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THE JOURNAL OF THE WILD BIRD INVESTIGATION SOCIETY.

Edited by
WALTER E. COLLINGE, D.Sc., F.L.S., F.E.S., M.B.O.U.

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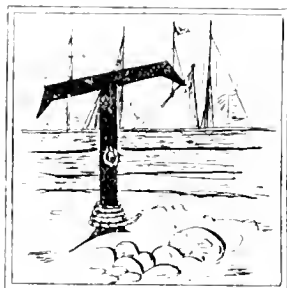
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THE JOURNAL OF THE WILD BIRD INVESTIGATION SOCIETY.

POND FREQUENTING BIRDS AS SEED CARRIERS.

BY E. ADRIAN WOODRUFFE-PEACOCK, F.L.S., F.G.S., F.E.S.



HERE are two birds which are commonly found in isolated ponds, the Mallard or Wild Duck and the Water-Hen. The following notes refer to these two species only, except where I

mention others. By ponds I mean artificially made watering places for stock, excluding from this paper moorland flashes and lakelets, as well as all trilling waters of the acid soils of the true *Calluna-Erica-Pteris* area.

Ponds of human construction are of several types.

1. Spring ponds have a ditch from them down an incline to carry away surplus water.

2. Sipe ponds have no true springs, and yet they receive a stock of water by soakage through the upper or worm-made soil on clays, or through the whole mass of soil in lighter rock formations.

3. Ditch ponds have water carried to them by small open drains cut in the valleys surrounding them.

4. Pipe ponds are fairly common in the wide flat areas of Lincolnshire. They are not easy to distinguish at first, but are always fed from more or less permanent ditches or becks through underground pipes on the drain-system.

5. Clay-pit ponds explain themselves, but in most cases there is a ditch from them to carry away their over-much waters, but in some cases these carry water to them.

6. Dew ponds are usually the most isolated of all. They are made with impervious bottoms, and usually lie in hollows and drain a given area surrounding them.

These kinds of ponds must be carefully distinguished, for I am only going to write of the Duck and Water-Hen carried species of the purely isolated waters; so I only consider here (1) spring, (2) sipe, and (6) dew-ponds.

Even from these much has to be excluded from our view, if we want to thoroughly understand what bird-carriage is, in contradistinction to mammal- or animal-carriage generally. Everything in fact that pasture or meadow, or the ditches found in them can supply by animal- and mammal-carriage has to be put aside. As for example (a) *Cardamine pratensis*, *Juncus glaucus* and *Urtica* from the grass surface, and (b) *Ranunculus repens*, *Radicula nasturtium* and *Scrophularia aquatica* from the ditches. The seeds of these and other species I shall disregard, as all are ever being carried on the feet of stock when wet or muddy.

These are all the species left, taking a fair average of one hundred isolated ponds on any class of non-acid soils, *Agrostis palustris* in 28; this species perhaps ought to be excluded, but I happen to know that it generally comes from a distance. *Alisma plantago-aquatica* in 26; a typical duck-carried species. *Hopcurus geniculatus* in 20. *Apium inundatum* on gravelly and sandy soils in 1. *A. nodiflorum* in 4 spring ponds, but only 1 in the same number without springs. *Callitriche stagnalis* in 25. *Carex acutiformis* in 1.

C. disticha in 1. *C. elata* in 2. *C. flacca* in 4. *C. goodenocii* in 1. *C. hirta* by 9; also Snipe-carried. *C. fulvicaris* in 1. *C. vesicaria* in 3. *C. vulpina* by 1. *Calabrosa aquatica* in 5; also Snipe-carried. *Chara vulgaris* in 2. *Eleocharis palustris* in 2; also Snipe-carried. *Elodea canadensis* in 5. *Epilobium hirsutum* in 5. *Equisetum arvense* by 4. *Galium palustre* by 2. *Glyceria fluitans* by or in 40. *Hippuris vulgaris* in 1. *Iris pseudacorus* in 1 in 200, except on limestones. *Juncus articulatus* in 2. *J. bufonius* by 1. *J. bulbosus* in 1. *J. conglomeratus* in 1. *J. gerardi* by 1. *J. sylvaticus* by 1. *Lemma gibba* in 3. *L. minor* in 25. *L. polyrhiza* in 1. *L. trisulca* in 3. *Lycopus europaeus* in 1. *Mentha hirsuta* in 1. *Myosotis palustris* in 6, usually nearly associated. *Myriophyllum spicatum* in 1. *Parnassia palustris* by 1; but perhaps as often Snipe-carried, like *E. palustris* and *Triglochin palustris*. *Pepelis portula* in 1. *Phalaris arundinacea* in 8. *Phragmites communis* in 1. *Polygonum hydropiper* in 1. *Potamogeton crispus* in 2. *P. densus* in 1. *P. natans* in 10. *P. pusillus* in 1. *Ranunculus acris* in 34. *R. flammula* by or in 1. *R. floribundus* in 12. *R. scleratus* by 4. *Rosa canina* by 1; sown by Blackbirds, by regurgitation before drinking. They also sow *Cretagus oxyacantha* and *Hedera helix* in the same way, but these very rarely grow. *Rumex hydrolapathum* by 1. *R. maritimus*, before 1803 on sands and sandy gravels by 5; now practically never met with, only 1 in 500. *R. nemorosus* in 2. *Stellaria aquatica* by 2 or more associated ponds. *Tolypella glomerata* in 1 clay pond. (In 2 acid peat-ponds). *Typha latifolia* in 1 clay pond. *T. media* 2 in 300 on sandy gravels. *Valeriana officinalis*, aggregate, by 2. *Veronica anagallis* in 4 or more associated ponds. *V. beccabunga* in 18. *Zannichellia palustris* in 2, before 1803, not since.

Before 1803 came a whole series of more or less wet seasons, since that date have come a

whole series of dry ones, especially of dry autumns. Now the Wild Duck never stays at home at night on its day-resting waters. We only have it with us during the daylight, unless the birds are "fog-bound." These ducks "rise" in the evening shades and depart to feed on the sea coast or just within the sea banks or sand hills, or the mud flats of the Trent, Ouse or Humber river, or Wash, anywhere in fact for change of scene. It is a fact too that in this wide county wherever rare water-loving plants have been recorded in the past or are with us now, there wild ducks have collected in masses during the autumn months. This is just as certain as the correlated law that wherever the *Calluna-Erica-Pteris*-loving migrants rest we get our rarest heath species.

On the other hand the Water-Hen is almost purely local, and unless severe snow and frosts drive it away is with us the whole year round, with little additions to its numbers except after the breeding season.

The result is that a single glance at the above isolated pond list—and it only contains about two-thirds of the species found in these ponds—tells the worker at once which species are duck-carried and which are more locally moved by Water-Hens. The rarely found ones are purely duck-carried, the common ones are carried by both species; the Wild Duck from a distance, and the Water-Hen locally. There is, however, another and most important law lying under the surface of this frequency table, which must always be looked out for in the field and jotted down there. When a rare species in isolated ponds is found in local aggregates of ponds, or in associated ponds, there is proof positive that this species is not only Wild Duck-carried, but locally Water-Hen dispersed. They are noted in this list as locally associated.

Another short article will be required to show how these species are carried by these birds.

THE COMMON TERN AND ITS ENEMIES.

BY H. C. WILLIAMSON, M.A., D.Sc.,

Marine Laboratory, Aberdeen

A visit to the nesting-place of the Common Tern (*Sterna hirundo*, L.) is a very interesting experience. The nests, each with two or three eggs, are thickly scattered over the region of sand and turf. The egg has a dark chocolate ground colour, with dark brown

spots; there is considerable variation in the colouration. A perfectly white egg, which is said to be infertile, is, however, sometimes to be seen. The nest is often merely a depression in the turf, or a little hollow scraped in the sand, furnished with a wisp of dried grass. The



Fig. 1—The Common Tern (*Sterna hirundo*, L.).

eggs are very conspicuous, and it seems likely that they help to guide the bird on its return and enable it to recognise its property. A Tern has been observed to hover at some height, as if in order to locate the nest. I have observed in several instances the nest con-

tain two similarly coloured eggs, and a third of a darker or lighter ground colour. One not unfrequently comes upon an egg, whole, and it may be fresh, lying away from any nest. It has been suggested that a sheep might have dislodged the egg, but one would expect, in such a case, that it must have

been of necessity broken. Might it be a stranger egg which the Tern had evicted? It appeared that a case in which one bird was chasing another, might have been due to a dispute over a nest.

Great numbers of eggs are said to be destroyed, and the later nesting, in July, might be in part due to this fact. The Hooded Crow is blamed for the empty egg-shells in many cases.

fully. For example, they may be invisible when one looks horizontally, but they are easily detected from the height of an adult's eye, when one approaches them. Occasionally one of the older birds will peck one, but most of them lie quite still and submit to handling.

A large mortality has in certain years occurred among the Terns when they are almost ready to fly. Mr. L. Thomson and the late Mr. Ramsay, who devoted attention to



Fig 2.—Nestlings of the Common Tern.

Young Terns are found on the links towards the end of June and during July. The chick does not seem to stay in the nest long after hatching. It is a conspicuous object, but remains quiet, if lifted and set down again it runs off to cover. The predominant colour is brown, with yellowish feet, and toes and point of beak black. They try to conceal themselves, and to a certain extent success-

fully. In this matter, had suggested that the young birds had died from starvation, due possibly to a dearth of young herrings and sandeels in the neighbouring sea. If such a scarcity did occur it seems very probable that the young Terns would suffer severely.

A visit was paid to the ternery on July 19th. A large flock of Terns and Black-headed Gulls flew over the dunes. Many unhatched

eggs were seen, and numerous young Terns, the majority of which were almost ready to fly, were scattered here and there among the bent. At this stage the bird is of a slatish colouration, with a black cap, with red beak and legs; the beak has a black tip. The brownish tips of the feathers still persist and give a darker tinge to parts. The general colouring is now approaching that of the adult. Very few dead birds were observed. One little Tern which lay gasping died when it was lifted. There was no external sign of injury; the shock of capture had evidently precipitated death. A like tragic result has been observed in the case of a young bird of another species also.

It seems probable that the young Tern had been exhausted by starvation, for when it was prepared for stuffing it was found to be thin. If, however, it was suffering from want of food, it was not due to a dearth of fishes, for a number of small herrings and sandeels, about three inches long, were found lying on the dunes, and a fortnight later great quantities of young herrings were present in the sea about twelve miles distant from the spot; there was no reason to suppose they were not to be found nearer there. It seems to follow then that the young Tern had been neglected by its parents. May the old birds sometimes lose touch with the chicks?

Some of the little Terns were esconced each in a nest-like hollow which it had pressed out in the bent. It looked as if they had occupied these posts for some time. One chick was observed to wait patiently on the sand for half-an-hour without stirring. These facts seem to point to an instinct in the young Tern not to wander away from the place in which its parent had left it. At one place the young were in a little flock. I am not aware whether it is known if the parent can recognise its own chick or not, but if the old bird loses touch with the young, it seems likely that the latter must starve. Such an eventuality might

result from the chicks being disturbed by individuals or by dogs.

Suddenly three Stoats appeared on a small tufted area, a little distance away. One was hunting about as if on a scent, the two others gambolled on the sward. All three soon disappeared in the bent.

As we approached the spot which the Stoats had just vacated we found a young Tern lying on its back twisting about. It could not stand, but it endeavoured to bite when it was lifted. A tiny wound was seen on the back of its head. Further on a Tern was crouching; it seemed quite healthy but was not very active. The back of the head showed a cicatrized wound. This bird had probably been attacked some time previously, and had recovered. Soon we came upon another Tern lying on its side, and making only a very feeble movement; it also had the wound on the back of the head. This chick had been seized close to the spot where it lay. A drop of blood was sticking to the grass, and the footmarks of the Stoat were seen on the sand a few inches away. Earlier in the day a dead bird was found to have a bloody mark on the head. The wound seemed to be too small to account for death, but now a sufficient reason was afforded.

The first mentioned injured Tern lived for two days, in a sort of comatose condition. It sometimes tried to stand or lift its head, but its neck appeared to be paralysed. It was restless as long as its head was uncovered; it struggled about till it managed to hide its head in something. When it was lifted one of the feet vibrated rapidly. Although the brain was injured other parts of its organisation were evidently sound. It breathed steadily, digestion went on seemingly normally, and faeces were ejected several times during the period. Once or twice it uttered a feeble cry. Attempts were made to feed it with bread soaked in milk. It allowed the food to be pushed into its mouth until its breathing

was interrupted, whereupon it shook the bread out. Some water and milk, however, seemed to have been swallowed. On the following day the bird appeared to have improved a little. It seemed to try to take the food, and swallowed the bread more naturally. It was able to lift its head a little, but succumbed later in the day.

When the injury was examined, the wound was found to be tiny, and was closed by a clot of blood and sand. When the skin was removed it was seen that one of the Stoat's teeth had penetrated the skull above, while its lower jaw had crushed in the back of the skull near the left ear. Much bleeding had occurred; the blood was collected among the



Fig. 3.—Track of Stoat shown by the toe-marks

muscles of the neck, over the skull and round the base of the beak. There was blood in the cerebellum, but there did not appear to have been much brain tissue destroyed.

If the Stoat in biting the bird does not injure the brain it is possible that the Tern may survive the attack. Digestion of what food happened to be in the stomach will go on while the injured bird pines away, and the stomach of the dead bird may therefore be empty. No doubt starvation will tend to hasten exhaustion.

It seems that it is to the Stoat's activities that many of the deaths of the young Terns are due. These birds will be an easy prey. There are rabbits on the links, and several carcasses were met with.

The adult Terns were mobbing the Stoats, but these marauders did not seem to appreciate the fact. The instinct of the Tern which forces it to mob an animal seems a little unreasoning. For example, a young Black-headed Gull, whenever it tried to walk, toppled head over heels. It was weak and rested between its efforts; it uttered no cry so far as could be heard. A flock of Terns and Black-headed Gulls were swooping down at it, as if they would peck it; one or two came to the ground near it, they seemed to be afraid of the unfortunate chick. It looks as if the unwonted movements of one of their own kind frightened them. A Stock-Dove nesting in one of the rabbit-holes is mobbed.

It is surrounded and forced to the ground by the noisy crowd. This treatment is surely not in return for some injury done by the Dove.

The track of the Stoat shows the points of the feet in groups, separated from each other by a greater or less interval. The points that compose the group are sometimes close together, at another time they may be well separated. It seems that in the latter case the animal was travelling at a greater speed. While in the first case the distance between the groups was 21 inches, in the second it was as much as 30 inches or 3 feet. In the diagram the number of toe marks is not shown definitely, attention was not directed to this point.

BIRDS NEAR LONDON.

BY GLADYS M. TOWSEY.

There are probably few places close to a great city where so many kinds of birds are to be seen as in Richmond Park, and few people who enjoy its pleasant walks realise the wealth of bird life about them. Here we are in the midst of a number of beautiful open spaces. In one place at least the Park adjoins the still untouched country: on one side are the airy heights and sheltered birch woods of Wembley Common: on another the gorse bushes and rich green flats of Ham, and the Gardens of Kew and Hampton Court are within a walk. The Park itself, whose size ensures quietude, for those who seek it, has within it many fine old trees, well grown thickets and plantations, open grassy spaces, with ever varying levels, and two large ponds. During the summer time many of the ancient oaks lose their first foliage owing to the depredations of countless caterpillars: gnats, large and small, sing in the shady glades and damp hollows: flies buzz among the bracken. Nowhere is the ground regularly cultivated: no orchards or strawberry beds tempt even the enemies of birds to make war on them. Who can wonder then that birds choose to dwell in a place free from foes, full of delicious food, and fanned by sweet air from open spaces.

An observer desirous of making a bird score would do well to enter the Park by way of Ham Common. Here, on a day in May or June, Willow Warblers are everywhere, Whitethroats fly up from the gorse bushes, Skylarks and Meadow Pipits rise singing from the ground. The song of the Yellow Hammer comes from the hawthorns, a Reed Bunting sits and chirps out its spring notes from the rushes. And this is not all, for constantly from somewhere among the trees at the edge of the Common the metallic cry of the Wrenneck rings out. Brilliant Linnets flit

from place to place, and further on near the Park wall Bullfinches feed among the bushes. There is another bird that likes the hawthorns best, the Red-Backed Shrike, which may often be seen darting after the bumble bees. All day long the Swifts are wheeling overhead. Two years ago the Stonechat lived on the Common, but since then its voice has been silent. Perhaps it was driven away by the Red-Backed Shrike, or fell a prey to the hard winters. Among these less common birds, the familiar Thrushes and Blackbirds, the Rooks, the Robins, and the Hedge Sparrows tend to sing and nest almost unnoticed, but they are here in abundance all the same.

In the Park the scene changes, the trees are larger and there are no gorse bushes, but there are still hawthorns. Jackdaws and Starlings nest in holes in the old trees. Redstarts are exceptionally common, and sing their songs from the oak trees instead of from stone walls as in the north country. Among the trees the screech of the Jay may often be heard, and though it is apparently unmolested it seems as shy as when it lives in preserved woods. A few Carrion Crows take up their residence in the Park, but they are much commoner by the river-side in the London district. Missel-Thrushes can nearly always be seen in this part of the Park, and Chaffinches "pink-pink" among the trees. It is among the oaks and beeches of the lower Park bordering Ham Common and Petersham that Flycatchers and Tits are most often seen. Chiffchaffs, Garden Warblers and Blackcaps sing here too. On the higher ground, among the scattered half-dead oaks, Tree Pipits always sing in the summer time, and anyone who watches closely will see that the sparrows that hop in and out of the holes in the same trees are Tree-Sparrows. In early

May Wheatears loiter for a few days in the open parts here, but they pass on to nest elsewhere. The less fastidious Whinchats stay and build and may be constantly seen, and heard singing their chattering songs. Here again is a glade where the trees are fine and tall, which seems to be a favourite haunt of Redstarts, and here too the Tree-Creeper winds its way round the trunks in its ceaseless search for insects, and the bubbling notes of the Nuthatch fall on the ear, or a Green Woodpecker hangs motionless for a minute on a branch, then darts across the path and away out of sight. This part of the Park borders a plantation known as Sidmouth Wood, where the Herons build and the Nightjar sometimes spends its summers, but for the last year or two it seems to have deserted the Park. On the Penn Ponds the Great Crested Grebe breeds, and so do Coots, Moor-Hens and Mallards.

The largest enclosure in the Park is the Isabella Plantation. Like the others, it consists of fine trees, with a tangle of Rhododendrons beneath them, through which it is impossible to pass. Most birds do not seem to like the rather stuffy atmosphere of the thick undergrowth, but the Great Spotted Woodpecker apparently nests in this safe place, for it may sometimes be seen flying from tree to tree or heard rattling in the spring. In the holes in the trees just outside the plantation Stock-Doves nest: Turtle-Doves come in the summer, and Ring-Doves are common. This does not end the list of Park birds, for the Swallows and Martins have not been mentioned, neither have Kestrels nor Owls, nor the occasional wanderers like the Hawfinches, nor several others. But it has shewn perhaps that within a few miles of the largest city in the world more birds are to be seen than most people imagine.

Between Richmond and London, by the

Thames at Chiswick and Kew, many of the birds already mentioned may be seen again, and others swell the list. Reed-Warblers sing loudly into the unnoticed ears of the streams of people that pass along the towing path on Sundays. Kingfishers are not infrequently to be seen, and sometimes as many as a dozen Little Grebes come, no doubt from frozen waters. Occasionally in the winter time, too, Teal appear with the Mallard. The Black-headed Gulls worry the Tufted Duck in hard weather, attempting to take the fish they catch, but the Duck seem to know how to look after themselves. Kittiwakes come up the river in fair numbers, but they are not so common as the Black-headed species. Pied Wagtails stay all the year round, and twice a year, in Spring and Autumn, the Grey Wagtail makes its appearance for a few days. Among all the different songs that ring out to the river's edge from Kew Gardens in the summer time the Lesser Whitethroat's rather monotonous notes may sometimes be distinguished. The Nightingale not very long ago a frequenter of the Gardens, was heard again last May. Towards the end of summer, when only the Robin sings, the Swallows, House- and Sand-Martins visit the river in vast numbers to feed on the tiny flies that swarm in myriads over the surface of the water:

" Hedge-crickets sing, and now with treble soft
The redbreast whistles from a garden croft
And gathering swallows twitter in the skies."

Gradually the Swallow swarms diminish; a few birds linger on until October, but although there is a feeling of regret at their departure, because it means that winter is approaching, what does it matter? They will come again, and in the months before they come there are many other things to see—the Fieldfares, the Redwings and the Gulls, and perhaps others that have never appeared before.

SOME REMARKS ON THE FOOD OF THE BARN-OWL (*STRIX FLAMMEA*, LINN.).

BY WALTER E. COLLINGE, D.Sc., F.L.S., M.B.O.U.

In a recent paper¹ the writer has drawn attention to the relationship existing between hawks and owls and agriculture, and he has been asked to publish a volumetric analysis of the food of owls, such as has recently been given for a number of our commoner birds.²

As yet we have only a record for the Barn-Owl, founded upon an examination of the

ber, and the pellets during each month of the year.

An analysis of this material shows that the whole of the food consists of animal matter. Of the total bulk 7.5 per cent. is composed of injurious insects, 68.5 per cent. of mice and voles, 9.5 per cent. of house sparrows, starlings and blackbirds, 9.5 per cent. of shrew

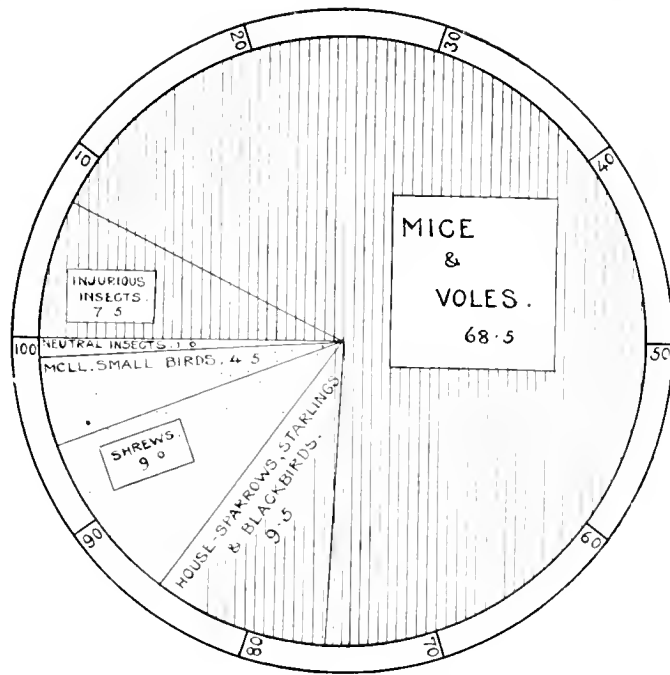


Fig. 1.—Diagrammatic Representation of the Percentages of Food of the Barn-Owl. The portions shaded by longitudinal lines represent food that it is beneficial the bird should eat; those stippled, food that it is injurious they should eat, and the blank portion food of a neutral nature.

contents of twelve stomachs and upwards of three hundred pellets, but as this bird is such a valuable one to the agriculturist it seems desirable to publish the figures.

The twelve specimens examined were obtained, one each month, from March to Octo-

mice, 4.5 per cent. of small birds, and 1 per cent. of neutral insects. Thus 85.5 per cent. of the food is beneficial, 13.5 per cent. injurious, and 1 per cent. neutral (Fig. 1).

Hooper's statement,³ that nine-tenths of this bird's food consists of mice, would seem to be a fairly reasonable estimate. The actual num-

¹The Contemporary Review, 1919 (May), pp. 376-380.
²Journ. Ed. Agric., 1918 (Sept.), pp. 668-691, 17 figs., 1919 (March), pp. 714-1162, 9 figs.

³Journ. Soc. Arts, 1906, vol. 1v, pp. 71-87.

ber of individuals that are destroyed must be enormous. Adams¹ records that in 1,124 pellets he found remains of 2,407 rats and mice.

It is obvious that a bird of such great utility should be very strictly protected, and that very severe penalties should be exacted in the case of their destruction or their eggs. Unfortunately, at present this is not so, and in spite of statements to the contrary, numbers of these birds are killed annually and their eggs destroyed in large numbers.

In view of the enormous increase of farm vermin during the past few years, it would surely be a wise decision if our different agricultural societies and farmers' clubs were to interest themselves in a subject so closely related to their calling; and if our County Councils were to exert themselves and see that the Orders made under the provisions of the Wild Bird Protection Acts were not permitted to become obsolete.

¹Journ. N'amp't. N. H. Soc., 1913, p. 63.



VARIATIONS IN THE DIET OF WILD BIRDS.

By **GEORGE ABBEY,**

Petersfield, Hants

The following are some facts that have come under my notice, relating to birds associated with horticulture, agriculture and aboriculture in various counties, and the variations from their normal diet.

The Starling a quarter of a century ago was not a fruit destroyer, now it has become one of the worst, commencing with cherries it has acquired a taste for plums, apples, pears, damsons, gooseberries and elderberries, with the addition of many farm crops. The Jay, in some localities, besides destroying eggs is a glutton for peas. In Kent and Sussex they stripped many rows, but here in Hants, where they are many times as numerous, they have so far left the peas alone. A neighbour within a quarter of a mile complains that he cannot keep a strawberry owing to the Jays, here they leave them alone. I consider the Jay the greatest enemy of the Wood-Pigeon. I have proof that in one locality the increase of this bird decimated the pigeons. Magpies are even more numerous, but from personal observation and that of others, no damage has been detected.

During the absence of the keepers during the past four years stoats and weasels have enormously increased along the Chiltern Hills, here with similar hills they have not increased at all. Field mice are also a plague in the former locality, where Kestrels used to be very plentiful. The Barn-Owl and Brown Owl are unequalled mousers, but I know where Owls are very plentiful and mice too.

In some localities Jackdaws are more destructive than Rooks, having a liking for eggs, young birds, and numerous crops. On one occasion they stripped two long rows of peas, and followed successive crops from

sprouting to pods. In the same garden they annually stripped every cherry tree just as the fruit was colouring. Less than a mile away I saw a colony of these birds following the plough, and being curious to learn their object I shot three, and found their crops full of wireworms.

Rooks have been so well studied as to their diet that I only add the following observation with reference to fruit destruction. On one occasion about five hundred of these birds settled on an apple and pear orchard, and in about an hour destroyed half of a good crop.

Amongst the warblers the Blackcap has become a pest to fruit, even worse than the Lesser Whitethroat. Both can get through ordinary netting, so that cherries, currants and raspberries suffer considerably. Last year the Blackcap destroyed the figs as fast as they ripened. Fifty years ago this bird always visited a clump of red and black elderberries, and remained well into November each year.

Blue, Great, Marsh, and Cole Tits annually destroy the garden peas, late crops are mostly eaten by the first two species, which are persistent in attack. On one occasion the Marsh-Tit destroyed half the blooms of inside peach trees, and there were no insects in the blooms.

The Great Tit destroyed a hive of bees, one of four. It was very amusing to see the Tits fighting the bees. They succeeded in drawing them out in winter by tapping at the entrance to the hive. The spot selected for dissection was a gooseberry bush, and the heap of remains of bees was quite six inches high. The Spotted Flycatcher has a similar reputation, but fortunately it is very rare.

The Bullfinch, king of bud eaters, is sometimes beaten by the House-Sparrow. In private gardens several years go by without an attack, for no apparent reason. The caterpillar of *Tortrix viridana*, L. is often fed to the young, and also to the nestlings of the Rook, Starling and Jackdaw.

The chief destroyers of ripe corn are the House-Sparrow and Wood-Pigeon. In Oxfordshire, bordering the Chiltern Hills, the Greenfinch and Chaffinch take their place, but the Tree-Sparrow may sometime, as at Aston Rowant, replace the House-Sparrow, where a big grove of bamboos bordering a stream favoured their assembling in that locality. Twelve years ago less than fifty roosted in the bamboos, two years ago there were many hundreds.

I have often found wireworms in the crop of the Partridge. Pheasants on one occasion pulled all the crowns off a large bed of Lily of the Valley. The Robin, generally free from mischief, at times attacks ripe grapes, and red currants are also damaged by them. Turtle-Doves, formerly not abundant enough to do much damage, are now, in some localities, proving very mischievous to sprouting crops and ripe corn. These birds have vastly increased during the last twenty years.

The Crossbill, now that it is found in so few localities, gives few chances to study its diet. In 1872 I had under observation for some weeks a large flock of a hundred or more in Cleveland, Yorkshire. They first fed on the seeds of the larch and Scotch fir, and afterwards on the young shoots of silver fir. Several times since I have seen them feeding on various fir cones.

Siskins annually visit alder for its seed. I observed them in considerable numbers in a big grove in Oxfordshire. In Hertfordshire an *Abies canadensis* is annually covered with cones, and is visited by a flock of Siskins.

Respecting the results of stomach analyses, the various items mentioned show to a small extent how results can vary, even in the same locality, but generally the evidence obtained from such leaves no doubt as to the verdict for good or evil; field observations must also be carried out over a wide area and for some duration of time.

THE REPORT OF THE DEPARTMENTAL COMMITTEE ON THE PROTECTION OF WILD BIRDS.

All interested in the protection of wild birds will read this report with interest. This Committee was appointed in 1913 "To inquire what action has been taken under the Wild Bird Protection Acts for the protection of wild birds, and to consider whether any Amendments of the Law or Improvements in its Administration are required." Throughout the inquiry the Committee have borne in mind the unsatisfactory state of the law at present, and the desirability of any future law being simple, easily understood, and likely to achieve the following objects:—

(i.) Birds that are rare or harmless, or are positively valuable because of their utility or beauty or the beauty of their song, should be protected as far as possible.

(ii.) Farmers, gardeners, and preservers of game and fish should be allowed to protect their interests against injurious birds.

(iii.) The creation of a large number of petty offences should be avoided, and there should be no vexatious interference with the study of natural history.

The Committee deals at considerable length with the existing state of the law, and state that there is no doubt that during the past fifty years there has been a great increase in bird life in this country. Many species have returned and are now breeding regularly with us, while in the case of some of the commoner species they have increased to such an extent as to become pests, and these call for energetic measures for their control.

The law, however, has been largely ineffective in protecting very rare birds and their eggs. The temptation to shoot an unknown bird seems irresistible, and the Committee fears that this destructive instinct in a large section of the population will prove ineradicable whatever laws are passed.

TWO METHODS OF PROTECTION.

Turning to the question of proposed new legislation, the Committee presents a series of important recommendations. First of all, with regard to the protection of birds, two methods were suggested to the Committee. The first is that birds to be protected should be named, any bird not named being left unprotected. The other is that all birds should be protected, except certain very common and harmful birds named in a 'black list.' The Committee considered that the best solution was to be found in a modification of the existing system, giving protection to all birds during the breeding season (from March 1st to September 1st inclusive), subject to the right of an owner or occupier of land, or person authorized by him in writing, to take on such land any bird injurious to his interests, except birds in two schedules, which are specified below. With regard to the birds mentioned in the two schedules, it is proposed to give absolute protection during the breeding season to those mentioned in the first, and absolute protection all the year round to those mentioned in the second. There should be power to vary the close time and the schedules, and to exempt certain destructive birds from all protection.

PROPOSED CLOSE SEASON FOR WOODCOCK.

The central authority should have power, on the application of the local authority, to protect all birds, with specified exceptions, throughout the whole or part of the local area. There should be a close time for woodcock from February 1st to October 1st in each year. The nests and eggs of birds mentioned in the two schedules should be protected by statute, and the central authority should, save in exceptional circumstances, maintain the uniform protection of birds and eggs. Special protection is proposed for plover and woodcock eggs and nests, and it should be an

offence to take, disturb, or destroy the nest of any bird whose eggs are protected.

Power should exist to create sanctuaries; and certain areas, such as the New Forest, and areas controlled by the War Office and the Admiralty, should be maintained automatically as reserves for bird life. There should be complete protection of all birds and eggs within all Royal forests, subject to a provision allowing the killing or taking of particular birds or the taking of their eggs by authorized persons. The State might usefully consider the grant of a small subsidy to assist in the provision of watchers for public sanctuaries. All killing or taking of birds in any public place, highway, byway, common, or waste land should be prohibited throughout the year. There should be general protection of all birds, eggs, and nests throughout the country on Sundays. There should be a provision for the granting of licences by the central authority on the advice of an Ornithological Advisory Committee, the creation of which is recommended."

The hopelessness of the present Acts and the difficulties of administration are vividly brought out in the Minutes of Evidence. A perfectly simple matter, viz., the protection of all beneficial and rare birds, has been so muddled by these Acts that they have almost become dead letters. It is high time that they were repealed and replaced by a simple yet comprehensive Act framed on the lines of the recommendations in this valuable report.

The schedules mentioned above are as follows:—

1. (To receive absolute protection during the breeding season).—Arctic or Richardson's skua, black-throated diver, black-tailed godwit, capercaillie, dotterel, duck (all species), eared grebe, fork-tailed petrel, goldfinch, great-crested grebe, great skua, greenshank, grey lag-goose, hobby, kestrel, kingfisher, marsh warbler, merlin, nightjar, nightingale, peregrine falcon, pied flycatcher, quail, raven,

red-necked phalarope, red-throated diver, ringed plover, ruff and reeve, siskin, Slavonian-grebe, snipe, stone-curlew, swan, terns (all species), water-rail, whimbrel, woodlark, woodpeckers (all species), and wryneck.

2. (To receive absolute protection all the year round).—Avocet, Baillon's crane, bearded reedling or bearded titmouse, bittern, bustard, buzzard, chough, crested titmouse, Dartford warbler, golden eagle, golden oriole, harriers (all species), honey buzzard, hoopoe, Kentish plover, kite, long-eared owl, osprey, Pallas sand grouse, sea eagle, short-eared owl, spoonbill, St. Kilda wren, tawny owl, white or barn owl.

THE JOURNAL OF THE WILD BIRD INVESTIGATION SOCIETY.

The Journal is supplied free to all Ordinary and Associate Members. Non-members of the Society may obtain it from the publishers (post free) on forwarding subscription of 12s. 6d.

All matter intended for publication should be written on one side of the paper only. Typed MS. is desirable. Unrelated subjects should be dealt with on different sheets. No notice will be taken of anonymous communications. No matter can be returned unless a stamped and directed envelope is enclosed.

All communications should be addressed to Dr. W. F. Collinge, St. Andrews, Scotland.



OUR SOCIETY.

The need of a strong Society that would voice the feelings of the country with reference to the many problems connected with wild bird life has long been experienced by students of this important subject, and if any vindication were necessary for launching a further organization, it is at once forthcoming in the splendid response made by ornithologists and others interested throughout the country.

That a wide field of activity lies before the Society no one doubts. The subject of our wild birds and all pertaining to them has too long been, to use the words of a member, "the

shuttlecocks of sentimentality on the one side, and of prejudice on the other." We wish to see this changed, and the change will only come about by a deeper and better understanding of this important subject.

Our aim must be to encourage investigation, for without the solid foundation of accurate knowledge it is impossible to go forward, to right the many existing anomalies, or even to take an intelligent interest in the subject.

In a broad and tolerant spirit we wish to view all the various phases and departments of what has aptly been described as "the wider study of Bird Life," and to this end we invite the active and cordial co-operation of all our members.

The objects of the Society cannot be too widely known. They are:—

(a) The more intensive study of the ways and habits of British birds.

(b) To discuss new discoveries, to exchange experiences, and to carefully consider the best methods of work.

(c) To give opportunity to individual workers of announcing proposed investigations, so as to bring out suggestions and prevent unnecessary duplication of work.

(d) To suggest, when possible, certain lines of investigation upon subjects of general interest.

(e) To further the protection of all beneficial and non-injurious wild birds, and the repression of really injurious species.

(f) To influence and educate public opinion as to the destructiveness or usefulness of wild birds to agriculture, horticulture, forestry, the fisheries, etc.

(g) To discourage egg and bird-collecting, except under proper guidance, or for scientific purposes.

(h) To advocate the improvement and modification of the existing Laws relating to wild birds.

(i) To advocate the establishment of bird sanctuaries, under efficient control.

(j) To establish local branches throughout the United Kingdom.

(k) And generally to promote the study and advance the science of Ornithology in all its aspects.

embraces a wide range of knowledge. Apart from the purely systematic side, many workers have for some time felt that the subject deserved more adequate recognition in this country, and that a medium of publication was necessary that would devote itself to all the numerous aspects of the science, amongst which may be mentioned such matters as:—

Acquired Characters, Adaptations, structural and functional, Care of Offspring, Coloration, the County Council Orders and Wild Birds, the Destruction of Birds, Dimorphism, the Effects of Climate, the Food and Feeding Habits, Geographical Distribution, Growth, Habits and Habitats, the Influence of Environment and Isolation, Legislation, Life-histories, Melanism, Migration, Nestling Birds, Nidification, Plumage, the Protection of Wild Birds, the Provision of Sanctuaries or Bird Reserves, Pterylosis, Repressive Measures, the Utility of Birds, Variation, etc., etc.

The Wild Bird Investigation Society is in no sense a rival to any existing organization. We desire to work in harmony with all that are interested in Ornithology. Of the organizations and publications already in existence we would mention:—

The British Ornithologists' Union.—Secretary, E. C. Stuart Baker, Chief Police Office, West India Dock, London, E. 14. Publishes quarterly *The Ibis*.

The Avicultural Society.—Hon. Secs., Miss B. Alderson, Park House, Worksop, and Dr. A. G. Butler, 124, Beckenham Road, Beckenham, Kent. Publishes monthly *The Avicultural Magazine*, edited by Dr. Graham Renshaw, Bridge House, Sale, nr. Manchester. Hertford: Stephen Austin & Sons.

The Selborne Society (Ltd.).—Hon. Sec., W. M. Webb, F.L.S., 83, Avenue Chambers, London, W.C. 1. Publishes *The Selborne Magazine*. London: George Philip & Son, Ltd.

The Royal Society for the Protection of Birds.—Sec., Miss L. Gardiner, 23, Queen Anne's Gate, London, S.W. Publishes quarterly *Bird Notes and News*.

British Birds.—Published monthly. Edited by H. F. Witherby, M.B.O.U., the Rev. F. C. R. Jourdain, M.A., and Norman F. Ticehurst, M.A. London: Witherby & Co., 326, High Holborn.

The subject of Ornithology or the Science of Birds is a broad and comprehensive one, and



NOTES.

TWO INTERESTING CASES OF MELANISM

During the past few months two interesting cases of melanism have come under my notice which seem worthy of record. Recently, whilst watching a number of Blue Tits on a feeding-board outside my dining-room window, my attention was arrested by what at first sight appeared to be a black example. On my approaching the window it flew away, but returned in a few minutes. On the second and subsequent visits I was able to notice it more carefully, and take notes of its exact colour. The whole of the breast and ventral part of the body was a very dark grey, with the head, back and wings almost black; rump and upper tail-coverts, dark grey; cheeks and throat, lighter grey; legs toes and claws, bluish-grey.

The second case was a Swallow that had flown into the house. On picking the specimen up, I was surprised to find that it was entirely black on the ventral as well as on the dorsal surface, except for a small, greyish-brown patch under the chin, indeed when held in the hand with the tail covered, it might easily have been mistaken for a Swift. WALTER E. COLLINGE.

STRANGE ACCIDENT TO A HERON

Dr. H. C. Williamson has recently sent me a specimen of a Heron (*Ardea cinerea*, L.), which was found strangled on the telephone wires at the Bay of Nigg, Aberdeen, on April 3rd. It had been observed going to and coming from the beach, and on one of these journeys it had evidently poked its head between two of the telephone wires and turned a somersault, twisting the two wires into a loop round the neck. The vertebral column was dislocated, and also the left knee. A similar accident, so Dr. Williamson informs me, happened to a gull some little time ago. WALTER E. COLLINGE.



NOTES & NEWS.

"We should recognise the birds as a national asset, and do all in our power to preserve them, and let them have as many sanctuaries as possible. Portions of our State, which are set apart

as forest or other reserves, should be proclaimed 'Bird Sanctuaries,' and should be jealously guarded from deletion; they are also a national asset, and increase in value as time goes on. It is only right that we should leave some of our country as we found it, so that it may be enjoyed by our children's children, and that they, too, may see the wonderfully interesting and useful fauna that their forefathers saw."

DUDLEY LI SOUËE,

Hon. Sec. the Royal Australian Ornithologists' Union

THE ECONOMIC STATUS OF CANADIAN HAWKS.

In an interesting paper on the Hawks of the Canadian Prairie Provinces in their relation to agriculture (Canada Geol. Surv., Mus., Bull. No. 28), Mr. P. A. Taverner has made a valuable contribution to the literature of the economic ornithology of Canada. He rightly condemns the few injurious species and strongly urges protection for the beneficial ones, and points out that it is unfortunate that the farmer and sportsman often do not possess the knowledge necessary to distinguish the different species; to most of them a hawk is a hawk, and something to be killed. "With so much at stake, a farmer or sportsman is no more justified in advancing ignorance as an excuse than he is in proclaiming his inability to distinguish between crops and weeds, or to know the various insect pests that he has to fight, or the game that the Law allows him to shoot. In fact, discrimination is a part of his business as a farmer or sportsman, and as such should be studied." It is clearly evident that the Canadian farmer is very like our own, and that the really important things relating to agriculture are not yet taught in the agricultural colleges. However, this carefully illustrated bulletin will do much to remove such ignorance.

THE SELECTION OF SNAIL-SHELLS BY THE SONG-THRUSH.

The question whether the Song-Thrush is capable of selecting the different coloured shells of *Helix nemoralis*, or whether one variety is more palatable than another, has formed the subject of a series of experiments made by the Misses Haviland and Pitt (Ann. Mag. Nat. Hist., 1919, pp. 525-530). As a result of their work they are of opinion that the different varieties are selected quite haphazard, and that one is not

more palatable than another. The many-banded form would seem to be more abundant in bushy, shaded places, and as the thrushes as a rule prefer open feeding-grounds, it is possible that this may account for the higher proportion of unbanded shells at certain "anvils." Finally, they find no evidence which would lend support to the view that the young thrushes recognize and crack snail-shells instinctively. On this latter point, however, more extended observations would seem to be desirable.

THE PART PLAYED BY THE EGG SHELL IN THE FORMATION OF THE CHICKS SKELETON.

It has long been known that a fresh fowl's egg contains very little lime, an egg weighing 60 gm. has usually not more than 35 mgm. This being so, the question arises, "How does the chick manage to form its skeleton with so small a quantity of lime, and does it obtain a further supply; if so, where from?" Messrs. Delezenne and Fourneau (Ann. de l'Inst. Pasteur, 1918, pp. 413-426) have re-investigated the subject, and after making a large number of experiments, they are led to the following conclusions:—

(1) The lime in the content of the egg increases about 500 per cent. during the period of incubation. The increase is traceable about the 10th and 12th day, is very marked about the 16th and 17th days, and continues regularly until hatching. (2) In an unfertilized egg put to incubate there is no increase of lime in the egg content. (3) In the egg of the peahen, the increase in lime in the egg content was 500 per cent., and in duck eggs slightly below 400 per cent. (4) There is no increase of phosphorus during incubation. Apart therefore from protection, the egg-shell has a physiological rôle, viz., supplying the embryo with a lime reserve. It is thought that by modifications of the vitellus and albumen during incubation, a substance is set free in determined quantities which has the power of dissolving a definite amount of the lime of the egg-shell.

WILD BIRDS AND AEROPLANES

In his evidence before the Departmental Committee on the Protection of Wild Birds, the Minutes of which have recently been published, Lord William Percy suggested that in any future Act, to the prohibition of shooting from a mechanically propelled boat, there should be added, "or other vehicle," in order to deal with

the aeroplane. He continued: "It may not be worth thinking of yet [1914], but it may be very much worth thinking of a very few years hence. It seems to me aeroplanes are going to be a deadly enough factor in driving birds away in any case, and if they were to be used for shooting from, the last hope that birds may get used to them and regard them as harmless nuisances is gone. Shooting from aeroplanes has already been tried (I know a man who has done it), and there is a letter in this week's *Field* describing its joys, so that it is not so far off that it can be ignored!"

Captain Gladstone, in his recent book *Birds and the War*, states: "The formation of aerodromes in various parts of the country had but little effect on the bird population in their vicinity," a statement which does not agree with our own observations. We should like to hear the opinions of members who have made observations on this matter.

A BIRD BOOK FOR CHILDREN

Of the many popular books on birds, not a few are spoilt by inaccurate statements, whilst others are only poor compilations, illustrated with a series of charming photographs. To neither of these categories does Capt. Pike's recent volume, entitled *Birdland's Little People*, belong. The author of *Home Life in Birdland* believes in seeing nature at first hand. "I have written and pictured," he says, "what I saw," and his descriptions are as delightful as his photographs. Here are twelve nature studies for children which it would be difficult to improve upon, and many young children, and old ones too, will read this little volume with both pleasure and profit, and will leave it wishing for further accounts of Birdland's little people, which we hope will be forthcoming. It is delightfully written, beautifully illustrated, and the printing leaves nothing to be desired.

A PLAGUE OF VOLES

In a recent number of the *Gardeners' Chronicle* Mr. A. Trevor Battye calls attention to the plague of Voles in Hampshire. These rodents appeared in large numbers in 1917 and 1918, but thanks to sea-gulls coming on to the pasture land, and a "quite phenomenal" number of kestrels, they have been held in check. It is in such cases as this, when reported upon, that the public are

brought to realize what a potent factor for good our wild birds are. During the past four years Voles and other farm vermin have largely increased, so that it is especially necessary now that all birds that destroy them, such as owls, the kestrel and sea-gulls, should be offered every protection.

RECONSTRUCTION AND BIRD PROTECTION

In a recent issue of *Bird Notes and News* a very able plea is put forth on behalf of Bird Protection. The writer very truly states that resolute and strenuous action is needed to overcome the existing apathy, indifference, and hopelessness. The defects in the present Wild Birds' Protection Acts are admitted; "they have notoriously proved insufficient," the writer states, and we fully agree with all that is said respecting making them "simple, clear, and definite," and for once and for all putting an end to the "collector," "egg-dealer," and "bird-catcher."

The education in these matters of the worker on the land and the rural child, we are told, is imperative, opportunity must be "afforded for the opening of children's eyes and ears, the humanising of their minds, and the sweetening of their souls." Truly there is a great work for nature-lovers, ornithologists, field-naturalists, and others to do, and in this writer's words, "It is time for action." Through ignorance, thoughtlessness, and greed, we are being robbed of a national asset of incalculable value, and one which once destroyed will be exceedingly difficult, if not impossible, to replace.

THE GOULD LEAGUE OF BIRD LOVERS

The organization for bird-protection in Australia, better known as the Gould League of Bird Lovers, is an active and flourishing society, with a huge membership, of which school children form a large percentage. Amongst other activities, it supplies various public parks and gardens, school grounds, etc., with nesting-boxes, bathing-pools, and food-tables, which, whilst affording considerable interest to visitors, prove of great value to the birds. The various States also have a Bird Day, on which special papers or addresses are given on bird-life and its utility, in the public schools. The good this organization is doing in instilling a love and knowledge of birds into the rising generation cannot be over-estimated.

THE CALIFORNIAN FISH AND GAME COMMISSION.

There are few organizations doing better work as regards the conservation of wild-life than the Californian Fish and Game Commission. Apart from other interesting literary matter, their monthly journal, *Californian Fish and Game*, is replete with interest, and evidences a really live and active body. This Commission is entirely self-supporting, receiving its annual revenue of about 300,000 dollars from the sale of hunting and fishing licences and from fines collected from violators of the laws. Its motto, "Conservation through Education," is well borne out in a recent booklet bearing this title, in which the various activities of the Commission are pictorially and otherwise portrayed.

CORRESPONDENCE.

These columns are open to Members to express their views on general topics, and for the discussion of matters of interest to ornithologists. The Editor takes no responsibility for the opinions expressed by correspondents. No notice is taken of anonymous communications.

BREEDING OF TINAMOUS AND THE APTERYX IN CONFINEMENT

I notice in a recent publication that the Tinamou is being bred under artificial conditions on an estate at Tarrytown, N.Y., U.S.A. Can any member inform me if any species of this bird, or the Apteryx, has ever been bred under artificial conditions in this Country? N. Z.

With reference to the Tinamou, Professor Newton (*Diet. of Birds*, p. 966) states: "At least one species of Tinamou has been bred not unfrequently in confinement, and an interesting account of what would have been a successful attempt by Mr. John Bateman to naturalize this species, *Rhynchotus rufescens*, in England, at Brightlingsea, in Essex, appeared in *The Field* (23rd Feb., 1884, and 12th Sept., 1885). The experiment, unfortunately, failed, owing to the destruction of the birds by foxes." [Ed.]

THE NEED OF LOCAL BRANCHES

In wishing the Journal of the Society all success, may I direct attention to one of its

objects, viz., the establishment of local branches. I regard this as most important, for never was there a greater need than at the present time for such organization, if we wish to preserve our wild birds.

Without exaggeration, I can safely say that in the district I live we have not a quarter of the number of birds we had ten years ago. The Tits, the Wren, the Chaffinch, the Skylark, the Song- and Missel-Thrushes, the Robin, the Jay, the Magpie and the Jackdaw have all decreased. Of our visitors, the Fieldfare and Redwing are shot by the market gardeners, and indiscriminate egg-collecting has undoubtedly been the cause of the reduction of many other species. On the other hand, the House-Sparrow and Starling have both increased.

I sincerely hope that there will be a wide and ready response to this call, for I feel sure that local societies could do much to educate public opinion, and ultimately bring about a very different state of things. Further, such local branches would bring students of bird life together, and so increase the interest of this fascinating study.

A PRACTICAL ORNITHOLOGIST.

I welcome most heartily the proposed formation of a new Society for the purpose of wild bird investigation, and feel sure that it has a long and most useful career before it.

For over twenty years I have been a student of ornithology, or perhaps I should say, the ways and habits of wild birds, and I have frequently felt the need of a publication that was interested in the same, and also the lack of local ornithological societies.

There must be hundreds of bird lovers and students of wild bird life that have the time to organize local branches, and I hope, ere long, we shall at least have one or more in every county in the United Kingdom. Apart from the absorbing interest of the study, which such branches would do much to foster, there is a great and important work to be done in educating the general public on all matters relating to wild birds, and I sincerely hope that by the formation of local branches, general meetings, and the publication of the Journal, this Society will take a leading part in such necessary propaganda.

With all good wishes for success.

A NORTHERN STUDENT.

LOCAL BRANCHES.

One of the objects which the W.B.I.S. seeks to carry out is the establishment of a network of local branches throughout the United Kingdom. Such a series of clubs would not only have a great educational value, but they would tend to link together all who are interested in the study of wild bird life. Moreover, the members, bound together as definite organizations, would undoubtedly exercise a most beneficial influence upon all matters pertaining to the subject in their respective districts.

Any two Ordinary Members of the Society who are willing to act as Chairman and Honorary Secretary respectively, can, with the sanction of the Council, call together those interested, and if ten Ordinary or Associate Members can be obtained, the Branch can be formed, weekly or monthly meetings, excursions, etc., arranged, and work commenced.

The Secretary will be pleased to forward nomination forms and further particulars, or to reply to any queries, on application. Envelopes should be marked "Local Branches."

St. Andrews. Chairman: Prof. D'Arcy W. Thompson, C.B., D.Litt., F.R.S. Hon. Secretary: O. S. Orr, Commercial Bank House.

A very successful inaugural meeting was held in the Council Chamber on March 28th. Prof. D'Arcy W. Thompson, F.R.S., presided, and was supported by a large audience. After pointing out the importance of the study of wild birds, and the unrivalled facilities offered in the surrounding district, the Chairman called upon Dr. Collinge, who drew attention to the objects and aims of the Society, and read a list of the local members.

Mr. O. S. Orr proposed: "That in the opinion of this meeting it is desirable that a local branch of the Wild Bird Investigation Society be founded in St. Andrews." The Rev. Dr. P. M. Playfair proposed that Prof. D'Arcy W. Thompson be elected chairman, and Mr. O. S. Orr, honorary secretary.

May 8th.—A well-attended meeting was held in the Court Room, Dr. Collinge presiding. The Honorary Secretary read a list of the local mem-

bers, and announced two excursions. Different members drew attention to the wanton destruction of the eggs and nestlings of insectivorous birds, and after some discussion, General Purvis proposed, and Mr. C. Bayne-Meldrum seconded, the following resolution: "That the attention of the County Educational Authorities be called to the wanton destruction of wild bird life by school-boys, in the hope that the Board will bring the matter under the notice of the teachers in all their schools, with a view to instruction being given as to the great benefits these birds confer, and to persuade the children to aid in conserving a natural force both beautiful and beneficial to the country."

June 5th. The monthly meeting was held in the Lecture Theatre of the University Natural History Department. The Honorary Secretary referred to the visits the Society had made to Strathgrym Heromy and Tentsmuir, and intimated that on the kind invitation of Mr. William Berry, of Tayport, a visit would be paid to Morton Lochs on the 12th instant.

Dr. Walter E. Collinge gave a short account of the different methods of estimating the stomach contents of wild birds, emphasising the importance of the volumetric method, which was explained and illustrated. Dr. Collinge emphasised the fact that the economic ornithologist did not for a moment advocate any methods of extermination, but carefully considered and wisely administered repressive measures where a species was too plentiful, and consequently injurious; and the strictest protection for all species that were known to be beneficial. By kind permission of Professor D'Arcy W. Thompson, the members had the privilege of inspecting a number of valuable and beautiful works on ornithology.

ing reliable information, so arranged as to be easily accessible, seems to be required." A glance at the parts 1-3 of this work at once evidences the fact that it is not going to be a collection of pictures, like so many modern books on birds, but a work of real practical utility, and when complete it will form a most important one on our avifauna.

The plan of the book is admirable. First we have keys to the orders, families and genera (with illustrations), keys to the species and sub-species, names of species and sub-species, synonymy, descriptions (remarkably full with details of the periods and extent of the moults, measurements and structure, characters and allied forms, field characters, breeding habits, food, distribution and migrations).

Pt. 1 commences with the Order Passeres, and treats of the Corvidae, Sturnidae, Oriolidae, and Fringillidae, which is continued in Pt. 2 and Pt. 3, followed by the Alaudidae and Mortacillidae.

The wonderful amount of information which the author and his colleagues have compressed into these pages is astonishing, but they might have spared us the trinomial nomenclature, and the system of repeating the specific name of a species for a variety or sub-species (the identification is left to the reader's choice), one that is followed in few other branches of zoology.

The illustrations generally are good, and the coloured plates, in our opinion, leave nothing to be desired.

As an up-to-date handbook, we heartily commend this valuable and interesting work to all our readers.

W. E. C.

BIRDS AND THE WAR. By Hugh S. Gladstone. Pp. xviii + 169, 17 illustrs. London: Skellington & Son, Ltd., 1919.

Before we know what effect the late war has had upon bird life, much careful observation will be necessary, but it is well to have our attention directed to the subject. In the pleasant little volume before us, under such headings as the Utility and Economy of Birds in the War; Sufferings of Birds; Behaviour of, in the War Zone; and Effect of the War on Birds, the author has brought together a mass of most interesting information, which he presents in a popular and chatty style.

It is a book that cannot fail to interest even the most casual, and the seventeen excellent photographs greatly add to its value.

REVIEWS.

A PRACTICAL HANDBOOK OF BRITISH BIRDS. Edited by H. F. Witherby. Pt. 1, pp. xvi-64, pls. 1 and 2; Pt. 2, pp. 65-128, pls. 3-5; Pt. 3, pp. 129-268, pls. 6 and 7, and text-figs. London: Witherby & Co. Price 4s. net per Part.

In the Introductory note the Editor states that, "notwithstanding the innumerable books on British Birds, an up-to-date Handbook contain-

It is sad to think that so many British bird lovers ended their, often only commencing, careers in this terrible tragedy, and a just tribute is paid to these valiant sons who gave their lives for King and Country.

W. W.

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NOTICES to MEMBERS.

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THE GENERAL MEETING

It has not yet been possible to fix a date for holding the General Meeting. It is desirable, if possible, that the meeting should be held by invitation from either a Local Branch or from members who would assist in making local arrangements. Some central town, easy of railway access, is almost imperative if the attendance has to be a large one. The Secretary will be pleased to receive suggestions or to hear from any members willing to co-operate.

THE JOURNAL

The difficulties attendant upon the production of a first number of a new publication are many, the editor therefore trusts that members will not form any hasty judgment based on the first part. The scope and nature of the contents of the Journal will depend very largely upon the members themselves, and a hearty invitation is extended to all to contribute papers, notes, photographs, etc.

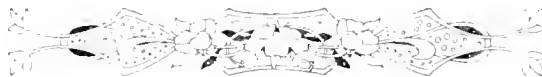
FORMATION EXPENSES

In connection with the formation of the Wild Bird Investigation Society, the Secretary has incurred a debt of £20 for printing, postage, stationery, advertising, etc. It has been suggested that this amount should not fall upon the Society, but that it should be liquidated by donations from members. Those willing to subscribe are requested to forward their donations to Dr. Collinge, 3, Queen's Terrace, St. Andrews.

JOURNAL FUND

Owing to the high charges for printing and illustrating, the cost of the *Journal*, for a time, will prove a serious item in the finances of the Society; its educational value, however, cannot be overestimated. We therefore appeal, with some confidence, for financial support. A list of donations will be published in the next issue of the *Journal*.

P.S.— If you do not care to subscribe personally to the *Journal*, will you ask the Library of your University, your Institute, your Laboratory, your School, the scientific Society or the Club to which you belong, to do so. By this means you will be able to consult it, or the part which interests you most, and at the same time you will give the opportunity of doing the same to many colleagues, who will be grateful to you for the good idea.



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Dr. Collinge would welcome and gratefully acknowledge any information, references or reports as to the diminution of fish thought to be due to sea-birds, or as to the destruction of smolts or trout fry; also views expressed by any breeders, societies, etc.

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 CATHCART.—Wild Birds in relation to Agric.
 J. R. Agr. Soc., 1892.
 EDWARD.—On the protection of W. B. Banff, 1881.
 FORBES, S. A.—The Food of Birds, 1903.
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 PREVOST.—Mem. on the Alimentary Regimen of
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 WEED.—A Partial Bibliog. of the Economic Relations
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THE JOURNAL OF THE WILD BIRD INVESTIGATION SOCIETY.

IS THE MAGPIE AN INJURIOUS BIRD ?

BY L. T. THORNTON.



THAT the Magpie is a persecuted bird many will doubt, for numerous writers have stated that it destroys the eggs of game and other birds, that it eats cherries, strips rows of peas, and

attacks lambs and weakly sheep by plucking out their eyes. Personally, I have always been inclined to regard it as a species doing more harm than good, though I cannot say I have credited all the charges that have been laid to its account.

Some years ago Dr. Collinge stated,¹ after investigating the stomach contents:—"Apart from the question of game, the magpie is a bird that is beneficial to the agriculturist, feeding, as it does, largely upon soil larvae and beetles, whilst it destroys field mice, voles, blackbirds, and wood pigeons."

This opinion of our leading authority on economic ornithology, made me question whether I was acting in my own interests by destroying these birds. A little later I came across the following passage in Yarrell's *British Birds*:—"The example set by the thrifty husbandmen of France, Belgium and Scandinavia shows that the presence of this bird is not fraught with so much danger to their live stock as its persecutors would make

out, for in all these lands, and especially in Sweden and Norway, it is the tolerated, if not the cherished, neighbour of every farmer, its depredations being practically unfeared."

After reading the above paragraph and noting the food items as scheduled by Dr. Collinge, I decided to keep a record of the stomach contents of all the specimens I could obtain. I have now examined upwards of sixty from a district where it is destroyed by both farmers and gamekeepers, and as a result I am convinced that my former opinion is wrong, and I fully agree with Dr. Collinge's conclusions.

Some few remarks on the stomach contents may be of interest. In only three cases have I found remains of the egg-shells of game birds, but on five occasions I have found traces of wood-pigeon's eggs, and on four those of the blackbird. The bulk of the food, however, has consisted of insects and their larvae, including the wireworm and Turnip Dart Moth. In twenty stomachs the Cockchafer or its larvae was present. Caterpillars of surface-feeding species were present in twenty-three cases, and numerous beetles which I was unable to identify. Leather-jackets, the larvae of the Crane Fly, were found on seven occasions and in large quantities. The Long-tailed Field Mouse was present in nine stomachs.

Specimens obtained in an adjacent wood contained many examples of what we term Snout-beetles (weevils), and were probably

¹The Food of Some British Wild Birds, 1913, p. 53.

injurious to the trees; in others we found a few slugs.

From the standpoint of the farmer this bird is, in my opinion, distinctly beneficial. The benefits it confers more than compensates for the injury it does to the eggs of game birds, and I shall certainly make every endeavour to ensure its preservation in the future.

The Magpie is a singularly handsome bird,

closely, I have never known them to do any harm.

To quote Yarrell once more "There can be no doubt but that, were persecution abated, the Pie would speedily become as common as it once was, for it is very prolific, and, since little comes amiss to its omnivorous appetite, food would generally be plentiful. There also is reason to think that its restoration to

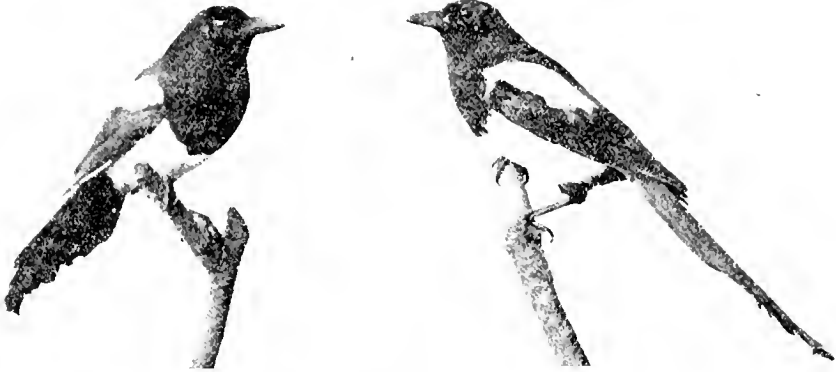


Photo.

The Magpie (*Pica pica*, Linn.).

O. S. 1911.

it can be easily tamed, and it makes a delightful pet. There is no need to cage it up and so destroy the beauty of its feathers. I have had two of these birds in my garden for over two years. They are allowed perfect liberty, and regularly share with the cat and the dog the household scraps. Both are on the most familiar terms with all the household, and so far as I can say, after watching them very

its former abundance might be a decided gain to the agriculturist, since slugs, snails, insects and worms form, out of all proportion to anything else, the greater part of its diet, for its consumption of grain or fruit is trifling, and it is also a great destroyer of mice and rats—a fact of which the gamekeeper is seldom mindful, though never forgetting its assaults on leverets and rabbits."



WILD BIRDS: THEIR RELATION TO THE FARM AND THE FARMER.

BY **WALTER E. COLLINGE, D.Sc., F.L.S., M.B.O.U.***The University, St. Andrews*

It can scarcely have escaped observation that during the past five or six years, throughout the whole of the country, there has been an abundance of insect life that has not been surpassed for a considerable period. Farmers and others have been loud in their complaints of the many species which have attacked their crops and deprived them of a considerable percentage of the yield.

During this same period there is ample evidence to show that, with one or two exceptions, there has been a marked diminution in the number of our wild birds. We need not now enter into the various causes which have tended to bring about this disastrous situation, but that we have fewer insectivorous birds to-day, there is abundant proof.

These two facts are patent to all who have followed the reports in the daily press and our agricultural and ornithological journals, and the question naturally arises whether or not the former condition is not largely due to the latter one, in other words, whether the dearth of insect-eating birds has not permitted many species of injurious insects to increase to such an extent as to become plagues.

The inter-relationship existing between wild bird life and insects is an exceedingly important subject, and one that as yet we know far too little about, but a study of the subject extending over many years warrants us in stating that wherever the insectivorous birds of a district or of districts are destroyed, either purposely or through climatic and other causes, there is an accompanying insect oscillation which is not reduced until the balance of bird life is restored. Moreover, in the case of certain insects whose numbers remain relatively constant the controlling influence is largely, if not entirely, due to the uniformity of the bird life from year to year.

Any factor therefore that tends to modify or upset the restraining influences of wild birds in their relationship to injurious insects is distinctly detrimental to the farm and farmer.

This fact is fully borne out by the careful and intensive investigations that have been made in countries possessing great agricultural interests, although the subject is one that has been largely neglected in this country.

It can scarcely be expected that farmers should individually make themselves acquainted with the feeding habits of our commoner species of wild birds, but it does seem strange that the results which have been obtained by many years of careful investigation should largely remain unknown to them. The problem of wild bird preservation and destruction is no new one, and to-day, in most civilised countries, there are carefully prepared laws governing the preservation and destruction of the various species found therein. Further, in not a few of these countries the State, by maintaining a scientific staff in its Department of Agriculture and State Ornithologists, has been able to materially add to our knowledge as to the economic status of the different species, and has collected valuable statistics which have been published and distributed broadcast among the farming community, with considerable benefit to both the cultivator and the nation in general. Unfortunately, we have no such organization in this country.

Recent work has shown that it is possible to fix with great accuracy the economic status that any species of wild bird holds, so that we are able to say of a particular species: It is fairly plentiful, increasing or decreasing in numbers, that the total consumption of the food of a single bird averages such and such

an amount per year, and of this total bulk a certain percentage consists of food that is conferring a direct benefit upon agriculture, a further percentage is a direct injury, and the remainder is of a neutral nature.

Such information at once places before the farmer the exact relationship which exists between the particular species of bird and his crops. Thus supposing we state that a certain species consumes 10lbs. of food per year, which consists of 50 per cent. of injurious insects, 5 per cent. of neutral insects, 10 per cent. of slugs and snails, 15 per cent. of cereals and cultivated roots, and 20 per cent. of the seeds of wild grasses, weeds, etc. Such an analysis enables the farmer to immediately appreciate the damage this species commits and the benefits it confers. Of the total bulk of food, he can now see that it is composed of the following proportions:—

Injurious Insects	... 5 lbs.	} Beneficial	6.0
Slugs and Snails	... 1 „		
Neutral Insects	... 0.8 „	} Neutral	2.8
Grass and Weed Seeds	... 2.0 „		
Cereals and Roots	... 1.8 „	Injurious	1.8

In other words, 6 lbs. of the bird's food is a direct benefit to the farmer, consisting as it does of insects and other forms of animal life, which unless destroyed would quickly ruin his crops; 2 lbs. 8 oz. of the food is neutral, and the actual damage is a loss per bird of 24 ounces of cereals and roots.

Now the question arises: "Is it to the farmer's advantage to lose 24 ounces of cereals, etc., in order to destroy 6 pounds of injurious insects, etc.?" In other words, "Does the destruction of the injurious insects compensate the farmer for the loss of the cereals and roots?" Our answer is emphatically Yes, for by no other means could he remove such a devastating army at anything like the cost. Indeed, were it not for the ceaseless activity of the "winged wardens"

of the farm, it would be very difficult to reap a crop at all.

Once having established a definite and reliable method of estimating the food of a bird, it is comparatively simple to decide upon those species that are beneficial and those which are injurious. Let us examine the records for two species that have been subjected to considerable criticism during the past few years, viz., the Rook and the Pheasant.

Of the total bulk of food consumed by the rook per year, 50 per cent. consists of animal matter and 41 per cent. of vegetable matter. The several items and their percentages are as follows:—

Injurious Insects	... 23.9%	} Beneficial	28.5%
Slugs	... 3.2		
Sparrows, etc.	... 1.4		
Cereals	... 35.1	} Injurious	52.0%
Potatoes and Roots	... 13.4		
Beneficial Insects	... 3.5	} Neutral	19.5%
Wild Fruits & Weed Seeds	4.4		
Moll. Vegetable matter	6.1		
Neutral Insects	... 4.6		
Earthworms	... 4.4		

A little more than half of the total bulk of the food is an injury to the farmer, and 28.5 per cent. is the compensating balance. Now, in the case of the rook we know that they are exceedingly plentiful, their numbers have rapidly increased of recent years, further, we know that with the increase of the starling there is a keen struggle for existence between these two species. The food supply being insufficient, the rook has taken to feeding upon cereals and cultivated roots, and the starlings upon cereals and cultivated fruits. In all probability, *i.e.*, so long as the rook and the starling population remain so great, these items in their respective diets will tend to increase rather than diminish. We must therefore place the rook under the category of injurious birds.

The Pheasant is another bird that has been accused of doing great harm to standing

crops. If we examine its total bulk of food consumed in one year we find it is composed of 37.4 per cent. of animal matter and 62.6 per cent. of vegetable matter, of which the various items occur in the following percentages :—

Injurious Insects	... 23.4%	} Beneficial 26.2%
Slugs	... 2.8	
Cereals	... 2.4	} Injurious 3.4%
Beneficial Insects	... 1.0	
Wild Fruits & Weed Seeds	41.7	} Neutral 70.4%
Mchl. Vegetable matter	... 18.5	
Neutral Insects	... 1.5	
Earthworms	... 8.7	

On examining these figures it is at once evident that in its relationship to the farmer the pheasant is a most beneficial bird, for it destroys an enormous number of injurious insects and slugs, whilst only 3.4 per cent. of its food constitutes an injury. As we have elsewhere stated in connection with this species, "where an excessive number of birds are reared on a small acreage, in short, for shooting tenants, who are mainly concerned in obtaining their money's worth, then damage is bound to ensue, for the conditions are altogether unnatural."

In addition to the above-mentioned benefits which this bird confers, it also offers a supply of home-grown food of an appreciable value.

An investigation of the food and feeding habits of twenty-two species of our commoner wild birds, of which specimens were examined during each month of the year and from all parts of the country, extending now over fifteen years, shows that the sum total of their activities is distinctly in favour of the farmer and fruit grower, for the benefits they confer are almost twice as great as the injuries they inflict (cf. Table I.), but if we exclude from this Table such well-known injurious species as the Rook, the Starling, the House-Sparrow, the Bullfinch, and the Wood Pigeon, the benefits conferred are over four times as great as the injuries.

TABLE I. SHOWING THE PERCENTAGES OF ANIMAL AND VEGETABLE FOOD AND THE PERCENTAGE OF THE SAME WHICH IS BENEFICIAL, INJURIOUS, OR NEUTRAL.

Species.	Animal Food.	Vegetable Food.	Beneficial.	Injurious.	Neutral.
1. Jackdaw	... 71.5	28.5	18.5	23.0	28.5
2. Rook	... 59.0	41.0	28.5	52.0	19.5
3. Starling	... 51.0	49.0	36.5	41.0	22.5
4. House-Sparrow	... 25.0	75.0	12.50	62.71	24.75
5. Chaffinch	... 25.0	75.0	16.5	18.0	65.5
6. Bullfinch	... 100.0	41.0	59.0
7. Yellow-Bunting	... 29.0	71.0	23.5	11.0	65.5
8. Sky-Lark	... 46.0	54.0	36.5	13.0	50.5
9. Great Titmouse	... 77.0	23.0	66.5	10.0	23.5
10. Blue Titmouse	... 79.0	21.0	78.0	10.0	12.0
11. Missel Thrush	... 55.0	45.0	35.5	21.0	43.5
12. Song Thrush	... 57.0	43.0	37.0	17.0	46.0
13. Fieldfare	... 59.0	41.0	44.5	1.0	57.5
14. Green Woodpecker	100.0	...	100.0
15. Barn Owl	... 100.0	...	85.5	13.5	1.5
16. Sparrow Hawk	... 97.5	2.5	15.0	47.0	8.0
17. Kestrel	... 99.0	1.0	89.5	6.0	4.5
18. Lapwing	... 89.0	11.0	70.0	...	30.0
19. Wood Pigeon	... 3.5	96.5	1.5	62.0	36.5
20. Pheasant	... 37.4	62.6	26.2	3.4	70.4
21. Partridge	... 40.5	59.5	27.0	6.5	66.5
22. Red Grouse	... 22.5	77.5	16.0	3.5	80.5
Totals and Averages...	55.5	44.5	41.9	21.0	37.1

As has so frequently been emphasised, the actual injurious wild birds we have in this country are exceedingly few, though the harm these do is considerable, but this might be largely counteracted by the institution of wisely administered repressive measures. Any attempt, however, at the destruction of wild birds as a class would be nothing short of a national calamity, and the more carefully one studies their feeding habits, the more clearly does the fact enforce itself that in our avifauna we have a potent factor for good that is of the greatest national importance, especially to the farmer and those who live by the produce of the land.

If through unwise legislation we permit beneficial species to be destroyed, we are indirectly aiding in the propagation of insect plagues, which already are taking a huge toll of our home-grown food. Or if, on the other hand, we allow known injurious species to increase in numbers, we are again handicap-

ping the farmer and fruit grower, and robbing the country of a food supply it is greatly in need of.

Under present economic conditions we can no longer afford to passively view the very serious losses that are laid upon agriculture, horticulture, forestry, and the fisheries. Too long we have delayed. In the Report of the Departmental Committee on the Fruit Industry of Great Britain (1905), it was pointed out that a great amount of damage was done to crops by birds, especially bullfinches, starlings, blackbirds, thrushes, and sparrows. The Committee stated: "There can be no doubt that this grievance is well founded. The destruction of all vermin in country districts, the curtailment of the area of cultivation and the protection afforded to wild birds by recent legislation, have upset the balance of Nature, so to speak, with the result that they have multiplied to such an extent as to become a positive pest in some places." Nearly fourteen years have gone by since the issue of this report, during which time most of the above-mentioned species have greatly increased in numbers, and all that has been done is to sanction an onslaught upon poor, unoffending Game birds, which apart from the sport they provide, afford a valuable source of home-grown food. As regards the protection of our beneficial species nothing whatever has been done.

In the interests of agriculture, fruit-growing, forestry, and the fisheries, it is surely time that a subject so intimately connected with these callings should receive greater attention. The Governments of other countries have not thought it foreign to the interests of their people to spend large sums of money upon the maintenance of special departments, with expert and experienced investigators concerned only with this subject, and, so far as we can judge, their outlay has proved a wise and statesmanlike action in that it has, as the result of the knowledge obtained, enabled them to frame just and

simple laws, which have materially benefited the worker on the land.

It is surely patent that there never was a period in the history of our country, when all that fetters agriculture or hinders the production of bounteous crops, should, if within the region of possibility, be removed, in order that we may secure the maximum yield from the soil and so aid in supporting to the greatest possible extent the nation on home-grown food. Each year that we neglect this problem we are permitting matters to grow worse, and are placing a severe handicap upon our greatest national industry.

Before any action is possible it is essential that we should have indisputable evidence of the precise economic status that a bird occupies. Having obtained such, it is further necessary to know whether that particular species is increasing in numbers, stationary, or becoming less numerous, and whether such conditions are local or general. With such information it is possible to protect a species by forbidding the taking of the eggs and birds. Practically the whole of our insectivorous species of wild birds should be so protected. It should, further, be deemed an offence for any dealer to have in his possession either the eggs or birds of these species, and similarly for anyone to expose, advertise, or offer them for sale.

Where a species is found to be destructive no protection, for the time being, should be afforded it.

Provision should be made in any future legislation to revise or reconsider any Order at stated periods, say every three years, either for the whole of the United Kingdom or for different parts of the country, according to the varying conditions.

It is only by some such method as outlined above that we can hope to relieve the food producers of the nation of a serious loss, and at the same time lend every encouragement to those species of birds which are known to be valuable aids as destroyers of insect pests.

BIRDS OF THE WYE VALLEY.

BY WILLIAM C. BLAKE.

Herefordshire will compare favourably with any other inland county as to its avifauna. It is well wooded, and varied by hills and dales, while the hedgerows teem with songsters. As in all other counties, most of the marshland has been drained, which accounts for the absence of bog-loving and wading birds. The river Wye, however, and its tributary brooks tempt the visitation of many aquatic species. As everywhere else, the gamekeeper (under orders) has rendered almost extinct our larger raptorial species.

From my earliest years God's feathered creation has possessed a charm for me, but not until fifty years ago did I commence to tabulate records or study the subject in a systematic manner. I am not a sportsman or a collector of rare species. In many instances, however, rare species have fallen to the gun, and been sent to me for identification. In some cases the specimens have been offered to me for "what I like to give," in fewer cases they have been presented. Under these circumstances I have gone to the expense of their preservation. Several species have thus been added to our County List, and a few have found their way to the Hereford Museum. My binocular is the only weapon I level at birds.

Closely tied to business, my opportunities have been none of the best, but I have tried to make the most of them. Many have been the interesting items in my Wye-side and woodland walks, conducing to health of body and delight of mind. These, together with the observations of others with whom I have been in touch, have filled a manuscript volume, from which I propose to draw upon in these notes or any future ones.

Ross-on-Wye is situated within four miles of the Gloucestershire border, and six from the confines of Monmouthshire. As an

observer of birds of the Ross district, I define it as a radius of twelve miles around Ross. My principal observations fall within half this distance, but as I am writing on the Birds of the Wye Valley, a few instances from beyond my district may find a place in these contributions. In the present paper I propose confining my remarks to some of the birds of prey.

In October, 1870, a young farmer at Fownhope (six miles distant) out with his gun, observed a large bird circling above over the river. His fingers itched to find out what bird it was, so he brought it down, and pronounced it to be an eagle of some kind. Not being interested in birds, he exchanged it for a dog, to a gentleman who had it set up. It proved to be a beautiful male Osprey. A female was found by the London taxidermist, and the two cased up together. In a few years it passed into my possession, and is much admired.

About three years ago a Spotted Eagle was found alive, but with a broken wing, in Brinsop Wood, near Hereford. No one appears to know who shot it. The poor thing was put out of its pain, and the gentleman on whose estate it occurred had it set up, and has lent it to the South Kensington Museum. I trust it may finally be housed in the Hereford Museum.

The appearance of *Aquila tusca* was an unlooked for event. It is just possible that the thunder of War on the Continent may have accounted for its visiting our inhospitable country.

An old sportsman reported to me a slate-coloured, long-legged hawk he had shot near the Wye in 1873. The taxidermist sent it home labelled "Hen-Harrier (*Circus cyaneus*), Male." The last of its race in our locality, I fear.

The Honey-Buzzard (*Pernis apivorus*) has visited us from time to time, and that within recent years. If allowed, it would doubtless continue to breed here. My first personal acquaintance with this bird was one shot in the Queen's Wood, Marcle, about forty-five years ago. It was loaned to me for a few weeks. On examination I could not but admire the wisdom of its Creator to render it invulnerable to the stings of wasps and bees. It is thickly feathered around the eyes, also down to the base of the beak—regions more or less bare in other birds of prey.

A second specimen was shown me by an old friend, who shot it at Credenhill in the fifties, and a few years ago I was invited to inspect one and an egg, obtained about fifty years ago near Ross.

A pair of Honey Buzzards took up their abode on the Bishopswood Estate (four miles distant) in the spring of 1803. They had proceeded with family matters as far as making a nest in the second fork of an elm tree, and depositing two eggs, when the fiat went forth for their destruction. The persecuted pair were shot on the same day, and the two eggs were taken subsequently. The birds were beautifully set up by my friend, Chas. Ashdown, of Hereford, and were retained by the estate owner, while the eggs fell to the steward. I have a photograph of the case of birds.

A country squire residing on the banks of the Wye, shot a Honey Buzzard about four years ago. Being a magistrate, he atoned for the offence by having it preserved and presented it to the Hereford Museum.

In the autumn of 1816 I was taking a walking tour with my daughter, from Symonds Yat to Monmouth. At tea-time we called at a quiet road side inn. The parlour was adorned with cases containing a Heron, Owl, Woodpecker, Moor-Hen, and a Honey-Buzzard. I sent for "Boniface" to get a little light on the last-mentioned bird. "Yes,"

he said, "I shot 'um all some years ago round about here." Pointing to the Buzzard, he said, "I killed two o' them about twenty years ago. A lady bought the other and had him stuffed and sent to the museum at London." "And what do you call it?" I asked. "Well," said he, "some of my customers calls it one thing and some another, but I calls it a Scotch Eagle"! I told him it was a female Honey-Buzzard, and later sent him labels for all the cases, with the English and Latin names of each species, which I understand have since been duly affixed.

The Common Buzzard (*Buteo buteo*) alas can no longer justify its name. If one appears at long intervals it is only to be shot down. An eagle in miniature, it has been the victim of unjust persecution on the part of gamekeepers and their employers. Rats, mice, and voles are their favourite food, with worms, slugs, and an occasional young rabbit. An old friend of mine and an eminent botanist told me that when studying the Flora of Great Doward, near Symonds Yat, he has seen five Buzzards at once circling in the air, and has also noticed the Kite (*Milvus milvus*) on several occasions. The last of the Kites from this district are to be found in the Hereford Museum.

A Buzzard set up and in my possession was trapped on the Leys Estate, Doward, about forty years ago. If I had not spoken for it, an addition would have been made to the gamekeeper's museum. At intervals, this bird is still met with in the district.

I was shown a fine pair at the Speech House, Forest of Dean, trapped, alas, on their nest! At Bishopswood it occurred in 1881.

For the past twelve years I have kept a fine female Buzzard alive. It was taken from a nest on the Cornish coast. It is quite tame with me, but timid of strangers. I keep her in a spacious aviary, wherein she can use her

wings. She permits me to stroke her legs down to the talons with my fingers, and to brush her down with one of her tail feathers.

I lost her once for an hour, and have to thank five pairs of rooks for her recovery. She flew into the tall elms where they were nesting. They dislodged her several times. I eventually found her on a willow tree over a brook, and could just reach her by the leg. She allowed my near approach, and submitted to being caught. I think she was truly grateful to be returned to her aviary.

She repairs a nest with materials provided, and commences to sit about the end of February, but has not yet been clever enough to lay an egg. I think of treating her with some Bantam eggs to incubate next spring.

Unless she is very hungry, she will not touch a bird, though has often killed an unwary sparrow who has entered her enclosure.

A writer in the *Zoologist* of 1895 says, "I see mention of a Rough-legged Buzzard, which had been caught in one of those detestable pole traps some years ago at Bishopswood, near Ross." This, I think, is the only record for the county of this species.

I once kept one which had been caught in the eastern counties. It is a winter visitor, and is feathered to the toes, hence its name, *lagopus*. Some years ago I acquired a specimen shot in Yorkshire, set up, pouncing on a young hare. My friend, S. L. Moseley, used it for a figure in his book on *British Birds: Their Nests and Eggs*. I disposed of it recently to the Hereford Museum, as they wanted an example.

(To be continued.)



POND FREQUENTING BIRDS AS SEED CARRIERS.

II.

BY THE REV. E. ADRIAN

WOODRUFFE-PEACOCK, F.L.S., F.G.S., F.E.S.

Gravingham Rectory, Kirton-in-Lindsey, Lincs.

In our first article on this subject we gave a list of species found in a certain limited class of ponds, namely, (1) spring, (2) sipe, and (3) dew-ponds, also short notes on the Mallard or Wild Duck, and the Water- or Moor-Hen.

It may be demanded of me, "How can you prove to demonstration that these birds really carry the plants or the seeds of those species you have named in your paper?" This is a perfectly fair question, and I will answer it as fairly.

There are two ways of demonstrating the required facts: (1) By seeing the acts of physical carriage, a thing I have often done, both (a) by pure accident, (b) by careful and prolonged watching, and also (c) by forcibly driving ducks and water-hens from ponds by the aid of a dog. (2) There is also negative demonstration, which in the case of small, isolated, man-made ponds is unusually strong.

As regards the first, I have seen a few species, *Elodea*, *Lemna*, and *Potamogeton*, carried naturally to ponds by birds. For an instance of (a) pure accident. When my late brother Max and I were lads, one July we were watching the bird-life at Ashby Decoy, while old Tom Tacy, the then owner of this famous water, told us anecdotes regarding its birds. As we stood listening, some "outlying" Wild Drakes came in to seek the security of the pond, and one of them had "a necklace" of *Potamogeton prolongus*, one of the rarest, because deep water species, of this part of England. This was the first time in my life I had ever seen it, and it was another fifteen years before I found it growing in

Lincolnshire. It is not only a lake or deep water species, but a brittle one, which lake-diving ducks often break off in fishing, I am now told. I can only say such a sight is very rare, but I have seen (b) many species carried from ponds to other waters. (c) The easiest way to demonstrate this is to use a dog when water-hens or wild ducks have young, when the dog can be made to understand it is the old birds and not the young ones he is wanted to put out of the ponds. I had a trained dog, but he has gone the way of all good and bad dogs, I regret to say.

It does not want often doing, for it is cruel work, as the Water-Hen is especially reluctant to leave its young and to forsake its home-waters. When forced to do so, after much diving and resting under the water to escape being driven out, I have seen them carry away on their bodies, *Lemna* of three species, *Ranunculus* of two, as well as *Chara vulgaris* and *Elodea*, also many seeds in the autumn months, that I could not possibly name during a passing vision through a field-glass. The only species I am absolutely certain of was *Alisma plantago-aquatica*. The Water-Hen was put out by my dog, and arose from a part of the pond where this plant was growing. It was marked down at the exact spot it settled in another pond in the next field, only 25 yards away. From the water surface of that spot we fished out its seeds with a shell scoup. *Alisma* was not then found growing in this pond, yet it was found in the following year, but did not flower until the next season.

This series of ponds, for there were three, were pipe ponds, and all drained into one another; yet the one in which the water-hens and wild ducks rested, had much the longest list of plants, though they were only divided by five and twenty-five feet, and were in three different fields. The flora of none of them was exactly alike.

This fact of the slightly varying flora of

contiguous ponds, often, as in this case, inter-draining was the startling fact which in 1874 set me to work at making a special study of their flora and fauna.

To such an extent have I found seed or plant carriage going on during the forty-five years I have studied this subject (for my first pond note is dated 13 iv. 1874), that I have made the following summary to tabulate all the means of carriage I know of:—

TABLE OF METHODS OF TRANSPORT OF PLANTS AND SEEDS BY BIRDS.

- I.—Internal Seed-Carriage (the commonest).
- | | |
|----------------------------|---|
| 1. In the crop | } The whole range of |
| 2. In the gizzard | |
| 3. In the alimentary canal | } Only hard ones as a rule, with many exceptions. |
- II.—External Seed-Carriage (a rarer form).
4. In mud, fairly common.
 5. In clay balls, very rare.
 6. Amid ruffled feathers, rare.
 7. By mucosity, not quite so rare.
- III.—External Plant or Seed-Carriage (the rarest).
- | | |
|-------------------|-----------------------|
| 8. On the back | } All rare, but 8 the |
| 9. Round the neck | |
| 10. On the feet | } 10 the rarest. |

On this table I have only space here to say a few words. Clay balls as a means of carriage is the rarest form I have personally met with. I have only obtained the seeds of tith and pasture species from clay balls supplied to me by gamekeepers on the uninjured feet of partridges, or, in still rarer cases, from the feet of birds which had the misfortune to have a foot shot off, as I judged, or taken off by spring traps. This is all I can say here on physical means of carriage by way of proof.

(2) Negative demonstration is just as potent in convincing a properly trained

observer, if not an untrained one. For there are two classes of isolated waters in which practically no species of water plants usually carried by birds are found: (a) Ponds which are overstocked with wild-fowl or domestic ducks, such as decoy waters and homestead ponds near farm yards. These invariably leave such notes in my diary as "too mallardy" or "too domestic-ducky," as the case may be. (b) There are also, and this is the really important case, isolated ponds, which for some reason are never visited by Mallards or Water-Hens! Why this is so I have quite failed to discover after the most prolonged analysis. Such ponds are not confined to any soil, but are found in varying situations, fairly near to homesteads and away from them in more distant pastures.

Within half-a-mile of the table on which I write these lines is a pond I have watched for 28 seasons. During that period, so far as I can judge, it has never been visited by birds of any species. I have never seen one or their tracks on the soil round it or in the mud below its surface. No water plants have I ever been able to detect within its area, except *Agrostis alba*, which is too often mammal carried to be of the least value in this case. Yet in two ponds just over the fence in the next pasture there is the usual supply of species found in *rarely visited* ponds.

There is another field pond of the same uninviting kind two and a half miles away, but in this parish. Its record, bar *Agrostis alba*, was the same, until I detected the Black-headed Gull visiting it in 1900.

As they may be useful to future workers, here are the field notes from these ponds for season 1917.

"Pond No. 39 (on parish list map). In little pasture, S. of Edlington House buildings. Soil, Sandy Glacial—Gravel. Never bird-visited to my knowledge in 26 years, no traces of wild ducks or water-hens at any time. (1) *Agrostis alba* only. 25 v. 1917."

"Ponds No. 37 and 38. In next lower pasture. Same soil. Very rarely visited by fowl, no trace of ducks or water-hens now, but I have seen marks of them at rare times. (1) *Agrostis palustris*, (2) *Ranunculus repens*, (3) *Glyceria fluitans*, (4) *Juncus glaucus*, (5) *Carex hirta*. 25 v. 1917." With this note added. "All these species are at times carried on the muddy or wet feet of cattle, but this pond is rarely visited I know."

"Pond No. 63. On Kimeridge Clay in pasture S. of Brandr-Carr House farm buildings. Unvisited apparently by birds for 6 years, that is, up to season 1900, so only *Agrostis alba* in it earlier. Since then, frequented by Black-headed Gulls. A young and not breeding bird of 1916 hatching was on it as I approached it to-day. Very rarely it has been visited of late by domestic ducks and geese, but they have too many ponds nearer at hand to come this distance, except rarely. (1) *Lemna minor*, (2) *Epilobium hirsutum*, (3) *Glyceria fluitans*, (4) *Ranunculus repens*, (5) *Cardamine pratensis*, (6) *Veronica beccabunga*, (7) *Juncus glaucus*, (8) *Deschampsia caespitosa*, (9) *Myosotis palustris*. The banding round this pond was characteristic of its flora. By the water 3, above that 2, above that again 8. 5 vi. 1917."

These notes are direct from my diary, made on the spot each season, to learn (1) the history of the changes in man-made ponds, and (2) the means of seed carriage. They have no axe to grind, any more than their recorder has: he only wants to get at all the facts he can learn by analysis. All the same, they clearly demonstrate that unvisited ponds do not contain the water plants of my bird-carried list. On the other hand *all visited and frequent ponds* do contain more or less of them is my universal experience.

In 1880 I spent weeks in studying the natural history of the, at that time, untouched wide area of Salisbury Plain. One of its most isolated dew-ponds was visited by wild

ducks, for I saw them drop into it, and discovered its situation by viewing their flight. By its old water-line was growing *Alopecurus geniculatus*, quite out of place and miserably poor on that limy-sandy heath, which was much more fitted for *A. aequalis* (= *fulvus*), another rare duck-carried species, which I personally only know in Lincolnshire in "ducky" spots. In the waters of this hidden dew-pond were: (1) *Potamogeton densus*, (2) *P. perfoliatus*, (3) *Ranunculus drouetii*, (4) *Zannichellia palustris*, I believe, for I could not reach 2 and 3, but I took them both in another dew-pond due south, but close by the village of Everley.

Another dew-pond, which I discovered a few days later, was quite dried out. There I found, late in August, that some such series of plants must have grown in it, for its dried bed contained *Calluna* seed and old leaves, with the seeds of *Potamogeton* and those of *Ranunculus drouetii*, I judged.

It would be very easy for me to write a whole series of articles to show how seeds are carried to ponds, but it would be much wiser of the younger members of the W.B.I.S. to study a whole series of ponds and to publish the results in this Journal. "When you teach yourself your learning clings," our phrase says here. At any and every opportunity let me beg them to do so. I analyse the flora of every pond I meet with. Often I never see many of them again, but new and confirmatory facts are often discovered by doing so, such as the duck-carriage of *Alopecurus aequalis* above, which I have never met with by my regularly studied ponds. Many facts have been demonstrated at casually and once visited ponds, which I have sought elsewhere for in vain as yet.

To close with I will name two hybrids of species which may serve as examples of what the intensive study of isolated ponds may demonstrate.

In my list of bird-carried pond species

Alopecurus geniculatus is found. It is in 20 out of a 100 isolated ponds, as a rule, in N.W. Lincolnshire; but it should be noted in no great quantity for the most part. As a result, I suppose, it sometimes hybridizes with its near relation *A. pratensis*, of the damper parts of pastures, and the cross *A. geniculatus* × *pratensis* may be found by ponds rarely on rather drier spots than *A. geniculatus* frequents. This hybrid plant being rather larger than its water-loving mother-parent. This, however, is not all, but it set me thinking and narrowly observing. I discovered that still more rarely, up above on the even drier Chalk-Boulder-Clay, was the other hybrid *A. pratensis* × *geniculatus*, which could be detected at once by its glaucous coloration. This of course is found by its mother-parent *A. pratensis*. Both these hybrids have arisen from *A. geniculatus* having been carried to pasture ponds by ducks in fields where *A. pratensis* grows.

My second plant shall be the so-called variety of *Bidens tripartita*, called *integra*, Koch, which is very rarely carried to the sides of field ponds by ducks, I suppose, for I have not yet fully demonstrated the means of carriage in this case.

I have met with this so-called variety by the River Thames at Putney, many years ago, and by Bradford Water, in Lincoln City. In the latter case, if not in the former—for it is so many years back, I cannot say for certain now, for I have no field notes made on the spot—both *B. tripartita* and *B. cernua* were present. I noted that this so-called *integra* had the pappus bristles not according to the type, *i.e.*, not two, as the typical *B. tripartita* always has, but three, or even sometimes four, like *B. cernua*. Thinking this form had been fully studied, and misled by the 3rd England Botany description and figure, I took no notice though my seed collection clearly demonstrated the above facts. When, however, I met with this form by an isolated

pasture pond at Sibbertoft, in Northamptonshire, where neither of the so-called types were present, I carried masses of the seeds home here to sow them by a clay pond, in similar circumstances of soil and conditions of moisture. The result was, not one seed was fertile here in the open, or when I tried them by cotton-wool moisture, neither was one plant grown from the thousands shed on to the botanists' consecrated soil of Sibbertoft.

Surely this demonstrated to almost certainty, what I had long suspected, that the so-called *integra* variety of *B. tripartita* is nothing but the hybrid *B. tripartita* - *cernue*. I tried to convince Mr. G. C. Druce of this, and now the ducks have proved it. I regret to say I take more interest in the ecology of plants, even the commonest ones, than in hybrids even the rarest. My minute pond studies have demonstrated many facts, but at least this much, that their confined areas do produce hybrids, I believe, *R. drouetii* - *floribundus* and *R. floribundus* - *drouetii*, but I am not a sufficiently learned botanist to say more than these forms seem to be seedless or barren in producing plants.

More than plenty remains for other workers to discover in or round isolated ponds, say, for instance, turning to their fauna, how ducks carry fish and molluscs to such limited areas. I have a little proof, but only of a trifling sort as yet. Why is the univalve *Planorbis nautilus*, in my experience a pure pond shell, never found in rivers and becks? It is moved from pond to pond, I know, by ducks, and must in the same way reach other waters, but here at least does not survive in them.

The subject of pond-study is limited, and yet, after forty-five years, it appears to me that I have only touched the fringe of it as yet. I shall be most happy to help anyone who cares to make a study of isolated ponds, if I am able to do so.

THE JOURNAL OF THE WILD BIRD INVESTIGATION SOCIETY.

The Journal is supplied free to all Ordinary and Associate Members. Non members of the Society may obtain it from the publishers (p. s. 6) on forwarding subscription of 12s. 6d.

All matter intended for publication should be written on one side of the paper only. Typed MS. is desirable. Unrelated subjects should be dealt with on different sheets. No notice will be taken of anonymous communications. No matter can be returned unless a stamped and directed envelope is enclosed.

All communications should be addressed to Dr. W. E. Collinge, St. Andrews, Scotland.

EDITORIAL.

In presenting the second issue of our Journal, we take the opportunity of thanking the members and the Press for the support received at their hands. For the unanimous expression of approval from the former, and the many flattering notices given us by the latter, we are much indebted.

Throughout the country it has been recognized that there lies before the Wild Bird Investigation Society an enormous field for useful and valuable work, and it behoves all of our members to each take his or her share in such. The gratifying success that has attended the St. Andrews Local Branch shows what can be done, and we wish to see other branches as flourishing and active.

The Report of the Departmental Committee on the Protection of Wild Birds has called forth a considerable amount of criticism, and though on the whole this is in general agreement with the Committee as regards the majority of their suggestions, there are a number of points that require further consideration. Some are loud in their complaints against the bird-catchers, and we must confess that the Committee seem to have looked with far too lenient an eye upon these people. As Mr. H. S. Davenport points out in *The Times* (1919, Aug. 20th), it is recommended "that all killing or taking of birds in any public place, highway, byway, common, or waste land, should be prohibited throughout the year"; yet a little later in the Report the Committee

recognize "that the trade of the bird-catcher is of great antiquity, and having no desire to see it interfered with, provided," etc. Where do the Committee suggest that the votaries of this ancient and cruel calling should ply their trade? If the highways, etc., are closed to them, unless owners of property are prepared to welcome them, which is not at all likely, deliberate trespass is the only course open. There is a very large and growing opinion that the bird-catcher is a pernicious pest, and that it is high time that such a trade should be put an end to.

We are still anxious to see more local branches formed. There are a large number of members in different parts of the country who have both the time and knowledge necessary to make such branches successful, and yet who hesitate to take the preliminary steps. We appeal to all such to come forward and lend a helping hand. The work is urgent and interesting, and there never was a time when it was more necessary. In all our big centres of population, and in all our country towns, we desire to be represented by a local branch. Each will be a centre of influence and education. Surely for such objects as the W.B.I.S. stands for we shall not have to appeal in vain.

NOTES.

INCREASE OF LONG-TAILED TITS

In their valuable paper on the effect of the winter of 1916-17 on our resident birds (*Brit. Birds*, 1918, pp. 26-35) Messrs. Jourdain and Witherby state that the Long-tailed Tit "was apparently almost exterminated, hardly any being reported in 1917, but a few pairs evidently survived. . . . There seems no doubt that quite 80 or 90 per cent. were killed off, but the wandering habits of this species in winter will probably soon lead to the re-colonizing of many ancient haunts."

In Fifeshire we failed to notice any specimens either during 1917 or 1918, and only very few were seen in the early part of 1919. There was a marked increase during this latter year, and during the present winter we have seen quite a number of flocks of ten or a dozen birds.

WALTER E. COLLINGE.

As elsewhere, the Long-tailed Tit suffered severely in Cheshire during the winter of 1916-17, but I am pleased to say that its numbers are now gradually increasing. During the last few weeks and during January I saw a number of flocks in various parts of this county.—E. R. G.

Mr. Ernest Biade reports in *Country Life*, Feb. 7th, the re-establishment of this bird "on the northern border of Exmoor, in the vicinity of Minehead and Porlock," where he saw nine or ten flocks of them during a fortnight's stay; "one contained between fifteen and twenty birds."

MORTALITY OF COMMON TERNS IN 1919.

In 1919 a great mortality occurred among the newly hatched Terns. In some cases they lay dead in the nest, three chicks or one or two chicks, with one or two eggs. Others lay out on the turf. It is supposed that the very cold, wet weather of the early summer brought about this destruction, but the deaths could only have occurred through the parent bird deserting their nests. The weather may have been so inclement that the parent birds could not remain on their nests, or it may be that they had gone off for food and had failed to find it expeditiously.—H. CHAS. WILLIAMSON, Marine Laboratory, Aberdeen.

THE FOOD OF THE BROWN OWL.

It has frequently puzzled me to know what owls, and particularly the Brown Owl, feed upon during hard frosty weather. On the nights of November 11th-14th the thermometer here registered over thirty degrees of frost, much too cold one would have thought for field mice to be about. Nevertheless there were many Brown Owls about during this period. On the morning of the 14th I examined some recently regurgitated pellets, not present on the previous evening, and found remains of at least six long-tailed field mice and the lower jaw of a brown rat.—R. A. LEYLAND, Cupar, Fife.

HABITS OF BROWN OR TAWNY OWL

For two years a pair of Brown or Tawny Owls have nested and reared their young in a hollow tree in front of our house. Truer mates never existed. I particularly watched them last year. Each sat, side by side, on an apple bough for three-quarters of an hour. Excepting their heads, neither moved a feather. Frogs con-

stitute a considerable portion of the food during the nesting season; mice and young sparrows are also brought to the nest. The frogs are seized hold of by the hind legs, and last year the whole family seemed to be brought up almost entirely upon this diet.—E. LITTLE, Felstead, Essex.

NOTES & NEWS.

"In ruthlessly destroying the wild birds man has interfered with the balance of nature, and so has helped the ravaging hordes of insects and gnawing animals to multiply without adequate check. All this means that we, the consumers of fruits, vegetables, and the grains, must pay higher prices for the food we eat and the clothes we wear.

—J. E. PEABODY

THE BREEDING OF THE KING PENGUINE

An occurrence as unique as it is interesting is recorded in a recent number of *Nature* by Mr. T. H. Gillespie, who describes the breeding of the king penguin in the Park of the Zoological Society of Scotland, Edinburgh. The first egg laid was broken by the birds, a second was evidently an unfertile one, but a third was laid on September 1st and successfully hatched on October 24th. The chick, like the egg, is carried on the feet of the parent. By placing its head in the parent's mouth, it was fed at frequent intervals with semi-digested fish disgorged by the parent. It is to be hoped that the chick will be successfully reared.

BIRDS THAT SING BY NIGHT

In a recent number of *Country Life*, Mr. C. Ingram discusses the various species of wild birds that sing by night. It is generally assumed that the nightingale is the only British bird that does so. Here the habit is undoubtedly fixed, but there are other species which become vocal during the hours of darkness, either by accident or under specially favourable conditions. Mr. Ingram mentions the reed-warbler, the wood-lark, and the icterine warbler. To these we can add the redbreast, which we have frequently heard breaking into song during the night, and less frequently the blackcap. In the *Zoologist*, 1859, p. 6446, Mr. E. H. Rodd recorded an instance of the redbreast and thrushes being in full song between 1 and 2 a.m. on a moonlight night in January.

BIRD HOUSES AND THEIR OCCUPANTS.

Under the above title Mr. P. A. Taverner, the Government Ornithologist of the Dominion of Canada, contributes a most useful and practical article to the *Ottawa Naturalist* (1919, p. 119). A list of the birds that can usually be induced to occupy nesting-boxes is given, and a schedule of their specific requirements, such as, size of floor, depth inside, distance of entrance from floor, diameter of entrance, number of feet from ground of the house, etc. In Canada the purple martin is the only bird that will occupy a nesting-box in colony, and considerable space is devoted to the details of a house for such. This article will well repay perusal by all interested in attracting wild birds.

BIRD LIMING IN LOWER EGYPT.

"The protection of migratory birds is now, both in Western Europe and Northern America, recognised as a duty that each nation owes to the other nations of the earth," writes Major S. S. Flower, in an introduction to a recent publication on Bird Liming in Lower Egypt, written by Mr. Lewis Bonhote. It is quite evident that such a duty is not recognised by the Egyptian nation, and the sooner the Government teach them to do so the better.

In his report Mr. Bonhote draws attention to the cruel and illegal practice of smearing twigs, rushes, etc., along the coast, with bird lime, whereby, during the migration season thousands of insectivorous birds are destroyed daily. Amongst the species enumerated are the common wheatear, whinchat, nightingale, common white-throat, lesser whitethroat, willow, sedge, reed, and marsh warblers, chiffchaff, spotted fly-catcher, hoopoe, and kingfisher.

The author points out that, "Apart from the fact that this trade is entirely illegal, and also apart from its economic aspect, the trade itself involves extreme cruelty to the unfortunate captives: firstly, they may be left struggling on the stick for hours, though this is not usual; then they are removed from the stick, and *their wings or tails*, if covered with lime, *roughly pulled out*. For the next twenty minutes or so they are carried about by the legs in bunches of half-a-dozen or more, and finally put into a dark basket, often overcrowded, large and small without any discrimination. One does not need to be a sentimentalist to be horrified by such a sight, and I feel sure that if the head authorities

knew and realized what was going on they would take immediate steps to have the trade stopped."

Personally, we feel dubious about the immediate steps, but after Mr. Bonhote's report, which we note was made in 1916, the authorities can no longer plead ignorance of the facts.

SMALL BIRDS DESTROYED BY SPARROW HAWKS.

A correspondent forwards to us some recent counts that he has made of small birds found in the nests of sparrow hawks. The largest number met with is as follows: 7 sky-larks, 3 chaffinches, 2 house-sparrows, 4 hedge accentors, and 4 linnets. Some years ago Mr. Adam Cleghorn recorded that, at Marcus, Forfar, on June 23rd, 1887, he counted 47 freshly-killed birds in a nest, viz.: 1 young pheasant, 6 black-birds, 4 sparrows, 5 robins, 5 chaffinches, 6 thrushes, 4 linnets, 7 tits of various kinds, 2 wrens, 2 yellow-hammers, 2 hedge accentors, and 3 larks. Both young and old birds were amongst these, with the feathers partly plucked off, but few of them touched in any other way.

CORRESPONDENCE.

These columns are open to Members to express their views on general topics, and for the discussion of matters of interest to ornithologists. The Editor takes no responsibility for the opinions expressed by correspondents. No notice is taken of anonymous communications.

THE DEPARTMENTAL COMMITTEE AND THE BIRD-CATCHER.

SIR,—From time immemorial the bird-catcher has been an object of scorn and disgust to most people who are interested in wild birds. It is therefore with considerable amazement that I read the following words in the Report recently issued: "That the trade of bird-catcher is of great antiquity, and having no desire to see it interfered with," etc. I cannot believe that this view expresses the opinion of ornithologists, bird lovers, or the general public. Personally I wish to see the trade stopped, for apart from the cruelty connected with it, I fail to see what right these men have to rob the public of some of the most beautiful objects of nature, and I sincerely hope that the members of the W.B.I.S. will raise their voices and give expression to their views in no uncertain language.

M. B. O. U.

PROTECTION OF PLOVER'S EGGS.

SIR,—The treatment this subject is receiving from the authorities is typical of any attempt by the Board of Agriculture at useful ornithology.

The Committee set up in 1913 have at last published their report, and they rightly recommend the question of the protection of plovers' eggs to special consideration, and suggest that they should be protected after the 15th of April in each year.

After the publication of this report, the Food Controller issues an order fixing the maximum price of all eggs except plovers and gulls. All other small eggs are fixed at 3s. a dozen maximum retail. By not fixing a maximum price for plovers' eggs the Food Controller allows the shopkeeper to make a larger profit by the selling of these than any other egg, and this cannot have any other effect than to directly encourage the collection and sale of plovers' eggs. This, so far, has been the only outcome of the recommendations of a Committee which has sat, off and on, for five years.

The suggestion that the eggs of the plover may be taken before April 15th seems to lay the whole object of the recommendation open to defeat, as there is nothing to stop a shopkeeper from displaying in his shop freshly taken eggs after that date and declaring they have been taken before the 15th and kept in cold storage. If the egg of the plover is not to be wholly protected, the recommendation, to be really effective, should have been "that the eggs of the plover are not to be collected, offered for sale in a shop, or served in a public restaurant after the 15th of April in each year."

H. DOUGLAS BESSEMER.

LOCAL BRANCHES.

One of the objects which the W.B.I.S. seeks to carry out is the establishment of a network of local branches throughout the United Kingdom. Such a series of clubs would not only have a great educational value, but they would tend to link together all who are interested in the study of wild bird life. Moreover, the members, bound together as definite organizations, would undoubtedly exercise a most beneficial influence upon all matters pertaining to the subject in their respective districts.

Any two Ordinary Members of the Society who are willing to act as Chairman and Honorary Secretary respectively, can, with the sanction of the Council, call together those interested, and if ten Ordinary or Associate Members can be obtained, the Branch can be formed, weekly or monthly meetings, excursions, etc., arranged, and work commenced.

The Secretary will be pleased to forward nomination forms and further particulars, or to reply to any queries, on application. Envelopes should be marked "Local Branches."

St. Andrews.—Chairman: Prof. D'Arcy W. Thompson, C.B., D.Lit., F.R.S. Hon. Secretary: O. S. Orr, Commercial Bank House.

October 16th. A large audience assembled to hear Miss L. J. Rintoul's lecture on "Some Aspects of Bird Migration," in St. Leonard's School Hall. Miss E. V. Baxter worked the lantern, and ably illustrated the lecturer's remarks with a series of beautiful and interesting slides. Miss Rintoul dealt with the partial migrants, the bird visitors of the Eden estuary, and her own and Miss Baxter's experiences whilst carrying on their investigations on the Isle of May. At the close of the lecture, the Rev. Dr. Playfair proposed a vote of thanks.

November 20th.—Mr. William Berry, B.A., LL.B., gave an illustrated lecture on "Wild Bird Migration," in the Christian Institute. There was a large and interested audience. Dr. Collinge presided, and introduced the lecturer as a well-known ornithologist and student of bird life. Mr. Berry said the earliest book which referred to bird migration was the Book of Job, which went back about 4,000 years, and in the Book of Jeremiah there was also a reference to the subject. Outside these two references, there was not a single writer who even approximated to accurate observation of this feature of bird life till quite recent times. Aristotle thought that the birds went into hiding during the cold weather, and had no idea that they migrated to other lands. Pliny, the naturalist, held the same views as Aristotle. Centuries afterwards a Swedish Archbishop propounded a similar theory, and wrote that swallows hibernated in the sea during the winter, and that fishermen got large numbers of the birds in their nets. Buffon, who was a naturalist who did not take things for granted, tried the experiment of putting a number of swallows under water, and found that they died

in a few minutes! It was only in modern times that the migration of birds had been studied with scientific accuracy, and while much had been learned about the phenomenon, there was still a great deal to discover. The principal stream of migration with the approach of winter was from the North of Europe southwards to lands at the other side of the Equator, and there was also a westward stream across Europe to the British Isles. The migratory instinct could not easily be explained. It was not a scarcity of food that caused the birds to leave in every case. This year we had a fly plague after the swallows had left. The young birds left us for their new quarters when they were six or eight weeks old, and always preceded the old birds. How these young birds found their way to distant lands was a complete mystery. Birds when migrating flew at a great height, and observations taken from aeroplanes had shed much light on the subject. Lapwings travelled at a height of from 2,000 to 10,000 feet high, geese and ducks went higher, and eagles had been observed at 15,000 feet. The weather conditions determined when the birds would start on their long journeys, and a halt was often made when bad weather was encountered. There were very few British birds that did not migrate. The blackbird that built its nest in our gardens was not the bird that ate the fruit in the autumn, for it had migrated by that time, and it was a visitor from the Continent that was the deprecator. Gardeners were not, therefore, doing anything to save their fruit crops by destroying the nests of blackbirds. Plovers and woodcocks were very valuable birds to agriculture, and should be protected. Gulls had been accused of eating grain, but investigation showed that they did this to a very small extent. These birds also rendered a good service to the farmer. On the call of Dr. Collinge, a hearty vote of thanks was accorded Mr. Berry for his interesting lecture.

REVIEWS.

BIRD BEHAVIOUR, PSYCHICAL AND PHYSIOLOGICAL.
By Frank Finn. Pp. x + 363, and 43 figs.
London: Hutchinson & Co. [1919]. Price
7s. 6d. net.

There is an endless variety of books on birds; some are little more than collections of photo-



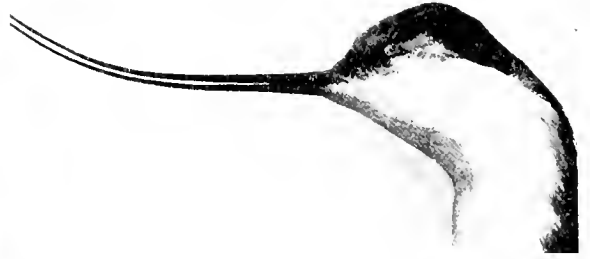
PEREGRINE FALCON (*Falco peregrinus*, TUST.)
Showing the strongest development of the hooked and toothed bill of a bird of prey



SPOONBILL (*Platalea leucorodia*, Linn.).
The Spoonbill feeds by sweeping its bill to and fro in water.



MERGANSER (*Mergus serrator*, Linn.).
Duck type of bill modified for catching fish, the jaws being narrow, with horny teeth.



AVOCET (*Recurvirostra avocetta*, Linn.).
Although the bill is so different, the Avocet feeds much like the Spoonbill.



HERON (*Ardea cinerea*, Linn.).
Showing the spear-like type of bill commonest among fishing birds



PUFFIN (*Fratercula arctica*, L.)
The huge size of the bill is due to a horny mask, which is shed after breeding

graphs, others are compilations of varying value, whilst others embody careful observations of great value, but for all there seems to be a public ready to buy.

band information, and the author has brought together such a wonderful wealth of material that cannot fail to interest. Whether we turn to his account of the various methods of locomotion, the



YOUNG HOATZIN.

A half-fledged specimen, showing its method of climbing with bill, wings, and feet. (From Penn's "Bird Behaviour".)

Of recent bird books we have seen none embodying so much that appealed to the lover and student of the ways and habits of birds as the volume now before us. Here we have first-

nutrition and manipulation of food, the methods of feeding the young, the different modes of feather-development, nest-making, types of nests, migration, or to the senses and emotions of birds,

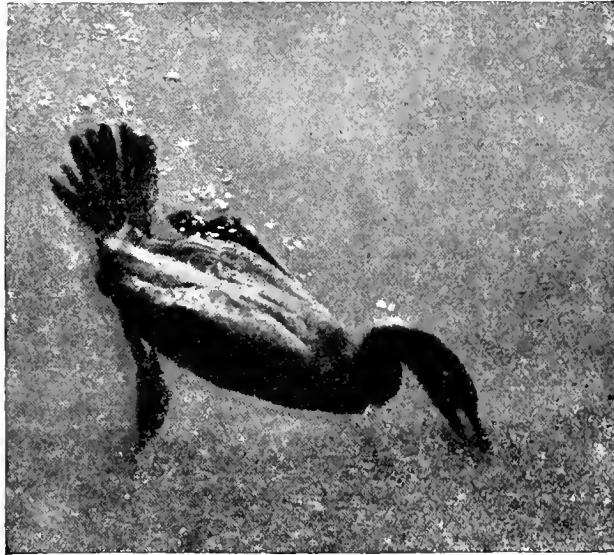
bird language, special instincts, or physiological peculiarities, we find the same richness of illustration, and so many details as the result of the author's own observations, that one has to pause awhile before continuing this fascinating story of the ways and doings of wild birds.

The account of the nestling Hoatzin makes us wish for more, indeed, there is scarcely a page in the book which might not be enlarged to a chapter.

The series of excellent photographs add to the interest of a work which will be widely read and enjoyed by all students of bird life.

The omission of a date on the title-page is an unfortunate oversight.

With the author's plea for the importation of exotic birds into this country, we certainly do not agree. Mr. Hudson says "nothing is to be feared" from such a policy, but fortunately he is not an authority on this matter, and does not seem to be acquainted with the happenings in other countries. Apart from a few species of game birds, the introduction of non-indigenous wild birds has in practically all cases led to serious results. The introduction of the house-sparrow into America, and the starling and skylark into Australia, has proved most injurious, whilst already there are many who are of opinion that the little owl in this country is becoming a very serious pest; and yet, in spite of these and many



Cormorant catching a Fish.

BIRDS IN TOWN AND VILLAGE. By W. H. Hudson. Pp. ix + 274, and 8 col. pls. London: J. M. Dent & Sons, Ltd. 1919. Price 10s. 6d. net.

The author of this work writes with a charm and beauty of style which is decidedly rare. His writings always afford us delight, both in their simplicity and beauty and in the deep insight they present to the reader of the ways and doings of bird life.

Birds in a Village, first published in 1893, is more delightful than ever in its revised and latest form, and fully equal to any of the author's work.

other cases, Mr. Hudson thinks we have nothing to fear.

The house-sparrow "has his good points" we are informed, but unfortunately they are not enumerated. After all that has been published on this bird, and the long and careful inquiries that have been made as to its food and habits, we fear Mr. Hudson's plea will fall on deaf ears, for it is a pest second only to the brown rat, and the sooner this fact is appreciated the better it will be for our country and wild bird life in general.

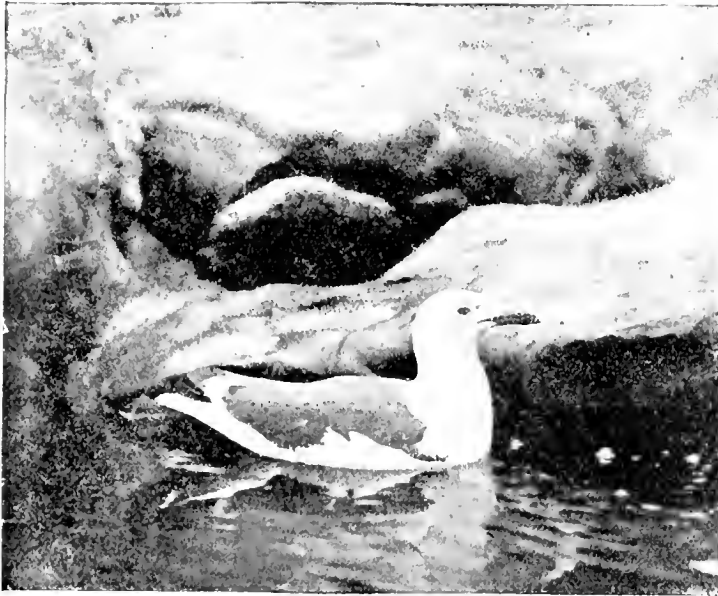
The jackdaw, we are told, is an increasing

species, and "is certainly not a respectable bird, like the starling." We must confess our surprise at such a statement, for all recent investigation goes to prove that in spite of the injuries the jackdaw inflicts, it does an enormous amount of good, whereas the starling is a veritable plague throughout the land. However, we do not think the readers of this delightful book will accept its author as an authority on economic ornithology, much as they may appreciate the charm of his story of the Birds in a Village.

The illustrations are pretty, but they leave much to be desired.

has helped to establish some and to more clearly set forth the systematic position of others, his efforts will not have been in vain.

It is always easy to criticise the shortcomings of a specialist, for one is so apt to overlook the difficulties that present themselves—how frequently one opinion seems equally as good as another, and how at times it is almost impossible to decide upon the validity of a species, or to be sure of a type—therefore, whilst we forbear to pass any comment on these points, we should have been grateful for more detailed diagnostic characters and fuller bibliographical references.



LESSER BLACK-BACKED GULL.

A SYNOPTICAL LIST OF THE ACCIPITRES (Diurnal Birds of Prey). By H. Kirke Swann. Pt. I, pp. 1-38; Pt. II, pp. 39-74; Pt. III, pp. 75-114. London: John Wheldon & Co. 1919-20. Price 4s. per part.

To workers in systematic ornithology, this work should prove most useful, for it is now nearly half a century since Bowdler Sharp's revision appeared in Volume I of the *Catalogue of Birds*. Since that date numerous changes have been made in the nomenclature and many new species described.

That there will be considerable difference of opinion as to many of the generic titles adopted in this work, is almost certain, but if the author

Only those who have experience in work of this kind know how extremely laborious it is, and systematists are greatly indebted to Mr. Kirke Swann for the care and pains he has expended upon the present parts.

ANIMAL LIFE UNDER WATER. By Francis Ward. Pp. x + 178, with 5 colour and 48 half-tone plates. London: Cassell & Co., Ltd. 1919. Price 6s. net.

That Dr. Ward has written a most interesting work few will deny, for he has opened up to us a world of life that has hitherto been almost a sealed book; but he has done more than this, for he has considerably added to our knowledge of

the ways and habits of fishes, birds, and mammals beneath the water. Few can read the chapter on the Otter and the Seal without realizing that the author has provided a new avenue, an original

Dr. Ward estimates that a bird weighing 6 to 8 pounds will consume at least 15 pounds weight of fish per day; some authorities place the amount even higher. Moreover, an extraordinary large



KINGFISHER: Repose after a Meal.
(From Ward's "Animal Life under Water.")

standpoint, from which our future observations must be made.

The chapter on the Cormorant will appeal to those especially interested in birds. It is a bird that consumes an enormous number of fish.

amount can be taken at one time, thus he mentions a bird taking fifty herrings fed to it. How does this bird manage to catch this large amount of fish? Dr. Ward suggests that as the cormorant races through the water, the "flash"

from its glossy plumage resembles the turning movements of shoaling fish, and thus cod, pollack, etc., are attracted to their destruction. When the fish sees the "flash" it suddenly turns, and, in turn, flashes. The bird is thus able to detect the fish and a chase ensues, the fish signalling its course as it turns in its endeavour to escape.

Dr. Ward gives some very interesting statistics with reference to the food of the Heron. He has noted that a parent bird will return to the nest with food eleven times within two hours. From careful observations of the amount of food fishes taken to the young in a heronry consisting of fifty nests, he estimates that the young and old birds

until this information is forthcoming do we think it is possible to arrive at any reliable conclusion respecting the economic status of the different species. Finally, we must not lose sight of the fact that many of our ablest fishery investigators hold the view that our fish supply is inexhaustible, and what man or birds destroy is insignificant.

We read with much interest the account of the Kingfisher. On trout waters, where minnows are plentiful, it does little harm, for the latter are easier to catch than trout fry, an observation that is fully borne out by our own work on the feeding habits of this beautiful bird. On fish hatcheries,



Kingfisher holding three-inch Rainbow Trout in its bill.

consumed 45 tons of fish during the months May, June, July and August.

A considerable portion of the book is devoted to the vexed question as to whether our commoner sea birds are injurious. Dr. Ward thinks that they are, but in order to arrive at a satisfactory conclusion we think much more thorough investigation is necessary. A larger number of birds, collected from various districts, and during each month of the year must be examined. Volumetric analyses of the stomach, etc., contents must be made, and the percentages of the different food items set forth. Moreover, we must know what the percentages are as a whole, for different districts, and at different seasons of the year. Not

however, Dr. Ward states, this bird, like the dabchick, can do an immense amount of damage.

We might continue to quote many other striking observations, but space forbids; sufficient, however, has been said to show that Dr. Ward has written a book full of first-hand knowledge, and one which cannot fail to attract a wide circle of readers, for all who are interested in the ways of living animals will find a fresh stimulus in these pages, and their interest quickened in the study of animal life.

The illustrations, of which there are many, greatly add to the value of the work. Through the kindness of the publishers we are able to reproduce a few of these.

A GENERAL BIBLIOGRAPHY OF BRITISH ORNITHOLOGY from the earliest times to the end of 1918. By W. H. Mullens, H. Kirke Swann, and the Rev. F. C. R. Jourdain. Pt. 1, pp. 1-96; Pt. 2, pp. 97-192. London: Witherby & Co. 1919-20. Price 6s. net per Part.

Useful as it was in its day (1880), the *Ornithological Bibliography* (pt. iv.) of Coues contains many omissions and errors, whilst the absence of any system of classification makes it very troublesome to refer to. In the intervening forty years a voluminous literature has appeared dealing with our British wild birds, and all ornithologists who have had to search through scientific journals and periodical literature are well aware of the time and labour such work entails. We therefore extend a hearty welcome to the present Bibliography.

There are hundreds of workers who desire to learn what has been written on their local avifauna, be it a country village, town, district, or county, and, thanks to the authors of this work, they can now turn to any county in the British Isles and find complete references from the earliest times to the end of 1918.

The mere mechanical labour of compilation must have been no slight task, whilst the method of classification and presentation has involved an amount of thought and work of no mean order.

After a most careful scrutiny of the parts before us, we have no hesitation in stating that this work will prove one of the most complete and useful ever published, invaluable to all who are interested in the geographical distribution of British birds, and one that should find a place in the library of every ornithologist in the country.

Nothing that care and foresight could provide have been withheld to make this a bibliography of a monumental character, and we extend to its authors our heartiest congratulations on the production of a work admirable in conception, carefully planned, and well executed. We have only one adverse criticism—the paper on which the work is printed is abominable.



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THE JOURNAL OF THE WILD BIRD INVESTIGATION SOCIETY.

A FEW NOTES ON THE COURTING ANTICS OF SOME BRITISH BIRDS.

BY LEONORA JEFFREY RINTOUL.

NE of the many joys which returning spring brings to lovers of Nature is the sight of the wonderful nuptial flights and antics of the birds. These appear to be common to all species in greater or lesser degree, from the highly irritating feather ruffling, wing trailing, shrill chirruping exhibition of our common cock Sparrow to the marvellous dances of Cranes and Sun-bitterns which to most of the inhabitants of Great Britain are practically unknown. Although the birds in our islands may not be able to show flights and dances like their brethren in the tropics, yet there are many aspects of the courting antics of even our commonest birds which well repay investigation. To go no further than the Greenfinch, what could be more charming than the way in which he flings himself into the air from the top of the highest tree he can find, and, circling round with his peculiar slow, stiff flight (seen only at this season), trills out his courting song to his apparently indifferent lady-love. Another common bird to whose courtships one looks forward is the Woodpigeon; not only do the woods resound with his musical Coo-coo coo-coo-coo, but the sight of his dashing flight, clapping his wings from time to time over his back, is one of which bird lovers dream.

Of late years the Stockdove has come to our part of Scotland in increasing numbers, and it has interested me very much to note the difference of habit in the two species. All the books tell of the difference in size and plumage, in their nesting sites and so on, but

the more subtle difference of what might almost be called manners and deportment I have not found described anywhere. The Woodpigeon has a rapid and direct flight, at all times, and when doing his courting displays he dashes straight up, high in the air, claps his wings over his back at the highest point, then skims rapidly on outstretched wing, in undulating flight. The Stockdove, on the other hand, has a slower, more vacillating flight, and when doing his nuptial antics flaps round and round with slow and heavy wing beats, this flight being strangely reminiscent of that of the Owls. The Stockdove's wings always strike me as being much more rounded than those of the Woodpigeon; he never, as far as I have seen, claps them over his back, but he has an attractive habit of alighting, after the flight I have so inadequately described, on the bare branch of an old fir tree, and remaining for a moment or two with wings stretched up over his back. He does not dash himself through the air with the verve and abandon of his relative, and is altogether slower and less impetuous in his courtship. His note is different, being a rather monotonous roo-roo . . . roo-roo, lacking the charm and wildness of the familiar call of the Woodpigeon. He has, however, a fascination of his own, and I am glad to see that he seems to have taken up his abode with us for good. It is only of very recent years that Stockdoves have taken to nesting in the holes of the elm and lime trees in the parks round the house, formerly I knew them only as inhabitants of the links, where

they nested in rabbit holes, and flew away long before we got anywhere near them, so that close observation of their habits was impossible.

The mention of the links leads our thoughts to other bird wonders, there I have often watched Ringed Plovers doing their nuptial flights; with them, as in the Greenfinch, the wing beat is slow and the flight heavy and almost mechanical-looking in its stiffness, the direction is uncertain and vacillating, and a distinctive trilling note is uttered all the time. Lapwings too have a flight and dance during their courting period, the former is really more of a tumbling over in the air, performed in the midst of an apparently normal flight. Their dance is very attractive and pretty, and seems to be but little known; the bird bends forward with breast on or close to the ground, turns his back to the lady he wishes to attract, puffs out the beautiful white and chestnut feathers under his tail and rolls slowly from side to side, from time to time he stands up, makes a few stiff steps forward or from side to side, and then resumes the rolling again. These stiff steps are a common accompaniment of nuptial displays, they are seen in many of our most familiar waders; the Oystercatcher, for example, may be seen in spring furthering his courtship in this manner, he will take a few stiff steps, then bend forward with bill on or near the ground, and pour forth his wonderful trilling note, which, once heard, can never be forgotten.

The Redshank too has a charming dance—quoting from my own notes, I find, under date of 15th April: "One gave a most beautiful display on the shore; he opened his wings till they met over his back and walked with stiff, formal steps after the female, who kept walking slowly away. When she stopped he turned round in front of her, sometimes slightly lowering the points of his wings and quivering them, at others standing quite close

to the female with his wings stretched up over her head. Occasionally he stood still and moved his legs slowly as if walking, but without advancing; he followed the female for about forty yards, displaying all the time, then she flew away, and he followed." Redshanks have also a rather attractive courting flight; when flying they seem to stop and flutter their wings very, very quickly in the air, then skim along with wings extended but motionless for quite a long way. The beautiful spring flight and call of the Curlew is too well known to require exhaustive description, all who have visited, at this season, our moors and uplands, where these birds breed, know and love this wild eerie note and wonderful, hovering flight.

The Duck family perform their courtships in another way; I have many times watched Eider displaying, but these antics have been so often described that we need not reiterate them, but will try to give some idea of the kindred actions of some other less well-known species. I have often seen Merganser displaying in Largo Bay; on 10th February, 1908, four, two males and two females, were swimming about close inshore, the males courting hard. They sank themselves low in the water, pulling out their breasts and holding their heads rather back, then they suddenly darted their heads upwards, then down close along the water. This done, they raised their tails so quickly that the whole body bobbed in the water. When the head is raised the crest lies flat along the back of the neck, but when the head is thrown forwards and downwards it is raised fiercely. On the occasion above referred to the Ducks took no apparent interest in the proceedings, swimming about in an indifferent manner. At the East Neuk of Fife Long-tailed Ducks may often be seen in the winter and spring months. Before they take their long flight to their breeding places in the far north I have sometimes seen their courting displays and heard

their characteristic note, which, to me, always sounds like *calloo, calloo*, ringing over the still surface of the waters. In thinking of these displays of the Long-tailed Ducks my memory calls back the vision of a perfectly calm sea, blue-grey in colour, rolling waveless on the jagged rocks which fringe our coasts. These are the only conditions under which it is possible to hear there, as well as see, the courtships of the Longtails, for, should there be sufficient sea for the waves to break, the noise drowns the ringing call of the little northern lover. In common with other Ducks, he displays with up-thrown head and extended bill, the long tail too is brought into play, being cocked erect into the air.

At this same place I have watched the antics of Cormorants in spring: one which we saw flew in from the sea and settled beside a bird which was already sitting on a rock. He stretched out his neck, opened his bill wide, then bent his head back over his back till it almost touched his tail, then swung it slowly upwards and forwards at the same time till his neck was stretched out quite straight and his head rested on the rock close to the other bird. He repeated this motion several times, keeping all the while very stiff and rigid, while his tail, which was spread out like a fan, stuck straight up into the air.

I do not pretend to have done more than touch briefly on the more interesting forms of display in a few of our common birds. Though less elaborate, they are no less beautiful in their way than the much vaunted posturings of the Birds of Paradise and the displays of the ocelli of the Argus Pheasant. These are sights which are seen by comparatively few, while those I have described may be seen by all who are fortunate enough to be in the country at the right time of year, and who have eyes to see the wonders of Nature.

BIRDS OF THE WYE VALLEY.

BY **WILLIAM C. BLAKE.**

(Continued from p. 31.)

The Peregrine (*Falco peregrinus*, Tunstall) shall next have our attention. This noble bird of falconry prestige used to occur at regular intervals, but now, alas, is very rarely met with. Our county museum contains a really fine series of locally shot specimens.

About fifteen years ago a farmer of my acquaintance was out shooting Wood Pigeons with a stuffed Ring Dove as a decoy. Suddenly he was surprised to see a large hawk descend on his dummy bird. Not wishing to destroy the rare visitor he drove it off, but it repeated the operation ten minutes later. Again he frightened it away, vowing that if it annoyed him a third time its life should pay the forfeit. A third attempt was made later, to its cost. It proved to be a fine male Peregrine. I narrowly escaped having it presented to me; unfortunately, the farmer met another friend, who has it well preserved and cased.

That handsome spring visitor, the Hobby (*Falco subbuteo*, Linn.), a Peregrine in miniature, is met with now and then. A fine male specimen was killed in Penyard Wood a few years ago by a neighbour of mine. Unfortunately, something happened to the taxidermist, and he did not get his bird returned.

A beautiful male was obtained near Hereford, and was for years in possession of my dear old friend, Mr. J. B. Pilley. Since his decease it was presented to me by his brother.

I was recently informed of a "battle royal" in the air between a Hobby and a Sparrow Hawk, with fatal results.

I am told that it "turns up" occasionally in the Symonds Yat district.

A labouring man accosted me one day, saying he had gone up the Wye side hoping to meet with a duck. Being unsuccessful, he saw a small hawk rise from the ground, and

emptied his gun at it. He thought it was a young Sparrow Hawk. "If he's any use to you, its yours; if not, I'll give it to the cat." I requested him to give me the first chance. At sight I identified it as a female Merlin (*Falco aesalon*, Tunstall), in beautiful condition. It is now in my collection, well mounted and cased. A nice male bird taken near Hereford was also kindly given to me by Mr. Pilley.

I was pleased to hear the cry of the Merlin in Brinsop Wood the end of last July. I am well acquainted with its note, having kept Merlins on two occasions. The first came from a nest on the Yorkshire Moors. The second found itself entangled in the net of a Birmingham bird catcher. The young specimen grew up very tame, but the adult one was wild to the end of the chapter. It is believed to nest annually on a certain wooded hill a few miles from Ross. Others may cross the district on their internal migration from the northern to southern counties.

Two other hawks only remain to be mentioned. The Sparrow Hawk is a most rapacious fellow, with all the courage of a Goshawk. It has many enemies, and is, I fear, a decreasing species. It is vain to plead for its life with gamekeepers or those who employ them. As an instance of the disparity of the sexes, I may mention that of a pair given to me (shot off their nest), the male weighed but five ounces, while the female scaled ten! Nor was the difference due to recently taken food, for both their stomachs were empty.

Many readers, I am sure, could cite instances of the boldness of the Sparrow Hawk. Here are a few that have come within my "ken." In a vinery near to me, a Sparrow Hawk dashed through the glass side in pursuit of a sparrow. A second plunged through the roof of a conservatory, some canaries in cages being the attraction. It was picked up in a dazed condition. I was once

at a country funeral. The hedges were about on a level with the coffin. A Sparrow Hawk flew across, chasing a small bird, only about a foot above the "casket." Two years ago one swooped down on a cage containing a Goldfinch. This cage was hung between the front door and a window in the main street of our town! Certainly it was on a Sunday mid-day, when few people were about. The owner, hearing a noise, rushed out and seized the hawk before it could extricate itself. The hawk seized him, drawing blood with its talons. I was sent for to identify it, and found it in a thrush cage, on the perch of repentance we will hope. Learning they proposed screwing its neck, I purchased it, and so saved its life. It was the smallest male Sparrow Hawk I think I have ever seen. It could not brook captivity, and, though placed in a roomy aviary, it died on the third day.

Last autumn my esteemed neighbour, Col. Evan Thomas, of Over Ross House, kindly gave me a fine female Sparrow Hawk, which had been picked up dead, but warm, outside his dining room window. No birds were inside the room. The presumption is the hawk was in pursuit of a small bird, when it cracked its skull against the window pane.

To oblige a young friend at college, I took charge of a pair of young Sparrow Hawks (taken from the nest). When the vacation arrived, six weeks later, they were transferred to him. Only two weeks elapsed before they "fell out," the female killed her brother, and succumbed to her own wounds a few days later.

The beautiful and useful Kestrel (*Falco tinnunculus*, Linn.) concludes the county list of diurnal birds of prey. This species is both deserving of our admiration and protection. I once kept one for four years. Notwithstanding being captured as an adult, it became sufficiently tame to perch on my finger, or to fly and take a mouse off the palm of my hand. The year before it died it laid

an egg with a white ground and splashed like a Sparrow Hawk's. All I have shown it to (as a test) have regarded it as belonging to this latter species. I presume the variation was due to confinement. As the bird would not sit I removed the egg to my cabinet.

I was interested one spring day with the gyrations and "balancings" of a Kestrel over a very circumscribed area. The secret was out when, in response to her motherly call, there was a reply from a nest of young in a tree. Scarcely a country walk can be taken by anyone who has eyes to see, without observing the graceful evolutions and hoverings of the Kestrel. I always use my best efforts to protect this useful and lovely little falcon.

We now come to the nocturnal birds of prey. The beneficial White or Barn Owl (*Flammica flammea*, L.) is still with us in good numbers, and I hope will be allowed to increase. A Barn Owl is worth at least six-pence a week to any farmer. I trust they will not fail to recognize this. As an aviary specimen it is not very interesting, as it sits dosing most of the day. A friend brought me one to forward for stuffing, which had injured itself by flying into the wheel of a conveyance. Dazzled possibly by the lamps.

The Brown or Tawny Owl (*Strix aluco*, Linn.) may be heard on all sides during the moonlight nights of spring. I have kept the species on several occasions, nursing up the comical little "puff-balls" until they attained their mature plumage. By this time they become quite tame. The superstitious view them sometimes as uncanny birds. A lady who was delighted at seeing me put them through their performances said her husband could not be prevailed upon to come and see them on any account. The last pair I kept hooted so lustily at night as to disturb my esteemed neighbours. Their duet gradually increased to a small orchestra, in which many of the local owls took part.

Rather than annoy my friends, and being unwilling to sell my birds into less comfortable captivity, I decided to liberate them. I opened the aviary door and retired to watch the result. I had to wait patiently for half an hour before the hen bird crossed the threshold and flew out on to a clothes line. Being unable to grip it she revolved and hung head downwards, so I released and tossed her up. She flew over the garden wall. The door was left wide open all night and all the next day, but it was dusk of evening before the cock decided to try "the wide, wide world."

A few days later an urchin offered an Owl cheap, which he said he had "ketched" with his hat. It was one of my half-domesticated birds. I secured its freedom. Some months later I met with a Brown Owl in a plantation half a mile distant. It was being mobbed by small birds, but refused to budge from its perch. I viewed it well with my binocular, and feel sure it was one of my former pets. A few days later a rustic appeared, feeling sure that he could show me something that would please me. Withdrawing a Brown Owl from his capacious pocket, he said, "Aint him a beauty, I shot him in the ash plantation." I was no buyer. He got a lecture instead. Alas, for the tragic end of my one owl. I faint hope the other is spared to "do his bit" in this mouse and rat over-run county.

I once had an addled egg of the Brown Owl given to me, which had been taken from a bend in a disused chimney. My friend, Col. Evan Thomas, sent for me two years ago to see a Brown Owl which had spent several days close against a chimney of Over Ross House. We viewed it to advantage, the weather being cold and the surrounding trees leafless, we thought it may have chosen the spot for the sake of warmth.

The Long-eared Owl (*Isio otus*, Linn.) and the Short-eared (*Isio accipitrinus*, Pallas)

are sometimes met with, but the records are few. I once kept the former, from the Sandringham Estate, and have Welsh specimens of both stuffed.

The Little Owl (*Carine noctua*, Scop.) formerly very rare, has been increasing of late years. Many of the species imported from Holland have been liberated in this country, and probably from these our present stock has bred. It has been notified to me from several parishes around Ross.

Two years ago I was invited to "look up" a pair of Little Owls in the grounds of a lady near Ross. After an ornithological chat and a cup of tea with this eighty-seven year old lover of birds, I went out with the daughters of the house and soon detected the note of *Carine noctua*. We stalked them up, and viewed the pair to good advantage. They appeared to eye us with as much curiosity as we watched them.

The keeper on an estate in the adjoining parish told me recently that he has observed an increase of this little stranger for the last three years, and expects to see more yet after the breeding season.

I have kept them on two occasions. The last pair laid eggs, but would not sit. They were grotesque little customers and the most diurnal of all our Owls.

(*To be continued.*)

THE CITIZEN AND WILD BIRDS.

By **Dr. WALTER E. COLLINGE, D.Sc., etc.**

St. Andrews University

During the past few years much has been written on the subject of wild birds. There is undoubtedly a growing appreciation on the part of the general public of our avifauna. Notwithstanding this, some very curious opinions still exist. By some people all wild

birds are regarded as injurious, and consequently objects to be destroyed; while others extol them in flowing panegyrics as things of joy and beauty. No doubt in both cases the individuals are actuated by the best of motives, but owing to a lack of information and knowledge of their ways and habits, both opinions are largely misleading.

A few of our wild birds, such as the house-sparrow, starling, wood pigeon and rook, have during recent years increased to such an extent that they have become a very serious menace to the cultivator of the soil, and long ago repressive measures should have been undertaken with a view to reducing their numbers; but of the majority of species nothing but good can be said, for, apart from all other considerations, they provide a natural control of insect life, without which it would scarcely be possible to profitably cultivate the land.

For some years past, owing to climatic and other causes, there has been a serious diminution of many of our beneficial species, and at a time when home-grown food is of more than ordinary value, and thousands of allotment holders are endeavouring to produce the maximum yield, it is important that we should very carefully watch any factor or factors that are likely to handicap the small grower or that injure his crops. Now there is one factor of most serious import that is taking a toll of from ten to fifty per cent., or more, of all home-grown food, viz., injurious insects, and there is good reason for supposing that the fact that these have been so prevalent of recent years is in no small measure due to the reduced number of our insect-eating wild birds.

To conserve and preserve such a beneficial natural force is surely the duty of every true citizen, and much more might be done than has yet been attempted. Surely their beauty of form and colour, the fascination of their habits, and the music of their song are worthy of more than passing notice.

In all our public parks, recreation grounds, etc., much might be done in the way of providing nesting sites and in protection generally. In the United States of America, Australia, and elsewhere many such areas have been set apart as wild bird sanctuaries, with excellent results. Surely such a simple plan might be adopted by our municipalities and urban authorities throughout the land. The provision of nesting boxes in our gardens and allotments would help to increase the number of insect-eating birds, and at the same time afford considerable pleasure to those who erected them.

In the encouragement of the study of wild bird life we are far behind other countries, as also in educating the young in this connection. The introduction of this important subject in our schools, particularly those in urban and rural districts, is very desirable. In other countries such instruction has proved to be both pleasurable and profitable, and to such an extent that in certain States in America it is now compulsory. Arbor and Bird Days have been instituted in many countries. On these occasions special addresses are given in the public schools on bird life and its utility. The good such organizations are doing in instilling a love and knowledge of birds into the rising generation cannot well be over-estimated.

The citizen has everything to gain by the increase of all wild birds that are beneficial, both from a utilitarian and an aesthetical standpoint, and there never was a time when his interest on their behalf was more needed than at the present. By a little forethought and effort each might do much to preserve a natural pleasure and secure the same to the future generation.



THE JOURNAL OF THE WILD BIRD INVESTIGATION SOCIETY.

The Journal is supplied free to all Ordinary and Associate Members. Non-members of the Society may obtain it from the publishers (post free) on forwarding subscription of 12s. 6d.

All matter intended for publication should be written on one side of the paper only. Typed MS. is desirable. Unrelated subjects should be dealt with on different sheets. No notice will be taken of anonymous communications. No matter can be returned unless a stamped and directed envelope is enclosed.

All communications should be addressed to Dr. W. E. Collinge, St. Andrews, Scotland.

EDITORIAL.

The steady, if somewhat slow, progress of the W.B.I.S. is a source of much satisfaction to those who are interested in the study and protection of our wild birds, but there is a considerable amount of spade-work to be done before we win over public opinion. As Miss E. L. Turner has recently pointed out, "Bird protection laws are ineffective and futile. This is partly owing to the fact that these laws are engineered by the wrong people, and partly because of the many conflicting interests." We welcome this outspoken statement, as it is very difficult, indeed almost impossible, to convince many so-called bird protectionists that they are doing more harm than good. "The public," Miss Turner continues, "is becoming more and more genuinely interested in birds. It likes to know the details of their home life and the workings of their tiny minds. It is only by educating public opinion that our heritage of birds can be ultimately preserved."

A larger membership, more local branches, and consequent increased income would do much towards enabling us to carry out this work of educating public opinion. Moreover, such work demands all the enthusiasm that bird lovers can throw into it, for as a nation we have been, and still are, largely indifferent. We are not inter-

ested in birds as living things. This fact was vividly brought home to us recently by the statement of a distinguished foreign ornithologist, who writes: "It is surprising to me that in Great Britain you have so few real students of wild bird life, of collectors, I know, you have more than enough."

This, unfortunately, is only too true. Even the utilitarian side is neglected, and yet there are few subjects in the field of natural science that bear more intimately upon the prosperity and interests of mankind.

Economic Ornithology, as this branch of science is termed, concerns itself with all aspects and phases of wild bird life in relation to mankind. The food and feeding habits of the different species as affecting agriculture, horticulture, forestry, and the fisheries; the outbreak and control of insect plagues, and those of rats, voles, mice, etc. The preservation of game and other birds as a home-grown food supply. The protection or repression of wild birds and the measures to adopt for such purposes; the legislation relating to their preservation or destruction, and the introduction of foreign species. The commercial uses of birds, and also their aesthetic, sentimental, and educational value.

It will thus be seen that the subject is an intricate and difficult one. "Its successful prosecution presupposes not only an accurate knowledge of classification, distribution, migration and habits," but also a wide biological training, especially in entomology, botany, and marine zoology, and "an acquaintance with the measures which have been adopted for the preservation of useful or the destruction of noxious species."

Rightly appreciated and assiduously prosecuted the benefits it would confer upon the State are almost illimitable, one at least may appeal to the utilitarian, viz., that it would annually save the country the loss of many millions of pounds sterling worth of food.

There is no denying the fact that as a nation we have neglected the study of this important branch of biological science, and that in consequence our country is distinctly poorer.

The subject is one that for many years to come requires the patient enthusiasm of the experienced investigator, indeed our present knowledge

is so meagre that research must be the dominant principle. In a sense this is unfortunate, for as a nation we have failed very largely to stimulate, encourage, or provide for original research. Sir Oliver Lodge has recently told us,¹ "for State discouragement of pure research, both active and passive, the organisation in this country must be difficult to beat."

So long ago as 1861, Earl Cathcart² referred to economic ornithology as "an untrodden and promising field that lies open for investigation," and so recently as 1908 a writer in one of our leading scientific journals stated: "In the matter of economic ornithology we in England are disgracefully behind the times; the Board of Agriculture seemingly prefers to leave this matter to private enterprise, or to deal with the matter in such a perfunctory manner as to be positively ridiculous, making us the laughing-stock of the nations."³

To-day its position is just as deplorable, but it is absurd to throw the blame on the Board of Agriculture. The Government has made no provision, either as regards finances or personnel, to remedy this condition of affairs. Amongst the overcrowded staffs and numerous State officials of the present day, we fail to find any State Economic Ornithologist. It is patent that the State neither understands or appreciates the import of the subject or its true relation to the country, and yet in practically every civilised country its importance has long been recognised.

When one considers the truly magnificent work accomplished by the United States Division of Biological Survey, as set forth in upwards of 160 memoirs, bulletins, etc., beautifully illustrated, issued since 1885, on an annual appropriation of something less than £25,000, we are bound to question whether the nation is getting value for its money in the grants made by the Development Commissioners, and whether a similar sum to that expended by the United States government would not be more wisely spent, and with infinitely greater and more beneficial results than accrue from many of the grants made at present. Economic ornithology in the United States to-day stands as a branch of zoological science equal to any other, if not surpassing some, and the stan-

¹The Nineteenth Century, 1911, July, p. 29.

²The Times, May 16th, 1861.

³Ann. and Mag. Nat. Hist., 1908 (s. viii), vol. 2, p. 112.

⁴Palmer, T. S., Yearbook U. S. Dept. Agric., 1899, p. 259.

dard there set is universally acclaimed and looked up to by all other civilised communities.

Just as our Government has not as yet recognised the subject of economic ornithology, so also have our Universities failed. In the general neglect of biological research which at present characterises our Universities as a whole, no place has been found for economic ornithology. That our University Courts and Councils talk about research is very true, but that they fail to act is common knowledge. The "originator of knowledge," as Professor Lyndall termed the research worker, is dependant upon a few wisely administered Trusts and Funds. Bitter will be his disappointment if he trusts to Courts or Councils.

As a subject for research economic ornithology offers a wide scope to the zoological student, whilst in the agricultural, forestry, and fishery departments it affords a valuable subject for teaching. We should like to see less time devoted to teaching subsidiary and non-essential subjects in these departments and more time devoted to courses in economic ornithology and entomology, by teachers qualified by long practical experience and original investigation, for both subjects bear so intimately upon agriculture. Some day we shall realise, we hope, that agriculture is a younger sister of biology and not a special branch of chemistry, as some would endeavour to make it.

It will thus be seen that in this country, neither the State nor our Universities have recognised the subject of economic ornithology. We have no State economic ornithologist or ornithologists and no professorship, readership or lectureship of the subject in any of our Universities. What is the result? Apart from the loss of prestige in the eyes of other nations, we are burdened with an annual loss of upwards of £40,000,000. The saving of a twentieth part of this sum for a single year would be sufficient to endow and maintain a Chair and Department of Economic Ornithology in every University in the United Kingdom. No such prodigality, however, is desired, so that the actual capital sum needed is trifling, and it would return such a rate of interest and such results that would be out of all proportion to the outlay.

Surely amongst our statesmen and legislators there are some who realise where this apathy and indifference to scientific research will ultimately land us.

NOTES & NEWS.

"The idea that our native avifauna has now been so thoroughly explored that little of importance remains to be discovered, is, unfortunately, deeply rooted in the minds of many, even enthusiastic ornithologists. Nevertheless, it is a fact that we have, as yet, but touched the fringe of this study of British birds. Hosts of problems await our attention, and the attempted solution of these will give rise to as many more as yet unsuspected

W. P. PUGH

BREEDING STATIONS OF THE BLACK HEADED GULL

Ornithologists generally are indebted to Mr. Robert Gurney for a very valuable and interesting account of the breeding stations of the Black-headed Gull in the British Isles (Trans. Norfolk and Norwich Nat. Soc., 1920, vol. x, pp. 410-447). As the author points out, this is not only one of our most beautiful and conspicuous water birds, but it has come to possess a certain economic importance. In 1884 Mr. J. E. Harting was of opinion that this bird was on the road to extinction as a breeding species, but at the present time there can be little doubt that it is one of, if not the commonest, of our sea-birds, and that its nesting sites are on the increase rather than the decrease. As the author points out, "colonies wax and wane greatly from year to year, and the birds frequently desert a site altogether, only perhaps to return after a few years."

Under the different counties he has brought together an invaluable mass of data of the highest importance, and whilst modestly regarding his list as only "an incomplete framework," the gaps in which he hopes ornithologists will fill in, we have no hesitation in stating that this framework is a very substantial piece of work which comparatively little addition will complete.

ATTEMPTED BREEDING OF BEE EATERS IN SCOTLAND

Dr. W. Eagle Clarke describes in a recent number of the *Scottish Naturalist*, the attempted breeding of a pair of Bee-eaters (*Merops apiaster*) on a sand bank of the River Esk at Musselburgh. Unfortunately, the female bird was somehow injured and ultimately died.

OUTDOOR BIRD STUDY.

Under this title Mr. E. H. Forbush, the State Ornithologist of Massachusetts, has issued a most useful and interesting booklet containing a series of hints for beginners. Under the headings How to find birds: How to know birds: How to approach birds: and How to attract birds, there is a wealth of sound and practical advice seldom found in so small a compass. The following passage is deserving of special attention. "Science is truth. Its records must be based on facts. Therefore if you report your findings, you should be sure, first, that they are authentic. A fertile imagination is a great gift, useful for the writer of fiction, but it has no place in bird study. A 'creative memory' is not an asset for the bird student."

FOOD OF THE LITTLE OWL.

On the flimsiest evidence this handsome and quaint little bird has been condemned as an enemy of game birds, in spite of numerous statements to the contrary. As a matter of fact only a very small percentage of its food consists of young birds, and game birds by no means form the bulk of this. In his valuable and interesting Ornithological Notes from Norfolk for 1919 (Brit. Birds, 1920, p. 259) Mr. J. H. Gurney writes: "There seems to be a prevailing prejudice against it, but the harm it does has been greatly exaggerated, in spite of what numerous letters to sporting papers may say to the contrary: at any rate, in the south of France it is not looked upon with disfavour, and the test of dissection is rather in its favour than otherwise." Prejudice and exaggeration seem to be the basis of the evidence against it.

THE DESTRUCTION OF SKYLARKS.

Our contemporary, *Bird Notes and News*, draws attention to the trade that is being carried on by bird-catchers in Skylarks, Goldfinches, and Linnets. The Skylarks are netted to "festoon poulterers' shops and to grace the dinners of city magnates or the dance-suppers of would-be smart women." The suggestion that "members of the R.S.P.B. should refuse to deal with any poulterer or with any game department of any store where Larks are offered for sale," is an excellent one, and might well be supported by members of the W.B.I.S. and the public generally. Such action would quickly put an end to this scandal.

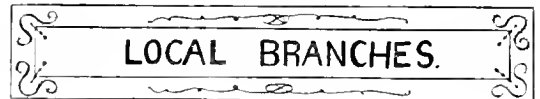
CALL-NOTE OF BIRDS

In a recent paper entitled "Sequestration Notes" (Auk, 1920, pp. 84-88) Mr. Joseph Grim-

nell points out that certain non-flocking passerine birds, such as the Ruby-crowned Kinglets (*Regulus*) and Audubon Warblers (*Dendroica*), which feed upon small insects, which in winter are not abundant, and consequently must be looked for on every leaf and twig to find enough, must avoid duplicating territory that their neighbours have already scrutinized. In other words, two or more individuals must not follow each other's paths or look over the same ground, at least not until there has been time for insect life to move about again. The writer's view is that these birds have developed a special note or call warning other birds to avoid territory already occupied.

WILD BIRD PROTECTION ACTS.

The following committees have been appointed to advise the Government in connection with the administration of the Wild Birds Protection Acts. By the Home Secretary for England:—His Grace the Duke of Rutland, K.G. (*Chairman*), Mr. H. G. Maurice, C.B., Mr. Percy R. Lowe, M.B., Dr. Montague Sharp, and Mr. E. C. Stuart Baker, O.B.E. By the Secretary for Scotland:—Mr. Hugh S. Gladstone, M.A. (*Chairman*), Dr. W. Eagle Clarke, Dr. Walter E. Collinge, Mr. H. M. Conacher, Mr. H. J. Crowe, and Prof. J. Arthur Thomson.



One of the objects which the W.B.I.S. seeks to carry out is the establishment of a network of local branches throughout the United Kingdom. Such a series of clubs would not only have a great educational value, but they would tend to link together all who are interested in the study of wild bird life. Moreover, the members, bound together as definite organizations, would undoubtedly exercise a most beneficial influence upon all matters pertaining to the subject in their respective districts.

Any two Ordinary Members of the Society who are willing to act as Chairman and Honorary Secretary respectively, can, with the sanction of the Council, call together those interested, and if ten Ordinary or Associate Members can be obtained, the Branch can be formed, weekly or

monthly meetings, excursions, etc., arranged, and work commenced.

The Secretary will be pleased to forward nomination forms and further particulars, or to reply to any queries, on application. Envelopes should be marked "Local Branches."

St. Andrews.—Chairman: Prof. D'Arcy W. Thompson, C.B., D.Litt., F.R.S. Hon. Secretary: O. S. Orr, Commercial Bank House.

March 17th.—Dr. Walter E. Collinge in a most instructive lecture on "The Food and Feeding Habits of Wild Birds," pointed out that during the past few years an increased interest had been taken in the subject owing to the shortness of food. The extreme views held as to the economic position of wild birds were, in the lecturer's opinion, largely due to ignorance. Strictly speaking, we had really very few injurious birds in this country, and much of the harm they did might be prevented if effective repressive measures were instituted. Of the majority of species, however, nothing but good could be said. After dealing with the various methods of estimating a bird's food, a large series of lantern slides were shown illustrating the percentages of the various food items, and it was shown that in spite of such injurious species as the house-sparrow, bullfinch, wood pigeon, and sparrow hawk, the sum total of their activities was distinctively in favour of the farmer and the fruit grower, for the benefits they confer are almost twice as great as the injuries they inflict. After some remarks by the Chairman, the Rev. G. Nowell Price, Mr. C. Bayne Meldrum proposed a vote of thanks to Dr. Collinge for his most interesting and instructive lecture.

November 2nd.—Dr. W. E. Collinge occupied the chair. Mr. C. H. Guild was elected an associate member. Miss E. V. Baxter gave an account of "Our Common Waders," treating of their distinguishing features, seasonal changes of plumage, habits, nesting sites, and migration. Her remarks were illustrated by a large series of specimens, set up and in the skin, of the oystercatcher, ringed plover, knot, redshank, dunlin, and turnstone. The address was most instructive and interesting. Mr. Valentine followed with an exhibit of and remarks on the eggs of the same species. Dr. Collinge gave a brief account of the results obtained in a recent investigation on the food of the kingfisher, in which he showed from

an analysis of the nest contents, pellets, and stomach contents, that this bird, by destroying large quantities of the larvae of water-beetles, dragon-flies, etc., was really beneficial to anglers. Minnows and sticklebacks formed the major portion of the fish food, only 7.28 per cent. of trout being present. No fish ova were found in any of the stomachs. A most interesting paper on the aid of photography in the study of wild bird life was read by Mr. O. S. Orr, and illustrated by a wealth of very beautiful photographs.

December 6th.—Miss L. J. Rintoul lectured on "Bird Watching and Bird Nesting." The lecturer's intimate acquaintance with, and wide knowledge of, our wild bird fauna was sufficient guarantee of a lecture of more than ordinary interest, and with the aid of a fine series of lantern slides, ably shown by Miss E. V. Baxter, she surpassed most expectations. The dangers and difficulties, as well as the pleasures, of bird watching, whether along the rocky shore, the hillside and moor, or from the lighthouse top, were fully dealt with. Many interesting points relating to the means of identification, the seasonal changes of plumage, modes of flight, migration song, the spring and autumn migrants, the movements of wild duck, and other matters were fully described and illustrated. Bird nesting, from the lecturer's standpoint, did not mean the destruction of nests and the stealing of eggs. These beautiful constructions and their contents were left unmolested, but by means of the camera a permanent record was obtained of their form and structure. Those of a wide range of species were shown and numerous points of interest explained. The keen interest with which the members had followed Miss Rintoul's remarks was fully evidenced by the numerous questions which were showered upon her at the close of a most interesting and instructive lecture, excellent alike in treatment and display. Professor Thompson, who presided, voiced the feeling of the meeting in according Miss Rintoul and Miss Baxter a very hearty vote of thanks.

Dunfermline.—Dr. Collinge has recently addressed a large meeting of local naturalists, and a local branch is now being formed. A full report will appear in our next issue.

Yoker, Renfrewshire.—Thanks to the energy and enthusiasm of Mr. Alexander Cutbberston, there is every prospect of a local branch being formed.



REVIEWS.

TERRITORY IN BIRD LIFE. By H. Eliot Howard. Pp. xiii. + 308, 11 pls. London: John Murray, 1920. Price 21s. net.

The author puts forward a thesis of distinct value and originality, which is well written and illustrated by a considerable amount of personal observations.

Briefly, his contention is "that each male isolates itself at the commencement of the breeding season and exercises dominion over a restricted area of ground. With a view to ascertaining the relation of this behaviour to the system of reproduction, Mr. Howard made further careful studies of widely different species. The result of his investigations is given in this book, which fully discusses the theory of 'breeding territory,' and attempts to interpret the prospective value of the behaviour. A number of facts are given which serve to show that the battles, so marked a feature of bird life in the spring, are directly related to the possession of territory, and that the song contributes towards the security of possession. The problem of migration is also discussed, and its origin traced to the seasonal competition for territory."

Interesting as Mr. Howard's theory is, we feel that at times he is unconvincing, there is a certain sense of strain, and he views almost every action through "territory spectacles," forgetting that there are other equally sound explanations. Nevertheless this book is full of interest and cannot fail to command attention.

BIRDS OF LA PLATA. By W. H. Hudson. Vol. 1, pp. xvii + 244, 12 pls.; vol. ii, pp. ix. + 240, 11 pls. London: J. M. Dent & Sons, Ltd. [1920]. Price £1 17s. 6d. net.

The many students of bird-life who possess Mr. Hudson's other works will welcome these two beautifully printed and illustrated volumes. The matter contained therein is taken from an earlier work, *Argentine Ornithology*, published in 1888-9.

The majority of species mentioned are known to most British ornithologists by their names only, it is therefore interesting to learn something of their habits and the comparisons with our own species. Mr. Hudson gives a long and excellent account of the parasitical Cow-bird, discuss-

ing, with many original observations, the mistakes and imperfections of the procreant instinct of the species, the advantages it possesses over its dupes, the diversity in the colour of the eggs, the habits of the young, and conjectures as to the origin of the parasitic instinct. In a like manner he gives us a wealth of information about the various species of Tyrant birds, the Oven-birds, a singing Kingfisher, the Burrowing-Owl, the Common Carrion Hawk, various Herons, Ducks, Rails, Plovers, Tinamu's, etc.

Whoever, like the author, loves living birds, and is interested in their ways and habits, will find in these two volumes material of more than passing interest, for apart from the originality of the text it is written as only Mr. Hudson can write on the realm of bird-life.

The illustrations by Mr. H. Gronvold are beautiful, indeed these are two very charming volumes which will well repay perusal.

DISEASES OF DOMESTICATED BIRDS. By A. R. Ward and B. A. Gallagher. Pp. xii + 333, 60 figs. New York: The Macmillan Company, 1920. Price 21s.

To all who desire an authoritative work on the diseases of domesticated birds—poultry, geese and ducks, turkeys, pigeons, cage-birds and ostriches—we can thoroughly recommend this excellent treatise, for apart from the high qualifications and long experience of its authors, which lead us to expect much, it is written in such a style that all who have to do with domesticated birds can turn to it and find a masterly and thoroughly practical treatment of the various diseases to which they are liable.

Most works of this nature are overburdened with technical terms and illustrations, the latter of very little value to the reader. These two features are, we are pleased to note, absent in the present instance. The descriptive matter, given under the headings—characterization, etiology, pathogenicity, mortality, symptoms, morbid anatomy, course of disease, diagnosis, treatment and prevention—is terse yet lucid, practical, and up-to-date. Not the least valuable feature of this work is the excellent and useful series of references, after the account of each disease, parasite, etc., including, as they do, upwards of three hundred titles.

The chapter treating of the infectious diseases of canary birds will apply to cage-birds generally. There is a most interesting chapter on toxicology and a good index.

Many of the diseases of domesticated birds can

be prevented, others controlled, and a work of this kind in the hands of any intelligent student will be the means of eliminating many misconceptions and emphasising those things which must be observed, if health has to be maintained. In short, it is a volume of indispensable value.

of print. Moreover, it will appeal to a new generation of individuals who prefer a living bird to a lifeless stuffed one. The author is rather severe on museums and taxidermists, and whilst he may fully appreciate all the sights and sounds of nature, at times we are led to think that for



STONE CURLEW'S EGG AND CHICK.

From Corcard's 'Birds of the British Isles.'

BIRDS AND MAN. By W. H. Hudson. Pp. 306,
1 pl. London: Duckworth & Co. 1920.
Price 7s. 6d.

Bird lovers generally will welcome a reprint of this work, which for several years has been out

some things he has eyes that see not and ears that hear not. No one can depict the ever-changing beauties of a sunset, but we should be sorry to lose Turner's incomparable pictures.

Mr. Hudson has some hard things to say about

bird collectors, many of which are richly deserved, but in our opinion he takes them too seriously. Their mission in life seems to be to write local lists, and to add new species and sub-species to the British list. The vagaries of nomenclature also amuse them, and so it comes about that these people term our common wren *Troglodytes troglodytes troglodytes*. Should Mr. A. or Mr. B. find a specimen in which the first or second primaries of the wing are half a millimetre longer than usual, and perhaps with some of the tail-

are content to listen to his beautiful descriptions and word pictures.

A GEOGRAPHICAL BIBLIOGRAPHY OF BRITISH ORNITHOLOGY from the earliest times to the end of 1918. By W. H. Mullen, H. Kirke Swann, and the Rev. F. C. R. Jourdain. Pt. 3, pp. 193-288; Pt. 4, pp. 289-384; Pt. 5, pp. 385-480; Pt. 6, pp. viii + 481-558. London: Witherby & Co.

The further parts of this valuable publication



MALE GREBE ON NEST

coverts a shade, or half a shade, lighter or darker, then we suppose another *troglodytes* will be added. It would perhaps be simpler to write *Troglodytes*!. Personally we refuse to regard these people seriously or as representative of British ornithologists.

Leaving controversial matters, which Mr. Hudson does not handle well, our author is seen at his best in the chapters on the wood wren at Wells, the secret of the willow wren, owls in a village, geese, and the Dartford warbler. Here we have the naturalist depicting nature, and we

fully bear out the high opinion we formed of it after a perusal of Parts 1 and 2. No ornithologist can afford to be without a copy, and every Natural History Society should secure one for its library. The beginner who consults its pages will have before him a complete list of what previous workers have written upon the birds of the county or district in which he may be interested. He will thus commence with a knowledge which has hitherto been difficult and laborious to obtain.

The authors are to be congratulated on the

completion of a really valuable work, and we venture to throw out the suggestion that a Supplement at a later date, incorporating the records for 1919, 1920, etc., would be highly appreciated.

THE HERON OF CASTLE CREEK and other Sketches of Bird Life. By A. W. Rees. (With a memoir of the author by J. K. Hudson). Pp. 248 and portrait. London: John Murray, 1920. Price 7s. 6d. net.

All who are acquainted with those two fascinating volumes on wild life, *Junco the Fisherman*

The untimely decease of the author robs us of a most faithful recorder, for, unlike many popular writers, he was intimately acquainted with the facts he described, which were the outcome of long and patient observation.

THE BIRDS OF THE BRITISH ISLES AND THEIR EGGS. By T. A. Coward. First Series. Pp. vii + 376, 159 pls. Second Series. Pp. vii + 367, 159 pls. London: Frederick Warne & Co., Ltd. 1920. Price 12s. 6d. net per vol.

A popular account of our native wild birds and



MOORHEN—MALE CHASING FEMALE.

and *Creatures of the Night*, will turn to this book with great expectations, and few will be disappointed, for of the many works on wild bird life this may easily claim the first place. In style and accuracy of detail we question if these essays are matched by any other writer. Rees was satisfied with nothing less than his best, and it is stamped on every page of this delightful volume.

There is a treat in store for every lover of wild bird life between the covers of this book which is but seldom obtainable. It is engrossing reading throughout, coupled with a charm and sympathy that few will be able to resist.

their eggs, published at a reasonable price, has attractions for a wide circle of readers, and to such Mr. Coward's work will undoubtedly make a strong appeal. Moreover, when such a work is well illustrated its value is greatly enhanced.

The work before us fulfils all the above demands, indeed the illustrations are distinctly above the average, both the coloured ones and the process blocks, with perhaps a slight flaw in those of the eggs which has somewhat distorted a few plates.

Many ornithologists we know will question whether there is room or the demand for another

work on the birds of the British Isles, unless it supplements, corrects, or in some way improves the information we already possess, and whilst we fail to see that the author has added much to our knowledge, he has presented the account of our wild bird fauna with a freshness and lucidity that is not infrequently absent in works of this kind, and this alone will commend it to a large and growing number of students.

To our mind it scarcely seems necessary to waste valuable space on brief notes on the Citril Finch, the Black Lark, the Sardinian Warbler and many other rare visitors. Had these been omitted much fuller information might have been given on the habits, etc., of commoner species, which in not a few instances is meagre.

Overlooking such minor matters we welcome these two little volumes, for they can scarcely fail to arouse an intelligent interest in their possessor where hitherto a desultory indifference has prevailed, and we do not hesitate to recommend them to the large number of our members who are commencing the study of our British wild birds and their eggs.

Through the kindness of the publishers we are able to reproduce a few of the uncoloured figures which speak for themselves.

TRANSACTIONS OF THE NORFOLK AND NORWICH NATURALISTS' SOCIETY. 1918-19, vol. x, pt. v. 1920, pp. xiii + 307—506 + xvii. Edited by the Hon. Secretary. Norwich, 1920.

There are few local or county Natural History Societies that can look back on a fifty years' record of such excellent and high standing work as the Norfolk and Norwich Naturalists' Society. In the study of ornithology the members of this society have always been regarded as one of the foremost organizations in the United Kingdom, and with such names as those of John H. Gurney, Robert Gurney and other members of this family, Dr. Sydney H. Long, A. H. Patterson, C. B. Ticehurst, O. V. Aplin, Miss E. L. Turner, and many others in their midst, this is not surprising.

The present part of the Transactions is a most interesting number. Mr. Robert Gurney's article on the Breeding Stations of the Black-headed Gull in the British Isles will be welcomed by all who take an interest in wild bird life, as also Mr. J. H. Gurney's short account of the status and breeding habits of the Shoveller Duck. Interesting bird notes are contributed by Mr. A. H. Patterson, Dr. S. H. Long and Mr. B. B. Riviere.

A SYNOPTICAL LIST OF THE ACCIPITRES (Diurnal Birds of Prey). By H. Kirke Swann. Pt. IV, pp. 115-164, title page and index. London: John Wheldon & Co. 1920. Price 4s.

The present part, which brings to a conclusion this List, treats of the Falconinae and Pandiones, and contains an index to all the genera enumerated in the work.

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THE GENERAL MEETING.

Much as we desire it, and necessary as it is, there is much to be said for deferring the General Meeting. With the present high railway fares such a meeting would scarcely be a large one, whilst the high cost of printing and postage would mean a large expenditure which might be laid out to better advantage. The gradual increase of our membership is a very hopeful sign, and from the communications received members seem agreed that it would be better to quietly work on until we can arrange for a really successful and representative meeting.

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"There is no subject in the field of natural science that is of greater interest than the important position that the living bird occupies in the great plan of organic nature."—E. H. FORBES.



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