; Snow Geese in Argyllshire—*H. W. Robinson*, 122; Basking Shark in the Solway Firth—*James Ritchie*, 123; Great Silver Smelt in North Sea—*James Ritchie*, 123; The Smew (*Mergus albellus*) in Argyll—*Symington Grieve*, 123; Great Pipe-fish in Firth of Tay—*John Ritchie*, 124; Natural Destruction of Life in the Sea—*Patrick H. Mackenzie*, 124; Additions to the List of Birds of the Forth Area—*D. Hamilton* and *P. W. G. Gunn*, 124; Swift rising from the ground—*J. R. Simpson*, 124; Albino Moles—*Miss Christie*, 125; The Eider Nesting in Bute—*John Robertson*, 125; Breeding of the Little Tern in the Clyde Area—*John Robertson*, 125; Decrease of Sandwich Terns at Tentsmuir, Fife—*William Short*, 126; Belgian-Ringed Bird at Fair Isle—*J. H. Stenhouse*, 127; Lesser Grey Shrike at Fair Isle—*Jerome Wilson*, 127; Whaling and Sealing Industry, 127

Book Notice 128

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The Scottish Naturalist

No. 173] 1928 [September-October

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The Natural History of Floods.
List of Birds of the Forth Area.

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

(Authors are responsible for nomenclature used.)

The Scottish Naturalist

No. 173.] 1928 [September-October

IN MEMORIAM.

Within a few months Scottish natural history has lost three ardent followers, two of whom may be said to have graduated in scientific production by their contributions to the pages of the *Annals of Scottish Natural History*, and all of whom did much to further the study of Scottish creatures.

Only a few weeks have passed since we received from John Paterson of Glasgow a series of notes on birds in the Clyde Area, for publication in the Scottish Naturalist, accompanied by a characteristic letter stating that these would be sufficient in the meantime and that more would follow when he had recovered from a slight indisposition. But, alas, these are his final contributions to the study which he had followed with enthusiasm for many years, for after a short illness John Paterson died in Glasgow on 20th June 1928.

Paterson had a voluminous knowledge of the birds of the Clyde Area. A steady succession of his notes and articles on various aspects of the bird life of that interesting region has appeared in the *Annals of Scottish Natural History* and the Scottish Naturalist since 1895. And this forms but a fraction of his output, for at the same time he was publishing ornithological comments in the *Annals of the Andersonian Natural History Society* and in the *Glasgow Naturalist*, of which he acted as editor for some time.

Perhaps his finest contribution to local ornithology was his account of the birds of the Clyde Area in the *Fauna, Flora, and Geology of the Clyde Area*, the handbook published for the meeting of the British Association in Glasgow in 1901. It is a mine of information, to which constant reference has been made by subsequent workers, and up to his last days Paterson was co-operating in its revision for the return visit of the Association in September of the present year.

It would have been fitting if Paterson had seen his way to crown his local knowledge by the publication of a comprehensive work on Clyde birds, and although, as Mr H. Boyd Watt recalls in a sympathetic notice in *British Birds*, he was invited by the late Dr J. A. Harvie-Brown to write the Clyde volume for the "Vertebrate Fauna of Scotland," it was not to be.

It must not be supposed, however, that Paterson's knowledge of bird life was confined to local interests. He was selected to write the annual "Report on Scottish Ornithology," which has been a feature of the *Annals of Scottish Natural History* and the SCOTTISH NATURALIST for many years, and the five reports from 1904 to 1908 appear in his name. In recent years, also, he made several journeys to southern Spain and gathered information regarding the avifauna of that region.

Paterson's store of bird lore was much valued by his fellow-ornithologists, who were freely welcomed to make use of it. Their appreciation was shown by his election as President, both of the Andersonian Naturalist Society and of the Glasgow Natural History Society. He was also an enthusiastic supporter of the Scottish Society for the Protection of Birds. The last two occasions on which we talked with Paterson were in the course of friendly discussions with members of that Society on the best means of safeguarding Scottish wild birds, and there he expressed his views with a knowledge, robustness, and downrightness which were characteristic of the man.

* * * *

On 6th July 1928 an accident, as overwhelming as it was tragic, cut short at its prime the life of Mrs Meinertzhagen,

perhaps better known to readers of our pages as Miss A. C. Jackson. The discharge of a revolver which she was examining as she returned with her husband from target-practice in the grounds at Swordale, caused injuries which were instantaneously fatal.

The well-wooded neighbourhood of Swordale in Ross-shire, lying close to the east coast on which migrant birds from northern Europe found a first resting-place after their journey overseas, afforded exceptional opportunities for the study of bird life, and to this branch of natural history Miss Jackson turned her attention at an early age. At the age of twenty she sent her first record to the *Annals of Scottish Natural History*, and a succession of notes on the occurrence of rare birds in Scotland followed.

From these casual observations her attention was directed to the more difficult problems of ornithology, as the result of a three-years' course in zoology which she followed at the Imperial College of Science under Professor E. W. Macbride. The result of this intensive training is evident in the grip of the scientific method which she attained, and in the thoroughness and continuity of her subsequent researches. Following upon a series of excellent articles on the moults of British ducks and waders which appeared in *British Birds*, she was selected by Mr H. F. Witherby to contribute the sections relating to the plumages of these birds in the *Practical Handbook of British Birds*. She spared no pains in making her descriptions detailed and accurate, with the result that they remain a permanent record of her knowledge and exactness.

In 1921 Miss Jackson was married to a fellow-ornithologist, Colonel Richard Meinertzhagen, and with him she continued to follow their common interests in bird life. Two of her most important recent investigations, both published in the *Ibis*, are "A Review of the Sub-Family Scolopacinæ, Part I" (1926), and "A Review of the Family Cursoridæ" (1927). While Mrs Meinertzhagen, in the course of her researches, made full use of the great stores of material in the national museums, she at the same time built up a very considerable collection of her own, and not long since

she presented part of this collection to the Natural History Department of the Royal Scottish Museum.

Mrs Meinertzhagen possessed a singular charm of presence and manner which, with her sound knowledge, made her a welcome guest at the meetings of the British Ornithologists' Union, of which she was elected one of the few Honorary Lady Members in 1915, at the British Ornithologists' Club, at which she made several communications, and at the natural history museums where she was a regular worker.

* * * *

Dr John Rennie, lecturer in agricultural zoology and parasitology and in experimental zoology in the University of Aberdeen, died at Torphins on 30th August, at the age of 63. Since 1899 he had been associated with the teaching of zoology in the Northern University, first as assistant and since 1917 as lecturer, and he made solid contributions to the zoological knowledge of many a student during these thirty years. At heart Dr Rennie was an investigator rather than a teacher, and he will be remembered for the large part he took, in collaboration with other workers in Aberdeen, in the discovery of the cause of the disastrous Isle of Wight disease of hive-bees. The discovery that this disease, which has decimated the bee-stocks of this country, was due to the presence of mites living in the breathing tubes of the bees, gave a first impetus to a rational search for remedies, and this search Dr Rennie pursued with great vigour and persistence.

On more technical subjects he contributed occasional papers to the *Proceedings* of the Royal Physical Society and of the Royal Society, but one further investigation of economic importance ought to be mentioned. For many years he had studied the habits of the larvæ of crane-flies or "daddy-long-legs," which, known as "the grub," cause havoc in corn crops. As a result he devised several methods of controlling the pest, the most interesting being a "natural method," of propagating a species of Tachinid fly, *Bucentes geniculatus*, which lives parasitically in the grub and eventually destroys it.

Dr Rennie had a sound knowledge of zoology and a great keenness. For Scottish zoology we regret the loss of a former teacher and a friend.

* * * *

An undelivered lecture by the late Professor J. F. Gemmill, of Dundee, on "Natural History in the Poetry of Robert Burns," has just been published in book form, with a preface by his brother, J. Leiper Gemmill. The lecture contains an analysis of the many references to beasts, birds, and insects in the works of Burns, and the preface is an interesting account of Professor Gemmill himself, of his upbringing and his subsequent attainments.

NOTES

Spotted or Dusky Redshanks in Fife.—I was down at the Morton Lochs on 14th August, shooting a few ducks, and there were three birds of interest there, viz., two Spotted Redshanks, a Green Sandpiper, and a Greenshank.

The Greenshank (*Totanus nebularis*) is of regular occurrence every year. The Green Sandpiper (*Totanus ochropus*) I have seen fairly frequently, although I have never yet succeeded in shooting one—they are invulnerable! But I got one of the Dusky Redshanks (*Totanus fuscus*) for identification, and I daresay I could have got the other too if I had gone after it, but one was enough to make certain. I have only once seen a Dusky Redshank before. I got one there on the 8th September 1916. That bird was interesting in this way, that my brother who had just come back from France wounded, and of course unable to shoot, was sitting near us, and said he knew the note quite well in India; it was made by a bird that was black and white and had tremendous long legs—a Stilt. Well of course it wasn't a Stilt; but when we looked up Dresser to show him a picture of the bird, we found that Dresser said the note of the Stilt was indistinguishable from that of the Dusky Redshank. My son says he has heard the note twice at different times on the shore. Probably the bird occurs more frequently than is known, but in the hands of the unlearned it might easily escape identification. —William Berry, Newport.

Quail summering in Edinburgh.—The Quail is a somewhat irregular summer visitor to Scotland—chiefly to the southern and eastern counties. At intervals, however, under the influence of genial seasons it has nested as far north as the Shetlands and as far west as the Outer Hebrides. It is interesting to record that in summer of this year the characteristic notes of the Quail were frequently heard by myself within the boundaries of the city of Edinburgh, namely in a field of wheat bordering Ravelston Dykes, a busy thoroughfare during July and early August. Probably a pair nested there. My friend Mr P. J. C. Macgregor also heard the notes of the bird in the same locality and at the same date.—Wm. Eagle Clarke.

Further Notes on Edinburgh Rookeries.—I was interested in Mr Kirke Nash's very full survey of the rookeries of Edinburgh and Midlothian and can add but little to what he wrote. The following notes may, however, be of interest:—

1. There used to be a large rookery in fir trees at Ravensnook beyond Penicuik, but this disappeared when the trees were cut down.
2. On 15th April this year there were 7 nests at Blackford Hill Station.
3. On 21st April there was a group of 5 nests at Boswall Road, Trinity.
4. On 22nd April I counted 131 nests at Liberton as against Mr Nash's 114.
5. The 4 nests at Leny Port near Turnhouse as well as the Turnhouse Rookery of 40 nests should, I think, be included in the City area and not in Midlothian.
6. There is a rookery at Balerno—partly in the village and partly in trees over the road—which on 20th April 1921 I estimated at 73 nests.
7. There used to be a very considerable rookery at Northfield, Liberton, which I can remember since about 1910. It continued down to 1925. Possibly this was an offshoot from the main Liberton site.
8. There is a considerable rookery in fir trees at Mount Lothian, near Gladhouse, which must contain at least 50 nests, but I have made no detailed count.
9. I think that until a year or two ago there was a rookery at Trinity Grove, but this would require confirmation.—Charles G. Connell, Edinburgh.

REPORT ON SCOTTISH ORNITHOLOGY IN 1927.

By Evelyn V. Baxter and Leonora Jeffrey Rintoul

(*Concluded from page* 121.)

Plumage.

A cream-coloured Fieldfare was reported from Fair Isle on 17th May, and in the same month a male Blackbird speckled with white, at Ayr. In October two albino Blackbirds were seen at Lauder and one at Carfrae, near Oxton; while on 5th August a Pied Blackbird, which had been watched and fed in an Edinburgh suburb for five years, was killed by a cat (I. 1928, 26). The Blackbird in St Andrews, mentioned in last year's Report, was still there on 26th October 1927, and was much whiter than heretofore; there was one at Lahill in winter 1927-28 with pure white head and neck. On 8th May a cinnamon Swallow was seen at Lauder. A Mallard Duck assuming the plumage of the drake was shot on 11th November at Fleet Bay, Kirkcudbright; on dissection it was found that the ovary was atrophied (I. 1928, 80); another Mallard Duck assuming male plumage lives in the forest of Gaick, Inverness-shire (l. c.). Off the East Lothian coast, in summer, an Eider was seen "entirely of a light grey colour similar to the wing of a Herring Gull" (I. 1928, 61). A Pied Snipe frequented Loch Elrig all the autumn of 1926; but in January it moved to Derrie, half a mile off, and was often seen there till it disappeared early in March. In spring a Herring Gull "dirty white all over" was seen at Melrose.

Habits, Food, Etc.

A raid by a travelling pack of rats on the nests of Starlings, Jackdaws, and Sparrows on 1/2nd May is described by Lord Scone (I. 1928, 40), and on 13th January a Weasel was seen carrying a Fieldfare across the road at Old Luce. Mr Bartholomew writes: "When standing in a butt at a Grouse drive near Strathaven, a flock of Wild Duck flew

past, followed by a Peregrine which flew in among the ducks, and one of them dived to the ground followed by the Falcon. They both lighted, but as a shot was then fired at some Grouse, the Falcon rose and flew away, but the Duck remained until the beaters came in, then it rose after they had walked past it. I was sorry that the Peregrine was disturbed as I would have liked to see if it would have taken the Duck on the ground." Interesting notes on the courtship and habits of the Fulmar appear in the SCOTTISH NATURALIST, 1928, 39, and curious nesting sites chosen by certain species are shown: a Pied Wagtail built a nest in a greenhouse, but at egg-laying time could not get to the nest so laid the eggs on a cement path. The nest was removed by the gardener to a stone ledge and the eggs placed inside; the female at once took possession and the male also was seen sitting on the eggs at times. After sitting for about a fortnight the nest was deserted, the eggs proving infertile. On 30th April a Robin's nest was formed in a birch broom standing head up in a garage; the young birds hatched and got away all right. Further evidence of the adaptability of House-Martins as to nesting is contained in an interesting note by Mr Simpson on "A House-Martin's adopted Nest" (1. 1928, 27). A Thrush was seen, at Glenorchard, on 23rd July to drop a young dead nestling, and a nest with a living one was found a few yards away. At Poltalloch, on 4th August, a Woodcock was flushed from a leafy bank; she lit lower down and "proceeded to flap her wings in a most curious manner, at the same time prodding down between her legs with her beak as though striving to tuck the supposed chick into a more secure position . . . presently she circled back into the wood, and alighting on a mossy hillock about forty yards away, stood bolt upright, still frenziedly flapping her wings and obviously doing her best to attract attention." It then became apparent that she had no chick with her, though certainly hitherto she had evidently tried to make it appear that she was carrying one of her young. At the place whence she rose four youngsters were found crouching close together, so well feathered that they were able to fly a short distance. Mr Malloch reports a

Rock Pipit perching in an apple tree, in a garden, at Kilmun, on 2nd April, and at Kilmacolm on 17th April a Wheatear was heard imitating a few notes of the Pied Wagtail and those of the young Black-headed Gull and the Common Sandpiper. Whinchats at Lauder mimicked Chaffinches, Yellow-hammer, Reed-bunting, Corn-bunting, Skylark, Blue-tit, House-Martin, Common Sandpiper, Redshank, Moorhen, and Partridge. Redshanks and Snipe were very noisy in the forenoon of 2nd April at Glenorchard, and heavy rain fell in the afternoon; while at the same place on 8th August Snipe were very restless in the morning, moving about in small parties of four and five, and the afternoon brought heavy rain and floods. Strange behaviour of the Common Snipe is described in the SCOTTISH NATURALIST, 1927, 23. At Duddingston Loch, on 24th April, an immature Black-headed Gull was seen attempting to mob a Swallow, and Common Gulls were trying to rob Redshanks of their food at Dalmeny on 8th October (1. 1928, 26); while on 6th August in Scapa Flow, an Arctic Skua was seen to chase a Gannet and force it to disgorge its fish. On 25th September a Razorbill was killed by a reaping machine at Kilmacolm.

The chief point of interest under the heading of food is the varied diet to which Crossbills were reduced in the big immigration of 1927. In addition to their usual food of seed of cones of Scots-fir, Spruce, and Larch, the birds were seen looking for food in beech and birch trees, among sea-weed, and on the sward at treeless Holburn Head. They are recorded as having eaten seeds of sea-pinks, of the marsh thistle and of dandelion, the bulbous bases of the sea-campion flowers, the galls of the spruce gall aphis, and greenfly. Sparrows were seen tearing to pieces the flowers of crocus, primrose, violas, violets, and the creeping crowfoot, while a Goldcrest "kept flying up from the top of a hedge at Corsemalzie, and catching muscæ from the swarms buzzing about."

Migration Conditions Month by Month in 1927.

January.

In January very little movement is recorded. There was an arrival of female Blackbirds at Fair Isle on the 3rd, and at the end of the month movements of Lapwings and Skylarks. The weather was fairly open, but the last week was signalised by heavy gales in all parts and an earthquake in the north.

February.

In the first three weeks of the month the wind was almost entirely easterly and light, and the records refer to returns of partial migrants to their breeding places. Small movements of winter visitors are also reported. In the last week the wind was easterly and light, and these movements were intensified and the first Lesser Black-backed Gull is recorded on the last day of the month.

March.

With a continuance of the easterly type of weather, the movements increased and became more general in the first fortnight. A good deal of emigration of our winter visitors is recorded and further returns of partial migrants. In the third week the winds were variable and light, but in the last week the easterly winds recurred rather strong in the first part. The migrations continued with greater intensity, and the first Wheatear, Ring Ouzel, and Spotted Flycatcher are noted.

April.

The weather in April was mostly cold and the wind chiefly from a northerly or westerly direction. There was little migration in the first fortnight, but thereafter, in spite of the cold, there was a lot of movement, and a wonderful number of summer visitors are recorded. Departures of winter visitors also took place, but there is very little evidence of passage migration.

May.

The first fortnight of May showed a great arrival of summer visitors, there was also a fair amount of passage migration and some winter visitors leaving. In the second half the movement slacked off normally, wintering Wader in flocks at various stations, and Fieldfares in numbers at Fair Isle are recorded during this period. The wind throughout the month was chiefly easterly and the weather inclined to be cold.

June.

With easterly wind, in the first week of June there was a little passage migration on Fair Isle, thereafter to the end of the month very little movement is reported. The notes sent refer to winter visitors lingering in the country, flocking of our own birds after nesting, and at the end of the month the first arrivals of the big immigration of Crossbills.

July.

The whole month, almost without exception, the winds were from some point between N. and S.E., and the big immigration of Crossbills was the feature of the month. Returns of Wader to the shore from their inland nesting places and arrivals of Wader from overseas are noted. Passage through the country of our own nesting birds is also traceable, and in the last week there are notes of Swifts leaving us.

August.

The movements in August were normal with the exception of the numbers of Crossbills of which records came from various localities. Sandmartins, Swifts, Cuckoos, and Common Sandpipers were leaving us, Duck were flocking after nesting, some overseas arrivals of Wader and some passage migration are recorded.

September.

In September there was a good deal of east wind and much migration is recorded. Between the 2nd and the 14th and from 23rd to 26th were the periods of maximum

movement, a good many Crossbills were still noted, many Wader from over-seas, departures of summer visitors, uncommon visitors, and passage migrants are recorded. An early movement of Song Thrushes is reported from Corsemalzie and Largo. Towards the end of the period winter visitors were arriving in number.

October.

With short spells of easterly wind from 8th to 11th and 21st to 24th there were considerable arrivals, mostly of winter visitors; with these were some passage migrants and uncommon visitors. During the rest of the month the winds were northerly and westerly and the movements small. A few late summer visitors are recorded up to the end of the month.

November.

During the first half of November the wind was north to north-west, in the third week it was chiefly south-easterly. There was no big movement during the month; some Waxwings are recorded towards the end.

December.

In the first half of December there is no migration worthy of record, but in the second half with frost and snow there was a little weather movement.

NOTES ON THE MOVEMENTS OF BIRDS IN 1927, ARRANGED UNDER SPECIES.

Hooded Crow, *Corvus cornix cornix.*—Two visited the Bell Rock on 10th February and some arrived at Bressay on 19th February. During March a good deal of movement was noted, chiefly from Shetland and Hyskeir.

Rook, *Corvus frugilegus frugilegus.*—Records of small numbers at Fair Isle came from 9th January at frequent intervals to 12th April. A few were there on 2nd and 6th May and one on 1st June. On 19th September twenty-six were on Fair Isle and three on 27th November.

Jackdaw, *Colœus monedula spermologus.*—On 3rd March a Jackdaw arrived on Fair Isle and till 19th March a few were seen there, and a single bird on 2nd and 3rd May. A Jackdaw frequented the Isle of May on 5th and 6th October, and two were on Fair Isle on 21st December.

Magpie, *Pica pica pica.*—See p. 107.

Starling, *Sturnus vulgaris vulgaris.*—From 7th February to 25th March small movements were noted at Bressay, Hyskeir, and the Bell Rock, and a great many at Fair Isle on 18th April. By 13th June this species was flocking, a company of thirty being seen at Loch Elrig, and from 20th June onward a few were seen at Hyskeir. On 6th August a flock estimated at 2000 birds was seen near Selkirk, while from mid-September to mid-October movement was reported at Skerryvore, Hyskeir, and the Isle of May. Hundreds were at the Bell lantern all night of 2nd November, and a well-marked movement was recorded from many stations between 12th and 24th November.

Greenfinch, *Chloris chloris chloris.*—Two were on Fair Isle on 26th March and single birds on 14th April and 12th May.

British Goldfinch, *Carduelis carduelis britannica.*—There were a good many records of flocks of this bird during the first three months of the year from Perthshire, Wigtownshire, and Lauder, and four were seen at Colinton on 19th February (I. 1927, 116). One was at Hareshawmuir on 15th July, three at Barr (Ayrshire) on 25th July, some at Selkirk on 2nd and Johnstone on 12th and 16th August, and many records in autumn from Lauder and Wigtownshire; one at Canna on 4th October (I. 1928, 24), and two at Barr on 6th October.

Siskin, *Carduelis spinus.*—Single birds occurred at the Bell lantern on 2nd March, the Isle of May from 8th to 10th October, and Fair Isle on 29th October.

Twite, *Carduelis flavirostris flavirostris.*—Large numbers were noted at Vallay (O.H.) on 11th January and at Bressay (Shetland) on 19th February, while during March the numbers on Fair Isle fluctuated considerably. From 11th October to 24th November further movement was noted at our island stations, and several Twites at Butterstone, above Dunkeld, on 15th December.

Mealy Redpoll, *Carduelis linaria linaria.*—One was reported at Fair Isle on 27th and 28th February. One or two visited Fair Isle frequently between 7th September and 17th November, a flock

was seen at Ettrick on 9th October, some near Selkirk, and two at Glenorchard on 25th December.

Linnet, *Carduelis cannabina cannabina*.—A few were recorded at Fair Isle on 12th and 28th February and 5th March. Big flocks were seen at Loch Elrig on 29th August and near Kirkinner on 20th September and 14th November, and single birds at Fair Isle on 1st and 4th October.

Northern Bullfinch, *Pyrrhula pyrrhula pyrrhula*.—See p. 107.

Scarlet Grosbeak, *Carpodacus erythrinus erythrinus*.—See p. 107.

Common Crossbill, *Loxia curvirostra curvirostra*. — A Crossbill (subsp.?) was seen at Glenorchard in mid-January. The outstanding ornithological event in Scotland in 1927 was the great immigration of Continental Crossbills. In June and July on a trading ship running between Scotland and Germany an average of six birds was caught on each voyage. During these two months there were large flocks in Caithness, and by the end of June twelve were reported from Sumburgh Head in Shetland and a small flock (probably this form) arrived at Bleaton Hallet and stayed till December (1. 1928, 16). The height of the movement was in July; during this month they were constantly noted in Orkney and Shetland. On Fair Isle at least 300 were present about the 5th and they continued there in diminishing numbers till 16th September. Many places in Sutherland recorded arrivals in July, as did Vallay (1. 1927, 126) and North Rona (O.H.) (1. 1927, 160), Hyskeir, the Bell and Bass Rocks. A big immigration took place in the Spey Valley in the last week of July, but these may have been *L. c. scotica* (1. 1927, 126). Other stations reporting arrivals were Fort Augustus and Strathnairn (2. 21, 90), Glen Tummel (1. 1927, 158), Crianlarich (2. 21, 123), Bowhill (1. 1928, 16), Hareshawmuir (2. 21, 153), Lauder, and Largs (1. 1928, 52). During August the numbers were decreasing in our Northern Isles, but great numbers, probably this race, appeared at Balmoral in the first week of the month and stayed till about the 26th (2. 21, 91). A great movement was reported from Dumbartonshire; from early August to mid-September it was estimated that thousands had passed through this district (1. 1927, 158). More Crossbills were seen in the Outer Hebrides (1. 1927, 160), and in various parts of Forfarshire (2. 21, 123), in Lauderdale, Douglas (Lanarkshire), on the Isle of May, and two on Canna (1. 1927, 158). Stragglers were

noted in September and October, thirty near Carolside (Berwickshire) on 18th December, and some to the end of the year at Bowhill (Selkirkshire).

Two Barred Crossbill, *Loxia leucoptera bifasciata.*—See p. 107.

Chaffinch, *Fringilla cœlebs cœlebs.*—A Chaffinch was on Fair Isle on 11th and 15th January, and a considerable movement took place at this station from 25th March to 3rd April; thereafter a few stragglers were noticed from time to time till 15th May. On 10th October one was on the Isle of May, and a few on Fair Isle on that date and from 29th October to 2nd November.

Brambling, *Fringilla montifringilla.* — Northward movement was recorded chiefly at Fair Isle between 26th March and 4th April and from 5th to 17th May, while three Bramblings were on Fair Isle on 2nd June. First reported in autumn on the Isle of May on 8th October, Fair Isle on 12th, and Hareshawmuir on 26th October.

House Sparrow, *Passer domesticus domesticus.*—Five visited Hyskeir on 22nd November.

Tree Sparrow, *Passer montanus montanus.*—Recorded from Cameron Toll (Edinburgh) on 27th March and 11th September and at Duddingston on 8th May; three were on Hyskeir on 8th and 9th May, and single birds at Fair Isle on 11th May and 30th August.

Yellow Bunting, *Emberiza citrinella citrinella.*—Small numbers visited Fair Isle on several occasions during March, on 4th and 9th April, and single birds on 16th May and 21st June.

Ortolan Bunting, *Emberiza hortulana.*—See p. 107.

Rustic Bunting, *Emberiza rustica.*—See p. 107.

Little Bunting, *Emberiza pusilla.*—See p. 107.

Reed Bunting, *Emberiza schœniclus schœniclus.*—Small movements took place at Fair Isle from 3rd March to 27th April, one Reed Bunting was there on 16th May and two on 1st June. Return passage was noted at this station and the Isle of May between 8th September and 24th October.

Lapland Bunting, *Calcarius lapponicus lapponicus.*—See p. 107.

Snow Bunting, *Plectrophenax nivalis.* — Big arrivals were reported at Fair Isle on 29th January, 15th March, and 15th April; passage took place at the Bell Rock and Bressay (Shetland) on

15th February, and from 14th to 21st March small flocks up to twenty in number were "moving inland to the south" at Lairg (Sutherland). Stragglers were seen on Fair Isle on 19th, 28th, and 30th May. The first autumn records came from Fair Isle on 8th September, Skerryvore and Duns on 23rd September, and Hyskeir on 2nd October, while a big immigration was noted on our Northern Isles during the second half of October.

Eastern Short-toed Lark, *Calandrella brachydactyla longipennis*.—See p. 107.

Wood Lark, *Lullula arborea arborea*.—See p. 107.

Skylark, *Alauda arvensis arvensis*.—On 29th January a large arrival took place on Fair Isle, and during February there were many notes of small numbers from this station, Hyskeir, and the Bell Rock. In March this movement became much stronger; in addition to these stations, northward passage was noted at Glasgow and movement to the N.N.E. in Shetland and E. Fife. One or two Skylarks visited Hyskeir on 2nd, 7th, 14th, and 15th April and 1st May.

Enormous arrivals took place at Fair Isle on 1st and 17th September, and right up to 10th October passage was noted at this station, Bressay, Skerryvore, Hyskeir, and the Isle of May, while on 11th September westward passage was recorded at Invergowrie. Slight movements only were reported in November, but a well-marked weather movement was noticed at a good many stations between 19th and 28th December.

Shore Lark, *Eremophila alpestris flava*.—See p. 107.

Tree Pipit, *Anthus trivialis trivialis*.—Was first reported from Scone on 24th April, Barr and Helensburgh on 1st May, Fair Isle and Kilmun on 3rd and Lauder on 5th May, with further arrivals to the middle of the month. Passage migrants visited Fair Isle on 17th, 18th, and 21st May. Autumn passage is noted at this station from 8th to 28th September, large numbers being present from 23rd to 26th.

Meadow Pipit, *Anthus pratensis*.—One visited the Bell Rock on 2nd March, while from 10th March to 11th May constant movement was noted at Fair Isle and Hyskeir. Arrivals were recorded from Hareshawmuir on 15th February, Clyde on 13th March, and from Balcomie (E. Fife) on 28th March and 8th April. There was a great influx at Fair Isle during the first week of September, and this station, Hyskeir, and the Isle of May reported

constant movement till 8th October. From 6th September westward movement was noted at Invergowrie, large numbers at Corsemalzie on 15th September and 20th October, and several at the Bell Rock lantern on 2nd November.

Blue-headed Wagtail, *Motacilla flava flava*.—See p. 107.

Yellow Wagtail, *Motacilla flava rayi*.—Two were seen in Kincardineshire on 23rd and 24th March (2. 20, 294), a very early date. Recorded from Cathcart on 18th April, Darvel on 1st May, and Hareshawmuir on 3rd May. Passage migrants visited Fair Isle on 4th, 5th, and 7th May, and Thornhill (Perthshire) on 15th May. Last seen at Corsemalzie on 20th September.

Grey Wagtail, *Motacilla cinerea cinerea*.—Two were on the shore at Largo on 16th January, two at the Bell Rock lantern on 2nd March, and two at Oban on 24th March. Moving by 15th July and on to 12th September—one at Oban on 1st November, one at Glenorchard on 15th December, and another in Largo Bay on 31st December.

White Wagtail, *Motacilla alba alba*.—First noted at Fair Isle on 8th March (which is early), Oban on 27th March, and near Bardowie Station on 9th April. After this, constant passage was reported to the end of May and one on Fair Isle on 1st and 2nd June. A White Wagtail visited Hyskeir on 18th July, one was seen on Westray (Orkney) on 10th August, and several on Fair Isle on 14th August. Thereafter to the end of September steady passage was noted, the last for the year being at Corsemalzie on 2nd October.

British Long-tailed Titmouse, *Ægithalos caudatus roseus*.—A party was noted near Stranraer on 30th January and two in Mull on 27th February. Small parties were seen at Barr on 9th October, Selkirk on 23rd and 30th October, Mochrum on 7th November, and Earlston (Berwickshire) on 11th December.

Continental Golden-crested Wren, *Regulus regulus regulus*.—A small movement of this form was noted at Fair Isle from 27th to 29th March, and at Hyskeir on 4th May. Returns in autumn took place at Fair Isle between 23rd September and 26th October, and several at the Bell Rock lantern on 2nd November were probably of this race.

British Golden-crested Wren, *Regulus regulus anglorum*.—Movement of this form took place at the Isle of May between 2nd and 10th October.

Great Grey Shrike, *Lanius excubitor excubitor.*—Two were on Fair Isle on 24th October.

Red-backed Shrike, *Lanius collurio collurio.*—Single birds were noted on Fair Isle on 7th May, and 5th and 7th September.

Waxwing, *Bombycilla garrulus.*—See p. 108.

Spotted Flycatcher, *Muscicapa striata striata.*—Two very early records of this species were made, viz., on 28th March between Dunning and the Yetts o' Muckhart (2. 20, 294) and on 11th April at Perth. Steady arrivals began on 1st May at Ninewells (Forfarshire), 4th at Duns, 6th at Kilmun, and 8th at Duddingston and Possil Marsh, and continued till the end of the month. On 4th June two passage migrants visited Fair Isle. Departures were recorded during August, there were "many" at Lahill (E. Fife) on 6th September. Last seen Corsemalzie on 15th September and Lauder on 18th September.

Pied Flycatcher, *Muscicapa hypoleuca hypoleuca.*—This species was noted at Gattonside (Melrose) on 7th May, near Lauder on the 11th, and Duns Castle on 15th May, and at Bowhill in June. Passage migrants were seen on Fair Isle on 7th, 9th, and 19th May, 3rd June, 8th and 23rd September, while on 5th September a male was killed at the lantern at Holburn Head (Caithness).

Chiffchaff, *Phylloscopus collybita collybita.*—Was noted at Corsemalzie on 8th April, Barr on 4th May, Kilmun on 7th and Duns on 22nd May. Chiffchaffs at Hareshawmuir on 29th August, 15th, 17th, and 19th September probably belonged to this form.

Scandinavian Chiffchaff, *Phylloscopus collybita abietinus.*—One was reported on Fair Isle on 29th October and four on 31st October.

Willow Warbler, *Phylloscopus trochilus trochilus.*—First noted near Gartcosh (Lanarkshire) on 13th April, at the Bell Rock lantern on 15th April, Johnstone and Rouken Glen on the 20th, Hareshawmuir and Helensburgh on 21st April. Thereafter many notes came of arrivals up to 12th May. Passage migration was reported from Fair Isle from 16th May to 4th June. By 12th July autumn movement was becoming apparent; on 21st August one or two Willow Warblers were on Fair Isle, and steady passage went on there from 1st September to 3rd October. Last seen Lauder on 18th September, Johnstone on 23rd September, Hyskeir on 6th October, and Fair Isle on 17th October.

Northern Willow Warbler, *Phylloscopus trochilus eversmanni*.—One was recorded on Fair Isle on 17th May, and possibly others of the passage migrants noted there may have belonged to this race.

Wood Warbler, *Phylloscopus sibilatrix sibilatrix*.—Reported on 4th May at Rouken Glen, 5th at Kilmun and Helensburgh, 6th at Corsemalzie, and 7th May at Selkirk. One was on Fair Isle on 1st June.

Yellow-browed Warbler, *Phylloscopus humei præmium*.—See p. 108.

Grasshopper Warbler, *Locustella nævia nævia*.—Was noted at Helensburgh on 5th May and Selkirk on 7th June.

Sedge Warbler, *Acrocephalus schœnobœnus*.—First recorded from Selkirk on 3rd May, Glengarnock on 4th, Possil Marsh, Blanefield, Muirend, and Summerston (all Clyde) on the 8th, Helensburgh, Corsemalzie, and Thornhill (Perthshire) on the 10th, and Ayr on 11th May. One or two on passage were seen at Fair Isle on 31st May, 1st and 4th June. Last seen Loch Elrig on 5th September and Corsemalzie on 9th September.

Icterine Warbler, *Hippolais icterina*.—See p. 108.

Barred Warbler, *Sylvia nisoria nisoria*.—See p. 108.

Garden Warbler, *Sylvia borin*.—First reported from Selkirk on 7th May, Blanefield and Rouken Glen on 8th, and Johnstone on 10th May; after this there were many notes of arrivals up to 24th May. Single birds were on Fair Isle on 31st May, 1st and 3rd June. Autumn passage was much in evidence at Fair Isle from 23rd August, right through September. On 8th September there were "swarms" on the island, while on 6th October a Garden Warbler visited Hyskeir.

Blackcap, *Sylvia atricapilla atricapilla*.—Reported from Fair Isle on 7th May and 1st June, and from Rouken Glen on 8th May. Many were on Fair Isle on 8th September and passage there continued steadily to the end of the month, while on 20th September a Blackcap struck the Bell Rock lantern.

Whitethroat, *Sylvia communis communis*.—A very early record was one at Fair Isle on 11th April. Regular arrivals began on 1st May at Corsemalzie, 5th at Glengarnock, 6th May at Barr and Largo; after this a steady influx was reported up to 16th May.

One or two passage migrants were on Fair Isle on 7th May, 1st and 5th June, and autumn passage there was reported steadily from 3rd to 25th September.

Lesser Whitethroat, *Sylvia curruca curruca.*—One or two were noted on Fair Isle on 7th and 9th and from 17th to 25th May, also on 3rd June. During September they were again on passage there, in numbers on 6th and 8th September, two on 10th October, and one on 11th, 12th, and 24th October.

Eastern Lesser Whitethroat, *Sylvia curruca affinis.* See p. 108.

Fieldfare, *Turdus pilaris.*—Northward movement was apparent by 11th March and continued throughout April. Up to 22nd May a good many notes came from Fair Isle, numbers being on the island from 16th to 18th May. Last seen Hareshawmuir on 21st May and Fair Isle on 2nd June. First seen in autumn at Fair Isle on 23rd September, Hareshawmuir on 26th September, and the Isle of May on 5th October; steady immigration was then noticed up to mid-November, the period of maximum movement being from 23rd October to 2nd November.

Mistle Thrush, *Turdus viscivorus viscivorus.*—Two were on Hyskeir on 22nd February, a flock of seven at Derrie (Mochrum) on 13th June, a flock of fifty going south at Lahill on 2nd August, and several flocks on the moor at Corsemalzie on 25th August.

Continental Song Thrush, *Turdus philomelus philomelus.*—This race visited the Hyskeir lantern on 8th, 22nd, and 23rd February and 1st March. From 6th March to mid-May emigrating Thrushes in small numbers were frequently noted at Fair Isle, where one was seen as late as 21st June. By 23rd September return movement had begun at Fair Isle, and during October this station, the Isle of May, and Hyskeir record a good deal of movement of this form. On 5th November about forty were seen near Oban, one at Hyskeir on 12th and 22nd November, and a weather movement there and in E. Fife from 16th to 21st December.

British Song Thrush, *Turdus philomelus clarkei.*—Returns to inland breeding places were noted in E. Fife on 4th February, Corsemalzie and Hareshawmuir on 7th and Glenorchard on 8th February. A big movement of this race was reported in E. Fife from 8th to 19th September, and "a lot on the moors and fields" at Corsemalzie on 8th September; while from 27th September to 6th October small numbers were on the Isle of May.

Redwing, *Turdus musicus*.—As early as 5th February parties of Redwings were moving north through Scotland, but emigration from our Northern Islands was not reported till 11th March, after which it went on pretty steadily till 26th April. Late notes came from Fair Isle on 2nd to 4th May and Hyskeir on 4th and 5th May.

Returns in autumn were reported at Fair Isle on 23rd September, Johnstone on 5th October, the Isle of May on 8th and Hareshawmuir on 11th October; thereafter a stream of arrivals up to 4th November. A well-marked weather movement in snow and frost took place from 16th to 29th December.

Ring Ouzel, *Turdus torquatus torquatus*.—On 28th March a Ring Ouzel visited Fair Isle and a few were there on 25th April, 7th, 11th, and 16th May, and one on 3rd June. On 7th May several pairs were seen in the glens at Kilmun (Argyllshire). Small numbers appeared on Hyskeir, Fair Isle, and the Isle of May from 2nd to 24th October.

Blackbird, *Turdus merula merula*.—A few wintered on Fair Isle, and one or two appeared on Hyskeir on 9th February and 5th March. From 25th March to 13th April constant movement was noted at Fair Isle, with a few stragglers during May and one on 1st June.

On 4th October one was on the Isle of May and many were seen at Derrie (Mochrum), while from 9th October to 12th November a good deal of movement was reported chiefly from Fair Isle, Hyskeir, the Isle of May, and Bell Rock. Blackbirds participated in the weather movement in the second half of December.

Wheatear, *Œnanthe œnanthe œnanthe*.—First recorded at the Bell Rock lantern on 25th March, Kilmacolm on 26th, Blanefield on 29th, and Strathblane on 30th March. Thereafter many arrivals took place up to 25th April, and at our Northern Isles much movement occurred up to 17th May. By 12th July autumn movement had begun, but the bulk of the departures and passage movements were in September. Last seen Kirkinner on 30th September, the Isle of May on 9th October, and Fair Isle on 1st November.

Greenland Wheatear, *Œnanthe œnanthe leucorrhoa*.—This race was recorded from Hyskeir from 5th to 8th May, several visited Fair Isle on 2nd September, and Hyskeir on 4th, 6th, and 7th September and 10th October.

Whinchat, *Saxicola rubetra rubetra*.—First noted at Darvel on 1st May, Lauder on 3rd, Fair Isle on 4th, and Kilmun on 5th May.

After this many notes of arrival at breeding places till 17th May and passage at Fair Isle up to 1st June.

Autumn movement was recorded from the Bass Rock on 15th July, last seen E. Fife on 11th September, steady passage at Fair Isle from 1st to 23rd September and a straggler there on 3rd and 5th October.

British Stonechat, *Saxicola torquata hibernans*.—On several occasions during March Stonechats (probably this race) visited Fair Isle; a Stonechat appeared at Hareshawmuir (where they do not breed) on 20th March, two were on Fair Isle on 3rd May and one next day, and a female was on Hyskeir on 6th and 7th May. A male visited the Isle of May from 8th to 10th October.

Redstart, *Phœnicurus phœnicurus phœnicurus*.—First noted at Duns on 22nd April, near Killearn (Stirlingshire) on 1st May and Hyskeir on 3rd May, with further arrivals to mid-May. Passage migrants were seen on Fair Isle on 7th May and from 31st May to 3rd June.

By 28th July autumn movement had begun and thereafter departures were noted steadily; last seen Thrieply on 4th September, Kinloch Rannoch on 13th, and Largo on 14th September. From 23rd September to 3rd October passage migration was going on at Bressay, Fair Isle, and the Isle of May, and very late stragglers were seen at Bowhill (Selkirkshire) on 16th October and Fair Isle on 1st November.

Black Redstart, *Phœnicurus ochrurus gibraltariensis*.—See p. 108.

Norwegian Bluethroat, *Luscinia svecica gætkei*.—See p. 108.

Continental Robin, *Erithacus rubecula rubecula*.—Reported at intervals from Fair Isle up to 11th February, and steady records of passage came from this station from 22nd March to 8th April. A Robin at the Bell Rock lantern on 25th March and one at Hyskeir from 19th to 27th April may have belonged to this race. From 23rd September to 2nd November passage was seen occasionally at Fair Isle and a few were at Bressay on 30th October.

British Robin, *Erithacus rubecula melophilus*.—One was on the Isle of May on 8th October.

Continental Hedge-Sparrow, *Prunella modularis modularis*.—One doubtless of this race visited Fair Isle on 27th March.

British Hedge-Sparrow, *Prunella modularis occidentalis.*—A Hedge-Sparrow probably of this form was on Hyskeir on 9th May, and from 8th to 10th October several were noted at this station and the Isle of May. Two remained on Hyskeir from 21st October to the end of the year.

Wren, *Troglodytes troglodytes troglodytes.*—One or two visited Hyskeir constantly between 19th April and 9th May. From 29th September to 24th October there were a good many records from the Isle of May, Bell Rock, and Hyskeir, and one appeared on this last station on 10th November.

Swallow, *Hirundo rustica rustica.*—The first reported were at Darvel on 16th April, Lake of Menteith and Allander Toll on 17th, Hareshawmuir on 19th, Musselburgh and Rouken Glen on 20th April; thereafter many records of arrival at nesting places up to 7th May. Passage migrants occurred at Fair Isle from 5th May most days till 6th June, and Hyskeir was visited on 6th and 8th May and 8th June. On 28th August passage began again at Fair Isle and was recorded till 26th September. Much departure went on during September and the first half of October; last seen Earlston and Elie on 11th October, Selkirk on 17th October, and Colinsburgh (E. Fife) on 7th November.

House-Martin, *Delichon urbica urbica.*—First noted at Dunbar on 17th April, Kilmacolm on 21st, Duns and Forfarshire on 23rd, and Selkirk on 25th April, after which there were many reports of arrival up to 23rd May. House-Martins were seen frequently passing at Fair Isle between 7th May and 17th June. There were many at Fair Isle on 10th September and two next day; last seen Earlston (Berwickshire) on 3rd October, Largo on 20th October, Colinsburgh on 13th November, and St Andrews on 19th November.

Sand-Martin, *Riparia riparia riparia.*—Seen at Glengarnock (Ayrshire) on 9th April, Lake of Menteith on 12th, Allander Toll on 17th, and Musselburgh on 20th April. Further arrivals at breeding places took place to 27th May, and on 1st June one was seen on Fair Isle. A Sand-Martin turned up at Hyskeir on 20th July, last seen Glendevon on 29th August, Kingoodie and Largo on 11th September.

Swift, *Apus apus apus.*—Arrivals were noted at Selkirk on 28th April, Duns on 29th, Currie (Midlothian) and Clubbiedean Reservoir on 30th April; thereafter a very big influx, till by 23rd May our breeding birds seem all to have come. On 7th July one was seen at Hyskeir and a few at Fair Isle on 10th July. Most of our Swifts

left in August; at 2 A.M. on 6th September two were killed at the Hyskeir lantern; last seen Invergowrie on 8th September and Largo on 11th September, while on 8th and 24th September one was seen at Fair Isle.

NIGHTJAR, *Caprimulgus europæus europæus.*—Recorded on 15th May from Corsemalzie and Helensburgh; last at Corsemalzie on 15th September.

HOOPOE, *Upupa epops epops.*—See p. 108.

KINGFISHER, *Alcedo atthis ispida.*—A very interesting note of movement of Kingfishers was that of parties going S.E. at Tentsmuir at the mouth of the Tay on 1st October (1. 1927, 188); the species was still about this part of the shore on 29th December.

GREAT-SPOTTED WOODPECKER, *Dryobates major.*—One was reported from Corsemalzie on 12th August, but we have no evidence to show to which race it belonged; another on Fair Isle on 23rd September probably was *D. m. major.*

CUCKOO, *Cuculus canorus canorus.*—An early record came from Corsemalzie on 7th April, the next were Selkirk on 22nd April, Kilmacolm on 23rd, Ardnadam on 24th, Glenorchard and Milngavie on 25th April, and arrivals continued to be noted up to 17th May. Single birds visited Fair Isle on 21st May and 30th July; last seen Edinburgh on 16th August and Largo on 5th September.

SNOWY OWL, *Nyctea nyctea.*—See p. 108.

SHORT-EARED OWL, *Asio flammeus flammeus.*—Single birds were noted at Fair Isle on 8th April and 11th May, near Loch Moan (Ayrshire) on 13th August, at Corsemalzie on 18th August, Fair Isle on 23rd September, and two at Corsemalzie on 30th November.

WHITE-BREASTED BARN OWL, *Tyto alba alba.*—Three in one tree at Corsemalzie on 30th January; "as they do not breed in the district, this must be a local movement."

MERLIN, *Falco columbarius æsalon.*—From 12th March to 16th May and again from 23rd September to 19th November single birds were seen pretty often at Fair Isle and Hyskeir and occasionally at the Isle of May, while a Merlin was at the Skerryvore lantern on 25th October.

KESTREL, *Falco tinnunculus tinnunculus.*—Single birds frequented Fair Isle on 28th March, 7th May, 2nd and 6th June. From 5th September to 6th October one or two Kestrels were recorded off and on from Fair Isle, Hyskeir, and the Isle of May.

Rough-legged Buzzard, *Buteo lagopus lagopus.*—See p. 108.

Common Buzzard, *Buteo buteo buteo.*—On 29th May one was seen at Minniegaff, Kirkcudbrightshire, on 15th August one near Deerness (Orkney), and on 24th and 28th August one at Lahill (E. Fife.)

Hen Harrier, *Circus cyaneus cyaneus.*—See p. 108.

Sparrow Hawk, *Accipiter nisus nisus.*—On 6th May one visited Fair Isle.

White-tailed Eagle, *Haliætus albicilla.*—See p. 108.

Osprey, *Pandion haliætus haliætus.*—See p. 108.

White Stork, *Ciconia ciconia ciconia.*—See p. 108.

Whooper Swan, *Cygnus cygnus.*—By 17th March only eighteen were left on Lochwinnoch and all had gone by 28th March, but two Whoopers were seen on Loch Ardinning (Strathblane) on 7th April. On 13th July two "Swans" were seen at Hyskeir flying towards S. Uist, and next day five Whoopers were seen at Vallay. A flock was on the Tay on 23rd September and thirteen at Lochwinnoch on 21st October. After this there were a good many Whoopers recorded.

Bewick's Swan, *Cygnus bewickii bewickii.*—Two were off Sumburgh Head (Shetland) on 5th January, and two at Glenorchard on 31st October.

Grey-Lag Goose, *Anser anser.*—A big northward movement of "Grey Geese" was noted from 21st April to 1st May, and Grey-Lags occurred on Fair Isle during this period. On 11th August forty-five were seen on the ford at Vallay (O.H.).

Arrivals of "Grey Geese" were reported from 21st September to 24th October, Grey-Lags being identified at Fair Isle on 19th and 22nd October, at the Skerryvore lantern (six) and many on Luce Sands on 24th October. A Grey-Lag was shot at Ballantrae on 24th December, and four were at Hyskeir on 27th December.

White-fronted Goose, *Anser albifrons.*—One was seen at Corsemalzie on 3rd November, and three at Lindores Loch (N. Fife) on 18th December.

Bean-Goose, *Anser fabalis fabalis.*—On 10th October about fifty were noted at Hareshawmuir, forty-six at Benan Loch (Eaglesham) on 23rd October, and four at Corsemalzie in hard frost on 26th December.

Pink-footed Goose, *Anser brachyrhynchus.*—Passage to the N.E. was reported at Scone on 5th March, and a flock of forty at Aberlady on 15th October.

Barnacle-Goose, *Branta leucopsis.*—Seven were seen on Luce Sands on 3rd February; last seen Hyskeir 28th April. On 18th August two were recorded from Fair Isle, and a good deal of movement from Hyskeir and Luce Sands between 14th and 24th October.

Brent-Goose, *Branta bernicla bernicla.*—Reported from Vallay (O.H.) on 7th January and 22nd February, and one from Fair Isle on 21st and 25th April and 20th September.

Mallard, *Anas platyrhyncha platyrhyncha.*—Small numbers were noted constantly at Fair Isle up to 12th February, and "many" on Luce Sands on 18th January. Northward movement was reported from Fair Isle during April and up to 16th May. On 28th May sixty-three drakes were counted on Luce Sands and there were "quite 150" on Loch Chesney on 25th August. Arrivals took place at the Isle of May and Fair Isle from 3rd September to 12th October.

Gadwall, *Anas strepera.*—A pair was on Fair Isle on 20th April, and one to three were noted at Loch Elrig on 16th May, 29th August, and 5th September, Monreith in December, and Loch Chesney on 2nd December.

Teal, *Anas crecca crecca.*—Many were at Piltantan Burn (Luce Sands) on 3rd February, and a flock of thirty at Loch Chesney on 1st March. Small numbers visited Fair Isle on 10th and 16th May, 1st and 4th June, and passage was noted at this station and Hyskeir from 6th September to 8th October.

Garganey, *Anas querquedula.*—See p. 108.

Wigeon, *Anas penelope.*—Large numbers were seen at Glenorchard on 10th January and Luce Sands on 18th January, flocks at Lochwinnoch on 17th March, a drake on Lake Scalloch on 28th March, a flock of fifty off Tayport, and some in the Holy Loch on 2nd April.

Eight were at Vallay on 28th August, and from 6th September to 14th October records of arrival came from many places.

Shoveler, *Spatula clypeata.*—Returned to Lochindores on 27th March, and a drake visited Duns Castle Loch on 7th May. Six were on Lochwinnoch (Renfrewshire) on 29th September, two ducks were shot near Earlston on 19th October and a drake on

2nd November. Last seen, Lochindores, 30th October, and three on Whitefield Loch (Old Luce) on 8th December.

Pochard, *Nyroca ferina ferina.*—From 4th to 10th August six were reported from the Haining Loch (Selkirk), seven at Duns Castle Loch on 28th August, one at Fair Isle on 8th October and back at Knapps Loch (Kilmacolm) on 23rd October. Large numbers were seen at Loch Elrig on 27th September and 3rd December, and Duddingston Loch on 26th December.

Tufted Duck, *Nyroca fuligula.*—Arrivals were reported on Duns Castle Loch from 27th February to 10th April, but only eight were left there by 24th April, and on 24th May there were very few on Mochrum Loch. There were many on the Haining Loch on 30th July, but they had decreased to a dozen by 10th August. Had returned to Knapp Loch by 27th November and one was on Fair Isle next day.

Scaup, *Nyroca marila marila.*—Last seen off Tayport on 2nd April; a flock of fifteen was on the Loch of Stennis (Orkney) on 5th August, and a large flock in Luce Bay on 12th November.

Goldeneye, *Bucephala clangula clangula.*—There were many reports of Goldeneye up to the end of April; last seen Kilconquhar Loch on 7th May, Lindores Loch on 30th May, and Loch Davan (Aberdeenshire) on 11th June. About twenty were on Duns Castle Loch on 25th September and one at Hyskeir from 14th to 23rd October; thereafter a good many records from all parts.

Long-tailed Duck, *Clangula hyemalis.*—A very large and restless flock was seen at Balcomie (E. Fife) on 28th March; last noted Fair Isle on 31st March and Balcomie on 8th April. First records for autumn were from Fair Isle on 21st September and the Isle of May on 4th October.

King Eider, *Somateria spectabilis.*—See p. 108.

Common Scoter, *Oidemia nigra nigra.*—Some were in Luce Bay on 18th January. A good-sized flock was seen in St Andrews Bay on 2nd June and a flock of fifty in Largo Bay on 10th July, while on 9th October flocks flew up the Forth past the Isle of May.

Velvet Scoter, *Oidemia fusca fusca.*—On 29th January a duck was shot at Thankerton (Lanarkshire) (i. 1927, 164) and a few were in St Andrews Bay on 2nd June. Three were in Largo Bay on 10th July and a pair on the Loch of Stennis on 5th August (i. 1928, 28).

Surf Scoter, *Oidemia perspicillata.*—See p. 108.

Goosander, *Mergus merganser merganser.*—A drake was caught at the village pond, Hareshawmuir, on 9th February; last seen Ninewells (Forfarshire) on 24th April. A pair were on the Loch of Stennis on 5th August and several off Invergowrie on 16th August.

Smew, *Mergus albellus.*—See p. 108.

Storm Petrel, *Hydrobates pelagicus.*—One was caught at the Skerryvore lantern on 26th September.

Manx Shearwater, *Puffinus puffinus puffinus.*—Seven were at Hyskeir on 3rd May and one at Fair Isle on 7th May. On 21st July one visited the Hyskeir lantern, while on 31st August about a score were in the rays there and six struck the lantern.

Great Crested Grebe, *Podiceps cristatus cristatus.*—Several were on Loch Ryan on 30th January, one on Bardowie Loch on 7th February, and four there on 6th April; two at Thrieply on 27th February and two at Lochwinnoch on 17th March. Last seen Tay Estuary on 1st May and one or two seen on Lochs Kinord and Davan (Aberdeenshire) on 11th June. On 10th July ten, mostly apparently adults, were in Largo Bay; last seen Thrieply on 24th September and one at Craiglush (Perthshire) on 9th October.

Slavonian Grebe, *Podiceps auritus.*—Two on Loch Ryan on 30th January, one on Thrieply on 6th November, and one on Duddingston Loch for a few days from 26th December (i. 1928, 27).

Black-throated Diver, *Colymbus arcticus arcticus.*—One was in the Tay Estuary on 3rd April, four in Scapa Flow on 6th August, one at Lunan Bay on 25th August, and one on Loch Rannoch for several days from 13th September.

Wood Pigeon, *Columba palumbus palumbus.*—One or two were on Fair Isle on 26th March, 10th and 17th May, and a big flock near Largo on 18th April. One was seen on Fair Isle on 30th October, "vast numbers for a few days only" at Mochrum from 27th November, and large flocks at Duddingston on 26th December.

Stock Dove, *Columba œnas.*—A large flock was seen at Higham (Fife) on 31st January and a Stock Dove which visited Hyskeir on 6th March is the first record for the Inner Hebrides and should have been included under "Uncommon Visitors." One was on Fair Isle on 13th March.

Turtle-Dove, *Streptopelia turtur turtur.*—Single birds were reported from Canna on 6th June (i. 1928, 24), Fair Isle on 17th June, Chapel Hill near Cockburnspath in July, and Fair Isle on 1st (2) 7th and 8th September.

Black-winged Pratincole, *Glareola nordmanni.*—See p. 107.

Oystercatcher, *Hæmatopus ostralegus ostralegus.*—Big flocks were noted on Luce Sands to 3rd February. By 16th February they were heard going North at night at Largo, and arrivals at breeding places were reported in March and April. Passage back to the shores was recorded from 22nd July onwards; one was at Gad Loch (Clyde) on 3rd August and four at the Bell Rock on 15th August.

Dotterel, *Charadrius morinellus.*—One was seen on the south side of Loch Tay on 24th August.

Ringed Plover, *Charadrius hiaticula hiaticula.*—Small numbers were reported from Fair Isle from 28th January onwards, and small flocks were on Luce Sands on 28th May.

There were a good many notes from Fair Isle from 2nd to 22nd September, several were at the Hyskeir lantern on 2nd October, and one by the river at Barr (Ayrshire) on 29th October.

Golden Plover, *Charadrius apricarius.* — Movements of Golden Plover in the latter half of February and March were apparently returns of our *Ch. a. apricarius* to breeding places in Scotland, while the movements reported from Fair Isle, Hyskeir, and Hareshawmuir from 12th April to 11th May seem to have been northward passage of *Ch. a. altifrons.* Return movement began as early as 13th July and returns to the shores were noted to mid-August. From 28th August to 13th October there were a lot of notes from Fair Isle and some from Hyskeir of passage probably of the Northern bird. Several Golden Plover were at the Hyskeir lantern on 21st December and four on Fair Isle on 31st December.

Lapwing, *Vanellus vanellus.*—On 25th January nineteen Lapwings arrived on Fair Isle and about forty were there on 31st January, but only a few were left by 2nd February. From 20th January to 28th February returns to inland breeding-places were noted, and from 14th February to 13th March one or two were seen at Hyskeir. Passage at Fair Isle was reported from 28th February to 9th April, one or two at this station on 2nd, 6th, and 11th May and 3rd June, and at Hyskeir on 21st June. In the south of Scotland flocking after nesting was noted from 16th May onwards.

Small numbers were at Hyskeir from 3rd to 8th July, 18th September, 20th, 21st, and 29th December, at Fair Isle on 25th July, 14th and 28th August, 16th September, 21st November and 21st December, the Isle of May on 8th October, and Skerryvore lantern on 23rd October.

Turnstone, *Arenaria interpres interpres*.—There was a large arrival on Fair Isle on 29th January but most had left by next day. The regular winterers had left Hyskeir by 28th April, last seen Ayr on 12th May, Largo Bay on 24th, Fair Isle on 27th, and Luce Sands on 28th May. On 9th June seventeen arrived on Hyskeir and varying numbers are reported from this station in June and July, about 200 being there on 30th July. Arrivals were reported from St Andrews on 11th August, Fair Isle on 13th and the Bell Rock on 15th August. Thereafter there were many notes of Turnstones.

Ruff, *Philomachus pugnax*.—An adult male occurred at Aberlady on 18th August (I. 1928, 26).

Sanderling, *Crocethia alba*.—Flocks were noted at Luce Sands on 18th January and 28th May and a Sanderling on Fair Isle on 7th May. On 17th August four were seen at Holm (Orkney) and next day six at St Andrews, while between 5th and 10th September Sanderling were reported from Fair Isle and Hyskeir.

Knot, *Calidris canutus canutus*.—Autumn arrivals took place at St Andrews on 18th August, Vallay on 22nd August, and Hyskeir on 4th September.

Curlew Sandpiper, *Calidris testacea*.—An immature female was got at Aberlady on 7th September (I. 1928, 26).

Purple Sandpiper, *Calidris maritima maritima*.—Arrivals at Fair Isle took place on 2nd February, but almost all had gone by the 25th February; many were there again on 26th March and last seen there 30th May. Single birds were at the Hyskeir lantern on 8th February and 5th April; last seen Ayr on 13th May and Hyskeir on 14th June. Returns were noted at Hyskeir on 13th July, Bell Rock on 15th August, and Fair Isle during the latter half of August.

Common Sandpiper, *Tringa hypoleucos*.—Very early arrivals were reported from Lake of Menteith on 5th April and Knapps (Kilmacolm) on 9th. The regular immigration began on 16th April and is reported from many places up to 2nd May. Passage took place at Hyskeir and Fair Isle from 4th to 19th May. Autumn movement had begun by 22nd July and continued steadily to mid-

September, with stragglers at Fair Isle on 1st October and Invergowrie Bay on 2nd October.

Wood Sandpiper, *Tringa glareola.*—See p. 109.

Green Sandpiper, *Tringa ochropus.*—See p. 109.

Redshank, *Tringa totanus.*—Almost all the Redshanks left Fair Isle on 25th February; returns to inland breeding-places were reported from 7th March to the end of the month. One or two visited Fair Isle and Hyskeir at intervals from 20th April throughout the summer, and numbers arrived at the former station on 2nd September and at Hyskeir next day.

Spotted Redshank, *Tringa erythropus.*—See p. 109.

Greenshank, *Tringa nebularia.*—Single birds were recorded from St Andrews on 12th January, Dunbar from 9th to 16th April, and Hyskeir on 3rd May and 21st June and at intervals in July. On 15th July a Greenshank was at Hareshawmuir, two there on 24th and 25th and one at Darnley Glen on 31st July. Single birds were seen on Sanday on 11th August and Holm (both Orkney) on 17th August, and two at Loch Elrig on 29th August.

Bar-tailed Godwit, *Limosa lapponica lapponica.*—One was killed at the Hyskeir lantern on 2nd April. Several had arrived at St Andrews on 18th August and at Vallay on 29th August, while a flock of 200 was in Aberlady Bay on 15th October.

Curlew, *Numenius arquata arquata.*—Large numbers were on Luce Sands on 3rd February and returns to inland breeding sites were noted during March. Curlew were passing Largo at night on 14th April and passage was noted during May at Fair Isle and Hyskeir, while on 25th May there were "many along Glasserton shore in parties and small flocks." On 21st and 28th June two or three visited Hyskeir, and on 29th June and 1st July numbers going S.W. were passing this island. Returns to the shores were reported from 13th July onward and a big arrival at Fair Isle on 17th September.

Whimbrel, *Numenius phæopus phæopus.*—From 1st May to 14th June fairly constant passage was noticed at Hyskeir, at Fair Isle from 7th to 18th May, and at Hareshawmuir from 15th May to 7th June; eight Whimbrel were at Glasserton on 25th May, several on Luce Sands on 28th May and one at Doune on 26th June. A few frequented Hyskeir throughout July and three were at the Bell Rock on 28th July. During August and September

a good deal of passage was noted; ten were at the Hyskeir lantern early on 2nd October and one on the Isle of May on 4th October.

Great Snipe, *Capella media.*—See p. 109.

Snipe, *Capella gallinago gallinago.*—Many were in the rushes on Luce Sands on 3rd February and numbers on Fair Isle on 5th February. From 11th March to 27th April small movements were noted frequently from Fair Isle and a big one on 28th and 29th April, while Hyskeir reported movement from 20th April to 8th May. Return migration began by 23rd August and much movement occurred at Fair Isle and Hyskeir right up to the end of the year, "innumerable" Snipe being on Fair Isle on 23rd September. Large arrivals were reported from Glenorchard on 29th August, Derrie (Mochrum) on 4th October, and Loch Elrig on 13th October and 12th December.

Jack Snipe, *Lymnocryptes minimus.*—First noted at Fair Isle on 23rd September, Barr on 7th October and the Isle of May on 8th October, and a large flight at Logiealmond on 20th October.

Woodcock, *Scolopax rusticola rusticola.*—Numbers were at Strathblane on 18th January and at Corsemalzie in snow on 29th January. From 25th March to 8th April passage was noted at Fair Isle and two Woodcock there on 17th May. On 24th September one was on Fair Isle, and passage took place there from 14th October to 3rd November, with a few stragglers on 21st November. There were large numbers at Aberfoyle on 3rd December and at Old Luce on 8th December, and a Woodcock visited Hyskeir on 25th December.

Sandwich Tern, *Sterna sandvicensis sandvicensis.*—Two flew over Corsemalzie on 15th May, the first seen there for years, and on 4th August one was over Duke Street, Edinburgh (i. 1928, 23); three were at Hyskeir on 18th July.

Roseate Tern, *Sterna dougallii dougallii.* See p. 109.

Common Tern, *Sterna hirundo hirundo.*—First noted on 1st May at Ninewells (Forfarshire), on 8th at Glengarnock, 9th at Greenock, and 12th May at Mochrum Loch. Last seen Largo Bay on 25th September.

Arctic Tern, *Sterna macrura.*—Several were at Fair Isle on 3rd May, and on 2nd November "two pairs" were seen "fishing off the West Sands" at St Andrews.

Lesser Black-backed Gull, *Larus fuscus*.—One (subsp.?) was seen on 6th January at Hareshawmuir and one was at Kilcreggan on 28th February. From 11th March to 30th April returns of our *L. f. affinis* were reported. On 29th September one of the Scandinavian *L. f. fuscus* visited the Isle of May. The British *L. f. affinis* was noted at the Isle of May on 5th October and Selkirk on 17th October; the subspecies of one at Selkirk on 30th October and 20th November was not stated.

Glaucous Gull, *Larus hyperboreus*.—A few were seen about Fair Isle up to 3rd March, and in early spring one was seen in Skye. Had returned to Fair Isle by 17th October, and many were there on 21st December.

Iceland Gull, *Larus glaucoides*.—Single birds were reported from the Bell Rock on 2nd March, Fair Isle on 4th March, Kirkwall on 14th May, and Fair Isle on 2nd November.

Great Skua, *Stercorarius skua skua*.—Single birds were recorded near Fair Isle on 2nd March and the Isle of May on 27th September.

Arctic Skua, *Stercorarius parasiticus*.—Arrived at Fair Isle on 25th May. From 24th August to 6th November Arctic Skuas were noted at many localities on the East coast of Scotland.

Razorbill, *Alca torda*.—Numerous with Guillemots between Shetland and Fair Isle on 14th March. One was killed by a reaper at Kilmacolm on 25th September.

Little Auk, *Alle alle*.—During January a good many were observed about Shetland and Fair Isle. On 12th November one was on Tweed at Melrose, several were off Fair Isle on 28th November, and one in Largo Bay on 31st December.

Corncrake, *Crex crex*.—First noted at Hareshawmuir on 27th April, Scone on 3rd May, Duns and Girvan on 6th May—thereafter arrivals up to 17th May. Last reported Fair Isle on 26th September and Barr (Ayrshire) on 6th October.

Spotted Crake, *Porzana porzana*.—See p. 109.

Water-rail, *Rallus aquaticus aquaticus*.—Single birds were seen at Cumbrae on 28th January, Corsemalzie on 29th and Mochrum on 31st January, Longforgan (near Dundee) on 22nd February, and Corsemalzie on 14th March. One or two appeared on Fair Isle on 4th and 31st October, Glenorchard on 3rd

November, 15th and 30th December, and Corsemalzie on 24th December.

Moorhen, *Gallinula chloropus chloropus*.—Single birds occurred on Fair Isle on 27th March and 12th April.

Coot, *Fulica atra atra*.—One was seen on Fair Isle on 30th October and 21st December.

Quail, *Coturnix coturnix coturnix*.—Two were at Longcroft (Oxton) on 11th October.

REMARKABLE DECREASE OF THE HOUSE-SPARROW IN FAIR ISLE AND SHETLAND.

By Surgeon Rear-Admiral J. H. Stenhouse.

In the March number of the Scottish Naturalist for 1927, mention was made of the extinction of the Tree-Sparrow as a breeding bird at Fair Isle, and also of a marked diminution in September 1926 in the numbers of the House-Sparrow there, it being estimated that at that time not more than forty birds were on the island, where formerly there were at least eight hundred. A visit in May 1927 showed a still further reduction; the number of breeding pairs noted at that time was ten. I visited the island again in April this year, and found the House-Sparrow on the verge of extinction; there were then only four pairs to be seen.

A note made in January this year by one of the islanders gave the total number of House-Sparrows as eight; this exactly agrees with my own estimate made three months later. There are no grounds for thinking that any human agency has been at work to cause this diminution in the numbers, and it seems almost certain that the high death-rate has been due to some disease of an epidemic nature.

The likelihood that such is the case is strengthened by reports from the mainland of Shetland. From Sumburgh in the extreme south of that island, the information is that no Sparrows are now to be seen, though formerly they were

plentiful. Further, a crofter at Sandwick, ten miles farther north, states that now there are very few Sparrows in that district; that at one time they were so abundant as to be practically a pest; that the reduction in their numbers was first noted in the autumn of 1926, and at that time several birds apparently ill were seen crawling into holes to die.

The bird's economic importance to agriculture demands further investigation into the causes of its diminution in South Shetland, and observations should be made with a view to ascertaining if similar reductions have occurred in other places. Pathological examination of the bodies of dead birds is above all desirable.

[Just as we go to press, there has been received from the Honorary Secretary of the Watchers' Committee of the Royal Society for the Protection of Birds a communication containing extracts from recent letters of two watchers in Shetland. One from Bressay writes: "The Sparrow is disappearing. They used to be in hundreds, now I don't see a score"; and the other, Mr Charles Inkster, writes from Mid Yell: "Our House-Sparrows have all died, due to some disease among them. They get a swelling in their heads and their eyes enlarge to bursting point. The poor things seem able to eat to the last and die very quickly. They are found every here and there. Only one pair is now to be seen when formerly we had scores at our doors every day and there were hundreds in the corn." These reports show that the disease must be widespread throughout the northern archipelago.—EDS.]

NOTES

Eversmann's Warbler at Fair Isle.—A male example of Eversmann's Warbler (*Phylloscopus b. borealis*) was obtained here on 30th July.—GEORGE STOUT, Fair Isle.

[The skin, very badly damaged by shot, has been forwarded to the Royal Scottish Museum. The bird was in partial moult, the central tail feathers being in process of renewal. This is the fifth specimen of this northern species recorded from Fair Isle and the sixth in the British Isles. Even more noteworthy than its actual occurrence is the exceptionally early date: all the others were met with in September and October.—EDS.]

Tree-Sparrow round Edinburgh.—On 4th August this year I found Tree-Sparrows (*Passer montanus*) nesting in the grounds of Dreghorn Castle. This is another locality for this species, not mentioned in my article in SCOTTISH NATURALIST, 1928, p. 37. I also saw them building this season at Portobello Cemetery and examined several clutches at Inveresk.—DAVID HAMILTON, Edinburgh.

Pugnacity of the Waterhen.—When passing Duddingston Loch in July of this year I witnessed an instance of the pugnacity of the Waterhen (*Gallinula chloropus*). The bird was on the grass at the side of the Loch, feeding, when a nearly full-grown chick of a Little Grebe appeared from the back of some reeds, only a few feet from the bank. On seeing the Grebe the Waterhen at once flew into the water, dropping right on the top of the chick, which at once dived. The Grebe came up a few yards away, and the Waterhen instantly pounced on it again. This was repeated several times till the Grebe was exhausted. The Waterhen then seized the chick, shook it as a terrier would a rat, and kept poking it under the water till the Grebe lay helpless. Satisfied with the result the Waterhen then pulled one or two feathers out of the chick and calmy swam away. After a while the Grebe with difficulty righted itself and managed to swim to the reeds, but I don't think it could survive the rough treatment it received. If this is a common occurrence, then the pike are not entirely responsible for the small broods so frequently seen at Duddingston Loch. The Waterhen had no chicks of its own about, so that it appears to have been a pure case of vindictiveness.—DAVID HAMILTON, Edinburgh.

THE NATURALIST

A Monthly Illustrated Journal of Natural History for the North of England

Edited by T. SHEPPARD, M.Sc., F.G.S., The Museums, Hull, and T. W. WOODHEAD, Ph.D., M.Sc., F.L.S., Technical Col., Huddersfield.

With the assistance, as Referees in Special Departments, of

JOHN W. TAYLOR, M.Sc.; RILEY FORTUNE, F.Z.S.

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CONTENTS

PAGE

In Memoriam—*Editorial* 129

Report on Scottish Ornithology in 1927 (*concluded*)—*Evelyn V. Baxter* and *Leonora Jeffrey Rintoul* 135

Remarkable Decrease of the House-Sparrow in Fair Isle and Shetland—*Surgeon Rear-Admiral J. H. Stenhouse* . . 162

Notes:

Spotted or Dusky Redshanks in Fife—*William Berry*, 133; Quail summering in Edinburgh—*Wm. Eagle Clarke*, 134; Further Notes on Edinburgh Rookeries — *Charles G. Connell*, 134; Eversmann's Warbler at Fair Isle—*George Stout*, 164; Tree-Sparrow round Edinburgh — *David Hamilton*, 164; Pugnacity of the Waterhen — *David Hamilton*, 164.

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The Scottish Naturalist

No. 174] 1928 [November-December

SMITHSONIAN INSTITUTION
JAN 19 1929
NATIONAL MUSEUM

EDINBURGH: OLIVER & BOYD, Tweeddale Court
LONDON: GURNEY & JACKSON, 33 Paternoster Row

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EVERY NATURALIST SHOULD READ

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

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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.*)

The Scottish Naturalist

No. 174.] 1928 [November-December

A NEW SCOTTISH BIRD SANCTUARY.

Scotland has been slow in following the lead of other nations in the matter of animal reserves. Nowhere in Great Britain has an attempt yet been made to form a wild range of great extent, where animals and human beings could roam free from all unnecessary restraint, though this type of reserve has been very successful in all other parts of the world, including our own dominions and colonies. Nevertheless, during recent years England has been nibbling at the problem of reserves on a smaller scale, and has made some pretty successful bites. There are Wicken Fen in Cambridgeshire, Blakeney Point in Norfolk, the Farne Isles, Hatfield Forest in Essex, Hawksmoor in Staffordshire, and so on, probably a score or more of interesting and beautiful spots set aside for the perception and contemplation of Nature. The National Trust has been a source of strength in this movement, giving it a sense of importance and permanency, but excellent work has been done also by such bodies as the Selborne Society and the Society for the Promotion of Nature Reserves.

Scotland apparently lies beyond the field of influence of these groups, or it may be that they hold her rugged mountains and glens to afford sufficient protection to her wild creatures. If that be so, they cannot be aware of the deadly persistence of the egg-collecting "fans" (mostly

English), and of the gradual disappearance of mammals that a century ago were common.

We stand practically at the beginning of the development of the sanctuary movement in Scotland. A few years ago, Sir Roderick Murchison's Trustees created a small sanctuary of the grounds of Tarradale House in Easter Ross, in memory of the great geologist. Glasgow followed by establishing bird sanctuaries in its public parks; and finally, through the generosity of Mr W. H. Askew, the Government was enabled to set aside as a sanctuary Duddingston Loch and its surroundings—to the extent of 40 acres—within the bounds of Greater Edinburgh.

These are small beginnings, and it is a pleasure to learn that it is proposed to create a new and larger sanctuary in an area already well known for the contributions it has made to natural history.

Possil Loch lies within Greater Glasgow and comprises, with its marshes and adjoining ground, some 70 acres. It has long been known to Scottish naturalists, and especially to the enthusiastic ornithologists, entomologists, and botanists of Glasgow, as a place where unusual birds, insects, and plants are to be found. Records of such rarities as the Bittern, Black Tern, and Black-winged Stilt suggest the possibilities of this city loch, and the ordinary observations of spring and autumn show that it is favoured by a great variety of migratory birds.

The peace and natural interest of Possil Loch are threatened by the advance of Glasgow's boundaries. Irresponsible marauders, bird-nesters, and egg-collectors, men with gun licences, disturb the haunts of the birds, and it has become apparent that, unless some check can be put upon the process, this attractive centre of wild life will soon vanish as a nature lover's paradise. The natural history societies and related bodies in Glasgow have, therefore, taken the important step of endeavouring to ensure that the Loch should be permanently acquired for the public as a Bird and Botanical Sanctuary. They have been generously met by the owners of the Loch, and it is proposed to have the area administered under such

conditions as will best make for the preservation of the natural beauty and wild life of this famous area, while securing for the public and those interested, reasonable access for all time.

The movement deserves all encouragement, not only from naturalists, but from the general public. It cannot be too often emphasised that the spread of the larger cities, with their increasing density of population, makes it more and more difficult for the average citizen to enjoy the pleasures of undisturbed nature, without a lengthy and it may be costly, where a family is concerned, journey into the open country. For this reason there is much to be said for the establishment of sanctuaries in the immediate neighbourhood of large towns, where the visitor is reasonably assured of seeing, under the best conditions, a quantity and variety of wild life, such as otherwise he might have to travel far to see. Possil Loch exactly meets these requirements, and as a sanctuary it should prove an instruction and delight to the public, and a source of many useful observations to the naturalist.

It is estimated that a sum of £2000 will be required to meet the cost of purchase of the Loch and the surrounding ground, and to make suitable provision for its future maintenance. We most cordially endorse the appeal of the Committee for donations to meet this sum. They should be forwarded to Mr J. M. Crosthwaite at 207 West George Street, Glasgow.—J. R.

Unusual Numbers of Weasels.—This summer and autumn, in Fife, we have noticed a quite unusual number of Weasels, and were interested on going to Peeblesshire, in September, to find that they were also very abundant there and in Midlothian. We are told they are more numerous than usual, too, about Kingussie, Inverness-shire, and it would be interesting to know whether this very marked increase has taken place in other parts of Scotland and whether it extends to the Stoat.—Evelyn V. Baxter and Leonora Jeffrey Rintoul.

Pectoral Sandpiper in Caithness.—On 5th September I received from Mrs Wathen a Pectoral Sandpiper (*Erolia maculata*) with a note saying that her son M. G. Wathen had shot it in a snipe bog at Dunnet Head on 3rd September. The bog was situated about a mile from the sea. The bird, which was rather decomposed on arrival, was not too far gone for preservation and was an adult female which had moulted some of its body feathers, and there was still a trace of the incubation patches to be made out. It appears to be the fourth record for Scotland.—Claud B. Ticehurst.

British Greater Spotted Woodpecker in Perthshire and Galloway.—When staying at Killin last year, the head game-keeper in Glen Lochay informed me that the Greater Spotted Woodpecker (*Dryobates major anglicus*) came to the glen about eight or ten years ago.

This year I was again in the same neighbourhood, but though I did not see any birds, I found several trees on which they had been recently working.

Farther south, in Galloway, the Greater Spotted Woodpecker is reported to have nested at Munches, near Dalbeattie, in 1925, and in the spring of 1926 I saw plenty of their work on oak-trees in a wood at the foot of Screel, where later on Capt. Stewart of Shambellie observed one or more birds.

Near the source of the Urr, Woodpeckers appeared at Monybuie in the spring of 1926, and in 1927 excavated a hole in an ash-tree near the house, which unfortunately was taken possession of by Starlings.

There are few records of this Woodpecker in S.W. Scotland, and perhaps this note may induce others to record the spread of this bird in Galloway.—N. B. Kinnear.

NEW INVESTIGATION SCHEME.

An Opportunity for Scottish Naturalists.

By Dr James Ritchie.

The Scottish Naturalist has made a point of printing the odd records sent by correspondents, partly because of their immediate interest and partly because the accumulation of scattered items of information may be found in later days to have an importance not dreamed of when the record was made. The fauna of a country is never stationary. Populations of living creatures are apt to shift their concentration camps. Changes take place in the numbers of a species, it may be a gradual increase, or a dwindling that leads to extinction, or perhaps simply an annual ebb and flow of numbers about a sort of standard population. Birds, beasts, fishes, insects and all the small fry of land and water are involved in these movements, for the web of life is of wonderfully fine texture, and we are still far from knowing the full story of the play of any living thing upon all its neighbours.

Odd records help on the story, and we ask every reader to send a notice of any occurrence of special interest which falls under his observation. But Scottish naturalists can do much more than this for the advancement of knowledge. This is the day of amalgamations, and the value of amalgamation in industry is no greater than the value of amalgamation in scientific observation. It is obvious that if we can obtain a multitude of observers all looking at the same small problem throughout Scotland, their records will be of infinitely more importance than scattered and unrelated observations. Instead of being a casual amateur naturalist, each observer will become a member of a scientific body, the results of the work of which will advance knowledge not only of Scottish animals, but of natural history in general.

For fifty years the Scottish Naturalist and its predecessor have, with the help of many enthusiastic correspondents, carried on an annual inquiry into the migration of birds. This inquiry has been most fruitful

in results, of which more will be said in a future number; but the object of the general inquiry has been attained, and we are certain that the influence of the SCOTTISH NATURALIST can now best be made use of in concentrating attention upon small and special problems of scientific or economic interest.

In following out this new scheme of natural history investigation we propose, as occasion arises, to set before our readers definite problems for observation, trusting that each reader will send his contribution, however slight he may regard it, and trusting also that he may induce his naturalist friends likewise to observe, for there is much virtue in numbers in this form of massed attack. The mass of information received will be tabulated and examined, and the results published in the SCOTTISH NATURALIST in articles which we expect to be of new and general interest.

For the present we set afield two inquiries, one of particular scientific interest, the other having, as well as a scientific, an economic flavour.

Inquiry I.—CENSUS OF THE BIRDS BREEDING ON THE LESSER SCOTTISH ISLANDS.

The fluctuations of numbers and the changes in the relative proportions of species are most easily observed on islands. A census, such as is proposed, will give a sound basis for comparison between the populations of different islands as they are to-day, and will be a foundation for estimating the changes which take place in each island in future years.

We now request anyone to whom the opportunity of making the observations is given, to supply us with a list of the birds and approximate number of each species breeding on any island round the coast of Scotland. This should include land and sea birds, but it will be understood that where large colonies of sea birds breed, the numbers can only be approximate. The lists with all information will be analysed and reported upon by Miss Leonora Jeffrey Rintoul and Miss Evelyn V. Baxter, Lahill, Largo, Fife, to whom they should be sent.

As the number of naturalists who have an opportunity of studying island life is limited, we make a wider appeal, to observers both on the mainland and on the islands, in the second problem.

Inquiry 2.—Vole Plagues in Scotland.

The vole plagues of Scotland are known all the world over, largely as the result of the excellent report of a Government Committee which investigated the great plague of 1892. These plagues are of very considerable economic importance to landowners, farmers, and gardeners, on account of the damage done by the voles to pasture and garden produce.

Although great plagues are fortunately rare, it is well known that in some years voles are much more numerous than in others. It has been found that these vole years occur with a certain degree of regularity, and a thorough study of such lesser vole years might enable us to understand the causes of the increase, and to predict its recurrence. This in its turn would be a first step towards devising measures to prevent an undue multiplication of the pests. Such a hope is not far-fetched, for the cycles of increase of many of the fur-bearing animals of Canada have already been worked out, and the new knowledge is turned to practical use by the Hudson's Bay Company.

We desire, therefore, to collect all possible information regarding pronounced increases of voles in Scotland since the great vole plague of 1892. In this inquiry we are fortunate to have the co-operation of the Department of Zoology and Comparative Anatomy of Oxford University and of the workers there who have achieved such notable results in sifting the fluctuations of Canadian and other animals.

In order to simplify and standardise the replies, a series of questions has been drafted and is printed here for reference. Correspondents may simply number their replies according to the number of the question, or may obtain further copies of the question list, on which answers may be entered, by applying to Dr James Ritchie, Royal Scottish Museum, Edinburgh, to whom in the first instance completed replies should be sent.

SCOTTISH VOLE PLAGUE INVESTIGATION.

Undertaken by the SCOTTISH NATURALIST in co-operation with the Department of Zoology and Comparative Anatomy, Oxford University.

Note.—Unusual increases of Field Voles or Short-tailed Field Mice will be shown by:—

(1) The actual appearance in numbers of the Voles themselves.

(2) Nests in hayfields interfering more than usual with the blades of mowing machines.

(3) Riddling of ground by burrows, and destruction of grass in pasture-land more noticeable than usual.

MAIN FACTS.

1. Have you noticed any years in which Field Voles have been unusually plentiful since the great plague of 1892? . . .	.....
2. In what years did such increases occur?	.....
3. In which of these years were the Voles most common?	.....
4. Could any of the years, and which, be called "Vole-plague" years? . . .	.....
5. In what county, or counties, and districts were these observations made? .	.....
6. What was the nature of the land in which the increases occurred (low arable or pasture, hill pasture, woodland, etc.)? . .	.....

These are the MAIN FACTS, but correspondents are urged to answer, as far as they can, also the supplementary questions on the following page.

Supplementary Questions.

7. Did any of the Vole increases noted above, and which, last for more than one year?	.....
8. In what years, if any, did the Voles *disappear suddenly*, and at what season of the year?	.....
9. Characters of *each* Vole year:—	
(*a*) Generally wet or dry? . . .	.....
(*b*) Was the spring early or late? . .	.....
(*c*) Was hay cut early or late? . .	.....
(*d*) Was the preceding winter open or severe?	.....
(*e*) Was the preceding winter late or early?	.....
10. Were any changes noted in the number of other creatures, such as foxes, stoats, weasels, owls, and hawks? What were the changes and in which years were they noted?	.....

When completed as far as possible, please return this Form to Dr James Ritchie, Royal Scottish Museum, Edinburgh.

Name and Address of Correspondent .....

Date.....

Goldfinches in Kirkcudbrightshire.—In August last I was at Monybuie, a few miles north of Corsock, and was surprised to find the Goldfinch (*Carduelis carduelis britannica*) not uncommon.

As the locality is right on the edge of the moors suitable feeding-grounds are restricted, but small family parties or pairs were seen or heard every day during the week I was there. According to Edward M'Adam, the gamekeeper, Goldfinches appeared at Monybuie a few years ago and have increased yearly.

In September 1922 I spent two days in the same locality, but neither heard or saw any Goldfinches.—N. B. KINNEAR.

A Far-Travelled Fieldfare. — Recently, when going over some of the birds of the Harvie-Brown collection in the Royal Scottish Museum, I came across the skin of a Fieldfare which possesses more than ordinary interest. The label bore on one side the information, "October 1875 at sea off Cape Farewell," and on the other side "P. Henderson, Dundee." A search through Dr Harvie-Brown's journals gives no information regarding this skin, but in the seventies there was in Dundee a naturalist and taxidermist named Patrick Henderson, and it is more than likely that the bird came on board one of the whalers on her way home from Davis Straits, was given to Mr Henderson, and passed on by him to Dr Harvie-Brown.

The Fieldfare occurs occasionally on the Faroes, and in Iceland it has been met with five or six times, but there is no record farther west. Its capture off Cape Farewell is therefore a most noteworthy event, and extends its western known range over sixteen degrees of longitude or about 500 miles.

The skin, which is not sexed, appears from the plumage to be that of an adult female.—J. H. STENHOUSE.

Long-tailed Duck in Wigtownshire.—It may be of sufficient interest to note that on 17th October 1928, Mr C. Hodgson sent me, for identification, a mature male Long-tailed Duck which he had shot on the River Bladenoch not far from Wigtown. This species would appear to be less irregular in its visits to the Solway than it was half a century ago.—HUGH GLADSTONE.

Honey Buzzard in Berwickshire.—A fine example of the Honey Buzzard (*Pernis apivorus*) was unfortunately shot at Edington Hill, near Chirnside, about 23rd August. It came into my hands for identification and has been preserved and mounted for the collection in the Berwick Museum.—J. BISHOP, Berwick-on-Tweed.

FURTHER OBSERVATIONS ON THE SWIFT.

By David Hamilton.

An article on the Swift (*Micropus apus*) based on my notes appeared in the Scottish Naturalist in 1924. A few extracts from notes made since then on the same subject may be of interest, as they confirm suggestions made in the previous paper regarding the return of both birds to the nest at night and the fact that both birds incubate. The nests were in the same situation as those formerly observed.

11*th June* 1924.—Up on the roof to-night to see if the Swifts were using their old nesting sites again after all the interference they received last year. Nest No. 1 was not in use, a Starling having young there. Every year there seems to be a competition for this site between Starling and Swift. On one occasion the Starling had eggs; these disappeared and the Swift nested. The other two Swifts' nests contained eggs and a single bird was on each. One (No. 2) crawled away when I approached with a light, evidently remembering its past experience. The other bird (No. 3) allowed itself, without showing any concern, to be lifted, put in my pocket, and taken outside to the light. I then ringed the bird at which it seemed greatly disturbed. The eggs seemed to be only a few days old, and I left one egg in each nest to see if a single chick would advance quicker by getting all the attention.

28*th June* 1924.—Nest No. 2 had a chick about two days old. Did not disturb the other one.

7*th July* 1924.—Paid another visit to the Swifts to-night. The chick in No. 2 was fairly well advanced, and, as on the other occasions, the bird that was beside it would not let me handle it, but crawled out of reach. Then went to No. 3, and as this bird had been ringed on a previous visit I expected to see some nervousness exhibited, but I crawled up with a lighted candle and put my hand over the bird without its making a movement. This indifference was accounted for when I took it outside to the roof and found

it had no ring, it evidently being the other bird. I ringed this bird also, then let it go. The chick in this nest was also far advanced.

After this visit neither of the birds in this nest would allow me to handle them. Ringing seems to cause them more alarm than any handling or the taking of their eggs. This visit seems to prove, along with the observations made in the previous article, that both birds share in domestic duties. Perhaps the need of a certain amount of rest may partly account for this.

11*th July* 1924.—When cycling to Musselburgh early this morning, at two different fields where grass was being cut for hay, large numbers of Swifts had gathered. They were flying low down, round the machines after the insects disturbed by the cutting, and judging by the numbers they must have collected from far and near. They are not generally numerous at these places, and as the cutting had just begun it looks as if the Swifts knew to collect where this is going on.

25*th July* 1924.—Got up at 3.30, summer time, this morning and went up to the Swifts. Visited No. 3 first, and though I crept quietly along in the dark, the birds were on the alert. A subdued screaming was heard as I neared the nest, and when an electric torch was turned on both the old birds scrambled to the hole giving them access to the loft and went out. The young bird after being handled went out also. On going outside the three birds could be seen flying just over the house tops, and they all went in again when I got farther along the roof. The same thing happened at nest No. 2, both the old birds going out at once and the young following on being handled. This again shows that both birds are in the nest at night, and also that the young go back at night after being able to fly. In both these cases the young seem to have had a shorter fledgling period than those under observation before.

28*th July* 1924.—For several nights I have watched the Swifts flying about in the usual bands, making a great noise and chasing each other about with lightning speed just

before dark. After a while the groups would break up, and watching at the nesting holes I could see them come back and enter one by one. Though some went in while it was fairly light, others stayed out quite late; and I watched one flying about very low when it could be seen only as it passed the lighted windows of the houses. The lateness and rapidity of the returning birds seem responsible for the idea that they remain in the air all night.

3rd Aug. 1925.—Although Swifts are still quite numerous, there are certain hours during the day when not a single bird can be seen. This also confirms my idea that Swifts indulge in more rest than is imagined. During early morning visits, Rooks, Gulls, and even Sparrows, are seen going about their usual way before the Swift is abroad.

12th Aug. 1925.—Swifts getting less numerous. They seem to return gradually and not *en masse* like other species.

28th Aug. 1925.—After an absence of nearly two weeks Swifts are again numerous both at Musselburgh and Duddingston. This happens yearly; local birds go off early in August and towards the end of the month others, seemingly from farther north, take their place for a short time.

10th Sept. 1925.—Several Swifts seen again after an absence of ten days at Duddingston.

3rd June 1926.—Visited the Swifts to-night, but evidently remembering the ringing of two years ago the birds went out at once. Each nest contained eggs, and it was interesting to note that three eggs has been the clutch in one nest for seven years. This was the only visit this year.

4th July 1927.—Twice this week Swifts seen gathered round where grass was being cut. They seem aware that insects are numerous where this is going on.

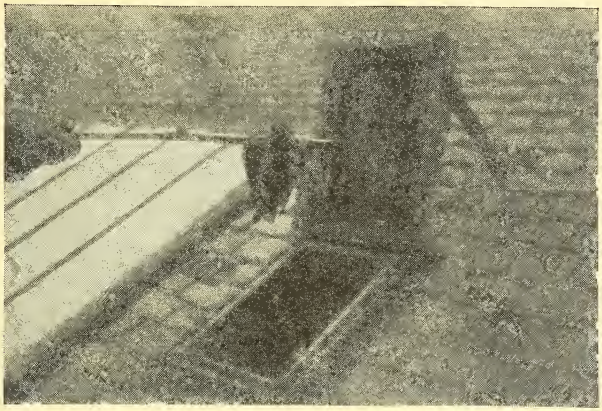
29th April 1928.—Hearing a strange squealing in the back garden this morning, I looked out and saw a cat with a bird. The bird was whirring about in the long grass so violently that the cat seemed rather amazed. Running

out and rescuing the bird, I was surprised to find a Swift. It was soaking wet, either with rolling about in the wet grass or with travelling in the drenching mist that prevailed at the time. I expect it had just arrived and entered the nest hole where they annually breed, and meeting the Starling that also nests there had, while fighting, dropped to the ground. This is the only way in which I can account for the squealing I heard and for the bird being in a position to be caught by a cat. It seems reasonable after what happened later. I put the Swift close to the fire on a cushion to which it clung; it went to sleep at once. After several hours it woke up and started preening itself, and it was interesting to see how it could reach down to the end of the long wing feathers. It then started whirring its wings so violently that a tame canary sitting beside it was swept off the cushion. After crawling about a little it flew to the floor, and when I went near it ran up my leg and on to my shoulder, using its wings as well as its claws. After another sleep it was taken down to the back garden and laid on a towel to be photographed. It lay quiet while this was being done; then when it was moved we had the satisfaction of seeing it rise into the air. When it got to the house tops it was hotly pursued by a Starling for a considerable distance. It soon left the Starling behind and was watched for a long time circling aloft. It seemed to be the only Swift about. It was not in evidence the next day, and Swifts were not general here for fully a week afterwards.

14*th June* 1928.—Only two Swifts' nests are in use this year, both having eggs to-night. Having caught both birds on one nest and a single bird on the other, I took them all out to the light and found no ring on any of them. I then laid the three on the flat roof from which they all rose together.

12*th July* 1928.—Eggs or young disappeared from one nest, this being the site where the Starling also nests, and perhaps this was the cause. One young bird was in the other nest and it was taken out to be photographed. Though only half-grown, with wings almost useless, it was surprising

to find the legs and toes so strongly developed. When held in the hand the strength of the legs could be felt, and when laid on the roof it scuttled quickly about. It was laid



YOUNG SWIFT UNABLE TO FLY, BUT HABITUALLY SUPPORTING ITSELF BY ITS TOES.

on a slate but it persisted on going to the edge and clinging there, and the clinging attitude was the only position in which it could be photographed.

Fluctuation in numbers of Terns on an Island in the Firth of Forth.—In 1921, Terns, Sandwich and Common, first made their appearance on "the Lamb," a small island in the Firth of Forth, off North Berwick. They nested there in that and subsequent years in considerable numbers, a patch of Sandwich Terns' nests covering an area of about 12 square yards. It was easy at a distance to distinguish the breeding colony of Sandwich Terns from those of the Common Tern, for the former showed up as a white patch owing to the amount of excrement about, so that the grass became caked and died. On nearer approach the Sandwich nesting-place announced itself by its strong smell of sprats.

In 1928 the Terns never appeared and the Lamb was quite deserted; nor were these birds to be seen in numbers hawking about over the sea near North Berwick where they had been common before. I noted also that the Puffins were late in arriving and late in departing in 1928; birds still being seen late in September.—WM. INGLES, North Berwick.

THE DESERT WHEATEAR (*ŒNANTHE D. DESERTI*) AT FAIR ISLE.

By Surgeon Rear-Admiral J. H. STENHOUSE.

A BEAUTIFUL male example of this bird in freshly-moulted autumn plumage was obtained by Mr James Stout at Fair Isle on 6th October. The skin, which is now in the Royal Scottish Museum, was sent south with the information that the bird was with difficulty secured, it being very wild, and that it had apparently arrived that day after a strong, south-easterly wind on the 5th. Its measurements were: wing 93·5, tail 60, tarsus 26·5, bill 13. As there was doubt as to which race of Desert Wheatear it belonged, it was sent to Dr Hartert at Tring. He has kindly examined and compared it and reports that it "should be called *Œnanthe deserti deserti*. It fits beautifully into a series of autumn specimens of typical *deserti* and stands out from the more rufous sandy birds of *homochroa*."

This bird, the typical Desert Wheatear, is a native of Egypt, Nubia, North Arabia and Palestine, and it has rarely been met with in Europe. The above is the first definite record of its occurrence in the British Isles. Representatives of two other races of this species have, however, been recorded; a bird of the Saharan race "homochroa" having been obtained in Yorkshire in 1885; whilst one of the South-West Asian race "atroqularis" reached the Pentland Skerries in June 1906 and another was found in Kent in May 1913.

Three other British examples of the Desert Wheatear (two of them Scottish birds) have not been critically examined and it is not known to which races they may belong.

ORDINARY MIGRATION ACROSS THE NORTH SEA.

By John Berry.

In the spring I paid a visit to Sweden, and was much interested by the migrating birds which passed the steamer on the trip from the Thames to Gothenburg and back. While the majority of those seen were too far off to allow of certain identification, many passed within a few yards of the boat, or even settled on the deck.

We left Tilbury on 17th March and had a pretty stormy crossing, with a strong easterly wind. About ten o'clock the next morning several small parties of Green Plover passed the ship flying straight into the wind, and throughout the day Chaffinches appeared also flying eastward, the majority settling on the deck or rigging for a few minutes before resuming their flight. Just before dusk a flock of about fifty Starlings flew over the ship going south, probably making for the Danish coast only some fifty miles distant; and finally a Robin came on board and, as far as I am aware, did not leave the ship until we put into dock.

I left Gothenburg on the return journey on 31st March, and we had a perfectly calm passage but with a considerable amount of fog. Two pairs of Chaffinches came on board before we were out of sight of land, and did not leave the ship until we reached England.

Early next morning a speck was sighted following the steamer; it proved to be a Robin which was so exhausted that it struck the water several times, and finally dropped on deck almost unconscious. We put it near a radiator to dry it, and it completely revived and kept us company for the rest of the voyage. When we were in the middle of the North Sea, I was surprised to see two Rooks which passed within a few yards of the bows going towards England, and just afterwards two Hedge-Sparrows came on board from the north. They were very exhausted, and despite our efforts to revive them, one died. I brought it

back, and it turned out to belong to the Continental and not the British race. Our only other passenger was a Redstart which arrived with the Hedge-Sparrows; I was not quite certain of it, so took two photographs of it before it continued its journey an hour later, and the photographs prove my identification to have been correct. The only other migrants of which I am certain were a flock of Golden Plover which crossed us on their way north about fifty miles outside the Thames, and although it was too dark to see them clearly, their cry was quite unmistakable. Although these were the only birds which could be identified with certainty, we saw many other flocks of birds which were too far off for identification, but the numbers of common birds which cross the North Sea every day during the migration season must be quite amazing.

Wild Hybrid between Mallard and Pintail.—While punt-gunning on the Solway, near New Abbey in Kirkcudbright, on 16th November, Mr Adam Birrell shot a duck which, sent to the Royal Scottish Museum, was forwarded to me for final determination, with the information that it contained a well-developed ovary.

It is an old mature female hybrid of Mallard and Pintail (*Anas platyrhyncha* × *Anas acuta*). Its bill is much wider than the largest Pintail bill, the scapulars and back are broadly margined with rufous. The metallic portion of the speculum in some lights is blue *not pure green*, and what is most important, is twice the size of the pure metallic portion in an old Pintail's wing. Also female Pintail have no metallic speculum, and female Mallard have. In the case of this cross, the male hybrid looks much like a Pintail but has the metallic green head of the Mallard and the big blue-green metallic speculum. I have a male and female of this hybrid shot in Holland between 1888 and 1891.

Although I have many hybrid ducks and geese in the Tring Museum, the only wild natural ones I have are Mallard × Pintail; Gadwall × Widgeon (= Bimaculated Duck of Pennant); and Teal × Pintail. I have most other possible combinations but they are tame bred. I think the most remarkable wild or tame hybrid duck I know is the Mallard × Eider in the Royal Scottish Museum.—Rothschild.

STUDIES OF SOME LANARKSHIRE BIRDS.

The Yellow Wagtail and the Blackcap.

By Walter Stewart.

The Yellow Wagtail.

The Green-headed Quaketail of Macgillivray — a by no means happy choice of name for this pretty summer visitor, luckily not perpetuated by subsequent writers on ornithology.

Nowhere in Scotland is the Yellow Wagtail a thickly distributed bird, indeed it is very probable that in numbers it touches its highest mark in certain parts of "Clyde." Outside our county it has seldom been my good fortune to meet with it, except in the following places—Beith, Dalry, and Muirkirk districts of Ayrshire; Friar's Carse and several places between there and Solway or the Dumfriesshire side of the river. Although known to occur in the western district of Midlothian, it was certainly a very rare bird during my boyhood days some forty years ago, but forty years still earlier it was known to Macgillivray in the vicinity of Edinburgh. In Lanarkshire we find it mentioned by the Rev. William Patrick of Hamilton (*New Statistical Account*, 1835) who writes—"The *Motacilla flava* or yellow wagtail is here called the Seed Lady."

The Rev. Thos. Lockerby includes it in his List of the Birds of Cadder (1836). Thirty-five years later we find Robert Gray (*Birds of the West of Scotland*, 1871) writing of it as follows:—

> "In some parts of Lanarkshire and Ayrshire the Oatear or Seed Lady, as this species is called, is very common on its arrival in April. On the banks of the Clyde a few miles east of Glasgow I have seen at this season flights of Oatears enlivening the adjoining fields."

And again in *Flora and Fauna of the West of Scotland*, 1876:—

> "Ray's Wagtail is abundant on the banks of the Clyde on its arrival and a pair may be seen nesting in almost every park enclosure even if surrounded by houses or streets."

In a note on this bird's status in the Glasgow district (*Ann. Scot. Nat. Hist.*, 1895, p. 193), Mr John Paterson corroborates the above statement of Gray's, but adds that beyond these limits he has "almost entirely failed to find it." In a paper on "Birds of Possil Marsh" (*Glasgow Naturalist*, 1913, p. 53), Mr William Rennie writes :—

"The Yellow Wagtail is still a regular visitor. From early in May it is frequently found in varying numbers at and around the Marsh. In the autumn they again congregate in the district before departure."

Mr Rennie looks upon the Marsh as lying under one of the flight lines of migrants, and it is certainly true that the land lying directly N.E. and E. of the city provides a wonderful distributing centre for this species in the early summer, and gathering place before their departure in the autumn.

In Lanarkshire the breeding stock of Yellow Wagtails is distributed as follows:—Extreme north, a few pairs in fields bordering the Kelvin and Luggie; but in the Lochs district it becomes exceedingly plentiful, almost every field having its breeding pair. From east of the City boundary on all fields adjoining the Clyde, including the haughs of Blantyre, Bothwell, and Hamilton, it is common, after which until above Lanark it is sparsely distributed, and gradually disappears.

On the North Calder it has slightly extended its range some distance to the east of Airdrie, and a few pairs now nest in the parish of Shotts; but on the South Calder it is scarce and does not extend farther east than Murdostoun. Nowhere on land adjoining the Mouse or Medwyn have we yet observed it, a remark which also applies to the Douglas and Nethan on the other side. On the lower reaches of the Avon it occurs sparingly, but high up this tributary on land above Strathavon it has become quite plentiful in recent years. Now this extension is a little puzzling, and the question arises: Is this fertile tract of land being populated from Clyde Valley, or is this influx of Yellow Wagtails from Ayrshire?

In the Rotten Calder Valley, except near the Clyde, it is rare, as it is also on the eastern boundary near the White Cart; indeed we have only on one or two occasions seen this bird near Busby.

Although strictly speaking more of a field bird than some of its congeners, the Yellow Wagtail is seldom found very far from our larger streams. The nest is usually placed among growing crops—we have found it amongst cabbage, rhubarb, turnips, oats, hay, and on one occasion in a pasture field. A favourite site is near one of those miniature ponds created by subsidence, so numerous now in Lanarkshire.

The Blackcap.

This exquisite songster, which is no doubt responsible for many of our old-time Scottish records of the Nightingale, is in Scotland, like that bird in England, a very local species. Said to be extending its range in the north, we have met with it in the following localities outside Lanarkshire:—Perthshire, once in both Callander and Lake of Menteith districts; Argyll, rare on the eastern side of Loch Fyne, but more common on the west, although we have not known it in Glen Shira; Ayrshire and Renfrewshire, a few instances in the Beith, Caldwell, and Glengarnock Castle districts; Dumfriesshire, on the lower Nith and once near Moffat; Peeblesshire, in the Skirling district one or two pairs nest; Midlothian, occurs on both Esks, and no doubt still in the Calder Parishes, as forty years ago we knew it as the "Coalhead Warbler," the Reed Bunting being known simply as the "Coalhead." In several parts of West Lothian it also occurs. In Lanarkshire we find it mentioned by the Rev. Wm. Patrick of Hamilton, who writes (*New Statistical Account of Scotland*, 1835): "*Curruca atricapilla* or Blackcap is common, but here it seems to lose that varied and melodious song for which it is famous in the south, and on account of which it is sometimes called the Mock Nightingale." The Rev. Thos. Lockerby no doubt also refers to it when he includes the Nightingale in his list of the birds found in Cadder parish.

About the Blackcap as a Lanarkshire bird Gray is silent,

in fact our knowledge is extremely scant until 1920, when Mr John Robertson (SCOTTISH NATURALIST, p. 43) sketches its distribution in Clyde. Briefly, Mr Robertson has "heard it at Lanark in the east, Inveraray in the west, Loch Lomond in the north, and Culneam Castle in the south." It is also his opinion that it is "more common in the valley of the Clyde between Bothwell Bridge and Lanark than in any other district of the area."

Regarding its distribution in Lanarkshire during the past thirty years, we are able to add the following particulars:—Cambuslang (lower), Rutherglen, East Kilbride, and Carmunnock, one or two regular nesting spots, and a few places where it appears sporadically. In the valley of the Rotten Calder (Blantyre-Cambuslang) between its entrance to the Clyde and Priory Bridge are two spots where it nests regularly, and from there to Calderwood Castle probably three more. On the Blantyre-Bothwell reach of the Clyde we have found it nesting on both sides of the river, but on the Hamilton-Dalziel stretch it is less common, although in the former parish it has been heard at Udston and Cadzow.

In the orchard district from Garrion Bridge to Lanark it is met with in suitable spots. In the Mouse Valley it penetrates to Cleghorn where it sometimes nests, and on the other side of the river it has at least on one occasion nested so far up the Nethan as Stockbriggs. Although as previously mentioned it occurs at Skirling in Peeblesshire, we have not met with it anywhere about Biggar, and only on one occasion on Coulter Water at Coulter Mains.

In the north we have not found it penetrating any distance up the South Calder, but on the North Calder it nests irregularly in Monkland Glen. Farther north it appears sporadically at Cleddans, but in the Lochs district where the Sedge-Warbler is so common we have not met with it.

In one or two little glens in Bothwell parish it also puts in an irregular appearance, as in Legbrannock Glen it nested in 1926, but was not seen in 1927 until the last week in October.

In many Lanarkshire districts the Blackcap is one of our latest arrivals, sometimes only appearing a few days earlier than the Spotted Flycatcher. No time is lost, however, before it commences nest-building, which is usually a slightly more substantial structure than that of the Garden-Warbler; although in the majority of cases a less secure site is chosen, resulting in a high percentage of failures. The common type of egg much resembles that of the Garden-Warbler, and is not easily separated in a cabinet. Only once—in the West Calder district of Midlothian—have we found that prize, the pink type of egg, which is on rare occasions produced by this bird. A clutch of three of these eggs was found in a badly tilted nest, no doubt forsaken, supported by stalks of "Queen of the Meadow"; but unfortunately mine gave way in the blowing, although my two companions were more lucky with theirs.

Large Basking Shark.—The German trawler *St Paull*, of Cuxhaven, sailed from Aberdeen to Cuxhaven on 9th October to dispose of the carcase of what was stated to be the biggest specimen of the Basking Shark (*Cetorhinus maximus*) ever caught on this side of the Atlantic, and secured in the trawler's nets at the Icelandic fishing grounds. It measured 32 feet in length, and weighed nearly 6 tons. Dr Bowman, of the Fishery Board of Scotland's Fish Hatchery at Bay of Nigg, stated that the largest specimen of the Basking Shark hitherto known on this side of the Atlantic measured 28 feet in length, but in American waters, the Shark's natural habitat, it has been known to attain 35 feet.—*The Scotsman*, 10th October.

Basking Shark in Argyll.—A Basking Shark (*Cetorhinus maximus*) was washed ashore at West Loch Tarbert, on the 27th of August. I towed it out to deep water and sunk it there. The length of the Shark was 28 feet, and it was 4 feet 3 inches in depth. —Thomas Maxwell, Tarbert.

THE FEEDING HABITS OF THE SEA-ANEMONE METRIDIUM.

By Professor G. H. Parker,
Director of the Zoological Laboratory, Harvard University.

In the Scottish Naturalist for 1925 Elmhirst describes the feeding habits of the Sea-anemone *Actinoloba dianthus* as follows: "Longitudinal grooves run down the gullet, and when food is being swallowed the inflow is along the grooves; conversely a ciliary outflow runs up the ridges, for example when a bolus of waste is discharged it is passed out by the cilia on the ridges aided by a certain amount of contraction of the stomodæal wall. At times there is a vortex in the gullet when both sets of cilia are in action at once." This account, which implies two systems of cilia, one for the grooves and the other for the ridges, is quite in accord with what is known of the feeding mechanism in many pelecypod mollusks whose labial palps have been shown to possess these two ciliary systems. Is this really the means whereby food is appropriated in sea-anemones?

Some thirty years ago the writer became interested in this subject and published two papers (Parker, 1896, 1905) in which the conclusions were very different from those arrived at by Elmhirst. According to this older work the ciliary current on the lips of the American Sea-anemone, *Metridium marginatum*, is ordinarily outward, and bits of inert material, such as filter paper, are thereby discharged. When food, such as fragments of mussel meat, is placed on the lips, the ciliary beat reverses, and partly through this reversal and partly by muscular peristalsis the morsel of food is swallowed. The possibility of reversal does not seem to have occurred to Elmhirst, and the question arises, In what way is the food carried into the mouth of the Sea-anemone? Are there two systems of cilia beating in opposite directions, or is there ciliary reversal? Gray (1928), who has taken up this subject in his recent book on *Ciliary Movement*, remarks (p. 60): "One would like to be quite certain that the reversal of the currents observed by Parker is not due to two separate series of cilia which beat in opposite directions on the ridges and in the furrows." In consequence of this uncertainty the whole field was worked over again

this past season at the Marine Biological Laboratory, Woods Hole, and a paper is now in press (Parker and Marks) in which the details of experimentation are given, and of which the present communication is only a brief summary. Incidentally, it may be remarked that *Actinoloba dianthus*, the Sea-anemone worked upon by Elmhirst, is, according to the most recent list of British Sea-anemones (Stephenson, 1928, p. 111), a variety of *Metridium senile*. Hence, notwithstanding the difference in names, the species studied by Elmhirst and by us are in reality both members of the same genus and very closely related.

We quickly convinced ourselves by experiments on the American species that Elmhirst's statements apply to this form as well as to the British one. Ciliary currents run outward on the lip ridges and inward in the grooves. But it is also equally easy to prove that still more is true. In these tests we used large specimens of Sea-anemones in which the oral disk was six or seven centimeters in diameter and the pair of protruding lips covered a circular area nearly two centimeters across. On such specimens the conspicuous labial grooves and ridges can be readily seen with the unaided eye, and the details of their reactions can be easily followed under a hand lens.

When small pieces of clean filter paper, about a millimeter long and a quarter of a millimeter broad, are inserted on a needle-point into a labial groove, they may in a moment or two pass along the groove either inward or outward. Those that pass outward are commonly discharged from the lips near the bases of the tentacles; those that pass inward ordinarily pass in this direction only a short distance and then reverse their course and pass outward to be discharged as already described. Similar small pieces of filter paper put upon individual ridges occasionally pass inward, but in most cases pass outward to be discharged near the bases of the tentacles.

Minute fragments of mussel meat, so small that they may be placed in a single groove or on a single ridge, are invariably carried inward over the lips and down the gullet. This response is accomplished with regularity and, in con-

junction with the tests with filter paper, afforded the basis of my former interpretation of the feeding habits. It also led to the following test concerning reversal. If a minute piece of clean filter paper is released from a needle-point on to a particular labial ridge, it can commonly be shown by the direction of movement of the paper that the ciliary beat is outward, and when such is the case if a very small fragment of mussel meat is immediately thereafter placed upon the same ridge, the meat invariably passes inward and is swallowed. This type of response is difficult to understand except on the assumption of ciliary reversal.

Direct evidence of reversal can be seen in the following test. A labial ridge three or four millimeters in length may be cut from the lip of a living *Metridium* and mounted on a wax plate in sea-water in such a way that its orientation in the living animal may be kept before the observer. Under such circumstances the action of the cilia is directly observable under the microscope, and they can be seen to beat in a direction corresponding to outward. If such a preparation is now flooded with sea-water containing juice freshly extracted from mussel meat, the cilia after a few seconds of uncertain movement reverse their stroke and beat in a direction corresponding to inward. If such a reversed preparation is rinsed thoroughly in pure sea-water the cilia soon return to the original direction of beat. As there is no evidence for special lines of cilia on the ridges, and as this reversal can be seen to take place under the eye of the observer, we are convinced that ciliary reversal is a real occurrence in *Metridium marginatum.* It will be interesting to learn if such is not also true in the British species worked upon by Elmhirst.

REFERENCES.

Elmhirst, R., I. "Associations between the Amphipod Genus Metopa and Cœlenterates." II. "The Feeding Habits of the Sea-Anemone, Actinoloba," *Scot. Nat.*, 1925, p. 149.

Gray, J., *Ciliary Movement*, Cambridge, 1928, 162 pp.

Parker, G. H., "The Reactions of Metridium to Food and other Substances," *Bull. Mus. Comp. Zool.*, 1896, xxix., 107.

Parker, G. H., "The Reversal of Ciliary Movement in Metazoans," *Amer. J. Physiol.*, 1905, xiii., 1.

Parker, G. H., and A. P. Marks, "Ciliary Reversal in the Sea-Anemone Metridium," 1928. (In press.)

Stephenson, T. A., *The British Sea-Anemones*, 1928, London, pp. 148.

INDEX

NOTE.—*No attempt is made to index in detail the species mentioned throughout articles.*

A

Adder, venom of, 4
Anarrhichas latifrons, off Shetland Isles, 95
Anchomenus sahlbergi, from Renfrewshire, 29
Argentina, see Smelt, Great Silver
Argyllshire, Basking Shark in, 187
  Polecat in, 36
  Smew in, 123
  Snow Geese in, 122
Ayrshire, Crossbills in, 52, 76

B

BAXTER, EVELYN V., Crossbill in Orkney, 16; Common and Velvet Scoter in Orkney, 28
BAXTER, EVELYN V., and LEONORA JEFFREY RINTOUL, Decrease of Tree-Sparrows, 25; Report on Scottish Ornithology in 1927, 105, 135; Unusual numbers of Weasels, 168
Bees, Humble, of Iona, 29
Beetle, *Anchomenus sahlbergi*, from Renfrewshire, 29
BERRY, JOHN, Ordinary Migration across the North Sea, 181
BERRY, WM., Decrease of Sandwich Terns at Tentsmuir, Fife, 126; Spotted or Dusky Redshanks in Fife, 133
Berwickshire, curious House-Martin's nest, 27
  Honey Buzzard in, 174
Bird-Life in an Office Garden, 23
Bird Notes from East Lothian, 1927, 61
Birds, census of island, 169
  extension of breeding range, 109
  of Forth area, 5, 124
Birds, *continued*—
  habits, etc., 135
  movements of species in 1927, 140
  new to faunal areas, 107
  recovery of ringed, 119
  sanctuary, Duddingston Loch, 35
  sanctuary, Possil Loch, 165
  studies of Lanarkshire, 19, 41, 97, 183
  in summer 1927, 112
  in winter 1926-27, 117
  unusual plumages, 135
  variations in numbers, 110
BISHOP, J., Honey Buzzard in Berwickshire, 174
Blackbird, age of, 26
Blackcap, in Fife, 61
  in Lanarkshire, 185
BOOK NOTICES: Manual of British Birds, Howard Saunders, 31; The Birds of the Island of Bute, Rev. J. M. M'William, 31; How Birds Live, E. M. Nicholson, 32; Handbook of the Echinoderms of the British Isles, Th. Mortensen, Ph.D., 32; Creative Education in School, College, University, and Museum, Dr Henry Fairfield Osborn, 62; The Elements of General Zoology, Prof. J. W. Dakin, 62; A Bird Book for the Pocket, Edmund Sandars, 63; Popular Handbook of Indian Birds, Hugh Whistler, 63; The Biology of Insects, George H. Carpenter, 64; A British Garden Flora, Lt.-Col. J. W. C. Kirk, 64; The Geographical Distribution and Status of Birds in Scotland, Evelyn V. Baxter and Leonora Jeffrey Rintoul, 96; Romances of Natural History, Dr J. J. Simpson, 128

Bream, Ray's, immigration of, 28
Bunting, Cirl, in S.W. Scotland, 94
Bute, Eider nesting, 125
Buzzard, Honey, in Berwickshire, 174

C

Caithness, Pectoral Sandpiper, 168
Pisidium henslowanum, 30
Cats, Wild, in Forfarshire, 76
Census of island birds, 169
of vole plagues, 171
Cetorhinus, see Shark, Basking
Chough, in Lanarkshire, 43
CHRISTIE, Miss, Albino moles, 125
CLARKE, Dr W. EAGLE, Quail summering in Edinburgh, 134
Clyde Area, Little Tern breeding, 125
Mungoose in, 121
records of Smew, 85
see also Lanarkshire
CONNELL, CHARLES G., Bird-Life in an Office Garden, 23; Slavonian Grebe at Duddingston Loch, Midlothian, 27; Further Notes on Rookeries in Edinburgh, 134
Corncrake, increasing scarcity, 17
Crabs of Britain and N.E. Atlantic, 53, 87
Crossbills in Ayrshire, 52, 76
in Orkney, 16
persistent stay in Perthshire, 16
in Selkirkshire, 16
Crow, Carrion, in Lanarkshire, 19
Hooded, in Lanarkshire, 41

D

Deer, Roe, unusual development of calf, 49
Destruction of life in sea, 124
Diver, Red-throated, on Duddingston Loch, 61
Dove, Stock, in Edinburgh, 121
in Lanarkshire, 99
Turtle, with Belgian ring, 127
in Canna, Inverness-shire, 24
Duck, Gadwall in Galloway, 122
hybrid between Mallard and Pintail, 182
Duck, *continued*—
Long-tailed, in Wigtownshire, 174
Mallard Duck assumes drake's plumage, 80
Smew in Argyll, 123
Duddingston Loch, Bird Sanctuary, 2nd Annual Report, 35
Dumfriesshire, Hoopoe in, 25
Raven nesting in a Tree, 26

E

Edinburgh, Bird-Life in an Office Garden, 23
Quail nesting in, 134
Rookeries, 69, 134
Stock-dove in, 121
Tree-Sparrow around, 37, 164
Eider nesting in Bute, 125
EVANS, WILLIAM, The late, A List of the Birds of the Forth Area, 5; Peregrine Falcon nesting in Midlothian, 86

F

Fair Isle, Belgian bird at, 127
decrease of House-Sparrow, 162
Desert Wheatear at, 180
Eastern Short-toed Lark at, 16
Eversmann's Warbler at, 164
Lesser Grey Shrike, 127
FAIRWEATHER, CAPT., on Whaling, 127
Falcon, Peregrine, nesting in Midlothian, 86
Feeding Habits of Sea-Anemone, 188
FERGUSSON, ANDERSON, An Old Record of the Carabid Beetle, *Anchomenus sahlbergi*, Chaud., from Renfrewshire, 29
Fieldfare, farthest west record, 174
Fife, Blackcap Warbler in, 61
decrease of Sandwich Terns, 216
Dusky Redshanks in, 133
Surf Scoter in, 25
Weasels, unusually common, 168
Floods, Natural History of, 1
Forfarshire, Wild Cats in, 76

Forth area, birds of, 5, 124
Forth Bridge, Starlings roosting on, 50
Forth, Firth of, Common Porpoise in, 50
fluctuations in numbers of Terns, 179
Pilot Whale stranded in, 50
Fulmar, courtship and breeding of, 39

G

Galloway, Gadwall in, 122
Garganey, addition to breeding birds of Scotland, 77
Geese, Brent, late stay of, 122
Snow, in Argyllshire, 122
GLADSTONE, HUGH S., Raven nesting in a tree, 26; Wild Duck assuming drake's plumage, 80; Long-tailed Duck in Wigtownshire, 177
Goldfinch in Canna, Inverness-shire, 24
in Kirkcudbrightshire, 174
Grebe, Slavonian, at Duddingston Loch, 27
Greenshank in Fife, 133
GRIEVE, SYMINGTON, the Smew in Argyll, 123
Gulls, piratical habits of, 26
Scandinavian Lesser Black-backed, in the Tweed area, 94
GUNN, P. W. G., Whoopers on the Pentlands, 61; Red-throated Diver on Duddingston Loch, Midlothian, 61; Little Terns in East Lothian, 94; Additions to list of birds of Forth Area, 124

H

HAMILTON, DAVID, The Tree-Sparrow around Edinburgh, 37; Starlings roosting on the Forth Bridge, 50; Bird Notes from East Lothian, 1927, 61; Addition to list of birds of Forth area, 124; Tree-Sparrow around Edinburgh, 164; Pugnacity of Waterhen, 164; Further Observations on the Swift, 175
HAMILTON, DAVID, and J. KIRKE NASH, Piratical Habits of Gulls, 26
Herring, migrations of, 51
Hoopoe in Dumfriesshire, 25
Horne, Dr John, death of, 68
Hybrid between Mallard and Pintail, 182

I

INGLES, WM., Fluctuation in numbers of Terns on an island in the Firth of Forth, 179
Inverness-shire, Mallard Duck assumes drake's plumage, 80
two birds new to Canna, 24
unusual development of Roe Deer calf, 49
Weasels unusually common, 168
Investigation scheme, 169
Investigation of island birds, 169
of vole plagues, 171
Iona, Humble Bees of, 29
Island birds, census of, 169

J

Jay in Lanarkshire, 97

K

KINNEAR, N. B., British Great Spotted Woodpecker in Perthshire and Galloway, 168; Goldfinches in Kirkcudbrightshire, 174
Kirkcudbrightshire, Goldfinches in, 174
wild duck assuming drake's plumage, 80

L

Lanarkshire, Bird Studies, 19, 41, 97, 183
Great Snipe in, 52
Starling in, 81
Landrail, increasing scarcity, 17
Lapwing, long distance migration, 67
protection of, 67
Lewis, Lesser Rorqual stranded, 76

Lothian, East, bird notes from, 1927, 61
Little Tern at Aberlady, 24
Little Terns in, 94
Ruff and Curlew-Sandpiper at Aberlady, 26
Lothian, Mid-, *see also* Edinburgh
nesting of Peregrine Falcon in, 86
Red-throated Diver on Duddingston Loch, 61
rookeries, 69
Slavonian Grebe at Duddingston Loch, 27
Whoopers on the Pentlands, 61

M

MACKENZIE, PATRICK H., Natural Destruction of Life in the Sea, 124
M'WILLIAM, ALICE M., Humble Bees of Iona, 29
Magpie, in Lanarkshire, 45
Mallard Duck assumes Drake's plumage, 80
MARSHALL, JAMES M'L., Persistent Stay of Crossbills, 16
Martin, House-, adapted nest of, 27
MAXWELL, SIR HERBERT, The Adder's Venom, 4; A Gluttonous Pike, 95; Gadwall in Galloway, 122
MAXWELL, THOMAS, Basking Shark in Argyll, 187
Meganyctiphanes, destruction of, 124
Meinertzhagen, Mrs, Obituary Notice, 130
Metridium, feeding habits, 188
Mice, Field, census of plagues, 171
Migration, conditions in 1927, 138
long-distance, of Lapwing, 67
movements of birds in 1927, 140
across North Sea, 181
MOFFAT, A. G., Hoopoe in Dumfriesshire, 25
Moles, albino, 125
Mollusca, *Pisidium henslowanum* (Shepp.) in Caithness, 30
Muirhead, Dr George, death of, 3
Mungoose in Clyde Area, 121
Museum, Paisley, 68
Museums, Zoos and, 65

N

NASH, J. KIRKE, Two Birds new to Canna, Inverness-shire, 24; The Rookeries of Greater Edinburgh and Midlothian, 69; Fertility of a Water-Hen, 86; Stock-Dove breeding in Royal Botanic Garden, 121; Early arrival of Sandwich Tern and late stay of Brent Geese, 122
NASH, J. KIRKE, and HAMILTON, DAVID, *see under* HAMILTON, D.
North Sea, migration across, 181

O

OBITUARY NOTICES—
Mrs Meinertzhagen, 130
Dr George Muirhead, 3
John Paterson, 129
Dr John Rennie, 133
OLDHAM, CHAS., Caithness Mollusca, *Pisidium henslowanum* (Shepp.), 30
Orkney, Common and Velvet Scoter in, 28
Crossbill in, 16
Ornithology, Report on Scottish, 105, 135
Ouzel, Ring, dates of arrival, 60
Ox, Great Extinct, Remains in Perthshire, 38

P

Paisley Museum, Guide, 68
PARKER, PROF. G. H., The Feeding Habits of the Sea-Anemone Metridium, 188
Pastor, Rose-coloured, in Lanarkshire, 98
PATERSON, JOHN, Crossbill in Ayrshire, 52; Great Snipe in Lanarkshire, 52; Blackcap Warbler in South Fife, 61; Some Records of the Smew from the Clyde Area, 85
Paterson, John, Obituary Notice, 129
PATON, E. RICHMOND, Crossbills in Ayrshire, 76; Cirl Bunting in S.W. Scotland, 94

PERKINS, MICHAEL, A Simple Key to the Crabs (*Brachyura*) of Britain and in N.E. Atlantic, 53, 87
Perthshire, persistent stay of Crossbills, 16
raid by rats on nests at Scone Palace, 40
remains of the Great Extinct Ox, 38
Society of Natural Science, 36
Pike, gluttony of, 95
Pipe-fish, Great, in Tay, 124
Polecat in Argyllshire, 36
Porpoise, Common, in Firth of Forth, 50
Protection of Lapwing, 67
Pugnacity of Water-hen, 164

Q

Quail, nesting in Edinburgh, 134

R

Rats, raid on nests, 40
Raven nesting in tree, 26
Redshank, Dusky, in Fife, 133
Renfrewshire, Carabid Beetle, *Anchomenus sahlbergi*, 29
Rennie, Dr John, Obituary Notice, 133
RINTOUL, LEONORA JEFFREY, Scandinavian Lesser Black-backed Gulls in the Tweed Area, 94
RINTOUL, LEONORA JEFFREY, and EVELYN V. BAXTER, *see under* BAXTER, EVELYN V.
RITCHIE, Dr JAMES, Scottish Whale Records, 15; The Age of a Pied Blackbird, 26; Remains of the Great Extinct Ox in Perthshire, 38; Unusual Development of Roe Deer Calf, 49; Lesser Rorqual stranded in Lewis, 76; The Garganey — an Addition to the Breeding Birds of Scotland, 77; Basking Shark in Solway Firth, 123; Great Silver Smelt in North Sea, 123; New Investigation Scheme — an opportunity for Scottish Naturalists, 169
RITCHIE, JOHN, Great Pipe-fish in Firth of Tay, 124
ROBERTSON, JOHN, Breeding of Little Tern in Clyde Area, 125; Eider nesting in Bute, 125
ROBINSON, H. W., Dates of Arrival of the Ring-Ouzel, 60; Snow Geese in Argyllshire, 122
Rookeries, Greater Edinburgh and Midlothian, 69
in Edinburgh, 134
Rorqual, Lesser, stranded in Lewis, 76
Ross-shire, Walrus at Gairloch, 76
ROTHSCHILD, Rt. HON. LORD, Wild hybrid between Mallard and Pintail, 182
Ruff at Aberlady, East Lothian, 26

S

Sanctuary, Duddingston, 35
new Scottish, 165
Possil Loch, 165
Sandpiper, Curlew, at Aberlady, 26
Green, in Fife, 133
Pectoral, in Caithness, 168
Schizopods, destruction of, 124
SCONE, LORD, Raid by Rats on Nests at Scone Palace, 40
Scoter, Common and Velvet, in Orkney, 28
Surf, in St Andrews Bay, 25
Scotland, S.W., Cirl Bunting in, 94
Scottish Ornithology in 1927, 105, 135
Sea-Anemone, feeding habits, 188
Selkirkshire, Crossbills in, 16
Shark, Basking, in Solway, 123
large, 187
in Argyll, 187
Shetland Isles, rare Cat-fish (*Anarrhichas latifrons*) off, 95
decrease of House-Sparrow, 162
Shrike, Lesser Grey, at Fair Isle, 127
SIMPSON, J. R., Crossbills at Bowhill, Selkirkshire, 16; A House-Martin's Adapted Nest, 27; Swift rising from ground, 124
Smelt, Great Silver, 123
Smew, records from Clyde area, 85
Snipe, Great, in Lanarkshire, 52
Solway Firth, Basking Shark in, 123
Sparrow, House-, remarkable decrease, 162

Sparrow, Tree-, decrease of, 25
around Edinburgh, 37, 164
Starlings, in Lanarkshire, 81
roosting on the Forth Bridge, 50
STENHOUSE, Surgeon Rear-Admiral J. H., Eastern Short-toed Lark at Fair Isle, 16; Belgian-ringed Bird at Fair Isle, 127; Remarkable decrease of the House-Sparrow in Fair Isle and Shetland, 162; A far-travelled Fieldfare, 174; Desert Wheatear at Fair Isle, 180
STEPHEN, A. C., The Recent Immigration of Ray's Bream to Scottish Waters, 28; Pilot Whale stranded in Firth of Forth, 50; Common Porpoise in Firth of Forth, 50; The Migrations of the Herring, 51; A rare Cat-fish (*Anarrhichas latifrons*) off the Shetland Isles, 95
STEWART, WALTER, Studies of some Lanarkshire Birds—Carrion Crow, 19; Hooded Crow, Chough and Magpie, 41; Starling, 81; Jay, Rose-coloured Pastor, Stock-dove, 97; Yellow Wagtail and Blackcap, 183
Stork, White, in Scotland, 3
STOUT, GEORGE, Eversmann's Warbler at Fair Isle, 164
Swift, observations on, 175
rising from ground, 124

T

TAIT, PROFESSOR JOHN, The Courtship and Breeding of the Fulmar, 39
Tay, Firth of, great Pipe-fish in, 124
Tentsmuir, Sandwich Terns, 126
Terns, fluctuations in numbers, 179
Little, nesting at Aberlady, 24
in East Lothian, 94
breeding in "Clyde," 125
Sandwich, decrease in Fife, 125
early arrival, 122
THOMPSON, PROF. D'ARCY W., Surf Scoter in St Andrews Bay, 25
TICEHURST, Dr C. B., Pectoral Sandpiper in Caithness, 168
Training in natural history, 33
Tweed Area, Scandinavian Lesser Black-backed Gulls in, 94

V

Vole plagues, census of, 171

W

Wagtail, Yellow, in Lanarkshire, 183
Walrus at Gairloch, 76
Warbler, Blackcap, in South Fife, 61; in Lanarkshire, 185
Eversmann's, at Fair Isle, 164
Water-hen, fertility of, 86
pugnacity of, 164
Weasels, unusual numbers, 168
Whale, Pilot, stranded in Firth of Forth, 50
Whale records, Scottish, 15
Whaling, account of, 127
Wheatear, Desert, at Fair Isle, 180
Whoopers on the Pentlands, 61
Wigtownshire, Long-tailed Duck in, 174
WILD, OLIVER H., The Increasing Scarcity of the Landrail or Corncrake, 17; nesting of Little Tern at Aberlady, East Lothian, 24; Ruff and Curlew-Sandpiper at Aberlady, East Lothian, 26
WILSON, JEROME, lesser Grey Shrike at Fair Isle, 127
WOLFENDEN, A. M., Mallard Duck assumes Drake's Plumage, 80
Woodpecker, Great Spotted, in Perthshire, 168; Great Spotted, in Galloway, 168
WOTHERSPOON, D., Mungoose in Clyde Area, 121

Y

Young Idea and its Training, 33

Z

Zoos and Museums, 65

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With the assistance, as Referees in Special Departments, of

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CONTENTS

PAGE

A New Scottish Bird Sanctuary—*Editorial* . . . 165

New Investigation Scheme—An Opportunity for Scottish Naturalists—*Dr James Ritchie* 169

Further Observations on the Swift (*Illustrated*)—*David Hamilton* 175

The Desert Wheatear (*Œnanthe d. deserti*) at Fair Isle—*Surgeon Rear-Admiral J. H. Stenhouse* 180

Ordinary Migration across the North Sea—*John Berry* . . 181

Studies of some Lanarkshire Birds—The Yellow Wagtail and the Blackcap—*Walter Stewart* 183

The Feeding Habits of the Sea-Anemone *Metridium*—*Prof. G. H. Parker*, Harvard University 188

Notes:

Unusual Numbers of Weasels—*Evelyn V. Baxter* and *Leonora Jeffrey Rintoul*, 168; Pectoral Sandpiper in Caithness—*Dr C. B. Ticehurst*, 168; British Greater Spotted Woodpecker in Perthshire and Galloway—*N. B. Kinnear*, 168; Goldfinches in Kirkcudbrightshire—*N. B. Kinnear*, 174; A Far-Travelled Fieldfare, *Surgeon Rear-Admiral J. H. Stenhouse*, 174; Long-tailed Duck in Wigtownshire—*H. S. Gladstone*, 174; Honey Buzzard in Berwickshire—*J. Bishop*, 174; Fluctuation in numbers of Terns on an Island in the Firth of Forth—*Wm. Ingles*, 179; Wild Hybrid between Mallard and Pintail—*Right Hon. Lord Rothschild*, 182; Large Basking Shark, 187; Basking Shark in Argyll—*Thomas Maxwell*, 187.

Index 191

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The Annual Subscription for 1929, payable in advance, 12s. 6d. post free, should be addressed to the Publishers, Oliver and Boyd, Tweeddale Court, Edinburgh.

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Special Cloth Cases for Binding the 1928 Volume can be supplied at 1s. 6d. each (by post 1s. 9d.), by Oliver and Boyd, Tweeddale Court, Edinburgh.

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