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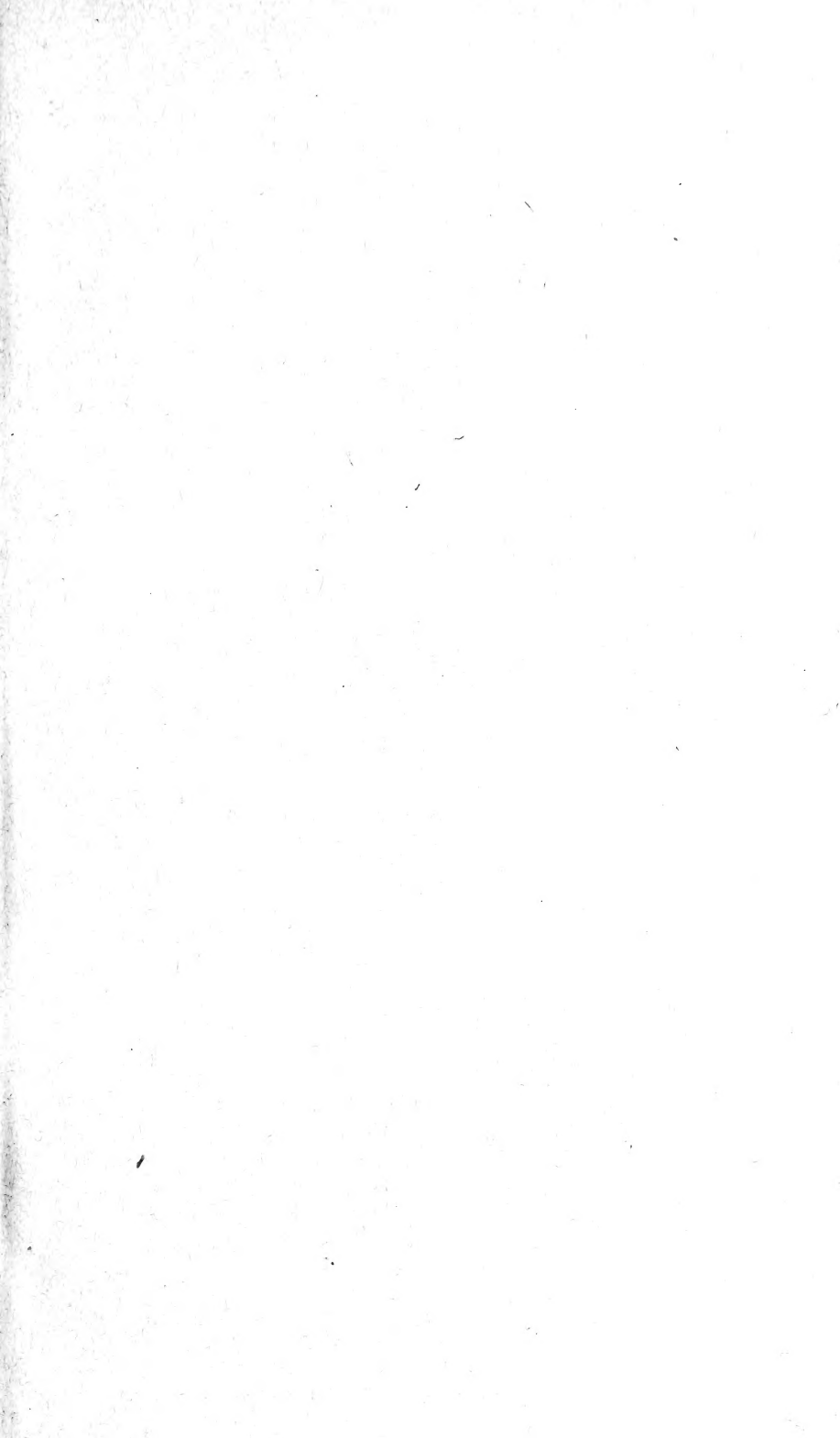
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OF

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Cork Naturalists' Field Club

EDITED BY

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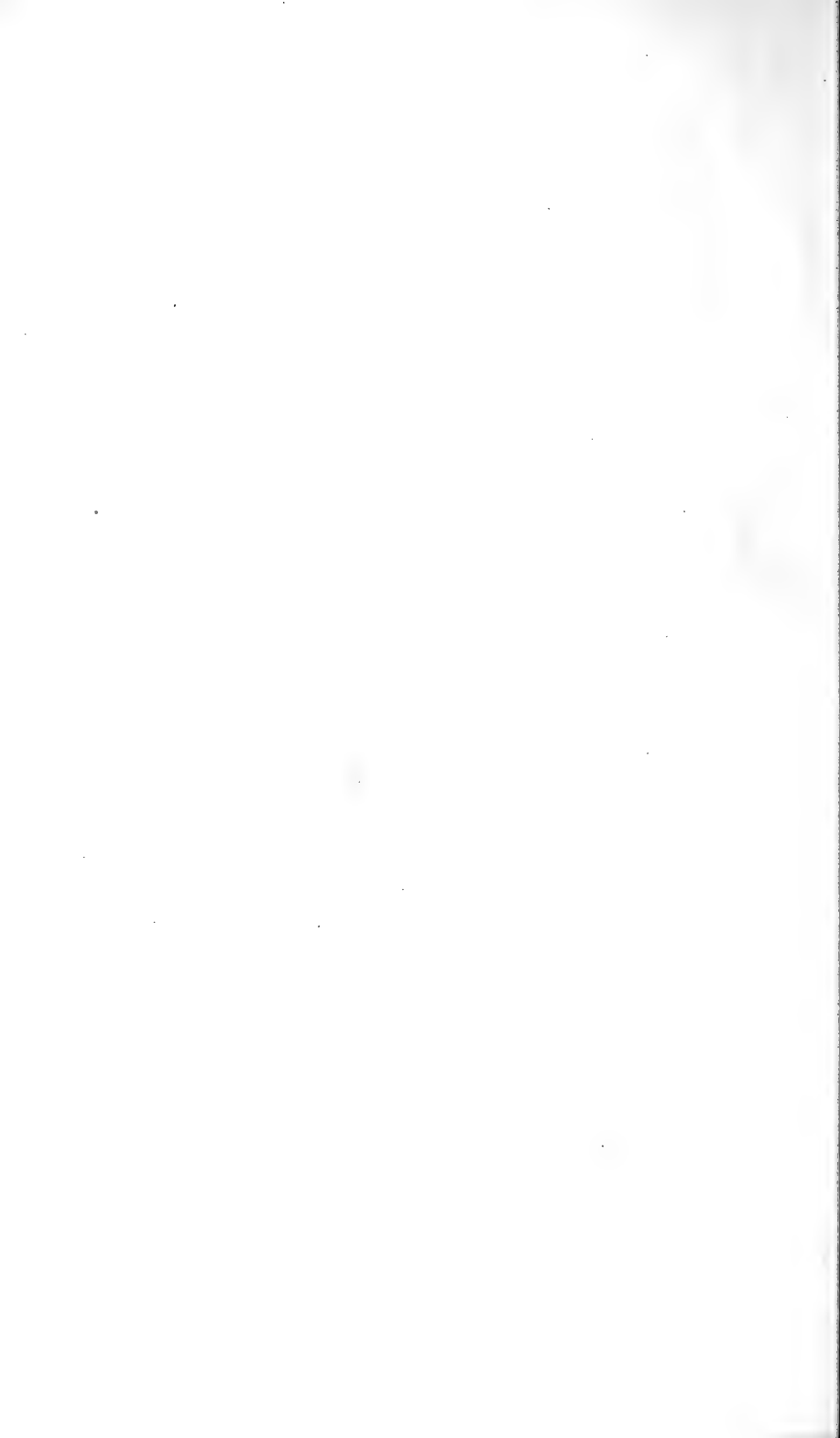
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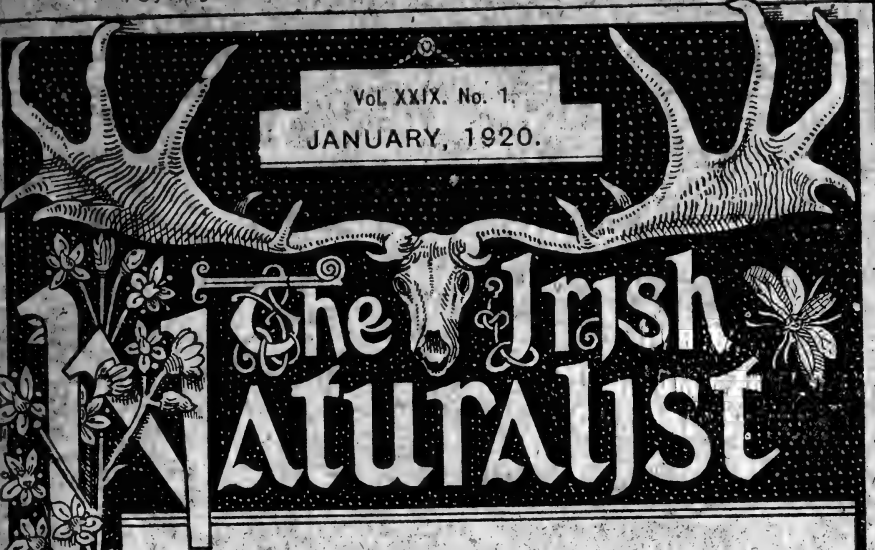
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The Irish Naturalist.

VOL. XXIX.

COLEOPTERA IN CO. KERRY.

BY OLIVER E. JANSON, F.E.S.

IN the February 1914 number of the *Irish Naturalist* I gave an account of a week's beetle collecting at Killarney in 1913, and, although I was not altogether satisfied with the results, I saw sufficient of the district to convince me that such a very varied and favourable looking country for insect life would well bear further investigation, and the following year I left London with the intention of making a more prolonged stay, and had proceeded as far as Cork, where I was devoting a few days to beetle hunting, when the great war suddenly broke out, and to avoid the risk of being detained there for an indefinite period I made a hurried departure, being only just able to secure a passage back to London by the last boat to leave the port until after the declaration of peace. Last year circumstances enabling me to arrange my vacation for an earlier and more favourable time for Coleoptera, I decided to further explore the district and arriving at Killarney on June 3rd I devoted nearly the whole of the ensuing four weeks to collecting there and in the more western part of Kerry. With the exception of two or three days the weather unfortunately was dull, cold, and very windy, and beetles being seldom seen in the open had to be searched for in their hiding places, which entailed much really hard work; sweeping, which usually yields the "largest bag," was seldom possible and very unproductive. In spite of adverse weather conditions I succeeded in taking about eight hundred specimens, which upon being mounted and examined are found to comprise three hundred and fifty-two species (besides a few that I have been unable at present to definitely determine) and of these there are eight that are not included

in Johnson and Halbert's Irish List and seventy-seven are unrecorded there from Co. Kerry. Allowing for the additions recorded since the publication of the list in 1902, as far as I have been able to ascertain, my captures include six additions to the known Irish fauna and forty-eight new records for Kerry. These figures I think give abundant evidence that many more discoveries are still to be made in this comparatively (for Ireland) rich entomological district, even though the beetle-fauna of Killarney has been subjected to the "incursions and flying visits of English coleopterists" probably more than any other part of Ireland, and has been, moreover, assiduously worked by the indefatigable resident collector, Mr. E. Bullock, who has already made considerable additions to the Irish List, and, I believe, has many more discoveries to record.

At Killarney from the 3rd to 18th of June I had Mr. L. H. Bonaparte-Wyse as a companion for most of the time and we secured comfortable quarters in a most convenient situation for an entomologist, at the Muckcross Hotel, about three miles out of the town and close to an entrance to the Muckcross demesne, an extensive enclosure containing fine trees and a very varied growth of other vegetation, and long stretches of rocky, marshy and sandy shores of the Lower (Lough Leane) and Middle lakes, and it was here most of my collecting was done. On the lake shore *Pelophila borealis* and *Blethisa multipunctata* were found sparingly under stones and *Silpha dispar* occurred more commonly under dead fish and other carrion laid as traps; *Bledius subterraneus*, only recorded from Ulster in the Irish List, was detected by the "casts" from its sinuous horizontal workings in a sandy part of the shore, and dug out in considerable numbers; near the same place three specimens of *Homalota (Atheta) silvicola*, new to the Irish List, *Philonthus longicornis* and a small series of *Stenus carbonarius* and *S. melanopus* were found under decaying vegetable matter; in a marshy part of the shore three *Badister peltatus* and one *Stenus canescens*, both new to the Irish List, and *Anchomenus versutus* occurred under stones and at roots of tufts of grass; close to the Colleen Bawn Rock the pretty *Bembidium pallidipenne* was met with sparingly and very

difficult to detect when at rest owing to its similarity in coloration to the sand ; by sweeping, which the weather seldom permitted, several *Corymbites tessellatus*, one *Gymnetron villosulus*, *Paramecosoma v. infuscatum*, *Liopus nebulosus* and *Epuraea pusilla* came to the net ; during a brief interval of bright sunshine a specimen of the beautiful *Chrysomela fastuosa* was found on the head of a small plant of peppermint on the lake shore ; beating dead boughs and breaking up decaying wood produced *Dromius meridionalis* *D. iv-notatus*, *Salpingus castaneus* and *Trypodendron domesticum* ; three specimens of *Clinocara tetratoma*, an addition to the Irish List, and a few *C. undulata*, found in a fungoid growth under the bark of a dead holly, were welcome captures ; a few *Cis alni* and one *Soronia punctatissima* occurred beneath a boletus on an oak ; *Pocadius ferrugineus* was found in plenty in Lycoperdon where Mr. Bonaparte-Wyse had taken it in previous years ; *Thinasimus formicarius* was found on the trunks of some very decrepit holly trees and an Ichneumon, that Mr. C. Morley has identified for me as *Ephialtes strobilorum*, Ratz., was observed assiduously probing, with its long ovipositor the numerous burrows of *Mesites Tardyi*. All the foregoing captures were made in the Muckcross demesne. In a much decayed fir-log lying near the base of the Torc mountain I was very pleased to discover two specimens of *Quedionuchus laevigatus*, an interesting generic addition to the Irish List and a rather unexpected capture, as this fine distinct "staph" has only occurred as British in the Highlands of Scotland ; in the same neighbourhood a very large example of *Melanotus rufipes* was dug out of a dead standing pine ; *Cis nitidus* was found in a boletus and *Ochina hederæ*, *Priobium castaneum* and *Acalles turbatus* were taken in plenty by beating holly and ivy. In Cloghereen wood *Choleva Kirbyi*, an addition to the Irish List, *Cychrus rostratus*, *Actobius cinerascens* and *Bythinus puncticollis* were shaken from moss ; *Cryptorhynchus lapathi*, *Deporaius betulæ*, *Orchestes salicis*, *O. alni* and *O. rusci* were obtained by beating birch and willow. At the foot of Mangerton *Aphodius lapponum* was plentiful in dung and a few of the entirely black form of *A. luridus* were also taken. This

mountain was usually enveloped in mist and an attempt to ascend it, on what appeared to be a favourable day, was frustrated, before reaching the Devil's Punch Bowl, by a sudden and violent storm of wind and rain necessitating a hurried retreat and return, in a drenched and chilled condition, to the hotel, for a hot bath and stimulants.

Returning to Killarney on the 25th and remaining until the 30th of June, the country to the west of the town was explored, and here, in the Kenmare demesne, *Conosoma pedicularium*, *Choleva nigrita*, *Atomaria linearis* and *Cryptohypnus dermestoides* occurred under dead vegetable matter; a few *Ilybius ater* were found under stones on the lake shore; plenty of *Hylaster ater*, *H. opacus* and *H. palliatus* and a few *Myelophilus piniperda* were dug out of the stumps of recently felled pines; *Rhizophagus depressus*, *R. ferrugineus*, *R. dispar*, *Phloeopora reptans* and *Homalium pusillum* were all found in some numbers under the bark of the felled pines, and *Pityophthorus pubescens* was beaten from the dead boughs of these trees.

At Kenmare, June 19th and 20th, *Telephorus darwinianus* was the most noteworthy capture, having been hitherto recorded only from the northern and eastern parts of Ireland; *Bembidium concinnum* was also found plentifully amongst shingle at the head of the Sound.

At Sneem, a fairly large village some fifteen miles west of Kenmare, a stay was made from the 21st to 25th of June, and good accommodation was found at O'Shea's hotel, adjoining a picturesque old stone bridge over the Ardsheelhane river. Here I devoted most of my time to the wild rocky ground to the north of the village and extending to the fine range of mountains about four miles distant. Insects were scarce, but my efforts in turning over portions of rock, more or less embedded in the peaty soil, were rewarded by the capture, for the first time, of the noble *Carabus clathratus*, other species brought to light in the same way included *Amara acuminata*, *Harpalus rubripes*, *Ocypus compressus* and *Othius myrmecophilus*. An attempt to ascend Knocknagentee (2219 ft.) met with as little success as that at Mangerton, for, on reaching a point a few hundred feet above the Eagle's Lough, rain and dense

clouds of mist coming over the mountain effectually prevented further progress and compelled me to seek the shelter of an overhanging rock where I was obliged to remain for several hours; fortunately I was able to find occupation in shaking moss that grew plentifully under the rock and from it obtained *Myrmedonia collaris*, *Conosoma immaculatum*, *Mycetoporus angularis*, *Olophrum fuscum*, *Carabus catenulatus* and the black variety of *C. granulatus*. My fears of having to pass the night alone in this weird spot were allayed by a slight clearance of the mist that enabled me with difficulty to find my way down and through the bogs, and finally discovering a herdsman's cabin I was most hospitably supplied with much needed refreshments and directed to the right track by which to return to the village. These experiences rather damped my ardour for mountain work, and as there was no improvement in the weather my intended visit, with Mr. Bonaparte-Wyse, to Carran-tuohill, was abandoned and I returned to Killarney.

In the foregoing notes I have mentioned those species that are of most interest as Irish captures, some of them being quite common insects in England.

The species I captured that are not in Johnson and Halbert's Irish List are as follows:—

Badister peltatus, Pz.—This species has also been taken by Messrs. Bullock and Bonaparte-Wyse at Killarney, but not recorded.

Homalota (Atheta) silvicola, Fuss—Muckcross.

Homalota (Atheta) aequata, Er.—Killarney, under bark. Already recorded by Mr. Bullock from the same locality.

Conosoma pedicularium, Gr.—Kenmare demesne. Already recorded by Mr. Bullock from the same district.

Quedionuchus laevigatus, Gyll.—Torc, two specimens in a decayed pine log.

Stenus canescens, Rosen.—Muckcross, one specimen in marshy ground near the lake shore.

Catops Kirbyi, Spence.—Cloghereen wood, Killarney; one specimen shaken from moss.

Clinocara tetratoma, Th.—Muckcross, three specimens.

Two other species taken at Killarney—*Sphaeridium immaculatum* and *Philonthus concinnus*—may not be actual additions as they are probably included under *S. scarabaeoides* and *P. ebeninus*, from which they have been recently separated. I may here note that in my 1914 list *Ptenidium*

pusillum was given as an addition whereas it is only an alteration of the name and is the same as that standing in the Irish List as *evanescens*.

Of the seventy-seven species taken that are not recorded from Kerry in the Irish List twenty-nine have been since recorded chiefly by Mr. Bullock, and the remaining forty-eight given in the following list are, I believe, new records for the County—those marked with an asterisk being new for Munster. All are from Killarney unless otherwise indicated.

Notiophilus substriatus, Wat.	Enicmus transversus, Ol.
Harpalus rubibarbis, F.—Kenmare.	Telmatophilus typhae, Fall.
„ rubripes, Duft.—Sneem.	*Atomaria linearis, St.—Kenmare.
Amara acuminata, Payk.—Sneem.	Byturus tomentosus, F.
„ plebeia, Gyll.—Sneem.	Aphodius luridus, F.
Bembidium punctulatum, Drap.	Microcara livida, F.
Homalota coriaria, Kr.	„ Bohemanni, Man.
*Conosoma immaculatum, St.—Sneem.	Telephorus pellucidus, F.
*Tachyporus humerosus, Er.	* „ darwinianus, Shp.—Kenmare.
Tachinus laticollis, Gr.	Telephorus figuratus, Man.
Mycetoporus angularis, Rey.—Sneem	Malthodes atomus, Th.
*Lathrobium longulum, Gr.	*Cis alni, Gyll.
*Bledius subterraneus, Er.	* „ nitidus, Hb.
*Olophrum fuscum, Gr.—Sneem.	Donacia impressa, Pk.
Necrophorus vespillo, L.	Chrysomela fastuosa, Scop.
Silpha dispar, Hb.	Phyllodecta vulgatissima, L.
*Choleva nigrita, Er.	Sphaeroderma cardui, Gyll.
* „ fumata, Sp.	Salpingus castaneus, Pz.
Scymnus suturalis, Thunb.	*Apion ulicis, Forst.
*Epuraea obsoleta, F.	Polydrusus tereticollis, Deg.
*Soronia punctatissima, Ill.	Hypera trilineata, Mar.
Pocadius ferrugineus, F.	Orchestes rusci, Hb.
*Rhizophagus depressus, F.	*Gymnetron villosulus, Gyll
„ ferrugineus. Pk.	Balaninus pyrrhoceras, Mar.

In relation to the tendency to melanism that has been observed in Irish Coleoptera, I may mention that black, or nearly black, specimens of the following species were taken: *Carabus granulatus*, *Notiophilus aquaticus*, *Pterostichus versicolor*, *Anchomenus parumpunctatus*, *Homalota vicina*, *Aphodius luridus*, *Donacia discolor* and *Phyllodecta vulgatissima*.

Highgate, London, N.

IRISH ICHNEUMONIDAE AND BRACONIDAE.

BY REV. W. F. JOHNSON, M.A., F.E.S., M.R.I.A.

I AM very pleased in spite of all drawbacks to be able to place before the readers of the *Irish Naturalist* further notes and list of these insects. For some reason which I do not understand I have met with but few genera and species of Braconidae. Every spring I meet with the two species of Earinus mentioned below in the same place which I have called "lane" but which is really my back avenue. Here the hedges on either side are high and there are nettles and such like on the banks. Here I find Earinus flitting about or sitting on the young shoots of nettle or other plants. *Macrocentrus marginater* I get always in July and August at Umbelliferae. It is conspicuous by its very long ovipositor. Dr. A. Roman, the well-known Swedish hymenopterist, in a recent letter remarked on the absence of the Braconid genus Ichneutes from my lists. He tells me it is common about Stockholm every spring, and he is much surprised at its absence here seeing that we have plenty of Nematids on which it preys. Among my captures at Portnoo were specimens of the pretty little *Barichneumon albicinctus*, and on the heads of two of these were lumps of a yellow substance. Being uncertain as to what this might be and finding it resisted my efforts to dislodge it, I sent the flies to Mr. Praeger who submitted them to Dr. Pethybridge, and he, on examination, found that the substance was the pollen of some species of Ericaceae. This is an interesting matter as it shows that Ichneumon flies take a share with other insects in the fertilising of flowers. I am very much obliged to Dr. Pethybridge and Mr. Praeger for the trouble they have taken in the matter.

I recorded¹ as a variety of *Glypta genalis* a form which I had taken in my fields with red markings on the abdomen. Dr. Roman wrote and asked me to look at it again and see if it was not *G. bicornis* Boie. I could see no trace of horns on the frons and wrote back to say that it did not appear

¹ *Irish Naturalist*, xxvii., 1918, p. 108.

to be that species. However, I sent him a pair, and he tells me that his suspicion was correct and that it is *G. bicornis*, but a form without horns, both forms having been bred together. I came upon a pair of *Lissonota sulphurifera* in cop. in one of my fields on September 25th. They were sitting on a sallow leaf with wings outspread and their bodies tail to tail at a slightly obtuse angle.

Some of these insects keep on the wing till the latter end of October. I took one as late as the 22nd. They liked to fly round sallows and sycamore, but I was unable to take many as they would fly up out of my reach. I have noted in my diary that I took several on the wing on October 6th, which was a warm but dark day with mizzling rain. On the 18th October I found them on the wing between 3 and 4 p.m., which at that date is late for these insects to be about. It was a fine mild day.

I have to thank Dr. Roman for most kind help with several species about which I was doubtful.

My Portnoo captures were made in June unless otherwise stated.

ICHNEUMONINAE.

Coelichneumon bilineatus Gmel.—Poyntzpass hill, May.

Stenichneumon culpator Schr.—Poyntzpass hill, July, a melanic form of the male.

Ichneumon xanthorius Forst.—Poyntzpass hill, May.

I. sarcitorius L.—Poyntzpass hill, May, Portnoo cliff.

I. extensorius L.—Portnoo roadside.

I. gracilentus Wesm.—Poyntzpass hill, May.

I. primatorius Forst.—Poyntzpass field, September and October. These were males, and I have not met with the female here though I was sent one by Mr. L. H. Bonaparte-Wyse from Tramore, Co. Waterford.¹

I. gracilicornis Gr.—Poyntzpass hill, May, and on October 19th, crawling up my avenue at 1.30 p.m., females.

Chasmias motatorius F.—Poyntzpass hill, August, and a melanic form of the male in field in October.

Amblyteles infraactorius Panz.—Poyntzpass field at late flowers of *Angelica* in October.

Probolus alticola Gr.—Poyntzpass field, September.

Platylabus pedatorius F. Both sexes Poyntzpass hill, May; Portnoo shore.

P. orbitalis Gr.—Portnoo shore.

Alomyia debellator F.—Portnoo sandhills and cliff.

¹ *Irish Naturalist*, xxiii., 1914, p. 65.

CRYPTINAE.

- Cubocephalus brevicornis** Tasch.—Portnoo shore.
Microcryptus rufipes Gr.—Poyntzpass on wing in field, October, a male with trochanters red.
M. arrogans Gr.—Portnoo cliff, with scutellum black; Tempo Manor, Co. Fermanagh, May, with head and scutellum dark, males in both cases.
M. brachypterus Gr.—Poyntzpass hill, May; Portnoo shore.
Hemiteles pedestris F. var. **micator** Gr.—Portnoo shore.
Atractodes exilis Hal.—Portnoo sandhills, September.
Pycnocryptus peregrinator L. type and var. **analis** Gr.—Portnoo shore.
Idiolispa analis Gr.—Poyntzpass hill, July.
Cryptus Dianae Gr.—Poyntzpass hill, May; Portnoo shore.

PIMPLINAE.

- Perithous varius** Gr.—Poyntzpass garden on myrtle leaf, September.
Pimpla pomorum Ratz.—Poyntzpass, flying over gorse bushes in field, May.
P. maculator F.—Poyntzpass garden, May.
Clitopyga incitator F.—Portnoo shore and mountain road, Poyntzpass hill, July. There was quite a number about at Portnoo.
Glypta bicornis Boie.—Var. without horns, Poyntzpass field, at Hog-weed, August.
G. ceratites Gr.—Portnoo cliff, Poyntzpass hill, July.
G. vulnerator Gr. }
G. annulata Bridg. } Poyntzpass field at Hog-weed, August.
Lissonota basalis Brischke.—Poyntzpass field, September. I took several males flying over rough herbage.
Meniscus catenator Panz.—Poyntzpass, Acton Wood, June.
Alloplasta murina Gr.—Poyntzpass hill, May.
Banehus volutatorius L.—Portnoo mountain road.

TRYPHONINAE.

- Exochus gravipes** Gr. var. **incidens** Thoms. }
E. flavomarginatus Hlgr., a female with no lunule } Portnoo shore
E. notatus Hlgr. var. **annulitarsus** Thoms.—Portnoo roadside, September.
Bassus variicoxa Thoms.—Portnoo shore.
Homocidus flavolineatus Gr.—Poyntzpass field, September.
H. tarsatorius Panz.—Poyntzpass lane, July; field, October.
H. dimidiatus Schr.—Poyntzpass lane, July.
H. elegans Gr., var. **nigritarsus** Gr.—Poyntzpass field on wing at Sycamore, October.
H. signatus Gr.—Portnoo shore.
Mesoleius dorsalis Gr.—Portnoo cliff, Poyntzpass field, at Hog-weed, August.
M. aulicus Gr.—Portnoo cliff, Poyntzpass lane, July.
Tryphon brunniventris Gr.—Portnoo shore.
Exenterus mitigosus Gr.—Poyntzpass field, October.

- Polyblastus pastoralis* Gr. }
P. rivalis Hlgr. } Poyntzpass field, at Hog-weed, August.
P. marginatus Hlgr.—Poyntzpass field, at shallows, September.
Euryproctus (Synodyta) notatus Gr.—A dark variety of the male, Poyntzpass hill, August.
Erromenus brunnicans Gr.—Portnoo mountain road.

OPHIONINAE.

- Diaparsus geminus* Hlgr. }
D. erythrostomus Gr. } Poyntzpass field, on wing at shallows, October.
D. rufipes Hlgr. }
Campoplex erythrogaster Forst. }
Sagaritis punctata Bridg. } Poyntzpass hill, May.
S. erythropus Thoms. }
Cymodusa leucocera Hlgr.—Portnoo cliff, September.
Limnerium albidum Gmel. }
L. annulator Zett. } Portnoo { sandhills.
L. rufifemur Thoms. } cliff, September.
L. xanthostoma Gr. } shore.
Omorga mutabilis Hlgr.—Poyntzpass window, August; Portnoo shore, June; cliff, September.
O. faunus Hlgr. }
O. difformis Gmel. } Portnoo shore.
Oleseicampa simplex Thoms.—Poyntzpass hill, May, both sexes.
Meloboris crassicornis Gr.—Poyntzpass field, at Hog-weed, August; Portnoo shore.
Angitia cerophaga Gr.—Poyntzpass lane, July; Portnoo cliff, September.
A. cylindrica Brischke.—Poyntzpass field in herbage, October.
A. reticulata Bridg.—Portnoo mountain road.
Holoeremna erythropyga Hlgr.—Poyntzpass, May and June, females emerged from *Pteronus pavidus* Lep.
Paniseus melanurus Thoms.—Poyntzpass field, at shallows, September.
P. testaceus Gr.—Portnoo sandhills.
Mesochorus brevipetiolatus Ratz.—Portnoo cliff.

BRACONIDAE.

- Bracon anthracinus* Nees.—Portnoo cliff, September.
Rhogas gasterator Jur.—Poyntzpass hill, July; field at Hog-weed, August.
Microgaster globatus Nees }
M. tibialis Nees, var. *luctuosus* Hal. } Portnoo { Dowros road.
Earinus gloriatorius Panz. var. with rufous coxae } shore.
E. nitidulus Nees } Poyntzpass lane,
 April.
Meteorus luridus Ruthe.—Portnoo mountain road.
Macrocentrus marginator Nees.—Poyntzpass field, at Hog-weed, in August, several of both sexes; one male had the hind coxae entirely black.
Alysla manducator Panz.—Poyntzpass field, September,
 Poyntzpass.

SOME IRISH RECORDS OF DRAGONFLIES.

BY SIR CHARLES LANGHAM, BART.

THE following species of Odonata were taken during the summer of 1919, either within a mile of Woodenbridge, Co. Wicklow, or within a radius of half a mile of Tempo, Co. Fermanagh :—

- Sympetrum striolatum.**—Very common on the bogs around Tempo during August, but very few males were seen with the red body colour until the latter end of month.
- Sympetrum scolicum.**—Very common on the bogs around Tempo, during the latter end of July and in August; but few males had assumed the black body colour until far into August.
- Libellula quadrimaculata.**—Very common at Tempo, both on the bogs and marshy fields and flying over the lakes. One was captured which has the spots much enlarged and somewhat suffused. They began to appear in May and continued until late July; one or two seen even in the beginning of August.
- Orthetrum caeruleum.**—Very common in June, about a mile from Woodenbridge, up a valley which had many wet and swampy fields in it. When first seen on June 8th there were not many out, and no blue-bodied males were noticed, but towards the end of the month the blue-bodied males were very numerous, especially in one very boggy field.
- Brachytron pratense.**—On June the 15th one was seen flying in a wood, close to the Woodenbridge hotel, but it evaded capture; however the next day one was seen sitting on the ground in the same wood, and was duly captured, and the following day another was taken, curiously enough on the same spot, also resting on the ground and at precisely the same hour of the day, namely one o'clock.
- Aeschna juncea.**—One of this species was taken at Woodenbridge in June. At Tempo it is one of the commonest dragonflies, appearing generally early in July and often seen on the wing up till the end of September. The colours of this species fade rapidly after death, but by very carefully cleaning out the viscera through a slit in the body, before setting, the colours are less likely to disappear. This cleaning out process is fairly easy in the larger species, but the smaller blue dragonflies are too slender to allow of this being done.
- Aeschna grandis.**—This appears to be rather a scarce species in Ireland, but it is a very common insect at Tempo, in fact it and *Ae. juncea* are usually in about the same numbers. It appears rather later than *juncea*, and continues somewhat longer into the autumn. The males are always much more numerous than the females.

- Calopteryx virgo.**—Very common in the wood at the back of the Woodenbridge hotel, Co. Wicklow, in June; when first seen on June 8th, the males had not assumed the full blue colour on their wings, but in a few days this beautiful colouring appeared.
- Calopteryx splendens.**—One captured flying lazily along a small stream near Tempo, in August; this is the only one so far noticed in the district.
- Lestes sponsa.**—Very common from July until September, in the wet fields and on the lakes in the Tempo district.
- Pyrrosoma nymphula.**—Very common at Tempo, appearing in May and disappearing in July.
- Ischnura elegans.**—A very common insect both at Woodenbridge and at Tempo, from May to the end of summer.
- Agrion pulchellio.**—Another very common dragonfly at Tempo, appearing in May and continuing into August.
- Agrion puelum.**—A few specimens were captured flying round the edge of a lake in the demesne at Tempo, but it is rather scarce, and was only noticed in July.
- Enallagma cyathigerum.**—One of the commonest dragonflies at Tempo, appearing at the end of May and continuing until late August, Tempo, Enniskillen.

NOTES.

ZOOLOGY.

Bewick's Swan in Co. Down.

On 9th December, 1919, I saw a Bewick's Swan, *Cygnus bewicki*, and two cygnets on a large pond known as McKee's Dam, about a mile outside Hillsborough. These birds were very tame, and I was able to go fairly near them without disturbing them. Quite close to them a pair of Mute Swans and their cygnets were feeding, so there was an interesting opportunity for noticing the differences between the two species. The smaller size of the Bewick's Swan was evident, and its neck lacked the graceful curve which adds so much to the beauty of the Mute Swan. Its bill appeared to be quite black, the yellow marking not being visible in the bad light. The cygnets were much smaller and greyer than the Mute cygnets, and their necks were almost straight like that of their parent. On the afternoon of the same day Mr. C. B. Horsbrugh went with me to the pond. We brought with us a pair of field glasses, and by their aid were able to examine in detail the markings on the bill of the adult bird, and noted that the yellow basal patch did not extend so far down the bill as the nostrils.

ROBERT N. MORRISON.

Hillsborough, Co. Down.

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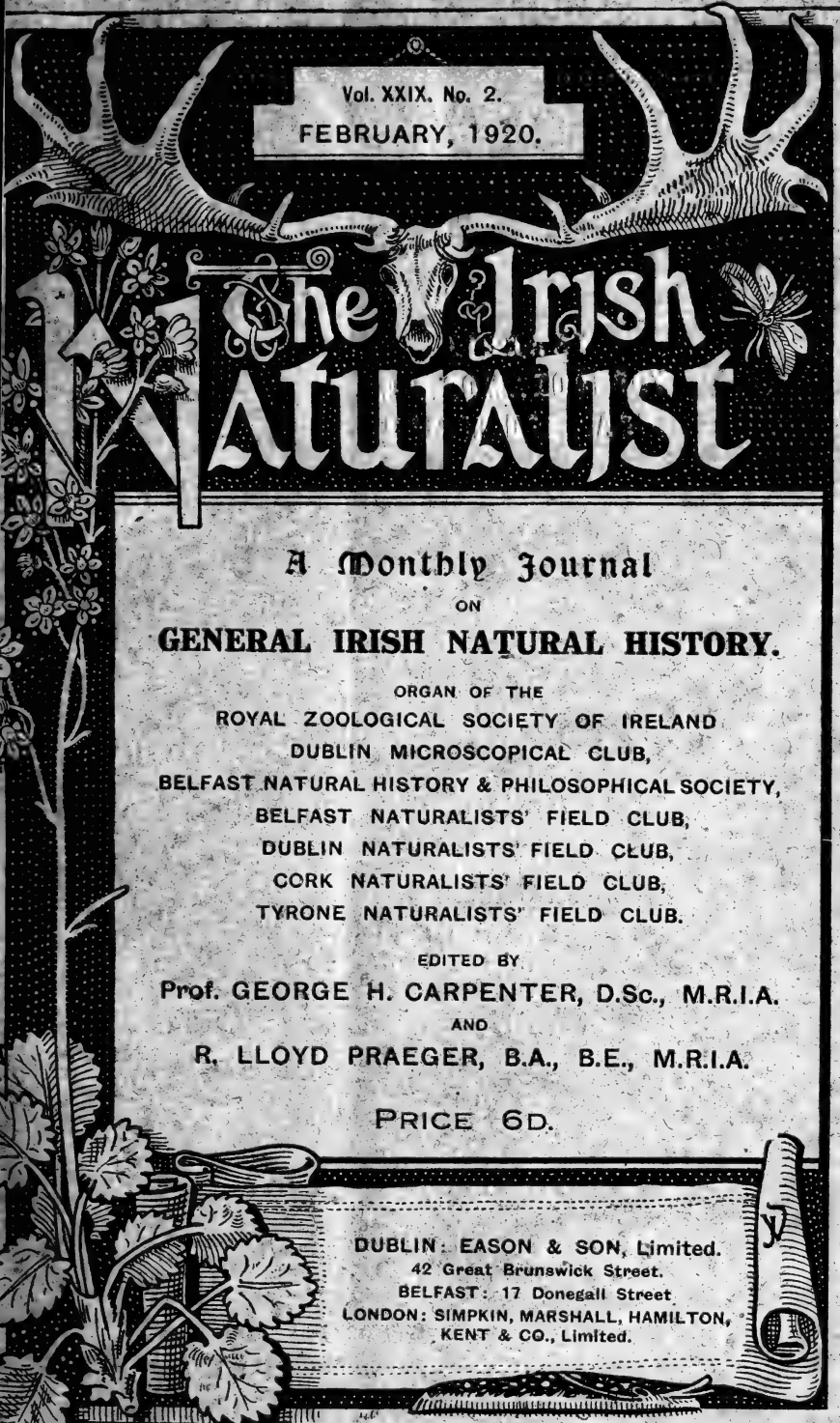
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AND
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THE MUSEUM, HULL;

AND

T. W. WOODHEAD, Ph.D., M.Sc., F.L.S., TECH. COLL.,
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SOME NOTES ON *ENANTHE CROCATATA*:
ITS CHARACTER AS A POISONOUS PLANT.

BY C. B. MOFFAT, B.A., M.R.I.A.

WHEN is a deadly poison wholesome food? A curious phase of this question—not outside the province of the *Irish Naturalist*—has been brought before me during the last two summers by one of the most notoriously deadly of our umbelliferous plants, the Hemlock Water-Dropwort (*Enanthe crocata*, Linn.).

It is scarcely necessary to say anything here as to the general reputation held by this plant, so common in many of our Irish rivers. Alike in its effects on cattle, horses, and human beings, it has frequently been shown to be one of the worst and speediest poisons in the flora of the British Isles. Dr. Christison, a noted expert on the subject, is quoted by Anne Pratt in her familiar little handbook, "The Poisonous, Noxious, and Suspected Plants of our Fields and Woods," as remarking of this species that "it seems to be the most energetic poison of the umbelliferous vegetables," and that "in none of the fatal cases known to him was life prolonged beyond three hours and a half after eating it, while in several instances death took place within an hour after." More recent writers—Cornevin, Holmes, and Long—are equally emphatic, and a careful summary of the opinions of these authorities in *Nature* for July 4th, 1918 (p. 354) shows that they all agree in pronouncing every part of the plant virulently poisonous.

Dr. Christison, however—as the writer in *Nature* points out—made the further discovery that in the vicinity of Edinburgh this species is, for some unknown reason, "devoid of toxic properties"; and thus it would appear that a field is open for local investigation—so far, of course, as this does not involve reckless "play with edged tools." Hitherto the subject seems to have escaped local inquiry. I assume that a statement in Wilson's "Rural Cyclopaedia" that *Enanthe crocata* has been found harmless in Scotland is merely an echo of Christison's finding. On the other hand,

the silence of the chief recent authorities with regard to that finding (remarked on in *Nature*) may mean that they are inclined to suspect some error in the matter.

My own observations on the subject are confined not merely to a single locality (Ballyhyland, Co. Wexford) but to a single stream—so small a stream that in most of our county maps it is left without a name, though Patrick Kennedy in his local story, "The Banks of the Boro," refers to it as "the sweet stream of Tubbergall." The fact that *Enanthe crocata* grows abundantly along great part of its course may be held by some practical people to detract a good deal from its sweetness; but what I wish to point out is that a quite contrary verdict would be given (if we could consult them) by the cattle feeding on its banks.

On the 27th of May, 1918, when passing through a field watered by this stream, I noticed that a rich growth of Water-Dropwort, which had a few days previously formed the main vegetation of the stream-bed for about 200 yards, was more than half eaten down. A herd of 13 milch cows (Shorthorns) were grazing in the field, and on watching for about ten minutes, I saw no fewer than six of these animals (one at a time) leave their grazing and march down to the stream to make a substantial meal of what remained of the *Enanthe*. Neglecting all other aquatic and water-side vegetation, the cows showed plainly that they repaired to the stream for no other purpose than to eat the Hemlock Water-Dropwort.

They ate not only the leaves and flowers (with which they began) but also the main stems down to within some nine inches of the surface of the water, where they generally left off, making, in fact, as neat a clearance as if a scythe had been at work; and I remembered that in former years, seeing the *Enanthe* similarly mown down in the same field, I had supposed that a scythe had actually been used to clear the harmful plant out of the cattle's way. Evidently, however, this was a mistake, and the cattle themselves had been eating the plant, summer after summer, in the same wholesale fashion as they were doing now. Yet no mysterious deaths had been the result.

Meanwhile, as the cows appeared none the worse, and most of the Dropwort was already eaten, I saw no use in disturbing them from their enjoyment of the remainder. On the next day I again saw several of them (including the oldest cow in the herd) feeding on the same plant, and I believe they all took turns at it. The summer passed, and no harm befel any of the animals.

Suspecting, from what I had seen, that the poisonous properties of *Ceananthe crocata* had been exaggerated, I wrote on the subject to Mr. R. J. Moss, who at once very obligingly sent me his Analyst's Report to the Royal Dublin Society for the previous year (1917), showing that in that year the deaths through poison of four cows in an Irish locality (not named) had been traced by him to this Water-Dropwort, the roots of which were found in their stomachs. Mr. Moss, however, pointed out that as these cows had eaten the roots of the plant—apparently torn up by a flood in the river—their fate left it still an open question whether the facts reported by me from Co. Wexford did not prove the green parts to be harmless. "Possibly," he added, "the fact that these green parts were eaten by the cattle when they had abundance of other food in their stomachs accounts for the apparently harmless character of the foliage." As the field in which the cattle were grazing had been meadow the year before, and as the summer of 1918 was one of exceptional forwardness as regards all sorts of vegetation, this last suggestion was certainly very well-timed and important—demanding fresh observation of the same plant in the same locality under different seasonal conditions.

In the summer of 1919 different conditions prevailed, the season being harsh, and all growth exceptionally backward. The land, too, had changed hands, and a different herd of cattle, practically strangers to the locality, were in possession of the field where I had seen the *Ceananthe* eaten down the year before. But the only difference that I could discover in the conduct of the cows to the *Ceananthe* was that they attacked it earlier in the backward season of 1919 than their predecessors had done in the forward season of 1918. On the afternoon of the 3rd of May I found

that they were already feasting on the plant, which in many parts of the stream had again been mowed down as with a scythe to near the surface of the water. By May 13th the Dropwort was nearly all eaten—a fortnight before the date on which I first saw the cows feeding upon it the year before. Probably the backwardness of the season had made them more hungry. But, like their predecessors, they scorned to touch any of the other plants that grew alongside the masses of Hemlock Water-Dropwort. Their whole energies were devoted to this deadly herb, as often as I saw any of them walk down to the stream.

An adjacent field higher up the stream, where cattle belonging to another farmer were grazing, was also kept under observation. The Water-Dropwort here grew much less profusely than in the field below. The cattle, however, found it out, and ate it down.

Thus three different herds of cows were found to make a regular practice of eating *Ænanthe crocata*, and not as a last resource, but as a favourite article of diet. Scarcity of grass, such as might have been pleaded as an excuse for their conduct in the harsh summer of 1919, was certainly not the cause of their similar behaviour in the forward May of 1918. On the other hand, the suggestion of surfeited stomachs, which Mr. Moss very plausibly put forward in 1918 as a possible explanation of the poison's want of effect, would evidently not answer at a time of general shortage of grass like the spring of 1919. Again, the fact that so many as three herds showed the same immunity, after feeding with equal relish on the same ill-reputed plant, seems to me to put completely out of court the element of mere chance. *

That cows are not, as a rule, so wanting in the instinct of self-preservation as to feed systematically on plants likely to cause death will, I think, be admitted by most observers. The true Hemlock (*Conium maculatum*) is often suffered by Co. Wexford farmers to grow in seemingly dangerous abundance in fields where cattle are constantly pastured; but, as a rule, no damage is sustained, because the animals leave the deadly plant severely alone. Some old pasture ground about Courtnacuddy—two miles from Ballyhyland—is a stronghold of this species.

It is true that in Mr. Moss's Report for 1911 a pretty conclusive case is made out against the Water-Hemlock (*Cicuta virosa*) as having caused the deaths of nine out of a total number of ten head of cattle in that year in a field in the neighbourhood of Clones. But here, again, the circumstances seem to indicate that the plant had been uprooted during a flood and was found floating in water, in which situation its character would be less perceptible either to taste or smell than when it was growing; and in reporting the case Mr. Moss quotes Cornevin as expressly stating that cattle generally refrain from eating this very poisonous plant—a plant that is happily little known in the southern half of Ireland.

I do not, therefore, see how my facts can be reconciled with any other view than that which regards the green parts of *Ænanthe crocata* as free from poisonous properties in (at least) that part of County Wexford in which my notes have been taken. In the coming summer I hope that other observers will notice the treatment accorded to this species by cattle in other districts. A ready clue can be obtained by glancing at any stream where the Dropwort grows within reach of cattle, for the remains of the plants that have been eaten present a conspicuous appearance—suggestive (as before remarked) of the work of a scythe some six or nine inches above the water.

The juice contained in Irish plants of this species seems also to call for attention. Mr. Moss informs me that the juice of my Wexford plants did not correspond with either Sowerby's or Cornevin's descriptions, which were presumably based on English and French specimens. Sowerby, as Mr. Moss kindly quotes him to me, says, "The whole herb contains a fetid yellow juice;" while Cornevin writes that "L'Ænanthe safranée contient dans toutes ses parties, et plus particulièrement dans sa racine, un suc laiteux, blanchâtre, extrêmement vénéneux, qui, en se desséchant, prend une couleur jaune safranée." These descriptions do not correspond perfectly even with one another, but Sowerby's may have been "telescoped" into too much brevity. A description of the juice based on Irish specimens ought to be of interest, but I do not know that any has been published.

Before concluding, I must quote from a letter which my deeply-lamented friend, the late Nathaniel Colgan, wrote to me on the subject of this plant's general reputation in the summer of 1918:—

“ Your investigations into the properties of *Ænanthe crocata* are very interesting. Threlkeld enlarges a good deal on this plant, quoting from the Phil. Trans. Dr. Vaughan's classical instance, if I may so call it, of the poisoning of 5 out of 8 lads at Clonmel who ate the roots. Vaughan in his account, as quoted by Threlkeld, says, ‘ A Dutchman was poisoned by the Tops Boiled in his Pottage, which he took for *Apium palustre*.’ So Dutchmen are more sensitive than Ballyhyland cattle. Threlkeld himself says of the plant ‘ The very Aspect of it seems to me always grim and dismal, the Savour unpleasant. I have seen great plenty of it in Cumberland, where our Country People do call it Dead Tongue, and they use it when boiled like a Poultice to the galled Backs of their Horses.’ There is evidently a lot of ancient lore connected with the plant.”

Opinions may differ as to the unpleasantness of the plant's “ aspect ” and “ savour ; ” but I think its character as a favourite food of cattle raises points on which an agreed judgment is clearly desirable. Giraldus Cambrensis might have found the case of *Ænanthe crocata* a better proof than many that he brought forward of the innate hostility of the soil of Ireland to poison.

Dublin.

FIVE SPECIES OF ICHNEUMONIDAE NEW TO
THE BRITANNIC LIST.

BY REV. W. F. JOHNSON, M.A., F.E.S., M.R.I.A.

AMONG some *Ichneumonidae* sent by me to Dr. A. Roman, the eminent Swedish hymenopterist, were the following five species which do not appear to have been previously recorded from the British Isles, viz. :—

Ichneumon amphibolus, Kriech.

Phygadeuon oppositus, Thomson.

Hemiteles fumipennis, Thomson.

Cryptus titubator, Thunberg.

Hypamblys buccatus, Holmgren.

Ichneumon amphibolus, two females, one taken at Portnoo, Co. Donegal, among grass and vetches in a small meadow on the cliff, the other at Poyntzpass in one of my fields among herbage. In each case the insect was taken in September, and curiously enough on the same day, viz., 17th, though at a year's interval, the Portnoo specimen being taken in 1918, the Poyntzpass one in 1919. It is near to *I. stigmatorius* Zett., but differs according to Dr. Roman¹ in the following points—the antennae are stouter, with the basal half not rufous, the areola is subelongate, the anterior femora always, and the 3rd segment of the abdomen very often black. In my specimens the 3rd segment is black.

Phygadeuon oppositus, a female taken at Portnoo in September among willows on the roadside. It belongs to the *fumator* group.

Hemiteles fumipennis, a female taken at Portnoo at the same time and place as *I. amphibolus*. I have not got Thomson's descriptions of these two species, so I am unable to indicate the points of distinction from their allies.

Cryptus titubator, a male taken at Portnoo in June among willows on the roadside. Dr. Roman tells me that it is a small race of *C. albatorius* Vill. and was called *infumatus* by Thomson.

¹ *Entom. Tidskr.*, 1904, p. 116.

Hyphamblys buccatus, a female taken in May amongst herbage on the side of the road between my house and Poyntzpass. This seems to be a rare species as Dr. Roman says it is not represented in the Swedish collection in the Riksmuseets though he has specimens in his own collection.

I have to thank Dr. Roman very much for his great kindness in determining these insects for me and for the information which he has given concerning them.

Poyntzpass.

IRISH SOCIETIES.

DUBLIN MICROSCOPICAL CLUB.

DECEMBER 10.—The Club met at Leinster House. W. F. GUNN exhibited a slide of a transverse section of the peduncle of the Yellow Water-Lily (*Nuphar lutea*) showing idioblasts in the cells of the pith. These idioblasts are of a compound stellate or star shape and are studded all over with minute tubercles. The section was double stained.

H. A. LAFFERTY exhibited microscopic preparations showing the sclerotia of a species of *Botrytis* on flax seeds. It is believed that this fungus causes a diseased condition of the flax plant in the field, and investigations are in progress which, when completed, will elucidate this important point.

DR. G. H. PETHYBRIDGE showed microscopical preparations of the fungus causing the so-called American Black Rot of the apple, *Sphaeropsis malorum* Berk. The material was received in September from Co. Kilkenny in the form of three apples suffering from a form of rot, quite unusual in this country, which had in each case started from the eye of the fruit. In the United States of America, and particularly in the State of New York, this fungus does extensive damage in the apple orchards. Not only does it attack the fruit but it is also the cause of a leaf-spot disease as well as of a twig and branch canker. In England the fungus has been recorded as occurring on apple leaves and twigs, but up to the present it does not appear to have been observed as a cause of fruit-rot. In the present case only three fruits were found to be attacked and no signs of foliage or twig infection could be found. It is to be hoped that the climatic conditions of this country will be such as not to favour the spread of this serious disease. Those who are interested will find a complete account of it in Bulletin 379 of the Cornell University Agricultural Experiment Station by Prof. L. R. Hesler, who has recently discovered that the perfect stage of the fungus is identical with *Phyalospora Cydoniae* Arnaud.

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ON
GENERAL IRISH NATURAL HISTORY.

ORGAN OF THE
ROYAL ZOOLOGICAL SOCIETY OF IRELAND
DUBLIN MICROSCOPICAL CLUB,
BELFAST NATURAL HISTORY & PHILOSOPHICAL SOCIETY,
BELFAST NATURALISTS' FIELD CLUB,
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Prof. GEORGE H. CARPENTER, D.Sc., M.R.I.A.
AND
R. LLOYD PRAEGER, B.A., B.E., M.R.I.A.

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A Monthly Illustrated Journal of

NATURAL HISTORY FOR THE NORTH OF ENGLAND.

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THE MUSEUM, HULL;

AND

T. W. WOODHEAD, Ph.D., M.Sc., F.L.S., TECH. COLL.,

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WITH THE ASSISTANCE AS REFEREES IN SPECIAL DEPARTMENTS OF

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THE COMMON WREN.

BY E. P. BUTTERFIELD.

THERE are many points in the life-history of the Wren which have not yet been cleared up by naturalists, and as Mr. J. P. Burkitt¹ invites the observations of other naturalists on these subjects I gladly offer my contribution relative to some of the points which he alludes to. Some of the observations may seem to differ from those of Mr. Burkitt, but it is a well-known fact that birds differ, and differ widely, even in some of their habits in different parts of Britain. Contrary to what one might expect, the Wren is an earlier breeder in north-west Yorkshire than in Ireland, and the relative proportion of males in Ireland much higher than here. With regard to the building of "cock-nests," it is possible—it might indeed be probable—that these are built exclusively by the cock bird, but nests of this species, other than cock-nests, I think are built mainly by the female; and is Mr. Burkitt quite sure that the male bird takes no part in feeding the young, until these have left the nest? If so, the habit is quite different from those which nest here. The controversy round which most interest centres in the nesting habits of the Wren is the use or uses to which the cock-nests are put. As far as my own experience is any guide, I find the chief use of such nests to be roosting and sleeping places, but later I have found such cock-nests lined with feathers and used for breeding purposes. Only last year (1919) on Blackhills I found a nest, in the root of a tree which had been blown down, with eggs—two or three, I forget which, which were taken, and soon after, on going to look at a cock-nest which was built near I found it to contain eggs, and presumed the eggs to have been laid by the female whose eggs had been taken from the nest in the immediate neighbourhood. Another nest with eggs built in a bank beside the beck which runs close to this village, a few years ago, was taken by some boys, who had caught the female on the nest. There was a hen-cote near the nest, within twenty yards, and the boys took nest and

¹ *Irish Naturalist*, 1919, p. 85.

eggs and the female—and boy-like plucked the wings of the female, so as to prevent its escape, and were determined to make the female sit out the eggs in the hen-cote, so after having found what they considered a suitable nesting place in the cote, the boys left, but when they visited the nest in a few days, imagine their surprise, the bird was not to be found in the cote, but on going to a cock-nest a short distance away, they found the female sitting upon either one or more eggs. So it is quite evident that cock-nests in some instances are utilised for breeding purposes in certain contingencies.

I have also known cock-nests to be used for roosting purposes by fledged young which have been reared in other nests, and sometimes a cock-nest may be used exclusively by a male bird one season and the following year refurbished and utilised for breeding purposes. As far as this district is concerned, I very seldom find more than one cock-nest near the nest used by the female for rearing its young; and never found five or six which were used by the male bird at the same time. Naturalists have recorded that occasionally as many as fifteen to seventeen eggs have been found in the nest of the Wren; if so, I should be inclined to believe they were the produce of two females.

A few years ago I had a poultry-run near this village through which a stream runs; at the extremities of the north and south end of the run is an arched bridge, in the crevices of which the Wren often built its nest. The nests were domeless, and if I had not seen the old birds I could easily have mistaken the nest for that of a Tit. I have often found Wren nests built in walls where perhaps a stone has been removed, but such nests have always had a dome. Two or three years ago I found a cock-nest built at the base of a nest of the Blackbird, which was used during the winter as a sleeping place. I have known the Wren to utilise the nest of a Whitethroat, and some writers say that any slight disturbance of the nest will cause the owners to forsake, but this is contrary to my experience. The severe winter of 1879-80 was the cause of high mortality amongst this species.

Wilsden, Bradford.

NATHANIEL COLGAN.

AN APPRECIATION.

MAY I be allowed to say with how much real pleasure and interest I read Mr. Praeger's account of Nathaniel Colgan in the December number of the *Irish Naturalist*. Colgan was one of the finest minds and most perfect characters I ever knew. He was a very dear friend of mine, and I feel much honoured at being connected with him in friendship and comradeship in the notice of his life.

Together, he and I, in our young days, explored nearly all the mountain summits and high ridges of Ireland. We also did some climbing in other countries : in the Pyrenees, Alps, and elsewhere. I look back to those times with the keenest delight. He was the most lovable of companions. His keen intellect, wonderfully wide reading, subtle irony, and felicity of expression threw light on everything, and made the commonest experiences enjoyable. He ought to have been a great man, famous in the world. It was only his strange self-suppression and too great modesty which prevented it. He had, I think, none of the ordinary ambitions, but that made him all the more delightful. He had a very large knowledge of European languages and literature. He was not easy to know, but the knowledge was well worth having.

CHARLES F. DUBLIN.

The Palace, Dublin.

OBITUARY.

PROFESSOR GEORGE MACLOSKIE.

In *Nature* of 22nd January the death is recorded of George Macloskie, professor of biology in Princeton University, New Jersey, U.S.A., in the eighty-fifth year of his age. He was born at Castledawson, Co. Tyrone, and educated at Queen's College, Belfast. He was called to Princeton in 1875. His writings dealt chiefly with insects and plants, and he is best known for his work on the Patagonian flora,

REVIEWS.

FRESHWATER PROTOZOA.

The British Freshwater Rhizopoda and Heliozoa. By JAMES CASH and GEORGE HERBERT WAILES, F.L.S., assisted by JOHN HOPKINSON, F.L.S. Vol. iv. Supplement to the Rhizopoda by G. H. Wailes and Bibliography by John Hopkinson. London: (Ray Society). 1919. Pp. xii. + 130. Pls. 58-63.

The three volumes of this monograph already published deal with the amoeboid and conchuline Rhizopoda of the Britannic fauna, while the fifth (now in preparation) will contain an account of the Heliozoa. In the present volume the authors enumerate and describe those genera and species which have been added to our known fauna during the publication of the earlier volumes. The number of genera included is thus raised from fifty to fifty-eight, and six of the species described are new to science. The figures, whether plain or coloured, are beautifully drawn and reproduced, and the student of these interesting micro-organisms will find in Mr. Hopkinson's bibliography a valuable guide to the extensive literature. Irish writers will notice the inclusion of Archer's classical papers of the last century, Bailey Butler's chapter in the Dublin British Association Guide of 1908, and Wailes and Penard's memoir in the R.I.A. Clare Island Survey, which is the source of many of the records contained in this volume. An introductory note on the manner in which various species of the Conchulina construct their tests of secreted or collected material is fascinating and all too short.

G. H. C.

SCIENTIFIC RECREATIONS.

Pastimes for the Nature Lover. By STANLEY C. JOHNSON, D.Sc. London: Holden and Hardingham, Ltd. Pp. 136. Price, 1s. net.

This little book contains directions for a variety of pursuits one or more of which might appeal to the "curious." Here we may learn how to attract birds to the garden and to feed them in winter, how to set up a small freshwater or marine aquarium, how to collect and preserve shells, or how to photograph leaves and insect-wings by contact-printing without camera. The directions are clear and generally trustworthy, but the illustrative figures are crudely drawn and sometimes gravely misleading, as for example, that of the butterfly (fig. 46) whose hindwings are attached along the whole length of the abdomen.

G. H. C.

NOTES.

ZOOLOGY.

Necrobia rufipes in Belfast.

In November Mr. James Orr, of Garfield Street, Belfast, sent me some little blue beetles which on examination I found to be *Necrobia rufipes* De G. In reply to inquiries, Mr. Orr very kindly informs me that the beetles were found in a consignment of figs, several boxes of which had gone bad. The gentleman who had to see to the destruction of these bad figs noticed the beetles and passed them on to Mr. Orr. Some of the figs were hard and brittle, and others a mass of powder. No larvae were noticed, but it was plain the beetles had been feeding on the figs. This is a somewhat remarkable circumstance as these beetles are usually feeders on carrion or skins.

W. F. JOHNSON.

Poyntzpass.

Rhyssa persuasoria in Ireland.

The following are a few additions to the Irish localities mentioned by Rev. W. F. Johnson in his interesting paper on the habits of *Rhyssa persuasoria* (*Irish Naturalist*, October, 1919). I first met with this fine ichneumon fly in July, 1906, when a female was captured, flying to a felled pine tree in the Devil's Glen, Co. Wicklow. It has also been reported from Avondale in the same county (*British Association Handbook*, Dublin, 1908). When the Dublin Field Club visited Clongoweswood in May, 1912, I saw many specimens flying about a rustic summer house the posts of which were riddled by the borings of the Great Pine Sawfly (*Sirex gigas*). The males, which are much rarer than the females, were captured on this occasion. We have also in the Museum collection some female-specimens caught at Mountrath in Queen's County, these vary greatly in size, measuring from about 20 to 35 millimetres in length. In Co. Dublin it has been found by Rev. E. O'Leary at Orlagh College, Rathfarnham, on 3rd July, 1908.

J. N. HALBERT.

National Museum, Dublin.

Age of a Plaice.

It is not often that an opportunity occurs to prove the age of a fish. Vague estimates have been made as to the great age reached by Pike and Carp which are thought by some authorities to reach a hundred years. But we know nothing definite about the age of fish. Some species do not live more than four years, while others die at a still earlier age. Now comes to us from the English Ministry of Agriculture and Fisheries the information that the Plaice may reach the age of sixteen years, a fact ascertained by means of an identification disc attached to a young fish in 1904, the specimen having now been recaptured in the North Sea,

Bibliography of British Ornithology.

We have received the first two parts of the "Bibliography of British Ornithology" prepared by W. H. Mullens, H. Kirke Swann, and Rev. F. C. R. Jourdain. It includes all books, papers and notes dealing with the subject down to the end of 1918. The entries are arranged under counties, and in each county list by order of date. The work, which will be completed in six bi-monthly parts, ought to prove an invaluable book of reference to the student of birds. We hope to notice it more fully on completion.

New Book on Birds—A Correction.

Looking again at the coloured plate of the Crossbill ("Practical Handbook of British Birds," p. 84) I see that the cone on which the bird is feeding is not meant to be figured as "still growing on the tree," as I erroneously stated in my review. It is held by the bird's foot in a position that looks superficially like that of a growing cone, and very unlike any position in which I have seen a cone held by a Crossbill; but this does not justify my too hasty judgment of the artist's meaning.

Dublin.

C. B. MOFFAT.

Velvet Scoter and other Birds at Mutton Island, Co. Galway.

Mr. J. Glanville records, amongst other notes, the following birds at Mutton Island during the year:—One Iceland Gull on the island, on following dates: January 4th, February 3rd, March 2nd, and May 18th. One Black-tailed Godwit on the island, on following dates: March 12th and September 6th. One Velvet Scoter seen near the island on August 2nd. Seven nests of the Sandwich Tern, and one nest of the Little Tern were found on the island.

W. RUTLEDGE.

Hollymount, Co. Mayo.

Bewick's Swan in Co. Down.

With reference to Rev. R. N. Morrison's note *re* above (p. 12 *ante*) I may add that the adult Bewick's Swan was shot on 13th December. The two juvenile birds remained on McKee's Dam till a few days after Christmas, when they disappeared. During their stay I was able in good light to examine their bills and found that the portion which is yellow in the adult was flesh-coloured. This is in conformity with MacGillivray's description. In the last week in December a Whooper Swan, *Cygnus musicus*, was displayed in the shop of a Belfast poulterer. This bird, I was informed, had been obtained in the neighbourhood of Portaferry, Co. Down.

NEVIN H. FOSTER.

Hillsborough, Co. Down.

Bramblings in North-east Cork.

On the 5th December, 1919, a friend living near here sent me a Brambling for identification. It had been caught by a cat that morning, but was rescued, though it died shortly afterwards. He informed me that he had noticed a few similar birds consorting with Chaffinches for about a week previous in his place. I heard of other "dark coloured Chaffinches" seen in other places around here but did not actually meet with any myself until the 9th January, 1920, when I came on a flock of at least fifty feeding with an immense flock of Chaffinches on the ground under some beech trees close to the town of Fermoy. The Bramblings were all on the outskirts of the flock, at least I failed to distinguish any in amongst the Chaffinches. They were quite tame, rising from the ground as I came up and perching in the low branches over my head. I have never seen any about here before, though I have met with odd birds in other parts of the country, and they were quite unknown to my friend who is a very keen observer of bird life. As they appear to be unusually numerous in parts of England this winter, it may be of interest to note their presence also in this southern county.

Fermoy.

W. M. ABBOTT.

The New Irish Whale.—A Correction.

I should like to correct an error in a statement which I made in my note on the new Irish Whale recently described by Dr. S. F. Harmer; this note appeared in the last number of the *Irish Naturalist* for 1919 (vol. xxviii., pp. 130-1). The statement which needs correction is with reference to the skull (now in the Museum of University College, Galway) of a whale stranded on one of the Aran Islands. It was not identified by Dr. Harmer as belonging to the new Irish species (*Mesoplodon mirus*), as I stated by mistake, but to *Ziphius cavirostris*.

R. F. SCHARFF.

National Museum, Dublin.

IRISH SOCIETIES.

ROYAL ZOOLOGICAL SOCIETY.

Recent gifts include two Rhesus Monkeys from Mr. J. D. Hamlyn, a Fox from Mrs. Dixon, three Badgers from Mr. R. H. Toner, two Belgian Hares from Miss Bradshaw, Chaffinches and Linnets and a Barn Owl from Rev. W. W. Despard, Linnets from Dr. Cosgrave, a Grey Parrot from Mrs. Rhodes, a Many-coloured Parrakeet from Mr. C. C. Sloane,

and a Roseate Cockatoo from Mrs. Browne. A Genet has been received on deposit. A Guinea Baboon, a Bonnet Monkey, two Ringtail Coatis, a Wolf, thirty Guinea-pigs, two Rheas, two Emus, a pair of Axolotls, and six Spotted Salamanders have been purchased. The Fish Hatchery is now again working, having been well stocked with Trout and Salmon eggs.

DUBLIN MICROSCOPICAL CLUB.

JANUARY 14.—The Club met at Leinster House, the President (W. F. GUNN) in the chair.

DR. G. H. PETHYBRIDGE exhibited the teleutospore stage of the rust fungus *Cronartium vibicola* F. de Waldh. on leaves of Black Currant, received from a nursery in Wexford. As is now well known this is one of the stages in the life-cycle of the fungus which causes the so-called "Blister Rust" of the White and other five-leaved Pines. The spermogonia and aecidia are produced on the stems and branches of these trees; and in this stage the fungus was known formerly as *Peridermium Strobi* Kleb. The fungus was first found in England in 1892, but no record of its appearance in Ireland has been traced up to the present. There were no White Pine trees in or near the nursery from which the affected leaves came, and a specimen tree of *Pinus excelsa* in the nursery showed no signs of Blister Rust. Up to the present there appears to be no record of the presence of *Peridermium Strobi* in Ireland. This rust has, in recent years, reached North America, and the danger to the extensive forests of White Pine in Canada and the United States is exceedingly menacing.

FEBRUARY 11.—The Club met at Leinster House.

W. F. GUNN (President), in the chair, exhibited ripe sporangia of the myxomycetous fungus *Arcyria ferruginea* showing the elastic capillitium. The species has only been recorded from a few localities in Ireland, but it will probably be found to be more widely distributed than present records indicate.

H. A. LAFFERTY exhibited microscopic preparations demonstrating the method of seed infection in Flax "Browning" disease (*Gloeosporium* sp.). The fungus enters the seed-boll either by way of the diseased stalk or directly through the wall of the boll itself; it permeates the tissues of the placenta and by traversing the short funicle reaches the seed where it becomes localised in the outer cells of the testa.

PROF. J. A. SCOTT showed a very effective method of dark ground illumination.

PROF. G. H. CARPENTER showed a section through the ovary of a noctuid moth in which the nutrient cells, with their remarkable branched nuclei, situated between the ova were clearly demonstrated.

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CONTRIBUTIONS (Articles or Notes) on all branches of Irish Natural History are invited. Articles must reach the Editors, on or before the 10th of the Month, for insertion in the succeeding number. Short Notes will be inserted, if space permit, if received before the 15th of the Month. Please address to one of the Editors and not to the Publishers, and do not write on postcards.

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G. H. CARPENTER,
Royal College of Science, Dublin

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AND
R. LLOYD PRAEGER, B.A., B.E., M.R.I.A.

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THE MUSEUM, HULL;

AND

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SOME NEW AND RARE IRISH SPIDERS.

BY DENIS R. PACK-BERESFORD, M.R.I.A.

IN the *Irish Naturalist* for 1911 I published a list of New Irish Spiders. There were additions to the "Supplementary List of Spiders of Ireland" published in the *Proceedings* of the Royal Irish Academy in March, 1909, this list being a supplement to Prof. Carpenter's "Spiders of Ireland," published in 1898. Since 1911 I have published one or two notes on rare species that have turned up. Very little collecting has been done during the past strenuous years of war, but as there are four species new to the Irish List to be recorded, I have also added a few notes on species that have not yet been recorded in the *Irish Naturalist*, as also on some previous records of which the naming has to be altered.

***Clubiona juvenis* Simon.**

LEINSTER.

Three females of this rare species were taken on the sandhills at Arklow Co. Wicklow, by Mr. R. L. Pack-Beresford, in June, 1911, and a further hunt in the same locality in June, 1913, produced several more adults of both sexes and numbers of immature specimens.

This is the first capture of this species in the British Isles; it was recorded in the *Irish Naturalist* of November, 1913. It is recorded by M. Simon from three localities in France and from Martigny in Switzerland.

***Tegenaria pagana* C.K.**

LEINSTER.

Early in January, 1914, I collected some *Tegenarias* in an outhouse at Abbotstown, Castleknock, Co. Dublin. These were apparently rather large specimens of *T. Derhamii*, and I merely collected them for the purpose of record. On examination, however, they proved to be referable to the above very distinct species. Both male and female adults were taken.

T. pagana C.K. has not yet occurred in Great Britain, and its being found so far only in a house makes it doubtful if it is more than an introduced species. On the Continent it occurs in the Pyrenees, the South of France and Corsica.

Hahnia helveola E.S.

LEINSTER.

A single male taken in August, 1913, at Howth, amongst the roots of grass on the cliffs, and a single female taken in June, 1914, on the Malahide Estuary, both places being in Co. Dublin, are the first Irish records of this spider.

It ranges all over England and Wales (though it is nowhere a common species), but apparently not Scotland.

On the Continent it has been taken in France, Germany, and Switzerland.

Genus **EPISINUS**.

The nomenclature of the genus *Episinus* seems to have got into almost inextricable confusion. Prof. Kulczynski having made two attempts to unravel the puzzle, has in his last paper on the subject ("Fragmenta Arachnologica," iii., 1905) come to the conclusion that there are four European species of *Episinus* which he names as follows:—

<i>E. angulatus</i> Bl.	Synonyms—	<i>E. truncatus</i> Bosenberg, de Lessert, Kulcz, Camb.
<i>E. truncatus</i> , Latr :	„	<i>E. lugubris</i> E. Simon, Bosenberg, de Lessert, Kulcz.
<i>E. algiricus</i> Lucas :	„	<i>E. truncatus</i> E. Simon.
<i>E. maculipes</i> Cav.		

The first two of these species, *i.e.*, *angulatus* Bl. and *truncatus* Latr. alone inhabit the British Isles, but unfortunately, the species heretofore known as *E. truncatus* becomes *E. angulatus* Bl., while the species we have known as *E. lugubris* Simon becomes *E. truncatus* Latr.

Episinus angulatus Bl.

E. truncatus O. P. Camb.

All previous records of *Episinus truncatus* Camb., with the single exception given below, must now be known under this name.

Episinus truncatus Latr.

E. lugubris Sim.

LEINSTER.

I took a single female of this species, which is the only Irish record, at Kilcarrig, on the banks of the River Slaney. It was named for me by the late Rev. O. P. Cambridge, so must, owing to his great authority be recorded, but Dr. A. R. Jackson is doubtful about its specific difference from other specimens named as *E. angulatus* Bl.

Theridion formosum Clerk.*T. sisyphium* Walck., Bl. Spid. G. B. & I.

LEINSTER.

In August, 1912, I took a single female of this rather rare species in the woods on the banks of the Barrow river at Borris, Co. Carlow.

In England I have taken it in Northamptonshire, and it has been found in Cambridgeshire, Lincolnshire and Yorkshire, while Mr. Cambridge records it from Dorset and Hampshire, having found it most frequent in the New Forest.

It ranges all over the Continent of Europe, and is also found in China (Simon).

Steatoda bipunctata L.

LEINSTER.

I took a single female of this species in May, 1914, in the Zoological Gardens in Dublin.

It is curious that this species which is so widely distributed, has not been met with before in Ireland. Mr. O. P. Cambridge says it is generally distributed in England, and M. Simon says it extends over all Europe. It is nearly always a house spider inhabiting old outbuildings.

Pedanostethus arundinetis Camb.

CONNAUGHT.

This species I recorded in the Clare Island Survey published in December, 1911, as then new to the Irish list. I took several females in July, 1909, both at Mulranny, Co. Mayo, and at Recess, Co. Galway. It has been taken at five places in Great Britain ranging from Dorset to Paisley.

On the Continent it has been found in Sweden, Holland, Bavaria, and Hungary.

Lepthyphantes nebulosus Sund.*Linyphia vivax* Bl.

ULSTER.

Mr. J. A. Sidney Stendall reports the capture of a single male and a single female of this species, in outhouses in Belfast (Co. Antrim) in his paper on "Ulster Spiders collected in 1915," published in the *Proceedings, Belfast Nat. Hist. and Phil. Soc.*, 1915-16. This is the first record of this spider in Ireland.

In England it is recorded by the Rev. O. P. Cambridge from outhouses near Manchester, Glasgow, and Bath, and from Hertfordshire, while Dr. A. R. Jackson took it in Glamorgan in similar situations.

It is very rare in France having been found in one locality only, but M. Simon says it is common in the north of Europe, in Prussia, Sweden and Siberia. It is also found in the United States.

Genus **PORRHOMMA.**

Dr. A. R. Jackson has recently made an exhaustive study of the Genus *Porrhomma*, with the result that many of the records already published must be readjusted, as appears in the notes on the various species which follow.

[***Porrhomma microphthalma*** Camb.]

P. incerta Camb.

P. decens Camb.

P. Meadii F. Camb.

Dr. Jackson has looked through all the available specimens of this spider from Ireland, and finds that they must all be referred to other species, most of them being referable to *P. Thorellii* Herman. The name *Porrhomma microphthalma* therefore disappears from the Irish list.

Porrhomma Thorellii Herman.

ULSTER. LEINSTER.

The spiders recorded by Prof. Carpenter as *P. microphthalma* Camb., which were taken by Mr. Jameson in the Marble Arch Caves near Enniskillen, Co. Fermanagh, prove on examination by Dr. Jackson to be *P. Thorellii*, as are also all the specimens of this genus taken on Lambay Island and recorded in the *Irish Naturalist*, vol. xvi., p. 63, under the names of *P. microphthalma*, Camb., and *P. errans* Bl.

In my supplementary list of the Spiders of Ireland (*Proc. R. I. Academy*, 1909) I recorded *P. microphthalma* from Fenagh, Co. Carlow, one of these specimens proves to be *P. Thorellii*, whilst the other belongs to the next species, *P. Campbellii* F. Camb.

Finally three females which I took at Ballycastle, Co. Antrim, prove to be of this species.

P. Thorellii had not previously been recorded from Ireland. Dr. Jackson records it from Yorkshire, Northumberland, Cumberland, Cheddar Cave and coalpits in Durham, some of the records also are from cellars.

Porrhomma Campbellii F. Camb.

LEINSTER.

A single female of those taken at Fenagh, Co. Carlow, proves to be of this species, and was kindly named for me by Dr. A. R. Jackson. This is at present the only Irish record of this spider.

Dr. Jackson records this species from Hertfordshire, Hampshire, and Northumberland.

Diplocephalus castaneipes Simon.

ULSTER. CONNAUGHT. LEINSTER.

The capture of this very rare species in Ireland was recorded by me in the Clare Island Survey. A female was taken on the island by Mr. H. Wallis Kew in June, 1910, and identified by Dr. A. R. Jackson.

Since then I have found five specimens, all females, preserved in the National Museum from Rathmullen, Co. Donegal, but with no record as to when or by whom taken. I have also taken a single female, at Kiltcarry, Co. Carlow, in April, 1914, on the banks of the River Slaney.

The only locality known for this spider in Great Britain is on Snowdon, where it was discovered by Dr. Jackson; on the Continent it has occurred only in two mountainous places in Southern France.

Metopobactrus prominulus Camb.

ULSTER. CONNAUGHT.

In July, 1909, I took a single female of this species at Malranny, Co. Mayo, which Dr. Jackson was kind enough to identify for me. At that time it was new to the Irish list and was so recorded in the Clare Island Survey (*Proc. R. Irish Acad.*). Since that date Mr. J. A. Sidney Stendall has recorded the capture of a single male at Carr's Glen, Co. Antrim.

It is a widely distributed species in England ranging from Dorset to Northumberland, but does not seem to have occurred in Scotland.

In Europe it is recorded from France, Bavaria, Nassau and Silesia.

Fenagh House, Bagenalstown.

NOTES.**BOTANY.*****Oenanthe crocata.***

Mr. C. B. Moffat's "Notes on *Oenanthe crocata*, its character as a poisonous plant" (*supra*, p. 13), recalls an incident which I found difficult to have explained. One day, when sketching on the banks of a stream near Dripsey, Co. Cork, where a quantity of the Hemlock Water-Dropwort grew, I noticed a milch cow which was feeding in the adjoining field, suddenly stop grazing and run in an excited state to the bank, where it ravenously devoured the tops of the plant; then quietly walk back and resume feeding on the grass. Some time afterwards, perhaps fifteen minutes, it repeated the same act. The only explanation which occurred to me was, that the animal had eaten some poisonous substance on the land and its instinct suggested the plant as an antidote.

M. HOLLAND.

ZOOLOGY.

Longitarsus castaneus, Duft.—a Correction.

On re-examining the specimen recorded by me under this name in the *Irish Naturalist*, vol. xx., 1911, p. 139, I find that it is an example of the common *L. luridus*, Scop.

G. W. NICHOLSON.

London.

COLEOPTERA FROM COUNTY CAVAN.

BY G. W. NICHOLSON, M.D.

I FIND that I have omitted to record the capture, at Cloverhill, of the following species, three of which are additions to the Irish list:—

Atheta basicornis, Rey. (nec *autumnalis*, Er.).—A pair under pine bark, September 14, 1913.

A. pallidicornis, Th. (*humeralis*, Kr.).—A female at the sap of a wounded oak, July 1, 1916. As this species, according to Canon Fowler, is very rare, and as I take it commonly in Herts, Cambs, and Essex, I sent some of my specimens, including the Irish one, to Dr. Cameron for confirmation. This he has kindly done. *A. pallidicornis* is a somewhat brightly coloured insect, whose elytra are reddish with dark scutellary and marginal patches. It differs from all the species of the sub-genus *Atheta*, s. str., except *sodalis*, Er. (whose wing cases are of a uniform dark brown tint) in the marked sinuation of the posterior angles of the elytra.

Calodera riparia, Er.—One specimen in damp moss, September 19, 1918.

Pterostichus aterrimus, Pk.—On August 24, 1918, I at last found another female of this species, under a piece of wood on the mud, close to where I had caught one in 1913 (*Irish Naturalist*, 1914, xxiii., p. 68).

Agaricochara laevicollis, Kr.—This recent addition to the Irish list (Bullock, *Irish Naturalist*, 1914, xxiii., p. 105) was turned up sparingly in a *Polyporus* on September 13, 1913.

Oxford and Cambridge Club, London, S.W.

IRISH SOCIETIES.

DUBLIN MICROSCOPICAL CLUB.

MARCH 10.—The Club met at Leinster House.

DR. G. H. PETHYBRIDGE exhibited spores, both in a resting and in a germinating condition, of a smut fungus which circumstantial evidence very strongly suggested was *Ustilago anomala*, J. Kunze. This parasite forms its spores in the inner parts of the flowers of *Polygonum Convolvulus* L. and *P. dumetorum*, L. The material exhibited was derived from affected flowers, very probably of the first named species, found amongst the impurities in a sample of seed oats grown in Londonderry, and sent to the Department of Agriculture's Seed-testing Station for testing. Miss E. M. Wakefield of Kew was good enough to examine the material and by comparison with the specimens in the Kew Herbarium to suggest that the fungus was, in all probability, the species mentioned. No previous record of the occurrence of this smut in the British Isles appears to exist, and the present one may, perhaps, be regarded as not being free from a certain amount of doubt. The smutted fragments in the sample, however, strongly resembled the floral parts of some species of *Polygonum* and unaffected "seeds" of *P. Convolvulus* were also present in the sample, this plant being a common weed in tilled land in Ireland. The spores agreed in size and in degree of reticulation with those of *U. anomala* on *P. dumetorum* from an American source, and their mode of germination showed that they certainly belonged to the genus *Ustilago* and not to *Tilletia*.

SIR F. MOORE showed the fungus *Exosporium Tiliae* which had been found on dead branches and twigs of Lime trees in Queen's County.

DUBLIN NATURALISTS' FIELD CLUB.

NOVEMBER 13, 1919.—The first business meeting of the winter session was held in the Royal Irish Academy House, R. LL. PRAEGER in the chair. Reference was made to the great loss the Club had sustained in the recent death of one of its most distinguished members, the late Nathaniel Colgan, and the Hon. Secretary was instructed to forward an expression of the Club's sympathy to the Rev. W. Colgan. The meeting was principally devoted to exhibits, including a series of Saxifrages shown by R. Ll. Praeger, a Wren's nest and some fossils and minerals by Patrick and Sheila Trench, and a Sparrow-Hawk and an immature Great Northern Diver by Miss Wilson. The Hon. Secretary (Mrs. Long) read a short but interesting account of the life of Sir Charles Giesecke, the celebrated mineralogist,

DECEMBER 11.—C. B. MOFFAT in the chair. A letter was read from Rev. W. Colgan thanking the Club for its message of sympathy. PROF. A. HENRY gave an address on "The Influence of Trees on Climate"—developing the view that such influence is generally beneficial—and R. LL. PRAEGER one on "The Origin of Flowers," in the course of which he gave some interesting particulars of contrivances to secure cross-pollination. Both lectures led to some discussion in which various members took part.

JANUARY 15.—The Annual General Meeting was held in the Royal Irish Academy House, PROF. A. HENRY (and subsequently the new President) in the chair. The annual report read by MRS. LONG, Hon. Secretary, showed that the excursions held by the Club during the year (six in number) had been highly successful, while a fair attendance had favoured the evening meetings. The membership stood at 66, the recruits practically balancing the losses. From the Hon. Treasurer's statement it appeared that the Club's financial position had, in spite of difficulties, improved during the year. The result of the election of Officers for the Session was announced as follows:—President, G. C. May, K.C.; Vice-President, C. B. Moffat; Hon. Treasurer, G. C. May; Hon. Secretary, Mrs. Long. The formal proceedings were followed by a lecture with lantern illustrations by J. LA TOUCHE, on the subject of "Chinese Birds and their Haunts." Professor Henry added largely to the interest of the evening's proceedings by a vivid account of the physical features of those parts of China which he and the lecturer had explored.

FEBRUARY 13.—The President in the chair. An address was delivered by G. C. MAY (President) on the subject of "Bird Protection and its Results and Advantages." Mr. May gave a clear and consecutive account of the different statutes that have been passed for the purpose of securing better protection for bird-life within the British Isles, and pointed out how the present acknowledged need for increased agricultural production had had the effect of awakening public opinion in favour of more efficient means for the preservation of useful birds. Gratifying instances of the success of protective effort were also shown in the recent increase of the Bittern and several other rare species, as well as in an apparent diminution in the loss of bird-life at lighthouses, probably due to arrangements made for the better accommodation of the bewildered migrants, enabling them to rest in the gleams of the lanterns and resume their flight at daybreak. A short discussion followed, in which Alex. Williams and C. B. Moffat took part, the former bearing strong testimony to the useful services rendered by that rather unpopular bird, the Sparrow, in the destruction of garden pests.

MARCH 11.—The President in the chair. C. B. MOFFAT read a paper on "The Colours of Birds in relation to their Habits," showing in illustration a number of specimens kindly lent by the National Museum. This paper will be published in the next number of the *Irish Naturalist*. The President, Professor Henry, and Messrs. Williams and Dunlop, took part in the discussion, which ranged from birds to botany and to questions of popular nomenclature. Mr. J. La Touche was elected a member,

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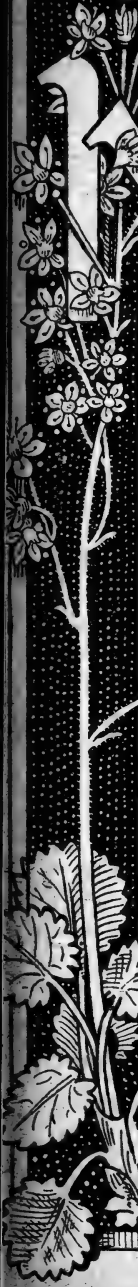
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THE COLOURS OF BIRDS IN RELATION TO THEIR HABITS.

BY C. B. MOFFAT, B.A., M.R.I.A.

[Address to the Dublin Naturalists' Field Club, March 11, 1920.]

THE philosophy of bird-coloration has always seemed to me to be rather unsatisfactorily stated by those who have treated of it at any length. I particularly refer to those birds in which either bright tints or interesting patterns have been developed.

That dull colours are often more or less protective is, I think, pretty generally agreed, though this explanation is often pushed too far. The well known examples of young birds of various species (Plovers, etc.) that run before they can fly are too obvious to call for argument. A few other species readily suggest themselves in which there can be little doubt as to the colour having an important protective value, by reason of the birds' habits being what they are. The Tree-Creeper, a very defenceless little creature, spends practically its whole time performing a series of journeys up the trunks of trees. Its brown colour closely assimilates with that of the bark, and unless it did so the life of the little bird could hardly be worth living. The Nightjar spends the whole day asleep, in spots generally exposed to full sunlight, often on some horizontal branch a few feet (or, perhaps, a few inches) above the ground. If it had any other colour than one closely resembling that of bark or dried heather-stalks it could scarcely escape discovery in such places. The Sand-Martin is, I think, probably another example of true protective colour. While on the wing (as it generally is) its colour can be of no great importance to it, nor does it need a protective hue when sitting in its nest, as that is in a deep burrow. But when it wants to excavate its burrow it has to settle on the side of a sand-cliff and work sedulously there for a considerable time, during which period it must save the bird much disturbance and many dangers to be coloured, as she is, precisely like the sand. I will mention one other bird that *may* be a case of special protective adaptation, because

a rather energetic attempt was made to cast ridicule on that suggestion when it was originally put forward by the late R. J. Ussher. I mean the Crossbill.

The Crossbill is just one of those birds that might conceivably have cause to develop a very elaborate protective colour, because, though it often changes its locality, it is much more constant than most birds in sticking to one kind of environment. Spending nearly its whole time among coniferous trees—of which in Ireland it patronises chiefly the Larch, the Scots Fir, and (as Mr. Nevin Foster informs me) the Douglas Fir—it is probably of all our birds the most uniform in the matter of its feeding habits. It is also, when feeding, as a rule extremely tame and easy to watch at close quarters. In the “*Birds of Ireland*,” Mr. Ussher states that he looks on the reds and greens of the Crossbill’s plumage as a case of protective harmony with the reds and greens of the bark and foliage of the Scots Fir (the Pine, to be more botanically correct), which is one of its favourite trees both for feeding and nesting. Mr. Edmund Selous (“*British Bird-Book*,” vol. i., p. 126) writes of this suggestion in a strain of uproarious dissent, as if he thought it a case of protective coloration run mad. In proof of its absurdity, he quotes some descriptions he has read of the great brilliancy and showiness of the Crossbill in its natural surroundings—particularly a description by Mr. Cornish, who had seen Crossbills in the Isle of Wight looking “like big red fruit” on the trees on which they sat sunning themselves. I can only say that if Mr. Selous had watched the Crossbills himself he would know that there was no contradiction whatever between Mr. Cornish’s description and Mr. Ussher’s suggestion. Crossbills do sit and sun themselves on the tops of trees, and when in doing so they catch the full sunset glow, as I have sometimes seen them do, they look like bright peonies, and certainly far unlike any one’s idea of a protectively-coloured creature. But it is only when the birds are displaying themselves that they present this appearance; and when a party of Crossbills are quietly feeding, scattered among the foliage of a Scots fir-tree, the red of their plumage looks very dull, more like a bit of old smoky brick-work than anything

else I can think of, unless I fall back on Mr. Ussher's comparison, and say it is like a bit of the fir-bark.

Passing from protective (or, perhaps, I should say, "self protective") plumage, we come to plumage more clearly adapted for display—or, as it sometimes might be called, "protect-your-neighbour" plumage. Display may be for signalling purposes, though the more interesting case of ornamental plumage remains to be noticed later. From one of the most usual modes of signalling among birds I think we must derive our familiar phrase "to show the white feather." The white-feather patch above the tail which so many birds possess serves as an excellent alarm signal to all the owner's companions whenever the owner takes flight. Familiar instances of birds showing this signal are the Bullfinch, Brambling, Wheatear, Jay, and Rock-Dove. The Chaffinch conveys a similar message with the outstretched white feathers of its wings (a feature that gives this bird in Co. Wexford the local name of the White-wing), and the Hawfinch on taking flight shows to a like purpose the white of its outspread tail. The same principle is followed in other cases, in which the signal is sometimes not white but orange or yellow.

I may be asked "Is there any proved connection between these signals and the habits of the birds that use them?" If a bird has a white patch across its back the white will show when the bird flies; but if it has no such patch it will fly all the same, so what have its habits to say to the question? Well, I think there is generally some reason in the habits of a bird to explain its having, or not having, this means of signalling danger to its comrades. There are, for instance, some birds so unsociable that they never (except in the pairing season) have any companions to signal danger to; among which I will specially mention the Robin, whose plumage, when he flies, shows not a particle of a signal-flash. Then some birds consort together in such strongly organised bodies (like the Starling) that the rising of one of them can't fail to be perceived by his neighbours, and the whole flock rises by telegraph. Others make such a noise (as the Wood-pigeons with its wings or the Plover with its "shrilly

strain") that the whole field knows at once what is up. The signal of the white upper tail-covert is, in fact, generally a property of moderately sociable birds that feed in rather scattered companies, and that either have not very powerful voices or (as in the case of the Jay) have strategical reasons for not always exercising their vocal powers when they are changing their ground.

I pass now to birds whose plumage is marked in such a way that we can't help calling it ornamental, though it is a difficult question to decide whether ornament is really the principal function it has to serve.

Provisionally, we may include among instances of ornamental plumage not only such brilliant birds as the King-fisher and Bullfinch, and such wearers of elaborate plumes and patterns as the Great Crested Grebe and the Ruff, but also any marked contrasts of colour like the grey and black of the Hooded Crow and the black and white of the Magpie. To the same class we should refer all obviously nuptial tints—I mean colours that are assumed, whether by one sex or by both, for the nesting season only, like the black throat and bright yellow breast of the Grey Wagtail, or the deep brown hood assumed for only a few months by both sexes of the Black-headed Gull. Along with these go the numerous cases in which the cock bird's plumage differs in some marked manner from that of his bride, though he may retain that difference all the year round. Familiar instances are the Blackbird, Stonechat, Chaffinch, Greenfinch, Bullfinch, Reed-Bunting, Sparrow-Hawk, and Kestrel. Our commonest Dublin bird, the Sparrow, presents us with another example, and a particularly interesting one, as I hope to show by-and-bye.

By far the best known explanation of most of these cases of bright plumage is that which ascribes them to what is called sexual selection. That is to say, when birds select their mates in spring, they are supposed to give preference to those candidates who show the nearest approach to a certain standard of beauty; and so that standard is first improved from generation to generation, and afterwards maintained at the high level at which it is regarded as practically perfect.

I think it may make things clearer to put a few of the principal conclusions arrived at by advocates of this explanation in the form of a catechism.

- (1) Why are ornamental colours so often worn only by the cock-birds ?

Answer.—Because only the hen-birds have that aesthetic sense which gives preference to the more beautifully plumaged among their suitors.

- (2) Why, then, has bright plumage ever been developed among the hen-birds—as in the hen-Robin, the hen-Kingfisher, and the hen-Blue Titmouse ?

Answer.—By simple inheritance, when there is no counteracting cause to prevent the bright tints of parents of one sex from being inherited by children of both sexes.

- (3) But why, then, are there so many cases in which the bright tints have remained a peculiar inheritance of the male sex ?

Answer.—Because it would be positively harmful to the females in many cases, and particularly when they are sitting on their nests, to wear such bright and conspicuous colours as those they admire in their husbands.

- (4) Can you assign any reason why this need for a dull colour in the female should govern the case so completely in certain species (the Greenfinch and Chaffinch, for example), while it has no restraining effect whatever in a number of other species (as the Great and Blue Titmice, the Kingfisher, and the Robin) ?

Answer.—Yes, for the Greenfinch and Chaffinch, and most of the birds whose males are more brightly coloured than the females, build open nests, while the Kingfisher, the Titmice, and (to a certain extent) the Robin nest in

holes, where the female is hidden from view during incubation, and so does not need a concealing colour.

Now I think this theory is a very clear and easily understood one—whether we accept it or not—and I would ask particular attention to that part of it (a most necessary and cardinal part) which accounts for so many cases of bright-plumaged females by the fact that they make their nests in holes ; for I wish to put forward a totally different explanation from the one I have just been quoting for the fact that birds which nest in holes have generally both sexes brightly coloured.

Let us turn for a moment from the subject of birds to that of other bright-coloured animals. Dr. A. R. Wallace—who was, I believe, the first author to connect the bright colours of many hen-birds with the fact that they make their nests in holes—was undoubtedly the first to explain the bright tints of many other creatures as “ warning-off ” advertisements, saving the creature that wore them from molestation by announcing beforehand to all enemies who could read the signal that “ this bright-coloured caterpillar has a horribly nasty taste,” “ this brilliant wasp has a sharp sting,” “ this gorgeous butterfly will lead you a long chase, and probably give you nothing better for your pains in the long run than a bit of its brittle wing-membrane, with a coating of disagreeable dust-like scales.” It seems to me rather remarkable that this principle of “ Warning Coloration ” was never applied by Wallace to the subject of Sex Colours—especially as he did *not* accept Darwin’s view that these colours were developed by female preference, but put forward instead a not very clear suggestion that they were somehow a product of the male bird’s energetic temperament. It would surely have been a very natural extension of his own well-known principle of warning colour to say that the bright plumage of a cock Chaffinch in new spring dress is a warning to other cock-Chaffinches around him that “ here is a full-grown, healthy, strong militant bird who is determined to hold his ground against rivals, and if you choose to enter his territory you have a tough

battle before you with an adversary who doesn't look easy to beat."

I believe this is the real message conveyed by nuptial colouring, when it is confined to the male. Believing, as I do, that the battles of the males are chiefly fought for the possession of plots of land on which their families can be reared, I do not see how the females can well do otherwise in most cases than select as husbands those males that possess plots of land with suitable facilities for nest building, and the colour of the happy bridegroom must therefore be of very secondary importance in the bride's eyes, except so far as the perfection of the pattern he displays to her proves that he has sustained no serious damage in any of his previous fights, and is therefore likely to prove an effective defender of their common rights hereafter. From this point of view the perfection of an elaborate pattern like that of the celebrated Argus Pheasant is, no doubt, very important; but the display of such patterns has almost certainly another use than to captivate the eye of the female. It is a grand advertisement to intimidate rival males and warn them to keep their distance.

I think in every instance of nuptial ornamentation it will appear that the part of the plumage in which the ornamentation occurs is a part brought into prominence in battle. Generally the bright colours of the nuptial season appear on the head, the neck, or the breast and throat—just the parts that are sure to be exposed in fight.

I can only think of one British bird in which the distinctive ornament of the male is found on the wing-feathers. That is the Nightjar; and I have watched a fight between two cock Nightjars, in the late dusk of a summer night, and found that they made a practice of frequently springing from the ground with their wings raised high over their backs so as to show the white patches on the quill feathers with remarkable plainness.

Another case of what looks like eccentric nuptial ornamentation is that of the Waterhen, who assumes, when the nesting season is on, a bright scarlet garter. But the Waterhen justifies this eccentricity in her style of ornament by having also a mode of fighting peculiar to

herself. The two fighting birds sit backwards in the water and strike out at one another with their two feet.

Both these examples therefore strengthen the ground for maintaining that nuptial colour is only another name for war-paint.

But how do I explain, on this principle, the extension of these warning colours, in a considerable number of cases, to the females? Why, especially, is this so generally true of birds that nest in holes? These are the cases that Dr. Wallace quite easily explains by saying the hen birds that nest in holes are in no need of protective coloration while sitting on their eggs. But his explanation seems to assume that the only use of protective colour to most birds is to hide them when they are sitting on their eggs. This, I think, is claiming both too much and too little for the principle of protective colour: too little, because it is certainly useful to many birds to be inconspicuous at other times than when hatching, and too much, because as a rule the nests of birds are not so very badly hidden as to expose the hatching bird easily to view, whether her colours are bright or dull. It is well known that in a great many species the cock takes his turn at hatching, and I have never heard of a case in which this masculine indiscretion was the cause of the nest being found. So I don't think Wallace's explanation is so perfectly satisfactory as to prevent our looking for others; and it seems to me that the doctrine of Warning Coloration is that which best meets the facts.

The warning colours and warning notes of birds that build in the open, and that possess separate nesting areas for each individual pair, are challenges addressed only, as a rule, to other birds of the same species—because a Blackbird does not object to a Hedge-Sparrow nesting and singing within his domain, nor does a Greenfinch resent the presence of a Yellow-hammer, or a Whitethroat care to disturb a Wren. The battles of the nuptial season are therefore, for these birds, battles between antagonists of the same species—Chaffinch against Chaffinch, Wren against Wren, and so on. In such cases it is natural that the cocks should be left to do the fighting. To let the hens

join in would only double the damage, to the disadvantage of the species. But with birds that nest in holes the opposite is the case. Here the possessor of a good nesting site has to fight, not merely for his area against birds of his own species, but for possession of the actual hole in which the nest is to be built—a possession that is sure to be coveted by creatures of many species besides his own, and may have to be fought for at any time, night or day, with all the strength that the defenders can muster. Now here is a situation where to leave things to the cock-bird would be practical suicide. When the enemy may be of any species, it is certain that the species which leaves the fighting to one sex will be beaten all along the line by some other species in which both sexes join in the attack. And so I think we shall find, in the cases of birds that nest in holes, that the hen is generally as good and determined a fighter as the cock, and that her bright plumage, being generally the same as his, makes a joint advertisement from both to all and sundry that the hole in which their nest is situated will be well defended against raiding foes of all kinds.

On the same principle, too, birds that nest in communities generally have cock and hen similarly coloured. Here the object of the birds in associating together is to be able to present their united strength in defence of the general interest against a common foe. As familiar instances we have the Rook, the Swallow, the Heron, and the various Gulls and Terns. In all, the sexes are coloured precisely alike. I believe the reason for this to be that the hen birds take as good a part as their husbands in the defensive wars that have, every now and then, to be waged. A common uniform makes the strength of the army more visible and imposing.

I may venture here to repeat a little story which I told in a former lecture to this Club, seventeen years ago, about how a pair of Sparrows totally failed to establish themselves as a nesting species in a certain farm-yard in Co. Wexford by reason of the animosity they excited against themselves in the birds already settled there. They went first to a part of the yard where four pairs of

House-Martins were nesting, and tried to appropriate one of the four nests. The eight House-Martins united to drive them away. The cock Sparrow made some fight, but was easily beaten, since it was eight birds to one, and he got no help from his wife. They then retired to the other end of the yard, and wished to occupy a hole where a pair of Blue Titmice were nesting. Again a very hot battle ensued, but it was two against one, the two Blue Titmice against the one cock-Sparrow, whose wife acted spectator. The Sparrow was soundly beaten, and his mate left him in disgust and was never seen in the yard again. This story has since been quoted by Mr. F. B. Kirkman in his important work "*The British Bird-Book*" (vol. ii., p. 301), where he notices what seems to him the singular fact that the hen-Sparrow gave her mate no assistance in either of the hard battles he had to fight. She was the only one of the twelve birds concerned in the story who didn't fight. But the conduct of all twelve is an exact illustration of what I have just been trying to lay down as the law of nuptial coloration. The cock-Sparrow has a distinctly marked plumage, quite different from his wife, and is, therefore, marked out as a fighting bird, while she is not. In the House-Martins there is no difference; all the birds in the colony wear the same well-contrasted uniform, and thereby indicate that they all fight to protect the common interest. And equally so the Blue Titmouse, being a bird whose nest is always in a hole, has developed along with its very sharp strong bill a plumage of wonderful brightness and beauty, which is worn by both cock and hen as a warning to intruders to beware of either.

Perhaps I may be told that the Sparrow, too, nests in holes, and that if he didn't do so he wouldn't have wished to dispossess either the House-Martin or the Titmouse in the story given above. So, on my own showing, the hen-sparrow ought to be coloured like the cock, though she isn't. Instead of a contradiction here, I think I find a further confirmation of the correctness of my suggested rule. The House-Sparrow does not nest in holes, except incidentally. It uses any sort of a crevice or ledge, or

will build in a tree if other sites are scarce. The nesting-sites it chooses are, in fact, so extremely various that I think only a very stupid pair of Sparrows could fail to suit themselves somehow. And thus I think the plumage of the House-Sparrow quite naturally follows the common rule, being dull in the hen but decorative in the cock. But this difference in the Sparrows is of peculiar interest, because the House-Sparrow has a near relative, the Tree-Sparrow, which follows the opposite rule. The cock of the Tree-Sparrow is quite as ornamentally plumaged as the cock of the House-Sparrow; but the hen of the Tree-Sparrow is as bright as the cock, and scarcely distinguishable from him. And what is the corresponding difference of habit? Just what we might expect. The Tree-Sparrow makes a regular practice of nesting in holes—holes in the strictest sense of the word, and not mere crevices such as satisfy its better-known cousin. I have no personal acquaintance with the habits of the Tree-Sparrow; but I think it will be found that in the battles in which birds of that species must sometimes engage for possession of nesting-rights the cock-birds are not left to fight alone, but get good support from their wives.

There are, I think, only two British birds that nest in holes (other than mere crevices) in which the sexes are quite differently coloured, and which therefore form exceptions to the general plan. These are the Redstart and the Pied Flycatcher. I am not sure how these exceptions should be explained. But both these birds differ from all the instances in which the two sexes are alike and showy in the additional fact that their bills are soft and weak, and either of them would, therefore, probably make but a poor fight against any other species that tried to oust it from its nesting-hole. The fact of their martial prowess being so little worth advertising may, perhaps, explain why these birds don't advertise it. I can't support my conjecture here by any facts within my own experience—the birds being practically strangers to Ireland. But on looking up Mr. Kirkman's account of the Redstart in "The British Bird-Book" (vol. i., p. 425) I find that, according to him, its nests are very liable to invasion by Titmice and other

hole-nesting species, and that these invasions, in whatever way begun, nearly always end in the ejection of the Redstarts. Then I turn to the chapter on the Pied Flycatcher in the same work—written by Miss Turner—and from her account (vol. ii., p. 275) I gather that among the birds which expel the Pied Flycatcher from its nest-hole even the Redstart has sometimes figured. So, perhaps, after all, the exceptions are helping to prove the rule. At any rate, the two species whose females don't sport the bright plumage of their husbands enjoy a considerable want of success in their efforts at raising families. The bright-coloured husbands, as against one another, are known to be very combative little birds—a trait that fully harmonises with my contention that all bright nuptial tints have a more or less martial significance.

A remarkable instance of the rule that nuptial colours are intimidatory is found, I think, in the Puffin. This bird is distinguished all through the nesting season by its enormously large and brilliantly coloured beak—a beak that has been described as “reminding one somewhat strongly of the highly-coloured pasteboard noses of preposterous shape and dimensions which at some seasons decorate the windows of toy-shops.” Nobody who has tried (successfully or otherwise) to deprive a sitting bird of her solitary egg is unaware of the very powerful use which the Puffin, on all such occasions, makes of its painted “toy.” When the nesting season is over the beak loses its enormous size and remarkable brightness by shedding some outer plates, which appear to have been assumed as barbaric “war-paint”—of course by both sexes, as the egg is laid in a burrow. This enlarged and brightly-painted beak is the only nuptial ornamentation assumed by the Puffin; but what other ornament could so well convey the bird's message, if the message she means to convey is one of warning?

There are, of course, some bright tints that are not connected with the nuptial season, and for the meaning of which we must look in other directions. For instance, the beautiful patch of blue on the wing of the Jay cannot be a nuptial distinction, because it is found not only in both sexes but in the young that have just left the nest.

To our eyes, it is hardly conspicuous enough when the bird is flying to act as an alarm-signal to her comrades; but as the similarly-situated yellow patch of the Goldfinch clearly does serve that purpose, I think the Jay may unfurl her little blue flag also as a warning—a supplemental warning to the one she certainly gives at the same time with the white patch on her back—to her kinsfolk and near friends. The Magpie makes herself so conspicuous at all times—roosting at night preferentially in bare trees rather than under cover of foliage—that I have no doubt her bold colouring has a warning effect on enemies. She is said to be a favourite prey of the Peregrine Falcon (so Thompson says in his "Natural History of Ireland"), but if the Peregrine is the only bird that molests her she may well display her bright tints to good advertising purpose in most of her woodland resorts. The colours of the Hooded Crow have a still more obvious warning value, for it seems to be the only bird in our fauna which Owls and Hawks, however hungry, utterly refuse to eat. One instance more. The cock and hen Robin are fighters all the year round; for every Robin in winter keeps a separate feeding area to himself or herself in which no other Robin of either sex is permitted to set foot. So, in the case of this bird, although its chief battles are with its own species, the hen wears the same bright red breast as the cock, not so much, I am afraid, as a sign that she will fight by his side in spring, as by way of advertising her quite equal readiness to fight against him or any other bird of the Robin species that trespasses on her soil in the autumn or winter months.

I am sorry if I have given our feathered friends too bad a character for pugnacity in this attempt to trace a connection between their plumage and their habits. But it is only fair to remember that one of the best ways of helping towards the preservation of peace is to be well prepared for war, and to let your state of preparedness be generally known. And this I take to be the principal function of the bright colours of birds.

IRISH SOCIETIES.

ROYAL ZOOLOGICAL SOCIETY.

JANUARY 28.—ANNUAL MEETING.—The President (SIR F. MOORE) in the chair. The Hon. Secretary (Prof. A. F. DIXON) read the Report and moved its adoption.

The year 1919 was one of considerable activity at the Gardens. Although difficulties connected with shipping, and the continued high prices of food stuffs, have prevented the acquisition of many of the larger mammals to fill gaps in the collection, it has been possible to secure several interesting animals for the Gardens. Much useful work in reconstructing and renovating the existing houses has been accomplished, and in the near future it is hoped that all the houses will have been put into thorough repair. The beautiful grounds have been cleaned and brought into order, thanks to the work of demobilized men made available by the Ministry of Labour. There has been a most gratifying increase in the number of visitors and in the gate receipts, in spite of the increased cost of travelling and the continued absence of facilities for excursions to Dublin. During the year the total gate receipts, exclusive of the five days of the Fête, amounted to £3,412 3s. 7d.

As a direct result of the Special Appeal, and of the interest created by the Summer Fête, there has been a welcome increase in the number of new members. During the year fifty-nine Annual Members, forty Life Members, and four Garden Subscribers were elected. The sum of £878 was received in entrance fees and subscriptions.

The outstanding event of the year was the very successful fête held in the Gardens on June 11th, 12th, 13th, 14th, and 16th. Thanks to the kind and generous support of the Members and friends of the Society, the special appeal and fête have, by providing a sum of over £4,000, extinguished the debt which existed at the conclusion of the war, and furnished funds for the necessary repairs and reconstruction of the houses. Further, the widespread interest which it has excited has been of the greatest service to the Gardens in attracting new members and visitors. The Council feels that the Society owes a very deep debt of gratitude to all those friends who so generously gave their time and energies, or subscriptions, in order to secure for the fête the great success which it achieved. Thanks are especially due to the stallholders, the Organizing Committee, and to Mr. Alfred Miller, the Honorary Secretary of the fête.

In June Professor G. H. Carpenter, to the deep regret of the Council, resigned the Honorary Secretaryship of the Society. Miss Cree, who was appointed Assistant Secretary in 1903, terminated her engagement in September last. At the request of the Council, Professor A. F. Dixon accepted the Secretaryship in August. The office of the Society has been moved from the Royal College of Science to the Gardens, and is situated in comfortable quarters on the ground floor of the Haughton House.

In March Dr. Ferrar was demobilized from the Royal Army Medical Corps. The Council are pleased that while acting as Superintendent he was able to give for a long period valued service to the R.A.M.C. at King George V. Hospital.

Professor Scott has kindly acted on several occasions for the Hon. Secretary during his temporary absence; and both he and Professor James Craig have supplied the Council with most useful reports of *post-mortem* examinations on animals which from time to time have died in the Gardens.

After a long and careful consideration, the Council feel that in the interest of the animals and of the Society the admission to the Gardens on Sundays should be raised from 3*d.* to 4*d.* for adults, and from 1*d.* to 2*d.* for children in charge of their parents or guardians. Further, owing to the great difficulties of efficient supervision, and of preventing teasing of the animals, it has been ordered that children not in charge of parents or guardians are to pay 4*d.* for admission on Sundays.

The Council has felt that the greatest need was to put all the existing buildings and enclosures into proper repair. The difficulties in obtaining building materials and the cost of labour excluded all thought of erecting new structures. The Monkey House has been repaired, and provided with a new and economical heating apparatus, also with a porch for the north door. The roof and inside of the Aquarium has been repaired and painted. The stairs and woodwork of the balconies of the Haughton House have been repaired, and the enclosures for marsupials put in order. A Members' Lavatory has been provided. Part of the cost of the work on the Haughton House has been defrayed by the legacy left for the purpose by the late W. E. Peebles, President of the Society. The roof of the Aviary is in process of reconstruction, and a plan for the improvement of the enclosure for bears, near the main walk, has been approved, and will be put in hands as soon as possible. The Public Lavatory has been reconstructed, and the bridge between the lakes replaced by a new structure.

The difficulties of transport and the high cost of food stuffs have prevented the Council purchasing any of the larger mammals during the year. It is hoped that with increased shipping facilities it may be possible in the near future to obtain specimens to fill many of the gaps in the collection; and the Council is actively seeking opportunities for the purchase and importation of several representative types.

The Monkey House stock has been well maintained, and a most attractive and interesting chimpanzee, "Fanny," was purchased in September last. She is believed to be about four years old, and is amazingly active. A very beautiful pair of Douroucoli have been deposited in the Gardens by Captain Henderson, and are still with us. These visitors from South America have attracted considerable attention, their peculiar short round faces and large eyes giving them a very striking appearance. Although largely nocturnal in their habits, they can usually be seen moving actively in their cage even in the day.

A pair of Pandas were also purchased during the year. They are the first specimens of the kind that have been exhibited in Dublin. Their bright colouring and their active and graceful movements make them

very attractive. The Pandas are natives of Nepal, and zoologically are of much interest.

A most graceful harnessed Antelope, the gift of C. C. Loko, Esq., B.L., died after a few weeks' residence in the Gardens. A pair of Rheas and a pair of Emus were received in the late autumn. Unfortunately, one of the Rheas, which was in poor condition on its arrival, has died since.

The stock of Lions and Lionesses remains almost as it was at the end of 1918. During the year "Red Hugh" died of old age. A litter of cubs—two in number—born in May, from "Red Hugh" and "Maive," did not survive. Of three cubs, from "Oseni" and "Sheila," born on September 10th, two males are living, and are strong and well. The total stock now consists of fifteen animals, eight males and seven females.

The Lion "Seamus" has been ordered by the Société Royale de Zoologie at Antwerp, and is to be sent as soon as it is possible to secure a suitable passage for him. The Council has promised to send with him the Lioness "Grania" as a gift to the gardens at Antwerp from the Royal Zoological Society of Ireland. This is in accordance with a resolution passed by the Council in August, 1914, when it announced that the Lions at Antwerp had been destroyed lest they should escape as a result of the bombardment of the city by the German invaders.

The Poultry Exhibit has attracted much interest during the year. It is in charge of an expert instructress, provided by the Department of Agriculture and Technical Instruction, towards whose salary the Society has received from the Department a grant of £50. It is proposed in the coming year to have a working display of the various appliances useful to urban and suburban poultry-keepers, and to have demonstrations of the various methods which can be employed usefully by amateurs. The Council hopes and believes that the scheme will be appreciated by, and prove a benefit to, Members of the Society and to the general public.

At a very early period of the Society's history the encouragement of animal drawing and sculpture was recorded among its activities; and during the past year an organized attempt was made to interest Irish artists and students in this special branch of nature-study. The Council offered certificates of merit, accompanied by premiums of one pound, in five classes. The competition was closed on the 30th September, and the works sent in were exhibited at the Gardens from the 4th to the 18th October. The interest taken in the competition encourages the Council to continue it in 1920. Certificates and premiums are offered in the same classes, and the students intending to enter for competition may obtain monthly tickets of admission to the Gardens at a nominal rate of one shilling. Works intended for competition should reach the Superintendent on or before the last Tuesday in September.

The Report was seconded by G. KNOX-PEEBLES and adopted. The officers and Council for 1920 were elected, Lt.-Col. J. Forrest, M. F. Headlam and A. Bretland being chosen to fill vacancies.

Prof. J. ALFRED SCOTT, M.D., showed a series of animal photographs and cinematograph films.

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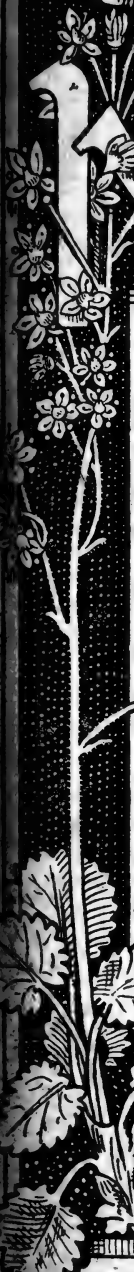
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NOTES ON THE BASKING SHARK.

BY R. F. SCHARFF, B.SC., M.R.I.A.

FOR several years previous to 1918 Mr. Keane of Ardmore, Co. Cork, sent me notes on the occurrence and frequency of Basking Sharks in Ardmore Bay. These were published in the *Irish Naturalist*.¹ He has now sent me some more notes that he took in 1918. The readers of the *Irish Naturalist* may remember that Basking Sharks grow to a very large size, attaining a length of 40 feet, and with their large wide mouths they present a most formidable appearance. The teeth, however, are very small, being useless even for biting and crushing small creatures. The fact that the gills have curious lamelliform appendages which project into the throat and are called "gill rakers" suggests that these large sharks live on minute organisms. It is supposed that, like some whales, the Basking Sharks take a mouth full of water containing minute surface forms of animals, which are retained in the mouth while the water is strained through the gill appendages. The stomach of Basking Sharks has sometimes been found to contain seaweed, and this fact has led to the suggestion that these creatures may be vegetable feeders, but this is an unlikely supposition.

The following are the notes received from Mr. Keane, who left Ireland to make his home in Canada:—

"On April 26th, 1918, about 3 p.m., a Basking Shark was seen in the Bay. The salmon nets were hauled up and the boats came in. During the following two days several of the sharks were in the Bay. The weather on all three days was hot and the sea calm. On April 29th the weather changed to a stiff easterly breeze. Several sharks were still in the Bay. Salmon fishing was resumed but cautiously. On May 2nd one shark was seen. Strong easterly wind and a heavy sea. On May 3rd a shark took two nets from a boat fishing near the rocks in fairly deep water. The east wind had moderated. Next day it was fine and calm and the sharks were still in the Bay.

¹ Vol. xxiv., 1915, p. 171.

“ On May 5th there was a moderate easterly breeze. At 6 p.m. about half ebb-tide I watched four of the sharks cruising together in quite shallow water and evidently feeding. Next day the two nets taken on the third were found washed up on the shore. All morning very large numbers of the sharks were in the outer part of the Bay. I myself saw four groups simultaneously, each containing from four to six sharks. The day was fine and calm but very few of the boats ventured out for fear of the sharks. About half flood tide, 1 p.m., a shark made its appearance just inside our nets. We quickly hauled the nets and the shark disappeared.

“ On May 7th the sharks were not seen until noon when one appeared near some nets. The shark was frightened away and re-appeared at some distance. The weather was fine and the sea calm. May 8th was cold with north-west wind and no sharks were seen. The fine warm weather returned next day but no more sharks were seen until May 28th when one fouled a string of nets. The nets were afterwards got clear and the shark escaped. Later in the day three sharks were seen.

“ On May 29th we saw two sharks near our nets. Next day three were seen and there was no fishing. The weather continued hot and calm. During the night, May 29th-30th, a shark fouled and tore a trammel which we had moored in shallow water. In the morning the shark had disappeared leaving the damaged net. The same morning two of the sharks were seen near the Pier.

“ Early in May a Basking Shark was washed ashore at the north side of the Bay. It was not until June 20th that I was able to go and see it, and by that time it was, of course, far gone in decomposition. However, identification was quite easy, owing to its large size and the cartilaginous character of the bones.

“ On July 16th a shark (presumably a Basking Shark) was seen by fishermen. They described it as being about 16 feet long. It quickly disappeared from sight.”

SOME CHAROPHYTE NOTES, 1919.

BY CANON G. R. BULLOCK-WEBSTER, M.A., F.L.S., F.R.M.S.

LAST summer, accompanied by a friend, I paid a visit to Achill Island (July 22–August 1), attracted by the promising series of lakes which lie near the shore, especially along the northern coast line. Mr. Lloyd Praeger's admirable notes on the "Flora of Achill Island" (*Irish Naturalist*, vol. xiii.) seemed to show that the island had been exhaustively explored by him, but I was sanguine enough to hope that by devoting exclusive attention to the Charophytes, and with the aid of boat and drag it might be possible to bring to light some interesting species not hitherto detected.

We were favoured with fine, still weather and bright sunshine, conditions very favourable for the examination of subaqueous vegetation. Beginning my record with the lakes on the north east of the island, Loughs Nambrack and Gall were the only lakes which yielded any Charophytes. The other lakes of the neighbourhood seemed to possess little or no vegetation. Loughs Doo and Shruhill are invaded by sea water at high tides and so is one of the little lakes adjoining Dooniver Strand. The little island of Inishbiggle, separated from Achill by the narrow channel of Bull's Mouth, possesses a dozen or more small pieces of water, but all these are situated in peat areas with peat banks and dark peat water in which little vegetation seems to flourish.

Lough Nambrack yielded along its north and west shores an abundant growth of *Chara aspera* and *C. contraria*, also, much less abundantly, *C. aspera* var. *subinermis* and *C. delicatula*.

Lough Gall along its north and east shores yielded some scattered plants of the small tufted lake form of *C. delicatula*, and also a few decaying specimens of *Nitella opaca*.

The lakes on the west side of the island, lying in deep rocky beds with rock and boulder bottoms, appeared almost

destitute of vegetation of any kind, only a few floating leaves here and there of *Potamogeton natans* indicated the presence of plant life.

On the south side of the island behind Tramore Strand lie two lakes ; the smaller, Shruhillbeg, has a sandy bottom and water scarcely more than knee deep. Here flourished *C. aspera* and *C. delicatula* in great abundance, and still more abundantly *Nitella opaca* in several different forms with well matured fruit. This lake could be examined over almost its whole area by wading. The larger Lough Keel is the most extensive lake of the island, a mile long and three quarters of a mile broad with a sandy shallow shore to the south where it nears the sea, but deeper and with peaty banks as it stretches inland. For examining this lake we had the advantage of a boat kindly placed at our disposal by Mr. Sheridan, proprietor of Slievemore Hotel. On the south side the lake was carpeted with *C. aspera* and also yielded some excellent specimens of *N. opaca* in a fine fruiting condition. In the deeper water tufts of *C. delicatula* were growing on large blocks of turf detached from the neighbouring banks.

Near the east shore and in deeper water the drag brought up some few plants of *N. translucens*, but what proved by far the most interesting find was the discovery, among much mud and refuse brought up by the drag, of *N. batrachosperma* growing in some 4-5 feet of water off the west shore. Diligent search and dragging only produced a few minute branchlets detached from plants which the drag failed to hold, so minute as to be scarcely sufficient to cover one's thumb nail. However the determination of the plant, often difficult to discriminate from *N. tenuissima*, was insured by the discovery, when the pieces were washed and placed under the microscope, of one ripe oogonium, showing the decoration of the membrane characteristic of *N. batrachosperma*. This is the only really important find which I have to record from Achill Island, though the occurrence of *N. translucens* is interesting.

Nitella batrachosperma, it may be mentioned, was first found in the British Isles by Mr. W. S. Duncan who collected it in the Isle of Harris, Outer Hebrides, in 1888.

It was next found in 1889 in Lough Caragh, S. Kerry, and in the following year in the Lower Lake, Killarney, both by Mr. R. W. Scully. In 1916 I found it in Lough Kindrum, W. Donegal. Its occurrence in Achill Island is an interesting link between its northern and southern Irish stations. The plant has not so far been found in England.

The Charophytes hitherto recorded from Achill Island are:—*C. fragilis* Desv., *C. aspera* var. *subinermis* Kuetz., *C. vulgaris* Linn., and *N. opaca* Agardh. To these I am able to add as mentioned above:—*N. translucens* Agardh, *N. batrachosperma* Braun, *C. contraria* Kuetz., *C. aspera* Willd., *C. delicatula* Braun. Of these the only new record for W. Mayo, the vice-county in which Achill Island is included, is *N. batrachosperma*.

From Achill Island we went to Enniskillen. Two days spent on Lower Lough Erne, Co. Fermanagh, resulting in collecting one species, *C. rudis* Braun, new to the county, and four already recorded, viz., *C. aspera*, *C. delicatula*, *C. desmacantha* and *N. opaca*.

The last two weeks of my excursion were spent in West Donegal, first at Kindrum and then at Bunbeg. In Lough Shannagh I could discover no trace of the new *N. spanioclema* which occurred there in such abundance in 1916 and 1917, but it was a considerable compensation to discover the plant in a new station, Lough Kindrum, some two miles distant, growing sparsely with *N. translucens*. *T. glomerata* var. *erythrocarpa* in Lough Magheradrumman was more prolific than ever though in an advanced and decaying condition.

From Bunbeg I was able to visit Lough Carnboys on the island of Carrickfin. This piece of water, lying at the back of the sandhills separating it from the sea, supplied an immense crop of *C. desmacantha* and an equally extensive crop of *C. hispida*, the two almost monopolizing the centre of the lake and in admirable condition. *C. vulgaris* occurred sparsely. I also visited Lough Mullaghderg on the mainland westward and collecting again an interesting and puzzling little Chara of which I had found a few specimens in 1917. It appears to be a very extreme and unusual variety of *C. contraria* calling for further examination and determina-

tion. L. Mullaghderg also supplied a large growth of *C. desmacantha*, *C. aspera*, *C. delicatula* and of *N. opaca* in a decaying condition. L. Ibbey close by yielded abundant specimens of *N. translucens* and *C. aspera*, while the pond lying northward on the sand flats possessed quite a different charophyte vegetation, viz.: *C. hispida* in immense quantities, *C. vulgaris* and *C. contraria*.

In my papers in the *Irish Naturalist* of January, 1917, and January, 1918, I erroneously quoted the Fanad Peninsula as being in vice-county Donegal East instead of Donegal West. The unfortunate error, for which I apologize, necessitates a revision of the Charophyte records of these two vice-counties. The only species recorded from Donegal E. are:—*N. opaca* Agardh, *C. fragilis* Desv., and *C. delicatula* Braun. Those recorded from Donegal W. are:—*N. opaca* Agardh, *N. flexilis* var. *crassa* Braun, *N. translucens* Braun, *N. batrochosperma* Braun, *N. spanioclema* Groves and B.-W., *T. glomerata* var. *erythrocarpa* Groves and B.-W., *C. vulgaris* Linn., *C. rudis* Braun., *C. hispida* Linn., *C. contraria* Kuetz., *C. contraria* var. *hispidula* Braun, *C. aspera* Willd., *C. aspera* var. *subinermis* Kuetz., *C. desmacantha* Groves, *C. fragilis* Desv., *C. fragilis* var. *capillacea* Coss. and Germ., *C. delicatula* Braun.

It may be interesting to add that I found *Naias flexilis* growing freely in Lough Ibbey and sparsely in Lough Mullaghderg.

All Hallows Lane, London, E.C.

NOTES.

BOTANY.

British Stork's-bills.

In the *Journal of Botany* for May, E. G. Baker and C. E. Salmon deal with maritime forms of *Erodium cicutarium*. They include in the Britannic flora four forms—*E. glutinosum* Dum., *E. neglectum* nov., *E. Lebelii* Jord., and *E. Ballii* Jord., and add *E. dentatum* Dum. as very likely to occur in the British Islands. Full diagnoses, and Britannic distribution, so far as ascertained, are given.

ZOOLOGY.

An Irish Cretaceous Cirripede.

Work on fossil cirripedes is comparatively rare, though the study is honourably associated with Charles Darwin's early days. Mr. T. H. Withers, of the British Museum (Natural History), has examined (*Ann. Mag. Nat. Hist.* (9) vol. v., p. 70, 1920) a fine specimen from the Chalk of Antrim, which was described by Wyville Thomson in 1858 under the name *Loricula Macadami*. This description has long been overlooked, and Mr. Deane, Curator of the Belfast Public Art Gallery and Museum, has discovered the specimen in the collections under his care and has kindly lent it for investigation. Mr. Withers finds that it is identical with *L. pulchella* of G. B. Sowerby, jun. The name *Loricula* being pre-occupied, it now becomes *Stramertum pulchellum*. This excellent specimen, probably the only one known in Ireland, is photographed, and described in detail by Mr. Withers in a succeeding paper (*ibid.*, p. 264, plate xiii).

G. A. J. COLE.

Royal College of Science, Dublin.

A Brambling Season.

It seems clear the autumn of 1919 was a "Brambling year"; see Mr. Abbot's note *supra* p. 27, and *British Birds*, vol. xiii., pp. 194, 221, 276. An occasional Brambling is rare here, very rare I may say, but from 16th November last for a couple of weeks over half a dozen Bramblings were on a road which I pass every day, with Chaffinches. There was only a thin row of less than a dozen small beech trees, and their food was evidently not quite confined to beech-mast, as they fed also some distance from the trees.

J. P. BURKITT.

Enniskillen.

Sora Rail at Slyne Head, Co. Galway, a Bird New to Ireland.

At 3 a.m. on Sunday, April 11th, a Sora Rail (*Porzana carolina*, also known as the Carolina Rail or Crane), struck the lantern of Slyne Head lighthouse, and fell lifeless at the foot of the tower. Being on the spot at the time I was enabled to collect it at once and make investigations on the body, measurements, etc., while the specimen was in a perfectly fresh condition. It made a most excellent skin, the nuptial plumage which it had assumed, being at its highest pitch of beauty. Examination of the genitals showed that the sex was male, and that the bird had fully reached maturity. I purpose publishing more particulars with illustrations a little later on. This is a new bird for the Irish List.

C. J. PATTEN.

University, Sheffield.

Jer or Greenland Falcon at Lambay.

I have received two letters from Mr. Francis Mason, steward to Mr. Baring, of Lambay. In the first, dated May 5th, he writes:—

“ On Monday, May 3rd, a Jer Falcon was seen by my son. I saw it plainly yesterday evening. We had one of these birds at Glynwood, Athlone, for four years. I kept it during that time, and when it died it was stuffed by Williams. Mr. Dames Longworth’s butler caught it in a landing net in Co. Donegal.”

The incident of the capture of the Falcon by Mr. Longworth’s butler is recorded in Ussher’s “ Birds of Ireland.”

In his second communication, dated May 8th, Mr. Mason says:—

“ The Falcon killed a Cock Pheasant on the 5th May and picked it almost clean; it was so gorged that it could only fly a very short distance, and was captured by my son, and we now have it in a large cage. It is white at the throat, breast, and underneath, on the back it is white streaked with dark grey, it is about as big as a Herring Gull.”

I do not think there can be any doubt as to the species.

G. C. MAY.

Dublin.

NEWS GLEANINGS.**The National Museum.**

All Irish naturalists will unite in offering their heartiest congratulations to Dr. R. F. Scharff and Miss Jane Stephens, whose engagement has recently been announced. Dr. Scharff’s lifelong work as Keeper of the Natural History Division of the Museum is known to ail, and Miss Stephens’ Assistantship in which she has shown her capabilities in zoological research is thus happily crowned.

The Natural History Assistantship, vacant through the lamented death in action of C. M. Selbie, has lately been filled by the appointment of A. W. Stelfox, whose work on the Irish Land and Freshwater Mollusca has made him well known to British and European malacologists. In all sincerity we express the opinion that this appointment is a subject for congratulation to the Museum as well as to our friend who finds there congenial work.

Now the resignation of Miss Stephens in view of her approaching marriage causes another vacancy. We reluctantly state our belief that there are very few young Irish naturalists at once qualified and willing to undertake the duties of such a post at the present time. But it offers a great field for work to an earnest student and we heartily commend its claims to any who may heed the call. We understand that candidates of either sex are eligible.

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SPECIAL LEAFLETS.

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SOME COLEOPTERA AND LEPIDOPTERA FROM
COUNTY KERRY.

BY L. H. BONAPARTE-WYSE.

WITH regard to Mr. O. E. Janson's interesting list of coleoptera taken during last June on a tour in Kerry (*antea*, pp. 1-7), I have thought it worth while to supplement his captures with a few of my own. Although some time was spent together collecting in Muckross demesne and on the lake-shores adjoining, I felt desirous at times of extending my explorations further afield in the hope of adding to our joint captures. Thus I took a trip to the Tomie Woods with Mr. Bullock on June 4th, which resulted in our beating from oak a few *Silpha quadripunctata*—an addition to the Kerry fauna. We found the oak-leaves much damaged by the caterpillars of the Green Tortrix Moth (*Tortrix viridana*) on which the *Silpha* was evidently preying, and a good many larvae together with the active pupa were taken and the moth reared in due course. Kane¹ does not record this destructive insect from Kerry. On June 6th, a fine sunny day, I spent a few hours on Ross Island where the Narrow-bordered Bee Hawk-Moth (*Hemaris tityus*) was met with in some numbers but in very poor condition, only one specimen taken being fit for the cabinet. It was pleasant also to see a few specimens of *Gonepteryx rhamni* on the wing, a butterfly which is scarce and local in Ireland though long known as an inhabitant of the Killarney district. Towards the middle of June I made an attempt to ascend the Purple Mountain, the highest peak of the Tomie range, but had not the time to attain my objective. I got as far, however, as the intermediary peak marked on the map (Ordnance survey) as 2,503 feet high but to which no name is attached. My only capture of note for the day was a fine specimen of the rare ground-beetle *Carabus glabratus* which I found crawling about near the summit of the Sheehy Mountain.

¹"Catalogue of the Lepidoptera of Ireland."

Having now spent more than a fortnight collecting in the vicinity of Killarney, I suggested to Mr. Janson that we should take a trip round the coast, and to this he readily agreed. Unfortunately we soon learned that public conveyances were only running part of the way. I solved my part of the difficulty by hiring a bicycle, and Mr. Janson determined to go as far as train and coach would allow. On June 18th, therefore, we started for Kenmare, I on the bicycle and my friend by train. I had hardly got half way when bang went one of the tyres and nothing to mend it with! I was lucky, however, in meeting two countrymen with bicycles near the Windy Gap who soon repaired the damage and could not be prevailed upon to accept anything for their trouble. At Kenmare two days were spent and most of the time was devoted to collecting, but with rather poor results; some stone-turning near the head of the Sound produced *Carabus clathratus* (remains only) and a few common ground-beetles and "staphs." A few miles south of the town on the banks of the Sheen River near a bridge, while searching unsuccessfully for the rare *Chlaenius holosericeus*, I found in the shingle a specimen of *Bembidium monticola* and several of the much commoner *B. decorum*. The bicycle being now thoroughly overhauled, I started for Sneem early in the afternoon of June 20th; and Mr. Janson having found a motor-car, left an hour or two later and passed me on the road near Parknasilla struggling against a strong head-wind. Comfortable accommodation was found in Sneem at Sheehan's Hotel. I only stayed the night, however, being anxious to get on to Waterville, but Mr. Janson remained there a couple of days though he would have preferred to have come on with me had it been possible. I therefore continued the remainder of my journey alone. A few miles west of Sneem I found a specimen of *Carabus clathratus* running across the road, and dismounting from the bicycle, I made a search for more hereabouts but without success. At Waterville I put up at the Bay View Hotel, which I found quite satisfactory and can heartily recommend. I stopped two days in this charming watering-place and did a good deal of collecting both by the sea and round Lough Curraun. Near the sea-shore under

rubbish *Amara similata* occurred freely, and under stones the large rove-beetle *Creophilus maxillosus* was found commonly and a very fine specimen of the var. *ciliaris* secured, also *Amara familiaris*, *A. spinipes*, *Xantholinus glabratus*, *Ocypus ater*, *Otiorynchus blandus*, etc. Around the lake, however, there was a greater variety of species. My best capture was *Carabus clathratus* of which I took a very brilliant specimen under a stone near the water's edge. Mr. Bullock had already taken several examples of this fine beetle here a few years previously and had remarked to me on their brilliant appearance. A good deal of time was spent in searching for more and great numbers of stones overturned but no others came to light. The following species, however, were noted:—*Cychrus rostratus*, *Carabus granulatus* (several and one black var.), *Blethisa multipunctata*, *Elaphrus cupreus*, *Pterostichus versicolor* and other commoner ground-beetles.

My next stopping-place was Glenbeigh, and the greater part of June 23rd was spent on the road cycling there against a strong wind. A short halt was made at Cahirciveen for some light refreshment and the journey continued to Glenbeigh through some fine scenery and over Mountain Stage where a glorious view of Dingle Bay was obtained, the road here for many miles running parallel with the railway. At last I arrived at the Glenbeigh Hotel, hot and dusty, but after a wash and a good meal I was quite eager to do some collecting at Rossbeigh: here on the sea-shore search was made for coleoptera, and the following were taken:—*Dichirotrichus pubescens*, *Pogonus chalceus*, *P. littoralis*—new to Kerry—*Ocypus ater*, *Homalota vestita* and other coast-loving species. I was much amused at the antics of the large marine woodlouse *Lygia oceanica* while searching under stones for beetles. These weird creatures scampered off at a great pace when disturbed from their hiding-places followed by a crowd of sandhoppers, and then disappeared as suddenly to re-appear on the next disturbance. But now it was getting late and I was not sorry to return to the hotel for a good night's rest. Next morning (June 24th) having a few hours at my disposal before resuming the last stage of my journey to Killarney, I paid a visit to the sandhills at Rossbeigh. Here *in stercore bovino* vast

numbers of Aphodii were found and the following species noted :—*Aphodius depressus*, *A. scybalarius*, *A. ater*, *A. nitidulus*, *A. putridus (borealis)*, *A. fossor*, *A. rufescens* (in swarms), *A. punctato-sulcatus*, *A. fimetarius*, *A. foetens*, *Onthophagus fracticornis*, and *Calathus mollis* in dried up dung probably feeding on the numerous larvae of Aphodius therein contained; the large black *Broscus cephalotes* occurred rather commonly too under stones. Having now pretty well filled all my collecting bottles, I returned to the hotel, partook of some refreshment, paid bill and pumped up the tyres of the bicycle and headed straight for Killarney. I had only got a few miles beyond Killorglin when one of the tyres gave way and two punctures were located which took me nearly an hour to put right again. It was late in the evening when I arrived in Killarney, but comfortable quarters were soon found. Mr. Janson rejoined me next day, and the remainder of our stay was spent principally collecting in the Kenmare demesne where several interesting things were taken which have already been recorded.

In conclusion I might mention here two or three rarities captured on a former visit—in June, 1915. First place must be given to *Chlaenius holosericeus* of which I took a beautiful specimen on the lake shore near Dinas Cottage. Another interesting capture was that of *Badister unipustulatus* which occurred on the shore of the Lower Lake. This species is new to Kerry and has only been recorded from one other locality in Ireland, viz., Waterford. I too can claim to have been the first to discover *Silpha dispar* in the Killarney district.

Holland Park, Gardens, London, W.

HIBERNATING ICHNEUMON FLIES.

BY REV. W. F. JOHNSON, M.A., M.R.I.A.

SOME *Ichneumon* Flies, like many other insects, pass the winter in the perfect form, but in a semicomatose state, from which they emerge in the spring as soon as the weather becomes suitable. Like the Wasps and Humble Bees the *Ichneumons* which hibernate are females, and like them, as soon as they become active, they set about producing a family. A remarkable point about these hibernating *Ichneumon* Flies is, that they belong almost exclusively to the first and second of the five sub-families of the *Ichneumonidae*, viz., the *Ichneumoninae* and the *Cryptinae*. As will be seen below I have met with one representative of the fourth sub-family, the *Tryphoninae*. I have also met with a single representative of the *Braconidae*, but I cannot find any notice of the hibernation of the members of this family, though no doubt such occur. These insects have been found in various situations, mostly in moss, but also under bark and under stones. I have met with the best results from moss off the stumps of the Scots Fir (*Pinus sylvestris*), but Mr. Morley¹ says he has had the best results from clumps of the Tuft Grass (*Aira caespitosa*), cutting off the tuft as near the roots as possible, and carrying it home in a bag. I regret that I have not paid more attention to this mode of taking *Ichneumon* Flies; indeed, some of my best captures were made when I was searching moss for beetles, and thus were more or less accidental.

Unless otherwise stated, the locality is Poyntzpass.

ICHNEUMONINAE.

- Stenichneumon culpator** Schr.—Moss on *Pinus* stump, December.
Barichneumon albicinctus Gr.—Moss in wood, March, November, and December.
B. bilineatus Gr.—Under bark of *Pinus sylvestris* at my house, February.
Ichneumon lugens Gr.—Carr's Glen, Co. Antrim, under bark of birch tree, February, taken by the late H. L. Orr.

¹ British *Ichneumons*, vol. i., p. xxviii.

- I. latrator** Fab.—Moss in wood, January, February, and March.
- I. latrator** var. **means** Gr., moss in wood, January; moss on lawn at Summerhill, Co. Fermanagh, December.
- I. subquadratus** Thoms.—Moss on lawn, January; moss on lawn at Summerhill, Co. Fermanagh, December.
- I. suspiciosus** Wesm.—Moss in wood, January; December, under a stone near Stewartstown, Co. Tyrone, March, taken by the late H. L. Orr.
- I. terminatorius** Gr.—Moss from high ground at Edentubber, Co. Louth, April; in a stump at Magheramorine, Co. Antrim, April, taken by the late H. L. Orr.
- I. extensorius** L.—Moss on roadside in February; moss in wood, November and December; in moss at Scotstown, Co. Monaghan, March; moss from high ground at Edentubber, Co. Louth, April.
- I. gradarius** Wesm.—Moss from Scotstown, Co. Monaghan, March.
- I. gracilentus** Wesm.—Moss in wood, January.
- I. albigus** Wesm.—Moss in wood, November; moss on lawn, Summer Hill, Co. Fermanagh, December.
- I. tempestivus** Hlgr.—Moss in wood, January.
- I. insidiosus** Wesm.—Moss in wood, January; moss on lawn Summer Hill, Co. Fermanagh, December.
- Phaeogenes infirmus** Wesm.—Moss, Edentubber, Co. Louth, April.
- P. planifrons** Wesm.—Moss, Scotstown, Co. Monaghan, March.
- P. rusticatus** Wesm.—Moss in wood, January.
- Dicaelotus pumilus** Gr.—Moss in wood, January, December.
- D. rufilimbatus** Gr.—Moss in wood, January, March; on roadside, February.
- Colpognathus divisus** Thoms.—Moss on roadside under Pinus, February.
- Centeterus opprimator** Gr.—Moss on roadside, February.

CRYPTINAE.

- Microcryptus bifrons**.—Moss in wood, March.
- M. galactinus** Gr.—Moss on roadside, November.
- M. nigrocinctus** Gr.—Moss on roadside, January, February, November; moss on lawn, Summer Hill, December.
- Phygadeuon fumator** Gr.—Moss in wood, March.
- Hemiteles subzonatus** Gr.—Moss in wood, January, February.
- Pezomachus vagans** Oliv.—Moss in wood, January.
- P. fasciatus** Fub.—Moss on roadside under Pinus, February.

TRYPHONINAE.

- Orthocentrus fulvipes** Gr.—Moss in wood, January. Though Mr. Morley does not record any of this genus as actually hibernating, he mentions two other species as found under circumstances of time and place pointing to hibernation.

BRACONIDAE.

- Blaeus ruficornis** Nees.—Moss on roadside under Pinus, February.
Poyntzpass.

IRISH SOCIETIES.

BELFAST NATURALISTS' FIELD CLUB.

MAY 17, 1919.—EXCURSION TO BROADWATER.—An interesting day was spent by 25 members and visitors. The great profusion of Bog-bean (*Menyanthes*) in full bloom was the most striking feature of the canal vegetation. The mollusca of the Broadwater were carefully collected.

MAY 31, 1919.—EXCURSION TO THE FLUSH.—The party numbered 56, and the interests were mainly botanical.

JUNE 14, 1919.—EXCURSION TO MAHEE ISLAND.—Motor char-a-bancs conveyed a party of 33 to the shores of Strangford Lough, where a motor launch was ready for visits to the islands. Beautiful weather enabled much botanical and archaeological observation to be carried out.

JUNE 28, 1919.—EXCURSION TO CARGAVER.—A party of 20, in the course of an eight-mile walk, explored this hill. The Lesser Wintergreen, *Pyrola minor*, was seen in several clumps.

JULY 26, 1919.—EXCURSION TO ST. JOHN'S POINT.—A very enjoyable afternoon was spent by a party of 17, ending with tea at the lighthouse. Geology and botany both claimed attention.

AUGUST 16, 1919.—EXCURSION TO GLENOE.—An uneventful though pleasant afternoon. 16 present.

AUGUST 30, 1919.—EXCURSION TO HILLSBOROUGH.—A party of 33 spent an enjoyable day in the Downshire demesne, chiefly in the study of trees.

OCTOBER 21, 1919.—CONVERSAZIONE.—A good assortment of scientific exhibits was on view. The attendance numbered 150.

NOVEMBER 18, 1919.—The President (A. M'I. CLELAND) delivered his presidential address. Taking the motto on the Club's seal ("*Fiat lux*") as his text, he traced the development of the spirit of discovery, exploration and scientific research from the fifteenth century to the present day.

DECEMBER 2, 1919.—A technical paper on "The Ecology of the Lower Plants," prepared by the late Rev. C. H. WADDELL, was read by S. A. Bennett.

DECEMBER 16, 1919.—R. LL. PRAEGER read a paper entitled "Some Aspects of Plant Life."

JANUARY 6, 1920.—J. A. S. STENDALL read a paper, well illustrated by lantern slides, on "Bygone Punishments."

JANUARY 20.—C. B. HORSBRUGH read a paper entitled "Hunting for the Living Bird of Paradise in British New Guinea," in which graphic descriptions of tropical wild life were given.

FEBRUARY 3.—Paper by J. R. H. GRAVES on "Place-names of Strangford Lough," which displayed much industrious research.

FEBRUARY 17.—G. C. REILLY dealt with "Salt Industries of the World" in an interesting and exhaustive manner.

NOTES.

ZOOLOGY.

The Common Wren.

In Mr. E. P. Butterfield's interesting remarks on the Wren (*supra*, p. 21) he refers to my article in *Irish Naturalist*, 1919, p. 85, and says "nests of this species other than cock-nests, I think are built mainly by the female." At first this sounds rather a "bull," but no doubt by "mainly" he means the main part of each nest. In view of the close individual observation which I made, during a season of a number of nests here, I would feel more satisfied if Mr. Butterfield would give his grounds for above opinion. For example, nothing in his article goes to show that any nest mentioned therein was built by a female. This year I do not propose to specially study the Wren; but as early as March 6 two male Wrens were building. Only one of these I could watch, and this cock-nest was completed by the 9th (only three days in spite of cold and snow). It so remained till 8 April when a bird was lodged in it at night. Evidently, from previous experience, a female beginning her part of the business. Now my only nest last year which might possibly not have been a cock's was one which had the outside built too early for my observation. But here are two early enough nests in all conscience and yet cock-nests. As the males thus build nests from March to July some of which are regularly used by females, there would seem no need for a female to build (that is, the outside) at all. But if other observers find she does, and which I am far from denying, it would be satisfying to have it quite definitely put and to state the proportion of female nests observed. I might add that in reference to the closing or filling of nests late in the season which I mentioned in my article, I found last autumn nearly all the nests I knew partially or entirely filled with moss.

J. P. BURKITT.

Enniskillen.

Greenland Falcon at Lambay.

Mr. G. C. May's note (p. 60 *ante*) is headed "Jer or Greenland Falcon at Lambay." It may be well to note, lest this should lead to confusion, that the bird referred to is evidently the Greenland Falcon, *Hierofalco islandus candicans* Gmelin. By the Jer or Gyr Falcon is generally understood the Norwegian representative of this section of the Falconidæ, *Hierofalco gyrfalco* (Linn.), of which no specimen has hitherto been obtained in Ireland.

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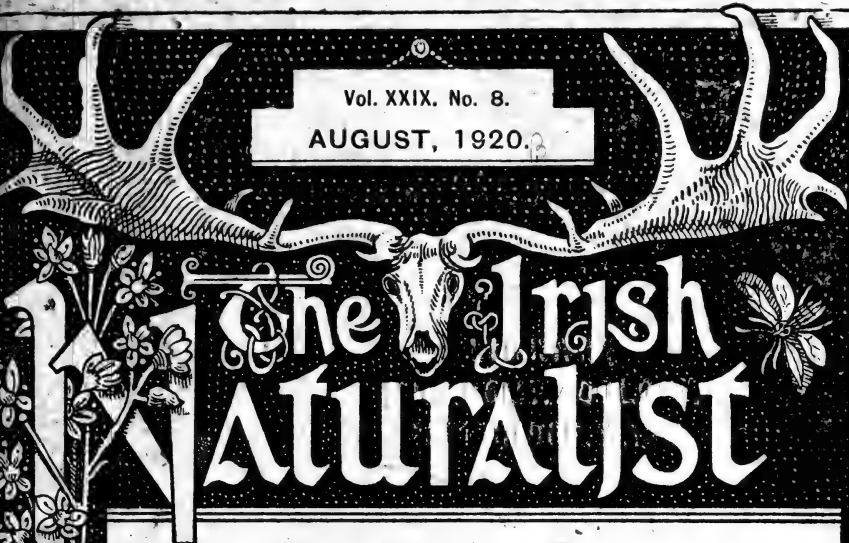
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 " 2. The Use and Purchase of Feeding Stuffs.
 " 3. Foot Rot in Sheep
 " 4. The Sale of Flax.
 " 5. Celery Leaf-Spot Disease or Blight.
 " 6. Charlock (or Preshaugh) Spraying.
 " 7. Fluke in Sheep.
 " 8. Timothy Meadows.
 " 9. The Turnip Fly
 " 10. Wireworms.
 " 11. Prevention of White Scour in Calves
 " 12. Liquid Manure
 " 13. Contagious Abortion in Cattle.
 " 14. Prevention of Potato Blight
 " 15. Milk Records.
 " 16. Sheep Scab.
 " 17. The Use and Purchase of Manures.
 " 18. Swine Fever.
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 " 20. Calf Rearing.
 " 21. Diseases of Poultry :—Gapes
 " 22. Basic Slag.
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 " 24. Care and Treatment of Premium Bulls.
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 " 27. Breeding and Feeding of Pigs
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 " 29. Flax Seed
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 " 35. The Liming of Land.
 " 36. Field Experiments—Barley.
 " 37. " " Meadow Hay
 " 38. " " Potatoes.
 " 39. " " Mangels.
 " 40. " " Oats.
 " 41. " " Turnips.
 " 42. Permanent Pasture Grasses
 " 43. The Rearing and Management of Chickens
 " 44. " Husk " or " Hoose " in Calves
 " 45. Ringworm on Cattle
 " 46. Haymaking
 " 47. The Black Currant Mite.
 " 48. Foul Brood or Bee Pest.
 " 49. Poultry Fattening.
 " 50. Portable Poultry Houses.
 " 51. The Leather-Jacket Grub.
 " 52. Flax Growing Experiments.</p> | <p>No. 53. The Construction of a Cowhouse.
 " 54. <i>Out of Print.</i>
 " 55. The Apple.
 " 56. Cultivation of the Root Crop.
 " 57. Marketing of Fruit.
 " 58. Sprouting Seed Potatoes
 " 59. Testing of Farm Seeds.
 " 60. The Packing of Butter.
 " 61. Field Experiments—Wheat.
 " 62. The Management of Dairy Cows.
 " 63. " Redwater " or " Blood-Murrain " in Cattle.
 " 64. Varieties of Fruit Suitable for Cultivation in Ireland.
 " 65. Forestry: The Planting of Waste Lands.
 " 66. Forestry: The Proper Method of Planting Forest Trees.
 " 67. <i>Out of Print.</i>
 " 68. <i>Out of Print.</i>
 " 69. The Prevention of Tuberculosis in Cattle.
 " 70. Forestry: Planting, Shelterment, and Preservation of Shelter-Belt and Hedgerow Timber.
 " 71. <i>Out of Print.</i>
 " 72. <i>Out of Print.</i>
 " 73. The Planting and Management of Hedges.
 " 74. Some Common Parasites of the Sheep.
 " 75. Barley Sowing
 " 76. American Gooseberry Mildew.
 " 77. Scour and Wasting in Young Cattle.
 " 78. Home Buttermaking.
 " 79. The Cultivation of Small Fruits
 " 80. Catch Crops.
 " 81. Potato Culture on Small Farms
 " 82. Cultivation of Main Crop Potatoes
 " 83. Cultivation of Osiers.
 " 84. Ensilage.
 " 85. Some Injurious Orchard Insects.
 " 86. Dirty Milk.
 " 87. Barley Threshing
 " 88. The Home Bottling of Fruit
 " 89. The Construction of Piggeries.
 " 90. The Advantages of Early Ploughing.
 " 91. Black Scab in Potatoes
 " 92. Home Preservation of Eggs.
 " 93. Marketing of Wild Fruits.
 " 94. <i>Out of Print.</i>
 " 95. Store Cattle or Butter, Bacon, and Eggs.
 " 96. Packing Eggs for Hatching
 " 97. Weeds.
 " 98. Tuberculosis in Poultry.
 " 99. Seaweed as Manure</p> |
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SPECIAL LEAFLETS.

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| <p>No. 1. Catch Crops—Spring Feeding of Stock.
 " 2. Autumn Sown Cereals.
 " 3. Eggs and Poultry.
 " 4. <i>Out of Print.</i>
 " 5. The Sowing of Spring Wheat and Oats.
 " 6. Winter Manuring —Grass Lands.
 " 7. <i>Out of Print.</i>
 " 8. Destruction of Farm Pests.
 " 9. <i>Out of Print.</i>
 " 10. Pig Feeding—The need for economy.
 " 11. Poultry Feeding The need for economy.
 " 12. Digging and Storing of Potatoes.
 " 13. Sulphate of Ammonia.</p> | <p>No. 14. Flaxseed for 1918 sowing.
 " 15. <i>Out of Print.</i>
 " 16. <i>Out of Print.</i>
 " 17. <i>Out of Print.</i>
 " 18. Treatment of Allotments for the Growing of Vegetables.
 " 19. Home Curing of Bacon.
 " 20. Pollution of Rivers by Flaxwater.
 " 21. Farmers and Income Tax.
 " 22. Pig Keeping.
 " 23. Palm Nut Cake and Meal.
 " 24. Conversion of Grass Lands into Tillage.
 " 25. Threshing and Storing of Grain</p> |
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Copies of the above leaflets can be obtained free of charge, and post free, on application to the Secretary Department of Agriculture and Technical Instruction for Ireland, Upper Merrion Street, Dublin. Letters of application so addressed need not be stamped.

NOTE ON THE FAUNA OF LAMBAY.

BY THE HON. CECIL BARING.

A Greenland Falcon (*Falco candicans*, Gmelin) was caught alive on Lambay, on the 6th May, and is now there in temporary captivity, *supra*, pp. 60, 68. Francis Mason, the gamekeeper at Lambay, had already written on the 4th instant to say that he had seen such a bird, but that as it was soaring high, and the light somewhat uncertain, he was not sure of the identification. I felt that there was a strong probability of his being right, for he happens to be well acquainted with the species, and I have often heard from his lips the story, recorded in Ussher and Warren's "Birds of Ireland," of how Mr. Dames-Longworth's butler, going out fishing at Glenmore in the County Donegal, on the 13th of September, 1882, clapped his landing net over a bird of this species, which bird F. Mason (who was in Mr. Longworth's employ at the time) kept alive for over four years. Doubt was set at rest when Mason wrote that on the 6th instant his son Robert had come across the Lambay visitor, gorged with the meat of a recently killed cock-pheasant, and had been able to catch it uninjured. I learn from Ussher's above-mentioned book that the "Greenlander" has been recorded as visiting Ireland fairly often, but chiefly the west coast.

F. Mason also reports that the Carrion Crows, previously recorded as visiting Lambay, have nested there this year. Both he and his son are competent observers, and I gave full credence to their report.

I may take this opportunity of adding to the Lambay list the Little Tern, *Sterna minuta*. The body of one, which had doubtless flown over from the breeding ground at Rogerstown, was picked up on Lambay on the 1st of July, 1919.

I believe we may also add to the list of mammals (on the strength of a skin now in the hands of Mr. Williams) the Black Rat, *Mus rattus*. Assuming the correctness of the identification, I am inclined to think that this visitor

may have been a passenger on the s.s. "Shamrock," which vessel, laden with a general cargo from Glasgow to Dublin, went on the rocks in Freshwater Bay on the 5th May, 1918, and has since remained there.

On the other hand, no Field-mouse has been seen, although we have been on the look-out for them. During the war more land was brought under cultivation and very many mice are found in the fields; but all those examined have turned out to be typical *Mus musculus*, and I think the inclusion of *M. sylvaticus* in the Lambay list is an error.

Bishopsgate, London, E.C.

REVIEW.

A STUDY OF BIRD LIFE.

The Heron of Castle Creek, and Other Sketches of Bird Life. By ALFRED W. REES. With a memoir of the Author by J. K. HUDSON, and a portrait. London: John Murray. 7s. 6d. net.

Prefaced by a brief and interesting memoir, which will possibly to many of its readers be the first intimation of the premature passing away (at forty-three) of the gifted author of "Creatures of the Night" and "Tanto the Fisherman," this book consists chiefly of articles contributed to the *Standard* and other periodicals dealing with various forms of wild life as studied by Mr. Rees in the beautiful country surrounding his Cardiganshire home. Many of the chapters—among which we may particularly mention those entitled "Wild Life in Hard Weather" and "A Moorland Sanctuary"—are rich in the nature-lore that only the closest experience can impart; and the author's description of the subaqueous activities of the Dipper can be recommended as an excellent antidote to much nonsense that has been written on the same subject. In the preface Mr. J. K. Hudson volunteers the information that there still remains a considerable quantity of Mr. Ree's work available for issue in permanent form should the reception of the present volume be such as to encourage publication of another. It will clearly be a cause for regret if such encouragement is not forthcoming.

C. B. M.

BIRD-NOTES FROM CO. FERMANAGH.

BY JAS. P. BURKITT, B.A., B.E.

THE GADWALL.

THE Gadwall is, I think, considered quite a rarity, but the following would indicate that it is more common than is generally supposed (as Howard Saunders suggests).

My first acquaintance with this duck was in the spring of 1918, when I saw ten in a lake near the south shore of Donegal Bay. Some of those birds remained till after 3rd May. Happening to be there again on 4th April, 1919, I saw three Gadwall. On a bay of Lough Erne I saw three on 18th January, 1919, and eight on 29th November, 1919, and nineteen on 14th February, 1920. On a smaller lake near Enniskillen I saw two pair on 11th March, 1920. These latter being near my house, I could watch them, and did so till 24th March, when a boat was put on the lake and drove them off. I was unable to continue observations of the Lough Erne site, and so I cannot tell how late the Gadwall stayed this spring. I do not conceive that these birds have recently begun to come about here, but rather that it is only recently I have learnt to "spot" them; with their graceful neck and long, gracefully curved back, and Widgeon method of feeding, not to mention details.

The above-mentioned nineteen was the greatest number I have seen together. About twelve of that lot were males. Some of the Gadwall seen in February seemed to be paired, and all those seen in March were distinctly paired.

The Gadwall appears not to be a shy duck, from all my observations. For example, the nineteen lot were among a lot of Coot, with other kinds of duck all about; and when I showed myself and tried to rise the Gadwall, all other duck, and even the Coot, cleared off, leaving the Gadwall not much concerned.

Observers need not look for the white wing spot on the male, for I find he hardly ever shows it till late spring, unless when preening or when some covering feathers are blown up by the wind. But the females nearly always show it.

MIGRATION OF LAPWING, REDPOLL AND GOLDFINCH.

There is such a very marked migration of these three species as regards this district that I wonder if it is so marked elsewhere. In winter there are practically none of these birds here, and their spring arrival is quite as striking as that of the regular foreign migrants. The Lapwing are seen from the end of February ; at first keeping to the Lough Erne shores in flocks, but by the end of March settling down at their nesting sites. Fermanagh has plenty of marshy flats and bogs which are regularly occupied by these birds, though, unfortunately, since the severe 1916-17 winter a large proportion of these noisy sites have been silent and empty. But in winter I hardly ever see Lapwing.

The Lesser Redpoll and the Goldfinch are seldom seen in winter, but both species begin to arrive in the last days of April and beginning of May : and in a few days the district swarms with Redpoll. The Goldfinches are never common, but the influx can be exemplified by some half dozen regularly appearing about my house at that time, eating the Dandelion.

Enniskillen.

IRISH SOCIETIES.

ROYAL ZOOLOGICAL SOCIETY.

Recent gifts include Green and Mona Monkeys from Dr. E. Bate, a Rhesus Monkey from Capt. R. A. Ransom, a Bonnet Monkey from Mr. W. R. Morris, a Capuchin Monkey from Mrs. Welch, Rabbits from Mrs. Wilson, Mr. Ludlow Hughes and Messrs. H. and J. Thompson ; thirteen African Finches from Mr. G. Low, a Blue-fronted Amazon from Mr. E. Holt, a Grey Parrot from Mrs. Byrne, a Peacock from Mrs. Bindon Stoney, a young Alligator from Mrs. Reid, two Green Lizards, a Chameleon and two Salamanders from Prof. A. F. Dixon, Golden Carp from Sir F. Moore and Mr. A. Blanche, and 10,000 Trout ova from Dr. R. R. Leeper. Among purchases lately made are a Mandrill, a Yellow Baboon, a Red Howler Monkey, a pair of White-eared Marmosets, a Patagonian Cavy, a Paca, a Wallaby, a Grey Parrot, a Red and Blue Macaw, a Guatemalan Amazon, two Axolotls, twelve Loach, four Catfish and eight Paradise-fish. Two Lion-cubs have been born (the parents "Seamus" and "Nuala"), and three Canadian Geese hatched in the Gardens.

BELFAST NATURALISTS' FIELD CLUB.

MARCH 2.—S. A. BENNETT made a communication on "Our Local Roses," a botanical subject of much difficulty.

MARCH 16.—D. C. CAMPBELL lectured on "Birds: their Habits, Haunts, and Homes," with many lantern slides.

APRIL 20.—The Annual Meeting was held, at which there was a much larger attendance and greater interest than usual. A. M'I. CLELAND (President) occupied the chair. The annual report, the Treasurer's statement, and the Librarian's report were read, adopted, and ordered to be printed and circulated. The election of officers for the year 1920-21 was then proceeded with, S. A. Bennett, B.A., B.Sc., being elected President, and Rev. W. R. Megaw Vice-President. Under the amended Rule III, Mr. G. Donaldson, Rev. Canon H. W. Lett, M.A., M.R.I.A.; and Mr. William H. Phillips, all members of long standing, were unanimously elected honorary members. A resolution in favour of the proposed Plumage Bill was passed, and the Hon. Secretaries were instructed to forward copies of same to the various local Members of Parliament. With the election of Mrs. J. Moderate, J. J. Megaw, W. B. Hale, Miss F. J. Makee, Miss Eva M'Kee, Miss S. Montgomery, and Miss G. Montgomery as ordinary members of the Club the proceedings terminated.

MAY 15.—EXCURSION TO CASTLE DOBBS.—The first excursion took place to Kilroot Old Church and Castle Dobbs, a party of fifty leaving town in splendid weather, A. M'I. Cleland acting as conductor. On reaching Kilroot a field path was followed to the old church associated with the earliest ministry of Jonathan Swift, later known as Dean of St. Patrick's, Dublin. From the old church the members passed along the fine tree-bordered avenue forming the approach from the main road, and thence to the demesne of Castle Dobbs, permission to visit which has been granted by Major A. F. Dobbs. Here the botanists were soon lost in the beautiful glen, all meeting in the drying-green of the castle at 5 o'clock, when an *al fresco* meal was partaken of, a plentiful supply of hot water having been most thoughtfully provided by Major and Mrs. Dobbs.

Leaving the Castle, the party was led to Dalway's Bawn, the four-towered manor house of the Stuart period formerly occupied by the Dalway family. Hence the route back again entered Castle Dobbs demesne, passing on the way a field in which many Cowslips were found (one of the few stations of this plant in the North of Ireland), and following the winding ornamental paths of the upper portion of the glen.

At the business meeting following a hearty vote of thanks was passed to Major and Mrs. Dobbs and Mrs. Higgin, of Rosganna, whose kindness had contributed so very largely to the afternoon's enjoyment. With the election of two new members (Mrs. M'Neill and Miss Churchill) the proceedings terminated.

MAY 29.—EXCURSION TO DIVIS MOUNTAIN.—A party of fifty-seven left town for Wolfhill village, under the conductorship of the President (S. A. Bennett, B.A., B.Sc.). A special car took the members to the tram terminus, whence the route followed led them across the slopes of Wolfhill, where the Moonwort (*Botrychium Lunaria*) was found.

The summit of Divis Mountain was reached, and the conductor gave a short address on the chief objects of topographical and geological interest in the view spread out at their feet. In this view Lough Neagh bulked very largely. From Divis one is enabled to get a very fine idea of the magnificent expansiveness of the basaltic plateau of County Antrim.

Leaving the summit, the party passed down to the Monk's Hill road, whence a short half-hour's walk brought them to the hospitable doors of Fernhill, where the Right Hon. Samuel Cunningham and Mrs. Cunningham had prepared tea for the members.

At the usual business meeting following tea a vote of thanks to their host and hostess was carried with enthusiasm.

The following were nominated for election as ordinary members :—Mr. and Mrs. A. M'Gowan, Dr. W. Small, Mrs. Kenny, and Miss Greenham.

JUNE 12.—VISIT TO NEWTOWNARDS.—Under the conductorship of R. May, a party of forty-two members journeyed to Newtownards, their objective being the priory of St. Columba and Movilla Abbey. The first halt was made in the main street, where stands all that is left of the old cross. Thence the party passed on to the fine ruins of the ancient church of the Dominican Priory of St. Columba. Hence a steep up-hill climb brought the members to the site of the ancient Abbey of Movilla. Three new members were elected, viz., Mr. R. P. Keith, Mrs. T. A. J. O'Neill, and Miss J. B. Sayers.

JUNE 26.—EXCURSION TO KILLYLEAGH.—A party of thirty-two members, under the conductorship of Dr. T. M. Deans, visited Clay Lake and Killyleagh, journeying from Comber by motor chais-a-banc. The majority of the party dispersed on botanical quests, whilst a few were taken in charge by Mr. James Heron, J.P., of Tullyveery House, who rowed them across to the crannog built on the small island in the middle of the lake. Afternoon tea was served on the terrace in front of Tullyveery House, the members being the guests of Mr. and Mrs. Heron and family. Thence the party proceeded to Killyleagh Castle, the grounds and gardens of which had been thrown open to the visitors by Lieut.-Colonel Gawn R. Hamilton, J.P., D.L. At six o'clock the members met in the Killyleagh Lecture Hall, placed at their disposal by the Rev. James Craig, where tea was served. At the usual business meeting afterwards the following were elected members of the Club :—Miss G. M'Kee, Miss E. Tedley, and Miss A. E. M'Cloy.

JULY 10.—EXCURSION TO COLIN GLEN.—A party of nineteen members, under the conductorship of the President (S. A. Bennett, B.A., B.Sc.), visited Colin Glen, by kind permission of Mr. J. Stoupe M'Canee.

Unfortunately the heavy rains of the previous two days had made access to the bed of the stream quite impracticable, to the great disappointment of the geologists of the party. The botanists fared better, several interesting finds being noted, though the state of the ground made collecting very difficult.

After a short halt for refreshment at the head of the glen, the following were elected members of the Club :—Mrs. L. Blair-Ball, Miss A. Ward; Mr. J. Reid, B.Sc., and Mr. R. S. Lepper, M.A., F.R.Hist.S.

NOTES.

BOTANY.

***Eryngium maritimum* in Co. Derry.**

In the latter end of July, 1918, I came across a fine plant of the Sea Holly when rambling over the sand dunes at Magilligan. This particular specimen was then in full bloom, and bore over twenty flower-heads. It grew on the inner side of the outer range of dunes, and must have been of long standing. The plant has not been recorded from Magilligan before; and it must, I think, be considered very rare there. At least I judge so from the fact that a local resident to whom I showed a spray had not seen the plant before. I may add that the only previous record from Co. Derry for *Eryngium maritimum* was D. Moore's—"between Black Rock and Portrush." It is probably extinct there now. My friend, Mr. S. Wear, saw it a few years ago, but not lately, on the sands near the Golf Hotel, Portrush, but the area in question is now in Co. Antrim.

Belfast.

W. J. C. TOMLINSON.

The Distribution of *Brachypodium pinnatum* Beauv. in Ireland.

In 1898 (*I.N.*, vii., p. 253) I recorded the finding of *Brachypodium pinnatum* for the first time in Ireland at Tramore, Co. Waterford, and four years later at Courtnacsherry, Co. Cork. Since then it does not appear to have been observed in this country until last year, when, on June 22nd, I discovered it in abundance near Portumna, Co. Galway, extending over at least twenty acres of old pasture land, not far from the shore of Lough Derg. A fortnight later, while passing in a train, I saw what I took to be the same grass on the railway bank near Maryborough, Queen's Co., and on walking back by the railway a few evenings afterwards found that my observation was correct. Next day I found some large patches of it in the centre of a meadow between Maryborough and Mountmellick. Since then I have traced its occurrence along the railway for several miles between Mountrath, Maryborough and Monasterevan, for about two miles south of Kildare, at several places by The Curragh and, in Co. Dublin, between Inchicore and Kingsbridge. Near Maryborough and The Curragh it occurs in fields adjoining the railway, but I have had no opportunity of observing its lateral distribution in the other localities.

It is a most conspicuous grass, easily discernible, even from a distance, at all seasons by its yellowish-green foliage and dense mat-like habit of growth, and wherever it grows is the dominant species, driving all other plants before it with its strong creeping stem, which spread out in every direction. Along some of the above-named places it covers the railway banks in continuous sheets each over a mile in extent.

Ashburton, Cork.

R. A. PHILLIPS

Corydalis claviculata in Co. Wexford.

On the evening of the 6th of June my sister and I found this rare fumitory growing profusely over the upper part of the rock of Tubberneering, which lies about midway between Gorey and Camolin, and is a boss of andesitic lava according to the officers of the Geological Survey (marked as felspathic ash on the G.S. map). It does not seem to have been previously recorded for Co. Wexford—the five counties credited with stations for it in “Irish Topographical Botany” being Dublin, Wicklow, Kilkenny, Waterford, and Donegal (E.). I do not think that anyone visiting the Wexford locality would doubt that the plant is here native. Its principal associates on the rock are *Sedum anglicum*, *Polypodium vulgare*, and a large-flowered but small-leaved form of *Cotyledon Umbilicus*. At the base the vegetation is that of old oak-wood. The rock is also a stronghold of the Nightjar (*Caprimulgus europaeus*).

C. B. MOFFAT.

Dublin.

Irish Mycetozoa.

On December 27 last I spent some hours in the grounds of Howth Castle searching for Mycetozoa. Although my collection for the day was a small one, I was fortunate in getting amongst dead leaves a gathering of *Lamproderma scintillans*. This species has only been recorded, as far as I can ascertain, from one other station in Ireland—near Westport by Miss G. Lister in 1911 (Clare Island Survey). On March 13 this year Mr. Stelfox gathered it amongst decaying Beech and other leaves in a ditch in Howth Demesne, and on visiting the same place, accompanied by Mr. David MacArdle, on St. Patrick's Day, I found it in great profusion. This pretty little species with its sparkling iridescent sporangia of less than half a millimetre in diameter is well worth searching for, and the two existing records from the extreme east and west would indicate that it may be found in other intermediate localities. March 17 was also notable for the discovery, also the second time in Ireland, of *Physarum straminipes*, which I found on a heap of decayed straw in the same grounds. I am indebted to Miss G. Lister for confirmation of the identity of these two species, which have been placed in the National Museum.

W. F. GUNN.

25 Brighton Square, Rathgar.

ZOOLOGY.

Bird Photographs.

The “British Birds” Photographic Series furnishes bird-lovers with delightful pictorial studies of the more interesting British species. The latest of these is “The Buzzard at Home,” by Arthur Brook consisting of a dozen excellent photographs of nesting Buzzards with short narrative letterpress. The pictures show the perfection of bird photography.

Gilbert White Bicentenary: Bird Sanctuary as a Memorial.

Sunday, July 18th, was the two-hundredth anniversary of the birth of Gilbert White, of Selborne, who did more than any other of our countrymen to create an interest in birds; the moment is therefore ripe for an appeal upon their behalf and for suggesting how a very fitting memorial to him may be established.

The work which the Selborne Society has done in the Brent Valley Bird Sanctuary, in the way of preserving birds and testing nesting boxes for use elsewhere, is well known and has some considerable value. The owners of the freehold wish now to develop their estate, and if the money necessary to buy the property is not forthcoming, the Sanctuary will go.

Matters have been made as easy as possible for us, and we have been asked only £4,500 for twenty-two acres of building-land, which comes into the London Postal District. May I, as Chairman of the Bird Sanctuary Committee, invite the help, more particularly of those who are fond of birds and of open spaces, to save the Wood? Those who have been immediately interested have subscribed 300 guineas to start the fund.

As Gilbert White left to the English-speaking races a highly prized classic, many literary as well as scientific people and nature lovers might also like to subscribe. I should be very glad to give further information as regards the Bird Sanctuary and about the way in which it is proposed to celebrate the Gilbert White bicentenary.

WILFRED MARK WEBB.

The Hermitage, Hanwell, London, W.7.

Scarcity of the Small Tortoiseshell Butterfly.

This butterfly, *Vanessa urticae*, is usually the first to make its appearance in the spring, for it hibernates, and as soon as the weather becomes genial, it comes out of its winter quarters and flits about in the sunshine. This spring the first butterfly that I saw on the wing was the Speckled Wood, on April 24th. On May 4th I saw the Green-Veined White on the wing. On May 7th I saw the Orange Tip, and on the same day the first Tortoiseshell, and it was flying in a street in Newry. I did not see one here till May 10th when I saw one ovipositing on some nettles on the roadside. A couple of days later I saw one in my garden, so that the total up to date (May 20th) is three. I usually see two or three of these butterflies hibernating in my house, but last winter I did not see any. A failure of the autumn brood would account for the scarcity, but I did not observe any lack of them last autumn. We had some very fine warm days in February, e.g., 18th and 21st, and the butterflies may have been tempted out on these days and succumbed to the frosts which followed. I should like to know if others have noticed this scarcity of the Small Tortoiseshell. I may add that on May 15th I was delighted to see a Peacock Butterfly in my garden, the first time I have seen it here in the spring.

W. F. JOHNSON.

Poyntzpass.

The Quail in Co. Antrim.

For many years past the Quail, for some reason or other, has been extremely rare in this part of Ireland, indeed for several years it was looked upon as extinct in the district. As authenticated records of its reappearance are, therefore, of interest to Irish ornithologists, I venture to record a recent experience. On the 30th May of the present year it was my good fortune to hear the bird at close quarters call for a considerable time, in a rough, rushy, pasture field near Tully, in the parish of Killead, Co. Antrim, and situated about three miles from the eastern shore of Lough Neagh. The place is known locally as the "Black Bogs," and on the day in question was largely tenanted by the Curlew, Lapwing, Snipe, Reed Bunting and Meadow Pipit. Amid the disturbed calls of Curlew and Lapwing, the call of the Quail at some little distance was easily recognised. I may say that I had not heard the bird since I was a boy, in the early eighties. A local farmer friend who was with me, when I drew his attention to the call, and asked him what the bird was, at once confirmed my identification by exclaiming "the Wet-my-foot," and adding that he, too, had not heard it before for over thirty years.

Belfast.

W. J. C. TOMLINSON.

Remains of Little Gull at Slyne Head Light-Station.

On Tuesday, February 4th, 1919, through the kindness of Mr. Frank Hawkins, lightkeeper, I received the left foot and left wing of a Little Gull (*Larus minutus*), which he picked up "a few days" after I left the Slyne Head light-station in the previous autumn. As the date of my departure that year was October 1st, 1918, I surmise that the bird was found about October 4th. The finder writes that the remains, when picked up, were perfectly fresh; that there were many feathers at the spot; and that there were some other fragments, mainly of bones, together with portion of the head, with feathers and beak intact. The "find" quite evidently represented what remained after a Peregrine had made a meal (possibly a Merlin may have captured the gull in question, but the quarry was rather large to make this a likely hypothesis). Both of these falcons are frequent visitors, in quest of quarry, to Slyne Head, but neither breeds there, the topography of the island and those adjacent being unsuitable for this purpose. However, during my spring and autumn visits to this station I have personally seen these two falcons on several occasions in pursuit of their prey. Not only were enough of the remains of the victim sent to me to prove the identification of the species, but also to enable me to pronounce that it was in immature plumage. This Little Gull was probably captured at or in the immediate vicinity of Slyne Head, because, unless disturbed, falcons do not usually transport their prey through the air to a spot removed from the seat of capture. The Little Gull is a rare visitor to Ireland on migration, occurring chiefly in autumn and winter.

University, Sheffield.

C. J. PATEN.

Sanderlings obtained on Migration from Slyne Head Light-House.

Though the Sanderling is by no means a scarce coast-bird on migration, it would seem that it is not given to striking the lantern of Irish light-houses. This may be explained in part by its being overlooked or even disposed of as a worthless "sand-lark" by lightkeepers. I do not, however, favour this view to any serious extent, as the keepers have sent me quite a number of Dunlins, Purple Sandpipers, and Knots, which might pass equally as worthless "sand-larks." Only one instance has been recorded by Barrington, namely that of a Sanderling which was killed striking the lantern of the Blackwater lightship, Co. Wexford, on August 30th, 1894 ("Migration of Birds," Analysis of Reports, 1881-97, p. 216). Since I started lighthouse migration-work in 1911 I have never had a specimen which had struck the lantern sent me by a light-keeper; and not until September, 1918, did I obtain specimens personally. On the 5th inst. of that year, at 12.30 p.m., I picked up a dead Sanderling near the foot of the lantern-tower of Slyne Head light-station, Co. Galway. The bird was perfectly fresh, and judging from head injuries and other evidence it no doubt met its death through colliding with the lantern during the previous night. The weather was then overcast, the night very dark, and a strong east wind was blowing. At 11.30 a.m. on the 13th inst. of the same month I discovered the body of another Sanderling. It was lying in a down-gutter leading from the roof of a water-tank, situated also close to the base of the lighthouse tower. This bird, though not decomposed, was not quite fresh. Apparently it had been about a week or so dead. I surmise that it was one of a party of Sanderlings, which probably passed close by the lantern on the night of September 4th-5th, on which occasion, as already indicated, one other was killed. The discovery of two specimens consolidates the view that a wisp, say of twenty to fifty birds—as one often sees flying over the sand-flats by day—passed close to the lantern, out of which two were killed striking. Both birds were immature females. They were in excellent plumage; remarkably fat, but their gizzards were empty. These facts, taken in conjunction with the fact that they had sustained severe head-lesions, indicate that the birds were affecting a regular and extensive migration rather than making a mere local movement.

C. J. PATTEN.

University, Sheffield.

Unusual Capture of a Seal.

I write to record a very unusual occurrence, the capture of a seal on a conger line. Last autumn Mr. H. Osborne, of Dardistown Castle, Co. Meath, was at Greenore Railway Hotel. The lough was full of mackerel, and the shoals were attended by numbers of dogfish, congers, pollocks, etc.

The seals, too, which abound in Carlingford Lough, were very busy. Mr. Osborne was fishing for mackerel from the steamboat pier in company with a good many other anglers. He had also a line out for congers. It consisted of about thirty yards of the strongest fishing line, a strong conger hook on piano wire, snooding with a strong swivel, a 2 lb. weight, and a whole mackerel for bait. He also had in his coat pocket another 30-yard coil of strong fishing line, very luckily as it turned out. This conger bait was caught and carried out once or twice with a great rush by something unknown, but finally Mr. Osborne hooked the creature firmly. It played with tremendous vigour, and he had to get a bystander, Mr. C. F. Watkins, to hand on the second coil of line. Luckily Mr. Osborne is a strong and resolute man, for he had to hold the creature by main force and, in the struggle, his hands were badly cut and blistered. After about ten minutes it showed for the first time, and turned out to be a seal. It was hooked in the angle of the jaws. The fight continued for fifteen or twenty minutes longer, when the seal began to tire and Mr. Osborne got it near the pier, and someone got a rifle and shot the poor creature. It took five or six shots to kill it. When it was landed, it was found that the hook had slipped from its jaw and was embedded in its shoulder. It was a young Common Seal and weighed 94 lbs., so it was probably about three-quarters grown. I think this is a very remarkable and perhaps unique occurrence. Seals have been sometimes found drowned on long lines, but that such a powerful swimmer could be overcome by a man with a hand line is almost incredible. No doubt the height of the pier from the water helped Mr. Osborne a little. He gave me the details himself, and I may venture to cite from the many witnesses Mr. Watkins, a well-known follower of the Meath Hounds, who helped to land the seal. I have not got the exact date of the capture.

G. H. PENTLAND.

Black Hall, Drogheda.

Pine Marten in Co. Louth.

Last winter the keeper at The Glen, Captain Cairns' place near Drogheda, trapped a Marten. He kept it alive for four days, when it made its escape. It has since been seen alive and well, but lame. I have this information from Mr. A. Mitchell, Distillery, Drogheda, who looks after the place for Captain Cairns. Mr. Mitchell is a good naturalist, and has a beautiful stuffed Marten. He has promised that this interesting visitor shall not be molested.

G. H. PENTLAND.

Black Hall, Drogheda.

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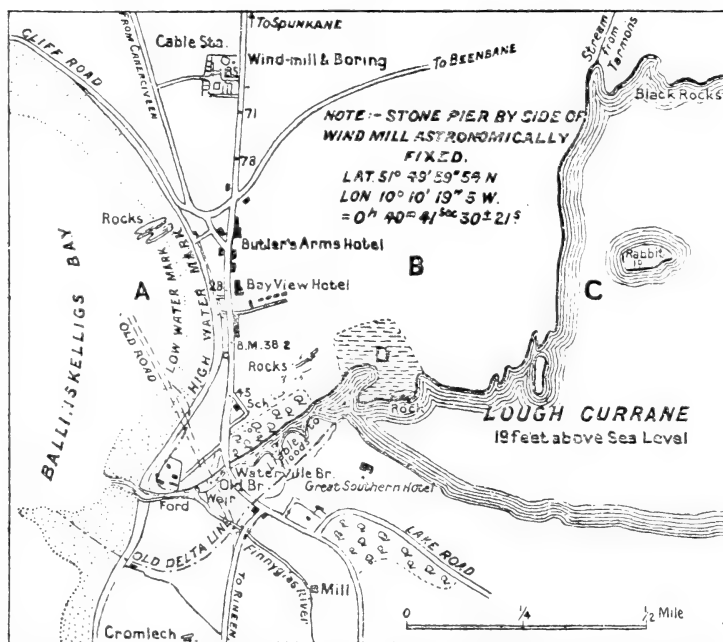
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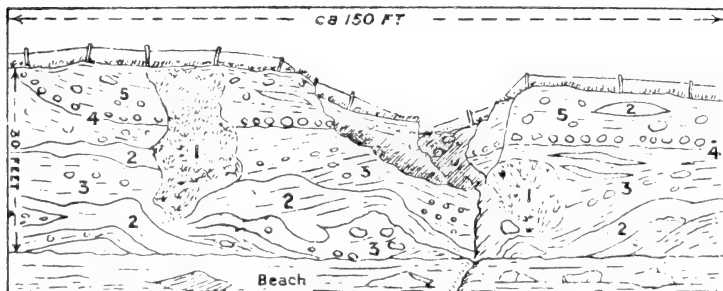
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Sketch-map of Waterville, Co. Kerry, showing the details of outlet of Lough Currane and the course of the old road. A.B.C. line of Preglacial outlet or arm of the Sea. D. Port, liable to floods.



Section of Cliff at Waterville, Co. Kerry, February 1919. 1. Grass. 2. Fine Sand. 3. Moraine, stratified with striated stones. 4. Line of erosion. 5. Moraine, later than (3)

GLACIAL DEPOSITS AT WATERVILLE.

To face p. 81.]

THE GLACIAL AND POSTGLACIAL DEPOSITS OF
WATERVILLE, CO. KERRY.

BY H. R. CALLAGAN.

WATERVILLE and Lough Currane are widely known to the devotees of shooting and fishing, but the artist and geologist have scarcely arrived.

The rugged ranges of mountains, tilted up at high angles and clothed sparsely with heather and gorse, are at times marvels of colour, and the numerous loughs scattered in profusion amongst their recesses are scenes of stern beauty and solitude.

The rocks of which the country is composed are ancient in a geological sense, the Old Red Sandstone series prevailing, but the latter is not so fossiliferous as in the district that Hugh Miller made famous. Fossils are indeed rare and very badly preserved. The strata are classed as "Glengariff grits" and are of a very hard and durable nature, and very difficult to work for building purposes.

One consequence of this hardness is that the markings due to the Great Ice Age are almost as sharp to-day as when made by the moving ice.

An example of the weather-resisting character of these grits is to be found in a fine cromlech in a field on the right hand side of the old road to Rineen, just past the crossing of the Finnyglass river, half a mile from Waterville bridge. Although this cromlech is prehistoric and probably many thousand years old, and its upper surface has been exposed to the damp weather of the west of Ireland all these centuries ripple-marks are only just beginning to be discernible. As most flags and grits similarly exposed would show strong marks in less than 50 years, this serves as a measure of the hardness of these grits.

On the south-east side of Lough Currane there are many striking examples of "Roches moutonnées," perched blocks, striations, drift, etc, and all the manifestations found in glaciated districts. The hillsides in places are strewn with "erratics" and most of the hollows drift-filled. It will be

noticed that the erratics are found generally on the seaward side of the hills and ridges, *i.e.* the west side. On that side also the hollows are more filled with drift.

All the exposed rocks and hummocks are rounded off as by a gigantic plane. A promontory running out into Lough Currane from Eightercua to Rough Island, about 20 acres in extent and 126 feet high, easily accessible from the Lake Road, shows all the characteristics of ice action on a large scale and in great detail.

The strata being at a high angle, the edges of the layers are exposed to the atmosphere, and are slightly weathered so as to produce an appearance resembling striation but due solely to rock structure. Where the strike does not coincide with the striae, however, the glacial grooves are sharp and distinct. They are seen best after rain. This promontory is the very finest example of the result of ice action that it is possible to imagine.

The striation of the district is not in the direction that one would at first sight expect it to be; the general trend of the valley is east and west, but the markings point N.E. and S.W. as if the main current of ice came straight across the lake, from Knockyline, the mountain mass dominating the lake, and lying between the lake valley and that of the Cumberagh River.

Along the lake road, at the "Arbutus Rock," there is a pocket of drift, containing striated boulders, etc. The Arbutus Rock itself, a small outlying spur, shows, when carefully examined, traces of cleavage planes at a small angle to the bedding and the layers look as if they had been forced over one another, producing slight terminal curvature.

All the exposed surfaces past this place are ice marked, those at water-level more clearly than those by the road, the water acting as a protection against weathering. In places where the ice-motion was coincident with the strike there is a slight difficulty in distinguishing the striae from the upturned edges of the beds, but where the two directions are divergent the markings are very distinct. The direction of the striation in this area is parallel to that in the promontory.

At a sharp turn in the road about half a mile farther on, where a small stream comes down a little valley, there are two fine perched blocks, and the rocks by the road side are smoothed and striated strongly.

Near Glen Moor school, where the road rises abruptly around a curve, the direction varies. On the right hand side, the rocks are well smoothed and the markings, which are shallow, vary from 9 to 12 inches in width and from 2 to 3 inches in depth. They are from 20 to 30 feet long and have a very striking effect, the direction being E. by S. and N. by W. This change from the prevailing direction is probably the resultant line of two forces of flow, one from nearly opposite and the other from the upper valley, the sharp rise of the ridge possibly also influencing the direction of the flow. Six hundred yards south of this the striae resume their usual N.E. and S.W. direction.

At Tarmons, on the N.W. side of the lake, there is a curious bit of land surface, suggesting that when, in the ice-filled Currane Valley, the ice-front conformed more or less to a low ridge, the waters from the Cummeragh Valley glacial front ran in a strong stream between the steep hillside of Tarmons and the ice front, carving out the little valley now remaining and running from there down to the lake west of the "Black Rock." The present small stream in the shallow valley is the modern representative of this much larger river.

The glacial deposits are very extensive and good sections are easy of access.

This drift is found in all the mountain hollows, the shallow lateral ravines, forms the soil of most of the valleys, composes most of the shores of the bay, and covers the various islands in the lake, the bay, and those in the Kenmare River. It is composed of very fine sand, clay and gravel, and boulders of all sizes. The sand is frequently found in long wavy masses or layers. It is a remarkable fact that along a certain well defined line of stones, the original deposit seems to have been denuded and another subsequent deposit more horizontally stratified laid down on the washed surface of the older deposit. This last deposit forms the present land surface. A short survey

of these drifts around the bay leads quickly to the conclusion that the whole deposit from Rineen to Ballinskelligs is the remains of a series of terminal moraines and more detailed study in reconstruction confirms the idea.

The section of cliff at Waterville (see Plate 1) taken in February, 1919, is about 150 yards south of a headland of glacial drift and about three-quarters of a mile west of the Butler Arms Hotel. West of the headland the cliff rapidly descends to beach level near the golf links hut and the sluice.

The stream in the view appears to coincide with a remarkable depression in the older moraine and sand deposits—the stratification apparently lying in lines filling in the sides of the original valley. It is remarkable that the stream should still retain its old course.

Waterville is built on a portion of this moraine, which starts at Rineen and follows the course of the bay to the Inny mouth. The streams have cut through it, and the sea, aided by the heavy rainfall, undermined and worn it down with varying results in different parts of the bay. The biggest cuts in the moraine are due to the rivers Cummeragh and Inny, which latter river, now running into the bay by a narrow mouth, has in past times wandered over a fairly wide delta.

Horse Island, opposite Ballinskelligs and drift-covered, was within historic times a peninsula and formed a natural breakwater for the little bay on the shore of which the abbey and castle of Ballinskelligs were built, no doubt because of this shelter. Their ruins are now threatened with early destruction due to the cutting through of the peninsula, which has allowed the free play of the Atlantic waves against their yielding foundations. Although attempts have been made to arrest this destruction, by building concrete protecting walls, these are now being undermined and at no distant date the abbey will disappear.

The sea between the island and the mainland is deepening with every rush of tide. A few years ago it was possible at low water of spring tides to wade across from the island to the abbey. A Mr. Barry, who lives on the island at present, did it a year ago.

The Cummeragh River after passing through the lake has cut its way to the sea through the lowest part of the moraine and is now down to bed-rock. From the lake to the sea, a distance of about 600 yards, it is locally named the Waterville River and is joined just before its debouchment by the Finnyglass River. It now runs in a well-defined channel, controlled in places by artificial banks. On the south side a long spit of sand and shingle runs out into the bay with the ruins of the high glacial cliff at the back of it.

The delta of the old river before the building of the bridges is indicated on the map. The ruined piers of the most ancient of the bridges still remain *in situ*. Before the building of this bridge all crossings were by the ford. In 1826 the present bridge was built. The old road over the original bridge passed through the grounds of Waterville House and continued quite one hundred yards seaward of the present "Main Street" of Waterville, joining the present road nearer Spunkane.

This "Main Street" is 28 feet above H. W. S. T., just in front of the Bay View Hotel. The road from the village to the golf links along the shore is about two feet from the edge of the cliffs. It is only a matter of a year or two before it will disappear and a new road be necessary, so fast does the moraine wear away.

The houses at Poolearagh, now at the edge of the beach, were, in the lifetime of one of the present inhabitants, so far from the sea that hurley and football were played in the seaward fields.

From the shore in front of the Bay View Hotel the moraine rises in hummocky knolls and ridges to about 80 feet and then descends in a gentle slope to the lake. The deposition of this moraine created Lough Currane, which before the Great Ice Age was an inlet of the sea. The channel which connected this inlet with Ballinskelligs Bay did not coincide with the present outlet of the lake but lay further north, as is apparent from a consideration of the exposures of rock on the foreshore and elsewhere. If the drifts were now removed the sea would enter the basin of the lake along a line crossing the Main Street at

Bay View Hotel. The lake is in places nearly 100 feet deep, so that its bottom is well below sea-level.

It is clear that when first formed behind the barrier of moraine and before the Waterville River had time to cut its channel, which is half a mile long, down to the present level, the lake surface must have stood considerably higher than it does to-day. From just beyond Beenbane one can see the well-defined shores formed at this period of the lake's history. It was then much more extensive and the upper waters were near the level of the holly wood above Glen Moor school.

The Cumberagh River rising in a chain of beautiful lakes, cuts through another moraine near Cahersavane and Dromkeare Bridges, before entering Lough Currane.

Lough Dreenaun is the fast-filling-up remnant of a large shallow lake lying in a hollow caused by the ice which has left a small terminal moraine at Baslikan. The effluent from the lake has cut through the moraine where the bridge crosses the river. Fine sections are to be seen from the banks below the bridge. There are two distinct layers of Boulder-clay as on the shore, separated by a line of washed stones. Most of the former bed of the lake is peat-covered and cultivated.

The sea beaches near Waterville are strewn with boulders of all sizes, cuboidal, angular and striated, derived from the glacial drift. They have not travelled far, and there are no really foreign stones amongst them, a detailed search revealed nothing that might not be derived from the local Old Red Sandstone series.

Through the courtesy of Mr. Hughes, Superintendent of the Commercial Cable Company, I obtained the details of the boring of a well at a spot marked "Windmill" in the C.C. Co. grounds, which is about 85 feet above sea level; this shows the depth of the moraine at that spot to be 56 feet from the present land surface—see section; sections of the core are still lying around the well; the rock is all Glengariff grit. In one section I found traces of a copper vein. The following is the journal of this bore:—

DETAILS OF WELL BORED IN 1911 BY ISLERS AT WATERVILLE.

			ft. ins.	ft. ins.
Top soil and gravel	..	..	6 0	6 0
Running sand and boulders	..	..	24 0	30 0
Running sand	..	..	10 0	40 0
Running sand and boulders	..	..	16 0	56 0
Red and grey slate rock	..	..	118 0	174 0
Red and white rock	..	..	1 0	175 0
Running sand	..	..	1 0	176 0
Red and grey rock and slate	..	..	6 0	182 0

Here the drill fell into a cavity of 3 or 4 feet and water commenced to flow.

The 10 feet of sand is no doubt a thicker layer than usual in the moraine.

The 1 foot of running sand beneath 120 feet of solid rock is peculiar and may be an error.

Lough Currane is now and has been for some centuries higher than in the 11th and 12th century when the church on Church Island was built (c. 1130) and the building known as the "castle" inhabited ("Illauntinny").

The building of the first bridge contracted the channel of the outflowing river, and caused a rise of the lake; the building of the last bridge in 1826 caused a further contraction and subsequent rise in the lake. The difference of level between now and ancient times appears to be about 3 or 4 feet. The submerged stones at Church Island called the "causeway," probably an old quay or landing-place, are not much submerged at low water in the lake and the difference of 3 or 4 feet would bring them above the surface permanently. This difference would also give a dry platform of about half an acre for the "castle." It would also bring the submerged peat bog near the outlet above the surface.

The small islands near the western shore would at that time have been peninsulas as the water is very shallow between them and the land, the bottom is covered with stones washed from the moraine.

In most of the peat bogs the old land surface on which the bog started to grow is studded with tree stumps, mostly pines with the main roots *in situ*, and the stumps generally about a foot in height above the former land level. In

many peat beds in the West Cove neighbourhood there are two rows of stumps separated by about 2 feet of peat, indicating a change of climate, and a return of the damp climate favouring the growing of peat.

The above notes will, I hope, be of interest to subsequent visitors to this outlying district. Besides the very striking glacial phenomena, the rapid advances of the sea, and the interest attaching to the former oscillations in the level of the lake, of which some account has been given above, there is much to attract the student of early history. Among the antiquities are beehive cells, ogham stones, a cromlech, a stone circle and the ruins of an old abbey. The remains of the old forests preserved in the peat bogs conjure up a picture of a former more kindly age, with a wealth of vegetation far greater than is possible on these wind-swept coasts at the present day, and perhaps also a more abundant if more primitive population.

I wish to record my indebtedness to many of the clerks of the Commercial Cable Company's staff for local information and assisting in boating, driving, etc., to see the country and eliciting information about the coast-line erosion. They are too numerous to name, but my thanks are due to them all.

NOTE.

Ulster Myriapods.

Irish naturalists are indebted to Mr. Nevin H. Foster for a list of the Chilopoda, Diplopoda and Symphyla recorded from Ulster (*Ann. Mag. Nat. Hist.* (9), iv., 1919, pp. 395-407). The identifications have been verified by the best British and Continental authorities, so that all the species here enumerated can be confidently reckoned as members of our fauna. There are 21 centipedes, 26 millipedes and 6 symphyla in Mr. Foster's list, the only drawback to which is to be found in a few irritating misspellings.

HALICTUS RUBICUNDUS AND LYCOSA PICTA.

BY REV. W. F. JOHNSON, M.A., F.E.S., M.R.I.A.

THE observations recorded below were made at Portnoo, which is situated on the southern side of Gweebarra Bay and some nine miles from Glenties in county Donegal. There are very extensive sandhills running up to the mouth of the Gweebarra river and these were the scene of the happenings herein related.

June 26th was a fine day with bright sunshine, the wind N.W., but not high. I went on the sandhills in the forenoon and made my way to a particular hill at which I had noticed bees busy a couple of days before. Here I found *Halictus rubicundus* Christ, *Oxybelus uniglumis* L. and *Crabro palmipes* L., all busy in the bright sunshine. While I was watching them I noticed a spider which proved to be *Lycosa picta* Hahn., ensconcing itself in a shallow burrow which had a sort of hood over it. This was higher up than where *Halictus*, etc., were working, and from my subsequent observations seems likely to have been the spider's own work. After watching it for a little, I looked back at the *Halicti* and my attention was taken by one which was flying to and fro in front of a burrow in an agitated manner. I thought I saw a movement as if there was something in the burrow, and looking closer to my surprise I saw that a spider was sitting at the mouth of the burrow with its front legs just outside. The bee now alighted on the sand, and approaching the burrow cautiously seemed to nip the spider's leg with her mandibles. The spider moved forward and the bee at once flew off, but only to return to the attack again and again, until at last the spider evacuated the burrow and went further down the bank. The bee immediately took possession of the burrow and disappeared from view. Next I noticed a spider, this time with an egg bag, struggling up a very steep part of the bank of sand above which the bees were busy. After several failures and pauses the spider surmounted the difficulty and presently came to a burrow, but the entrance was too small to admit the egg bag, so she set to work to enlarge the entrance. While she was thus employed

the bee to which the burrow belonged arrived on the scene and proceeded to express her disapproval of the spider's action by attacking her from the rear, nipping at her legs and egg bag, and flying off whenever the spider turned. After three or four of these attacks the bee seemed to get desperate and dashed right at the spider, trying I think to make use of her sting, but the whole thing was over in a second so that precise observation was impossible. The spider turned swiftly and must have got in a bite of some sort for the bee reeled back and I thought it had received a fatal blow. However it recovered and now retired to a safe distance and contented itself with watching the spider. Meanwhile the spider had continued to excavate during the intervals of the fight and now completed her work and made her way into the burrow, egg bag and all. And then the bee followed and both vanished into the burrow. What followed I of course could not conjecture, much less see, but presently out came the spider without her egg bag. I concluded she had despatched the bee and left her egg bag in the burrow, so I proceeded to capture her. Hardly had I done this when to my great surprise I saw the head of the bee appearing at the mouth of the burrow, on which she set to work most vigorously. I then thought that she would eject the spider's egg bag, but she did not do so that I could see, and presently she came out and flew away. I was very curious to see what had become of the spider's egg bag, so I dug out the burrow but failed to find the bag though I found a cell of the *Halictus* with a larva on a ball of pollen. Unfortunately the next three days were wet so I had no opportunity of examining the place further, and when I did get back all was obliterated by the rain. I got no further observations till July 3rd, when I noticed on the surface of the sand slight elevations which were evidently artificial. I took a bit of bent grass and poked at one of these excrescences and found that it was cover of a burrow in which was a *Lycosa picta* sitting on her egg bag. I poked at the spider with the bit of grass and she came out carrying her egg bag under her body instead of behind. I raised a couple of other covers and found in each case a spider with her egg bag. One spider which I disturbed came out

carrying her egg bag behind in the usual way. She crawled over the sand till she came to another burrow, of which she set to work to enlarge the entrance. This was a most interesting operation, and as no bee came to dispute the ownership of the burrow I was able to observe the spider's actions. She worked with her front legs pulling at the sand and, getting it into a lump, took it apparently in her jaws and carried it where it would not block up the entrance by rolling back into the burrow. This she continued to do until the opening was large enough to admit herself and her egg bag. Then having settled herself in the burrow to her satisfaction, she proceeded to weave the covering, turning round and working her spinnerets from side to side until she had a complete curtain of silk and sand covering the mouth of the burrow. While the spider was working a bee flew up and alighted on the sand near by, but took no notice of the spider nor did the spider take any notice of the bee, and presently the latter flew off again.

It would seem from what I have related that the bee does not object to the spider entering her burrow if she has finished with it, but if she has not finished then she attacks the spider and apparently is able to evict her undesirable tenant. I fully expected when I saw the bee follow the spider into the burrow that there would be a fight to a finish, but evidently respect for each other's lethal weapons produced a truce, for though the spider might kill the bee if it came to a death grapple, the bee might also inflict a fatal thrust on the spider with her sting.

I very much regret that owing to the bad weather I was unable to make more perfect observations of the relations between the bees and the spiders. I should very much have liked to see how the *Lycosa* would act when her eggs hatched out; also how the newly emerged *Halicti* would escape being entangled in the curtain of silk and sand which the *Lycosa* had woven over the mouth of the burrow, for even though the *Lycosa* had left the burrow and pushed the curtain to one side the young *Halictus* might still be entangled in the remains. On the other hand the *Lycosa* and her curtain would be an effectual barrier to the entrance of any parasite on the *Halictus*.

REVIEW.

EARWIGS, COCKROACHES AND GRASSHOPPERS.

A Monograph of the British Orthoptera. By WILLIAM JOHN LUCAS, B.A.,
Pp. xiii. x 264, with 25 plates and 25 text figures. London: Ray
Society, 1920.

In his Introduction to this volume the author refers to the Orthoptera as one of the orders of insects "neglected" by the entomologists of these countries. He should now be gratified by the knowledge that the publication of his monograph must be effective in bringing such neglect to an end. Thanks to Mr. Lucas' exertions the student who desires to work at our native earwigs, cockroaches and grasshoppers can consult detailed descriptions of the various species with which he is likely to meet, read interesting notes on their habits, and compare the structural features of his captures with clear diagrams, and with photographs, most of which are effective and well reproduced, though the smaller ones are not clear or definite enough to be of systematic value. As in other Ray Society volumes the adjective "British" is understood to include Ireland and our entomologists will agree with Mr. Lucas' statement, as to future discoveries among the earwigs, that "the south-west of Ireland might possibly yield something new if it were thoroughly explored." The records of Irish distribution are among the least satisfactory details in the book. They are stated in the preface to be mostly due to "specimens in the collection at Trinity College, Dublin," examined by Dr. Stanley W. Kemp, who is made responsible for the Irish localities instead of the naturalists who determined and in several cases recorded them in publications to which Mr. Lucas gives no reference. The collection examined by Dr. Kemp was that of the National Museum, not of Trinity College, and there are some astonishing misspellings of Irish place-names such as "Houth," "Carage Lake" and "Trome."

Some objection may reasonably be taken to Mr. Lucas' broad systematic treatment of the insects included in the Monograph. He treats the earwigs and allies as a sub-order of the Orthoptera comparable to six other groups which exhibit closer but varying degrees of relationship. None of these six can be regarded as worthy of sub-ordinal distinction, while the weighty morphological reasons for separating the Dermaptera, the comparatively primitive genital ducts and prominent maxillulae, are not mentioned in the introductory discussion.

There are valuable observations as to the seasonal appearance and life-cycle of many of the species, and the important subject of variation has not been neglected. The various species of "domestic" cockroaches are regarded as naturalised members of our fauna; some surprise will be caused to many readers by the large number of exotic "casuals" among the "British" Orthoptera.

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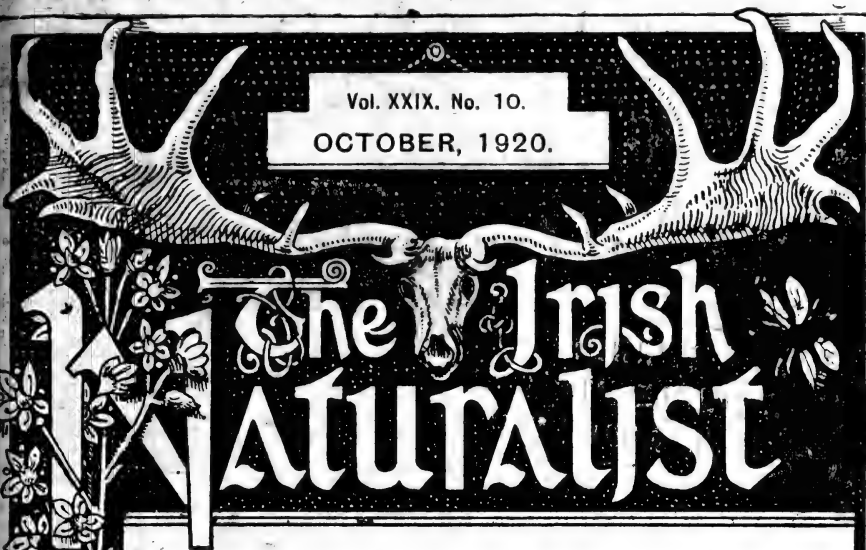
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CYSTOPHORA CRISTATA (ERXL.).

BY R. F. SCHARFF.

THIS seal seems to be more or less confined to the colder regions of the North Atlantic and is met with in numbers off the coasts of Greenland, Iceland, and Spitsbergen. The young and females of this species do not differ to any marked extent from other seals externally. Their chief character of distinction lies in the teeth, for the cutting or incisor teeth are reduced to two pairs in the upper and a single pair in the lower jaw. The male develops a striking external feature on reaching adolescence. Above the nose is formed a large inflatable sac or hood which can be dilated, giving the animal the appearance of having a big swelled head. For what purpose the male seal possesses this appendage is not known, and it is believed that the sac is only dilated when the animal is excited or irritated. In that state it must present a very remarkable and rather formidable appearance, and being naturally of a fierce disposition the animal is likely to spread terror among its enemies. A mounted specimen of this Hooded Seal from Greenland has recently been added to the collections of the National Museum.

The special interest this seal presents to the Irish naturalist is that it occasionally seems to wander southward from its northern home as far as the coasts of the British Islands and even France. Dr. Trouessart's statement that only the young migrate southward is probably incorrect. For Mr. Southwell, quoting from some ancient chronicler, informs us that fishes resembling the body of a man with cowls on their heads like monks were long ago noticed in the Firth of Forth. No doubt this account refers to the male of the Hooded Seal. We also have reports of Hooded Seals having been seen on the coast of the Orkney Islands. Several young specimens have actually been taken on the coasts of England and France.

As regards Ireland we possess several somewhat vague stories of the appearance on the coast of sea-monsters with huge heads which probably were founded on fishermen's tales about this seal. One of the clearest and most unmistakable reports of the occurrence of the Hooded Seal in Irish waters was furnished to the late Dr. Robert Ball by Mr. R. W. McIlwray of Westport, Co. Mayo, in 1836.¹ Mr. McIlwray stated that he saw no less than 150 seals basking on Inniscarrow Reef near Westport. Landing cautiously he crept within fifty yards of them. He then noticed that among them was one extraordinary seal with a very large head which had immense bladder-like protuberances over the eyes. It had external ears like a hound, but much smaller in proportion to the size of the head. The colour was light brown and it did not appear to have spots like the Common Seal. It was much more than twice as large as the common kinds. From the uncouth appearance of the animal Mr. McIlwray's boatman fell forward on the rocks from fright, causing the rifle to go off accidentally, which led to the precipitous flight of the seals.

We are indebted to Mr. R. M. Gilmore for a more recent account of the occurrence of the Hooded Seal in Irish waters.² It was in the summer of 1898 that he observed a large seal with an inflated hood on its head as it was leaving the shore to swim out into deep water of Galway Bay.

Some reader of the *Irish Naturalist* may be able to supply me with still more recent accounts concerning this or other rare Irish seals.

National Museum, Dublin.

¹ Ball, Robert.—Remarks on the species of seals inhabiting the Irish seas. Trans. R. Irish Acad., vol. xviii., 1838.

² *Irish Naturalist*, vol. ix., 1900, p. 82.

NOTES ON ANTRIM PLANTS.

BY R. LLOYD PRAEGER.

WHEN one goes botanizing in Co. Antrim, one is on classic ground ; and on ground, moreover, which has been as well worked and of which the flora is as well known, as any in Ireland, Co. Dublin itself not excepted. A local band of botanists keep careful watch over its botanical treasures, and even individual plants of some of the rarest species have attracted pilgrims who visit them and report on their progress. This advanced state of the knowledge of the local flora, and also the trouble that has been caused by the vague localization of some of the older records, are my excuse for a greater prolixity of detail in the following notes than is generally necessary or desirable in a paper of the kind.

The approaching completion of a supplement and summary to Stewart and Corry's "Flora of the North-east of Ireland" rendered desirable further search for some plants of Co. Antrim which either have not been seen for many years, or of which it seemed important to determine the limits of distribution. Accordingly, A. W. Stelfox and I took up head-quarters at Ballymena on July 1st, and devoted ten days to an examination of selected areas extending from Portmore Lough and the Rasharkin bogs on the west to Agnew's Hill and Glenariff on the east, special attention being paid to the wide area of high moors (conveniently called the Garron Plateau) which extends from Garron Point south-west towards Ballymena, maintaining for ten miles an elevation of 1,000 to 1,200 feet. This is a flattish area of wet trackless bog, untrodden even by the turf-cutter save here and there on its edges, and tenanted chiefly by breeding birds :—Curlew, Dunlin, Redshank, Golden Plover, and colonies of Lesser Black-backed and Black-headed Gulls. Round its northern and eastern edges, from the head of Glenariff to Carnlough, a steep scarp extends, which is for most of that distance magnificently precipitous.

Apart from general exploration, our especial task here lay in attempting to determine the range and frequency of two highland sedges which were discovered in recent years, and are unknown elsewhere in Ireland—*C. pauciflora* and *C. irrigua*; and we succeeded in gleaning information regarding them. We were less successful in efforts to verify some older records from the Lough Neagh shores, particularly those relating to three other sedges, *C. Buxbaumii*, *C. elongata*, and *C. filiformis*—the first being also a single-station plant so far as Ireland is concerned; but to our surprise the last-named, a lowland plant with its only known Antrim station at Lough Neagh, proved to be abundant on the Garron Plateau amid a flora of quite highland facies.

As the areas explored are mostly separated from each other and of different types, it will be convenient to treat of them severally.

GARRON PLATEAU—BOGS.

Carex irrigua Sm.—The original locality is not clearly defined (see *I. N.*, x., 165, 1901). It was reached by “striking south across the wet bogs” from Parkmore railway-station for half-an-hour, and three stations were found, ranging from 900 to 1,100 feet above sea level. They may be presumed to lie between Evisch Hill and Evisch Lough on the east, and the railway on the west. The plant is described as abundant there. W. J. C. Tomlinson, who refound the plant a few years ago, places his station more to the northward, south of Loughnafanogy, half a mile almost due east of Parkmore. We crossed all this ground, but did not see the plant till we reached a point five-eighth mile E.N.E. of Evisch Lough, about a mile from either station, where it grew rather sparingly in a broad drain 200 yards N.E. of where it crosses the streamlet from Evisch Lough direction. Subsequently we found it in abundance on the south-west side of Lough Garve a mile to the S.E., and again more sparingly in rank vegetation in wet bog quarter mile S.E. of Cranny Lough, two miles further to the E.S.E. It was not seen further to the N.E., where is the headquarters of the highland bog-flora, between Carnlough and

Glenariff. The seven stations now known lie on a transverse line across the plateau, from Parkmore south-eastward for four miles.

Carex pauciflora Lightfoot.—This also was first found near Parkmore, in a station not clearly defined—"on the mountains near Parkmore," 1,000 feet elevation, in 1889, by Canon Lett (see *Journ. Bot.* xxxiii., 216, 1895). Subsequently J. Adams recorded it (*I. N.*, viii., 59, 1899) from "near a lakelet in the mountains above Carnlough"; that is, four or five miles east of Parkmore. The four days which we devoted to this area showed that it is locally abundant on the plateau, mostly in the wettest bogs and the floating felt which fringes the lake-margins—similar habitats, in fact, to those of *C. irrigua*. We found it in nearly twenty stations, often in abundance and over many acres, where its tiny yellow semaphores caught the eye at every step; growing sometimes half under water, more rarely on the tops of tussocks of sphagnum more than a foot high. A line drawn from Parkmore station enclosing Loughnacally, the Trosks, Craighfad Loughs, Cranny Lough, Loughgarve, and back to Parkmore, defines the region of its growth so far as our observations went: an area of about ten square miles.

As *C. irrigua* and *C. pauciflora* have been evidently passed over by previous botanists who have explored this area (ourselves included), it may be worth while indicating their field-characters, in the hope that their present restricted range may be extended. *C. pauciflora* cannot be passed over when one knows what to look for. Its (usually) three bright yellow fruits, resembling those of *C. pulicaris* in shape, but standing up like a tiny semaphore, are quite easily "spotted" in the bog vegetation, no matter how dense or rank it may be. *C. irrigua*, though not so conspicuous, is quite distinct, and cannot be mistaken in the field for its close ally *C. limosa*. In the latter, the dark glaucous green leaves are very narrow (owing to their being folded) and stiff, and the shoot, whether barren or fruiting, is characteristically, not vertical, but inclined: the bract below the fruit is inconspicuous and short. In *C. irrigua* the eye is mostly caught first by the bract, which is quite flat, broad,

and spreading, like a pennon, and longer than the top of the stem. The root-leaves are comparatively short, and are broad and flat, forming a loose rosette rather like that of *C. flava*, but of a less vivid green. On pulling up the plant, the roots are seen to be fairly stout, and orange in colour, quite unlike the fine peat-encrusted root-system of *C. limosa*.

Carex filiformis L.—It was a surprise to us to find this sedge, which in Ireland as elsewhere is distinctly lowland, forming a quite striking feature of the plateau vegetation. Mostly it grew in very wet bogs with *C. pauciflora*, &c., often covering many acres of ground: in such situations it was uniformly barren. But in the floating felt of lake-margins, and where it grew in open water, it was fruiting abundantly. The line Parkmore—Loughnacally—Loughatrosk—Loughgarve—Parkmore defines its area as seen by us, save that Stelfox also got it on the site of the now filled-up Cleggan Lough three miles further to the S.W. It was noted in over a dozen separate stations. Thus, at Loughisland it forms a dense grassy growth over the silted-up western end. At Lough Fine and Loughascaban it grows in the water, spreading more thinly and fruiting abundantly. A mile N.W. of Big Trosk it forms a grassy meadow along a wet line of bog, a quarter of a mile in length, and a couple of hundred yards in breadth. This plant, which had been repeatedly searched for in vain in its only recorded Antrim station (Selshan on L. Neagh, D. Moore, fifty feet elevation) is thus unexpectedly restored to its place in the county flora.

Saxifraga Hirculus L.—The original Garron station for this plant lies on the west bank of the stream just above its last forking three-eighth mile nearly due east of Crocknavar. We visited the station where Stelfox and Wear found it in 1916: this is not the same as the first. It lies half way between the other and the top of Crocknavar, and is a mossed-over spring on the hill-side; the other was very wet bog on the flat. We found it sparingly in a third station—with *C. pauciflora* and *C. filiformis*, three-quarter mile N.N.E. of Colin Top, in very wet bog between the scarp and the stream flowing N.E. into the Inver River.

Of other plants of the Garron bogs and lakelets the following may be mentioned :—*Lobelia Dortmanna*, abundant in the lakelet quarter mile W. of Lough Fine ; its rarity in the upland tarns of Antrim is remarkable. *Sparganium natans*—with the last, and in Loughnafanogy half mile E. of Parkmore. *Vaccinium Oxycoccus* and *Carex limosa* are two of the most characteristic plants of the wet bogs, and occur frequently over the whole area, sometimes in great profusion.

GARRON PLATEAU—ROCKS, AND KNOLLS.

Low scarps and rocky knolls occur occasionally, on which some good plants were obtained. *Vaccinium Vitis-Idoea* was seen at summit of Colin Top, sparingly, and by the stream a mile S.W. of Cleggan Lough, which lies nine miles N.E. of Ballymena. A single plant of *Juniperus nana* grows at the cairn half a mile W. of Craigatinnel. Of the Parsley Fern, *Cryptogramme crispa*, very rare in the county, we were pleased to find one clump on the north face of Big Trosk, and another on the south-east face—elevation 1,100–1,150 feet. Within a short distance of both clumps the Beech Fern, *Polypodium Phegopteris*, grew sparingly in rock chinks, and was also seen on the N.E. slope of Little Trosk—in all cases only about two inches high. *Lycopodium alpinum* is very abundant all about Little Trosk, 1,000–1,260 feet, and was also seen with *L. clavatum* in abundance about Ess Dhu, 850–900 feet, where the Inver River enters the Glenariff gorge—a station found by Stelfox when lost in fog some years ago.

GLENS AND SCARPS AROUND GARRON PLATEAU.

Our main objective here was the Wood Barley, *Hordeum sylvaticum*, in its only and unverified Ulster station. Mr. Adams' record as published is vague—in "one of the glens" at Carnlough, "on wet slippery rocks overhanging the river ;" "the place where I found it agrees with the habitat as given by Hooker, namely copses and woods in chalky soil." Fortunately a specimen given by Adams is in the

National Herbarium which determines the station—"Carnlough Glen, right bank just below waterfall." This is a well-known spot. There is a contradiction in Adams' notes, since the wet slippery rocks on the right bank just below the fall are basalt, the chalk forming dry slopes further down the stream. In the definite spot quoted no trace of the grass was seen, nor in the neighbourhood, though we ranged pretty widely over both chalk and basalt. We hope that others will search for it. Among the plants which were seen below the waterfall may be mentioned *Festuca sylvatica*, *Neottia Nidus-avis*, *Melampyrum sylvaticum*, *Circaea alpina*, *Geum intermedium*. *Ulmus montana*, growing on rocks here and also in a small glen a mile north of Carnlough, I consider a native. It does not occur on the low grounds adjoining, and the habitat corresponds to undoubtedly native habitats in other parts of Ireland.

Our best plant of the glens was *Pyrola secunda*, which we found growing luxuriantly on the south bank (and very sparingly on the north bank) in a gorge on the Cranny Burn a little above the point where it is joined by the Pollan Burn. Here, sheltered by a Birch and a Mountain Ash, it was flowering abundantly. On Garron Point, where the stream from Lough Galboly (=Loughvicannon) makes a great gash in the basaltic wall, we got *Galium sylvestre*, lately added to the flora of the North-east, and also a bush of *Pyrus Aria*, believed extinct in Antrim till refound in profusion by the Belfast Naturalists' Field Club at the Little Deerpark near Glenarm, where it had been seen long before by Templeton. The Bird-Cherry, *Prunus Padus*, was seen by the Cranny and Pollan Burns. *Habenaria conopsea* was remarkably abundant at Skerry old church near Broughshane. *Stachys sylvatica* × *palustris* (nearer the latter) occurred a mile north of Carnlough.

SKERRYWHERRY.

We visited this rocky hill and saw the two rare plants recorded from it by C. J. Lilly—*Vicia Orobus* and *Arctostaphylos Uva-ursi*, but failed to find more of the latter than the single clump seen by the discoverer, and since refound

by Stelfox and others. On the north side of the hill *Habenaria albida* grew abundantly, and by the Glenwherry River were *Pyrola media* and *Galium boreale*.

Of a peculiar rose which grew among the rocks here, Col. Wolley-Dod writes:—"A peculiar form of *spinosissima* × *tomentosa*, i.e., *involuta* Sm. which I suspect must go under f. *Sabini* Woods. Its peculiarity lies in the absence of heterocanthly, though perhaps this occurred on other parts of the bush. The very straight brown stems also recall *R. mollis* as a possible parent. But I think its general appearance prohibits its separation from your other gathering." Col. Wolley-Dod places the same name on a rose collected by Stelfox at Skerry near Broughshane.

AGNEW'S HILL.

Thence we went on to Agnew's Hill, and worked pretty carefully the fine scarp of crumbling basalt, but failed to get anything new. *Pyrola secunda* (found there by D. Moore) was still elusive, and of *Arctostaphylos Uva-ursi* we saw only the single plant discovered by Stelfox some years ago. *Epilobium angustifolium* and *Galium boreale* were on the cliffs; and two unusual forms of *Veronica officinalis*, one very large and subglabrous, the other pink-flowered, were conspicuous. Templeton noted the subglabrous form at Sallagh Braes more than a century ago.

LOUGH NAROON AREA.

The flattish area of elevated wet bog lying between Dunloy and Rasharkin is not unlike a little Garron Plateau, but of only about half the elevation (600–700 feet); like the Garron area, it has yielded some plants very rare locally. We spent a day here, but failed to refind *Eriophorum latifolium* or *Saxifraga Hirculus*—found growing together there by D. Moore, and the latter refound by S. A. Brenan in 1884. *Utricularia intermedia*, which does not occur elsewhere in the county, was seen in a number of spots; *Vaccinium Oxycoccus* and *Carex limosa* were in their usual abundance. Low basaltic scarps facing west provide some

relief from the soaking peat ; on such scarps at Craigs, on the western edge of the area, *Pyrola media* and *Habenaria albida* grew, and several Hawkweeds. The best known scarp is that which starts quarter mile S.S.W. of L. Naroon ; here grow *Pyrola media*, *P. minor*, *Vaccinium Vitis-Idoea*, *Epilobium angustifolium* ; a parallel scarp a little to the eastward yielded to our delight an abundance of *Arctostaphylos Uva-ursi*, of which the two clumps mentioned on a previous page were all that were known to occur at present in the county. *Habenaria albida* was there also.

SLUGGAN BOG.

An extensive area of low-level bog still unspoiled by turf-cutting lies a couple of miles N.N.E. of Randalstown. At the point marked on the O.S. map 163 feet above datum, a knoll now crowned by a small plantation, *Vaccinium Vitis-Idoea* grows in great abundance, no doubt the station already reported to us by R. Bell. The central parts of the bog are drained by a very wet depression running northward. Here *Lastrea spinulosa* (not previously recorded from Co. Antrim) is remarkably abundant with *Vaccinium Oxycoccus*, *Carex limosa*, &c. Here, as at Dunloy, we failed to re-find *Drosera obovata*.

RIVER MAIN.

We visited Slaght Bridge below Ballymena, whence *Carex aquatilis* var. *elatio*r is recorded by Miss Knowles, and found it in great abundance on both banks below the bridge for as far (half mile) as we went, and growing six feet high. On our way home, on the edge of the railway, east side, in a cutting due east of Killybegs (two and a half miles S.S.W. of Ballymena) *Equisetum litorale* was found for the third time in Ireland, the second station being one as yet unpublished from Co. Kilkenny. The plant was of the same form (var. *clatius* Milde) as that from Co. Down, already fully described in this Journal (xxvi., p. 141, 1917). A little to the north *Lastrea spinulosa* grew on boggy banks. Having seen a tall sedge from the train

at Glarryford we motored there one wet evening, and found *C. aquatilis* in profusion along the River Main, fruiting on the river banks, but becoming stunted and barren, though abundant, to the northward, where it left the river alluvium and colonized wet peaty ditches and pools. *Plantago maritima* was noted by a lane-side across an esker close to and west of the railway three-quarter mile north of Glarryford Station.

LOUGH NEAGH.

We visited Lough Neagh twice—once the Portmore and Selshan area, and once Harbour Island—in the hope of finding some of the missing plants, such as *Lastrea Thelypteris*, *Carex fusca* (= *Buxbaumii*), *C. elongata*, *C. filiformis*—all of which were found there by D. Moore, and the second alone (which has here its only Irish station) seen by any subsequent botanist. We were as unsuccessful as the many searchers who have preceded us. Although evidence on the ground points to a lowering of the lake by something nearer two feet than the ten feet which has been sometimes quoted, there can be little doubt that this change of level is mainly responsible for the loss of the plants in their old stations, though it seems probable that they survive somewhere along the wide and varied shores of Lough Neagh. Still the amount of the loss is remarkable. Take the case of Selshan. Here the old level of the lake at Selshan Harbour shows clearly, some two feet above present level, its outline corresponding to that shown on the pre-drainage six-inch O.S. map of 1832. At and about this spot grew *Subularia aquatica*, *Lathyrus palustris*, *Sium latifolium*, *Lobelia Dortmanna*, *Typha angustifolia*, *Cladium Mariscus*, *Carex elongata*, *C. filiformis*, *Lastrea Thelypteris*, *Isoetes lacustris*, *Pilularia globulifera*. Of these, the Marsh Vetchling alone has rewarded the many recent searchers; with it we saw *Carex acuta*, recorded by D. Moore, and *C. riparia*, not noted there by the older botanists; drainage and subsequent grazing have done away with all the others.

We found some local plants in this area, but the only one not noted by recent observers was *Chaerophyllum temulum*, in bushes at the Hog Park.

To some extent, the vagueness of location which has been referred to already hangs around the only Irish station of *Carex Buxbaumii*. "Small island in Lough Neagh near Toome Bridge" is as close as most of the records go. But "Cybele Hibernica," ed. i. (not ed. ii.) and it alone, states definitely "Harbour Island." The next difficulty is that this name does not occur on any map. Fortunately, W. J. C. Tomlinson had it from S. A. Stewart, the last to collect the plant (in 1886) that the station was the most easterly of the "Three Islands" S.E. of Toome—the only one which the lowering of the lake has not now connected with the mainland.¹ S. A. Bennett recently had the same identification from an old man on the ground: and as this islet alone has on its sheltered side a small deep bay in which a boat might lie or land in windy weather, we may take the location as definitely fixed. The water between Harbour Island and the mainland at the time of our visit (the conclusion of a wet spell), was three feet deep, as we found by wading. In a dry season it might easily be reduced to two feet, and the distance being only 200 yards, Stewart's statement that he found the plant trampled down or eaten by cattle is accounted for. The island, which is nearly two acres in area, was originally thickly wooded. Stewart describes it as a bare exposed pasturage in 1886. We visited it on July 4, accompanied by S. A. Bennett and Capt. Chase, and found it covered with a luxuriant vegetation—the central parts a mass of briars, then a fringe of bushes (*Alnus glutinosa*, *Fraxinus excelsior*, *Salix cinerea*) and tall herbs and grasses (particularly *Spiraea Ulmaria*, *Vicia Cracca*, *Phalaris arundinacea*, *Agrostis alba*, *Festuca arundinacea*)—Messrs. Bennett and Chase listed 71 species altogether; but close search revealed no trace of *C. Buxbaumii*. It seemed just possible that a visit a fortnight earlier, before the rains caused rapid and luxuriant growth, might have been more fortunate.

¹ "Rock lake shore near Toome, 27:6:86" is an exact transcript of the label of the last collected specimen (in Herb. S. A. Stewart). Since Stewart states in 1888 (Fl. N.E.I.) that all records refer to one station (*i.e.*, Harbour Island) it follows that the low rocky shore at the south end of the islet was where the plant was last seen.

MISCELLANEA.

On the day before my arrival, Stelfox visited Orra Beg, and found *Lycopodium alpinum* there, on the north side, at 1,050 feet elevation. One seedling on the shore of Loughnafanogy near Parkmore, at over 900 feet, was all we saw of *Lastrea Oreopteris*. On lake-shores on the plateau at about 1,000 feet we found a seedling of Ash on two occasions, and of Sycamore once; these probably sprung from seeds carried up by gales, which fell into the water and were washed ashore. *Matricaria discoidea* appears now widespread in Antrim, one of the last counties into which it penetrated. We saw it at Gawley's Gate on Lough Neagh, in several places about Ballymena, and up to 500 feet in the lanes north of Carnlough.

We may mention that the Large Heath Butterfly (*Coenonympha typhon*) was seen at Lough Naroon and several times on the plateau, and a Peacock Butterfly on shore of Lough Neagh opposite the Three Islands. A small ant which helped to eat our lunch on the edge of Lough Fine on the plateau was identified as *Leptothorax acervorum*, for which there appears to be no Ulster record; and Stelfox took the water-beetle *Agabus arcticus* at the Bush Head on Slievenanee, known previously in Ireland only from the plateau and from Kippure in Co. Dublin.

IRISH SOCIETIES.

ROYAL ZOOLOGICAL SOCIETY.

Recent gifts include a Badger from Mrs. Blacker, two Capybaras from Lady Loder, Rabbits from Miss Osborn and Mr. T. W. Brooke, a Hedgehog from Mr. W. W. Despard, two Jackdaws from Mrs. Draper, a Turtle Dove from Miss Trench, Common Newts from Prof. A. F. Dixon, and Pike from Miss E. and Mr. M. Ferrar. Two Grey Parrots, a pair of Red-rumped Parrakeets, a pair of Quaker Parrakeets, and seven Budgerigars have been received on deposit. A Bison calf has been born in the Gardens, increasing the number of Bison in the collection to five.

Several interesting specimens have lately been acquired by purchase:—two Sooty Mangabeys, a Green Monkey, a pair of White-eared Marmosets, a Ring-tailed Coati, a Crested Porcupine, a Coypu, a batch of twenty Guinea-pigs, a Brown Milvago Eagle from Paraguay, two Curassows, a pair of Vinaceous Doves, and a Giant Tortoise from the Seychelles.

NOTES.

ZOOLOGY.

Lepidoptera from Co. Mayo.

The following notes on the lepidoptera of this district may be of interest. The Elephant Hawk-moth (*Choerocampa elpenor*) was more numerous than usual in June and July, 1917. Two were taken in this house, and others were seen feeding at dusk at honeysuckle and garden pink (*Dianthus*) flowers. The larvae here feed on various kinds of bedstraw and willowherb, and also on Bog-bean and Enchanter's Nightshade. One specimen of the Northern Drab Moth (*Taeniocampa opima*) was taken on May 10th, 1916, under a willow bush in bloom. "Kane states that it is local in Ireland" (South). One specimen of the Grey Shoulder-Knot Moth (*Graptolitha ornithopus*) was taken at rest on a rock, on April 22nd, 1917. "It is found in Scotland, but only rarely, and the same remark applies to Ireland generally, although the species is not uncommon in some parts of Wicklow, Cork, and Kerry" (South).

I regret that two of my records in the *Irish Naturalist* of September, 1916 (vol. xxv., p. 139) are erroneous. The specimen of the Four-dotted Footman Moth (*Cybosia mesomella*) was taken in 1912, not 1910, and was obtained in England. The insect recorded as the Least Minor Moth (*Phoethedes captiuncula*) is too small to be this moth, and is now in such bad condition that it is impossible to identify it, but probably belongs to the "micro-Lepidoptera."

W. RUTLEDGE.

Bloomfield,

Hollymount, Co. Mayo.

Migration of Goldfinch, Lesser Redpoll and Lapwing.

With reference to Mr. James P. Burkitt's notes on above in last month's issue, similar observations have been made in this district. As regards the Goldfinch, formerly common, it can now only be considered as an occasional straggler, though I have one note of its nesting here in 1905. In winter the Lesser Redpoll is always to be seen in small flocks in the northern low-lying portion of the district, but in spring these birds to a great extent leave this neighbourhood and betake themselves to the higher southern parts of the district where they spread and are common until the following autumn. The same may be said of the Lapwing, which as a rule frequents the low-lying meadows of the Lagan Valley in winter, but mainly breeds on the higher grounds south of the village. The Hillsborough district may be taken as a circular area of about eight miles diameter, having Hillsborough as its centre. The word "migration," perhaps, should not be used in this connexion, local movement being a more correct term.

NEVIN H. FOSTER.

Hillsborough, Co. Down.

The Wren.

At the risk of boring readers about this bird, the following notes which I happened to take this year in reference to one particular male and his nests, may be worth recording, and as corroborating my 1919 notes (vol. xxviii, p. 85).

His first nest A was begun and completed between 6th and 8th March. A later one B was occupied by a mate, with the first egg about 1st May, and the brood was fledged about 5th June. Within ten days later this same female (presumably) had lined a third nest C of the male, which had been built more than two months earlier, and which I had often fingered. The young in this nest were fledged on the 22nd July, leaving two infertile eggs. On the second next night, that is as soon as the young were equal to getting across a small open space, the young were roosting in A; that being the nest made by the male four and a half months earlier, and which I had fingered scores of times. These young, with a parent, continued to regularly roost in A up to at least August 5th (13 days) when I left home. I have seen also the young being fed in this nest in the evening after going to roost. B was about midway between A and C, and twenty yards from each.

J. P. BURKITT.

Enniskillen.

The Marten in Ireland.

I was shown lately the skin of a Marten (*Mustela martes*) which was caught in a rabbit trap at Mount Congreve, Co. Waterford, in April last. It was that of a male, the throat patch being of a rather greyish colour, so I fancy it was neither a very young nor an old specimen. As this creature is apparently becoming more and more rare in Ireland it seems worth while to put this occurrence on record. In the *Zoologist* for March and April, 1894, Mr. J. E. Harting, Major G. E. H. Barrett-Hamilton and Mr. R. Patterson gave all known records of the Marten in Ireland at that date. In the 26 years that have elapsed since that time I find that there are only fifteen records of its capture in Ireland in the *Irish Naturalist*. They are as follows:—

1895	..	Co. Waterford	..	2
1896	..	Co. Galway	..	3
1897	..	Co. Waterford	..	1 with cubs
1899	..	Co. Antrim	..	1
1899	..	Co. Galway	..	1
1899	..	Co. Down	..	1
1900	..	Co. Londonderry	..	1
1903	..	Co. Wexford	..	2
1903	..	Co. Londonderry	..	1
1908	..	Co. Galway	..	1
1915	..	Co. Kildare	..	1

DENIS R. PACK BERESFORD.

Fenagh House, Bagnalstown.

BOTANY.

Poa compressa in Dublin: a Tragedy.

The late Mr. Colgan placed this grass in the appendix to his "Flora of County Dublin," 1904, stating therein that it had not been seen in the county for upwards of half a century. He would appear also to have been in doubt as to the correctness or otherwise of the previous records, though Wade in his catalogue of Dublin plants, 1794, records it as found occasionally on old walls and dry places in the county, and a MS. record of White's is quoted in "Cybele," 1866, namely, in rocky ground at the foot of the Dublin Mountains. In June last I noticed an unusual-looking grass on a wall-top on the eastern side of Grosvenor Place, Rathmines, the garden wall of 124 Leinster Road. Examination led to the suspicion that it was *Poa compressa*, and Miss M. C. Knowles confirmed this identification, and I have to thank her also for drawing my attention to the information given above. The plant grew profusely in several patches, apparently long established, with *Lolium perenne*, *Dactylus glomerata*, *Holcus lanatus* and *Poa annua*, and attained a maximum height of about eighteen inches.

My frequent visits for specimens must have drawn the attention of the owner to the condition of the wall, and during my absence from Dublin at the beginning of July, not three weeks after the discovery of the *Poa*, the wall was repaired, the gaps rebuilt, and the whole capped with cement surmounted by a wire fence, so that on my return all trace of its former flora had vanished. As to whether or not the grass could have been derived from a native source there is little use in speculating, but it now lies buried beneath some inches of alien cement—and herein lies the tragedy.

A. W. STELFOX.

Rathgar, Dublin.

Ferns in Dublin City.

The spores of ferns are so minute that they are borne everywhere by the wind, and they sometimes germinate and succeed in establishing their species in unfavourable surroundings, as in the middle of the City of Dublin. Thus, at Leinster House in Kildare Street, over the pediment at the southern end, facing west but cut off from the southerly sun, four species grow:—Hart's-tongue (*Scolopendrium vulgare*), Male Fern (*Lastrea Filix-mas*), Broad Buckler Fern (*L. dilatata*) and Soft Shield Fern (*Polystichum angulare*). Right opposite the Mansion House in Dawson Street is a fine plant of Bracken (*Pteris Aquilina*). It has established itself in a nook beside a leaky down-pipe at about street level overhanging an area, where it contrives to survive the drought of dry seasons. At the north end of Harcourt Street a well-grown Male Fern, also established beside a down-pipe, embellished one of the house fronts till lately, when painters made short work of it.

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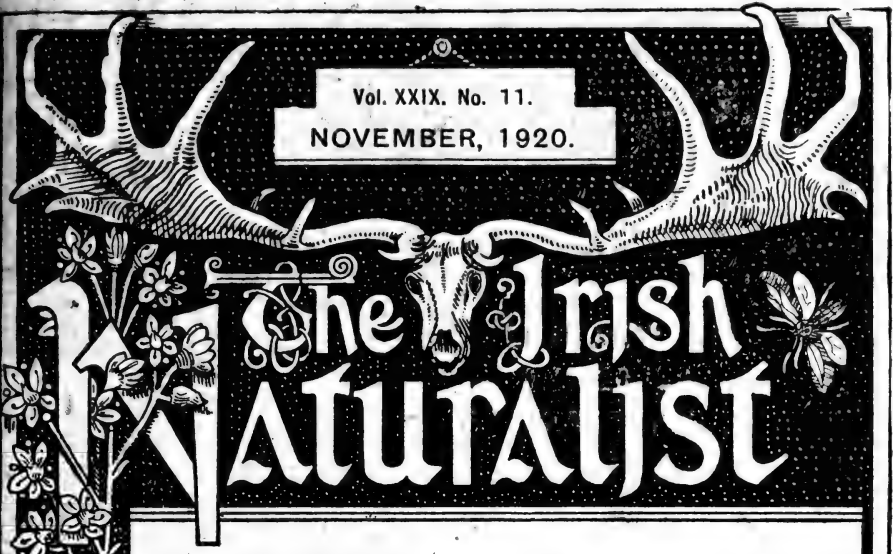
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SOME NOTES ON THE HABITS OF THE WREN.

BY ROBERT F. RUTTLEDGE.

DURING the last twelve months two articles have appeared in the *Irish Naturalist* with regard to the habits of the Wren. The following are a few observations which I have made regarding its habits, which differ from those of some other naturalists in this country.

Mr. J. P. Burkitt states¹ that the male bird apparently takes no part in feeding the young while still in the nest. My experience is that both sexes feed the young while in the nest, and as recently as July 30th of this year I watched for some time both male and female doing so. Not only did both sexes feed the young, but both took part in removing the excrement from the nest, it being carried about ten yards before being disposed of.

Kinahan observed that the Wren was regular in the time of its commencement of song, and that in five years it only once commenced before the beginning of November. He added that the song ceases about the middle of June.² In Kinahan's table for bird song he shows the Wren to have sung in every month except August.

Regarding the above points, my experience is that the Wren sings in every month of the year, even throughout August, though less frequently than in other months. The song is heard most often until the last week in July, and Wrens may be heard in song everywhere towards the end of September.

The fact of the Wren singing while in flight is another point which is sometimes discussed. The late Rev. C. W. Benson stated that he had never heard it sing whilst on the wing. I may here state that both my brother and I have noticed this habit in this part of Ireland.

Bloomfield,
Hollymount, Co. Mayo.

¹ *Irish Naturalist*, vol. xxviii., 1919, p. 85.

² Ussher and Warren's "Birds of Ireland," p. 33.

SOME IRISH SAWFLIES.

BY REV. W. F. JOHNSON, M.A., F.E.S.

VERY little is known about Irish Sawflies. All the records of them from Ireland with which I am acquainted are to be found in the *Irish Naturalist*, the *Entomologists' Monthly Magazine*, and in Mr. Morley's Report on Hymenoptera in the Clare Island Survey.¹ This last named paper gives the bulk of the records of species, viz., 53; in the other notices 8 species are added, making a total of 61 species, and, as there are considerably over 300 species recorded from the British Islands, a good deal remains to be done to determine how many belong to Ireland.

Sawflies are to be found in nearly every hedgerow, also among bushes and in woods. They are rather sluggish insects, moving but little except in bright sunshine, and are by no means active on the wing, so that they are pretty easy to catch when flying. When sitting they can often be caught with the finger and thumb; but they have a most objectionable habit of dropping off their perch when alarmed into the herbage beneath, and there it is usually impossible to find them. They can also be taken by sweeping among herbage, and, in dull weather, by beating bushes or trees. Their larvae feed on various plants and trees, many are to be found on various species of willow; others feed on grass or rushes and various low plants, *e.g.*, scabious, buttercup, etc. In a great many cases the larvae are unknown, so there is a good opportunity for research. Sawfly larvae can always be distinguished from those of butterflies and moths by the greater number of legs; larvae of Sawflies have from 18 to 22 legs, those of butterflies and moths 16 at most.

Sawflies are so called because the females have a little apparatus, serrated like a saw, with which they make incisions in leaves and therein lay their eggs. This applies only to the true Sawflies, for *Sirex*, in the place of the saw,

¹ *Proceedings, R.I.A.*, vol. xxxi., part 24.

has a boring apparatus. None of them have anything in the shape of a sting, and they are quite unable to hurt a human being. *Sirex gigas* is often mistaken for a hornet, but it is quite different in colour and shape; besides, we have no hornets in Ireland. The larvae of Sawflies being vegetable feeders, sometimes do harm, as in the case of the larva of the Gooseberry Sawfly. The Pine Sawfly often does harm on the Continent, but here it is happily somewhat rare, though cases have occurred of its doing damage, as reported by Mr. Praeger¹ and Professor Carpenter.²

I have received much kind help from the Rev. F. D. Morice, M.A., F.E.S., who assisted me with my difficulties, and whose "Help Notes"³ have been invaluable to me, forming, as they do, a most admirable guide to the study of the British Tenthredinidae. I have followed the nomenclature and arrangement of the "Help Notes," except as regards the genus *Tenthredopsis*, which is still in considerable confusion. However, Mr. Morice has kindly given me the latest arrangement, which even so is still more or less provisional.

In the following list I only give those species which I have collected myself, or which have been sent me by friends, omitting those which I collected for the Clare Island Survey, which have been already published by Mr. Morley.

I have placed after each species the month in which it occurred, and it will be seen that May and June are the months in which I have met with most species.

Of the localities mentioned below, Poyntzpass, Jerretts-pass, Drumbanagher, Glenanne, Keady, and Churchill are in Co. Armagh; Caledon, in Co. Tyrone; Tempo, in Co. Fermanagh; Coolmore, Coxtown, St. Ernan's, and Portnoo, in Co. Donegal; Cave Hill, in Co. Antrim; Groomsport, Dundrum, Newcastle, Newry, Banbridge, and Lough Shark, in Co. Down; Carlingford, in Co. Louth; and Rosses Point, in Co. Sligo.

¹ *Irish Naturalist*, Vol. ii., 1893, p. 55.

² Report on Injurious Insects, *Economic Proceedings*, Royal Dublin Society, 1907.

³ *Ent. Mo. Mag.*, 1903-1918.

SIRICINI.

Sirex gigas L.—Armagh, Loughgall, Keady, Glennane, Poyntzpass, Caledon, Banbridge, Newry, and Tempo, July, August, September. Specimens vary in length from 18 to 35 mm. These have been met with in very varied situations; at Armagh one was taken in a grocer's shop and another in a timber yard, at Caledon it was found on Larch, and at Newry it flew into a private house; here I took a very small one sitting outside my bedroom window, and caught another larger one flying round *Cupressus lawsoniana*. I have never met with the male, but Sir Charles Langham obtained several males from Silver Fir, these emerged in August.

CIMBICINI.

Cimbex femorata Oliv.—Tempo, taken by Sir C. Langham; Drumbanagher, taken by Miss Doris Nelson; May.

var. **sylvarum** F.—Armagh, emerged from pupa, April 19.

Trichiosoma lucorum L.—Poyntzpass, Belfast; May, June.

T. tibialis Leach.—Poyntzpass, June.

T. Latreillei Leach.—Poyntzpass, July.

Abia sericea L.—Dundrum, taken by the late H. L. Orr; Portnoo, June, July.

ARGINI.

Tenthredo (Arge) ustulata L.—Poyntzpass, on hawthorn, in May.

Schizocera geminata Gir.—Poyntzpass, May.

LOPHYRINI.

Pteronus (Lophyrus) pini L.—Tempo, bred by Sir C. Langham, the perfect insect emerging in May.

TENTHREDININI.

NEMATIDES.

Cladius pectinicornis Fourc.—Portnoo, June.

Trichiocampus eradiatus Hartig.—Poyntzpass, May, June, August.

Priophorus padi L.—Poyntzpass, May, June.

P. tristis Zadd.—Belfast, taken by the late H. L. Orr, June.

Dineura testaceipes Klug.—Poyntzpass, May.

D. stilata Klug.—Poyntzpass, June.

Pontania vesicator Brems.—Portnoo, May, June.

P. salicis Christ.—Poyntzpass, emerged April 29th from larva taken on Sallow in previous August.

P. viminalis Htg.—Coolmore, Poyntzpass, July, August.

Pteronidea ribesii Scop.—Poyntzpass, Newry, Coolmore, Coxtown, May, June. This is the too common Gooseberry Sawfly.

P. pavidus Lep.—Poyntzpass, Portnoo, May, June. On August 5, 1917, I took larvae of this sawfly on Salix; these duly pupated, and on May 6, 1918, two females emerged, and others followed at intervals, but no males. They were very sluggish at first after emergence, and indeed continued so, except when there was bright sunshine; then they crawled about and took short flights. Their flight was very feeble, and when crawling, unless they had a good hold, they fell; they often sat for a long time in one place, either on a leaf or on the earth, at the bottom of the bell-glass in which they were.

I watched carefully, but could not detect them in the act of ovipositing; but they did oviposit, for on May 20 young larvae made their appearance. This was clearly a case of parthenogenesis, and I was curious to see if Cameron's statement¹ that males were the result would be confirmed. To my delight, on June 29th males did emerge, proving the accuracy of Cameron's observations.

P. myosotidis F.—Poyntzpass, June.

P. curtispinis Thoms.—Coolmore, Poyntzpass, June, August.

Amauronematus viduatorius Zadd.—Portnoo, June.

A. Moricei Konow.—Poyntzpass, emerged October 5th.

Pachynematus trisignatus Foerst.—Churchill, Poyntzpass, June.

P. clitellatus Lep., var. **turgidus** Zadd.—Poyntzpass, August, by sweeping grass.

P. apicalis Hartig.—Poyntzpass, Portnoo, May, June.

P. pleuralis Thoms.—Poyntzpass, June.

Lygaeonematus ambiguus Fall.—Portnoo, September.

L. pini Ratz.—Poyntzpass, June.

L. compressicornis F.—Poyntzpass, August.

Pristiphora melanocarpa Htg.—Portnoo, June.

P. ruficornis Ol.—Coolmore, August.

P. viridana Knw.

P. palliventris Fall. } Poyntzpass, May.

P. betulae Ratz. }

HOPLOCAMPIDES.

Caliroa (Eriocampoides) aethiops F.—Poyntzpass, Tempo, Portnoo, May, June.

Hoplocampa ferruginea Panz.—Poyntzpass, June.

BLENNOCAMPIDES.

Tomostethus funereus Kl.—Poyntzpass, Portnoo, May, June.

T. dubius Gm., var. **nigrans** Knw.—Poyntzpass, May.

T. luteiventris Kl.—Poyntzpass, May, June.

Monophadnus albipes Gmel.—Poyntzpass, Portnoo, May, June.

¹Monograph of British Phytophagous Hymenoptera, vol. ii., p. 173.

SELANDRIADES.

- Athalia glabricollis** Thoms.—Coolmore, September.
A. lineolata Lep. (*rosae* C.).—Poyntzpass, Newry, Cave Hill, Coolmore, Tempo, Rosses Point, June, July, August.
Selandris serva F.—Poyntzpass, June, July, August.
S. morio F.—Poyntzpass, June.
S. cinereipes Kl. (*aperta* C.).—Jerrettspass, Poyntzpass, June.
Thrinax maculata Kl.—Portnoo, June.
Strombocerus delicatalus Fall.—Portnoo, June.
Strongylogaster cingulatus F.—Carlingford, Dundrum, Portnoo, May, June, July.
Empria (Poecilosoma) excisa Thoms.—Poyntzpass, Portnoo, June.
E. longicornis Thoms.—Poyntzpass, Portnoo, May, June.
E. tridens Knw.—Poyntzpass, May.
Emphytus cinetus L.—Poyntzpass, Portnoo, May, June, July.
E. calceatus Kl.—Poyntzpass, June.
E. serotinus Mull., var. **tarsatus** Knw.—Poyntzpass, October 1st.
E. carpini Htg.—Poyntzpass, May.
E. grossulariae Htg.—Poyntzpass, May.
Taxonus equiseti Fall.—Poyntzpass, June, August.
T. glabratus Fall.—Poyntzpass, May, August.

DOLERIDES.

- Dolerus ferrugatus** Lep., var. **miricolor** Knw.—Portnoo, June.
D. palustris Kl.—Poyntzpass, Jerrettspass, April, May.
D. dubius Kl.—Jerrettspass, Tempo, April, May.
D. puncticollis Thoms.—Poyntzpass, May.
D. niger L.—Poyntzpass, May, June.
D. picipes, Kl.—Armagh, Churchill, Poyntzpass, Tempo, Portnoo, May, June.
D. megapterus Cam.—Poyntzpass, April.
D. fumosus Zadd. (nec. Stephen).—Portnoo, Armagh, Poyntzpass, April, May, June.
D. nigratus Mull. (*fissus* Cam.).—Carlingford, Armagh, Poyntzpass, April, May, June.
D. aeneus Htg. nec. Cam. (*elongatus* Cam.).—Poyntzpass, Portnoo, May, June.
D. rugulosus Dalla Torre.—Poyntzpass, Jerrettspass, Cave Hill, April, May.

TENTHREDINIDES.

- Rhogogaster viridis** L.—Churchill, Portnoo, June, July.
R. aucupariae Kl. (*gibbus* Cam.).—Poyntzpass, May.
Tenthredopsis litterata Geoff.—Poyntzpass, Portnoo, May, June, August.
T. nassata L.—Poyntzpass, Portnoo, May, June, August.
T. inornata Cam. (sec. Enslin).—Poyntzpass, Portnoo, Groomsport, May, June, July.

Tenthredopsis fenestrata Konow. (= *flavomaculata* Cam., sec. Enslin).—
Poyntzpass, May.

T. spreta Lep.—Poyntzpass; Portnoo, May, June.

T. coquebertii Kl.—Poyntzpass, Jerrettspass, Churchill, Tempo, Portnoo,
June.

T. palmata Geoff.—Poyntzpass, May, June.

T. gibberosa Konow. (= *piciticeps* Cam., var. sec. Enslin).—Poyntzpass,
Portnoo, June.

Pachyprotasis rapae L.—Poyntzpass, Churchill, June.

Allantus arcuatus Forst.—Armagh, Poyntzpass, Jerrettspass, Carlingford,
Newcastle, Coolmore, Portnoo, Rosses Point, May, June, August,
September.

A. Perkinsi Morice.¹—Poyntzpass, Portnoo, June, July, August.

Tenthredella mesomela L.—Poyntzpass, St. Ernan's, Portnoo, June; var.
obsOLEta Kl.—St. Ernan's, June.

T. atra L.—Armagh, Poyntzpass, Portnoo, May, June.

var.; **dispar** Kl.—Poyntzpass, Portnoo, May, June.

T. livida L.—Armagh, Poyntzpass, Jerrettspass, May, June.

T. scotica Cam.—Portnoo, June.

Poyntzpass.

IRISH SOCIETIES.

DUBLIN NATURALISTS' FIELD CLUB.

MAY 8.—EXCURSION TO SUTTON AND HOWTH.—The first place visited was Bottle Quay, where the Dolomite beds were examined and their origin explained by J. de W. Hinch. From a point of vantage near the tram road the old hore line along the bay was pointed out and its relation to the raised beach discussed. The recent appearance of the North Bull above high-water mark received notice. At the summit the general geology of Howth was demonstrated by the Howth quartzites and the intercalated grits and slates. The latter portion of the excursion was marred by very heavy rain.

MAY 29.—EXCURSION, OLD CONNA HILL, BRAY, by kind invitation of Capt. Riall.—The members, about twenty-five in number, were entertained to tea by the Misses Riall. The gardens, which are in a fine state of cultivation, with numerous shrubs and flowering plants, were first inspected; and afterwards a walk was taken around the pinetum. A large number of species of conifers are represented by fine trees, notably *Pinus ponderosa*, *P. insignis*, *P. Montezumae*, *P. Cembra*, *Picea Morinza*, *Tsuga Albertiana*, and *Libocedrus decurrens*. The most interesting species seen were *Taxodium mucronatum*, a native of Mexico, which differs from the

¹ *Vide Ent. Mo. Mag.*, lv., 1919, pp. 62-65.

much better known species of the south-eastern United States, *T. distichum*, in having foliage which persists throughout the winter; and *Pinus monophylla*, a peculiar pine with only one leaf in each sheath. This tree, though only 20 feet in height and 16 inches in girth, is perhaps the biggest one of its kind in the British Isles.

JULY 29.—EXCURSION TO DARLINGTON GLEN, BRAY.—The members, conducted by Mr. R. Brambell, spent a pleasant and profitable afternoon observing the birds of the glen.

SEPTEMBER 25.—EXCURSION TO LOUGHSHINNY.—The Club, under the guidance of Mr. L. B. Smyth, visited the section of Lower Carboniferous rocks exposed on the coast between Rush and Skerries. To the south of the village of Rush the rocks were seen emerging from the sand in the form of calcareous slates (Rush Slates), with a few scattered bands of limestone. They belong to the top of the Zaphrentis zone, and dip to the north. There is, therefore, probably a considerable thickness of lower strata buried under the sands between Rush and Portraine. At first the slates are much twisted and distorted. Large nests of crystalline calcite were noticed at the intersection of small faults. To the east of the village the strata become more regular. Here the dip of the beds is steeply to the N., that of the cleavage steeply to the S. Marine erosion acting on this structure has produced very striking, sharp-edged reefs running out at right angles to the shore. The development of cleavage in the more shaly beds, but not in the more calcareous beds, was pointed out.

Approaching Rush harbour the slates give place to conglomerates, often coarse, interbedded with calcareous sandstones and shales, the whole traversed by a network of slight dislocations. The conglomerate forms part of the Caninia zone.

The limestones of the Seminula zone were now passed by on the N. strand, and a halt was made at the bathing place to examine the Cyathaxonia beds of the Dibunophyllum ("D") zone. Here the party found comfortable seats on the rounded top of a small overfold, for from this point the rocks have been much folded by the Armorican movement, which also produced the cleavage farther south. The beds are now thin limestones and shales with abundant chert. Decalcification of limestone was studied in the cliff.

Passing rapidly the succeeding exposures, the fault on Drumanagh Head was viewed by those bold enough to attempt the descent. It is near the top of the "D" zone, and affords an excellent example of a fault breccia.

The next point of interest was Loughshinny Bay, where the highest beds of the section, the black shales of the Posidonomya zone, are exposed. The cliffs are well known for their striking folds.

As time was running short, the remainder of the route to Skerries was traversed at high speed, only two brief halts being made. The first was to examine the extraordinarily uniform beds of the coarse Lane conglomerate, of the same age as the Rush conglomerate, though so different in nature. Specimens of dolomite and some fossils from the overlying Holmpatrick Limestone were picked up. The last halt was at an in-

teresting section of a lake deposit, pointed out by Mr. W. B. Wright in the cliff, resting on glacial drift. The striated bed rock of the underlying boulder clay was seen. A few yards farther north the rock section disappears under Skerries strand.

BELFAST NATURALISTS' FIELD CLUB.

JULY 24.—EXCURSION TO ISLANDMAGEE.—A party of fifteen members journeyed to Larne Harbour by the 10.20 a.m. train, *en route* for Port Muck, Islandmagee. Good botanical work was done, and the members thoroughly enjoyed the day. Tea was served at Port Muck. Some of the members spent a considerable time at the interesting quarry in the inter-basaltic beds at Ballylumford, at one time very extensively worked by the late Dr. Ritchie.

AUGUST 7.—EXCURSION TO CONLIG HILL.—The party travelled by afternoon train to Newtownards, from whence the hill was reached. Here the botanists had interesting ground to explore, and a number of plants of special note were gathered. Tea was served at Helen's Tower. On the return journey to Newtownards the southern slopes of the hill were taken as the route.

AUGUST 28.—EXCURSION TO CLOUGHFIN PORT.—The place selected for exploration was near Cloughfin Port, on the eastern shore of Islandmagee, and just north of Blackhead. The club party, twenty-four in number, was under the conductorship of Robert Bell, and travelled to Ballycarry by the 2.15 p.m. train. A short walk across the "island" brought the members to Cloughfin Port, where owing to the lowness of the tide an admirable exposure of the Cretaceous rocks of the district was visible along the foreshore. The conductor gave an account of these beds and their contained fossils. Afterwards a good deal of fossil collecting was done, the softer bedded strata of the Greensand formation yielding good specimens. The members made their way round Blackhead, some on the low ground and some over the top by the lighthouse path. Those botanical members who took the former were delighted to see that the Sea Spleenwort still grows profusely on the inaccessible roofs of the sea caves at Blackhead. The members walked back by the shore path to Whitehead, the botanists noting some interesting plants by the way. On arrival at Whitehead they were entertained to tea by one of their fellow-members, Mr. Franklin M. Walker, of Mount Royal. The members subsequently returned to town by the 8.15 p.m. train.

SEPTEMBER 4.—EXCURSION TO LISBURN.—A party of twenty-five members journeyed to Lisburn. Under the guidance of the Rev. Canon W. P. Carmody the party was first conducted to the site of the old castle situated in Castle Park, and thence to the ancient "lis," close to the banks of the Lagan, around which the town originally grew. Adjourning to the Cathedral, the conductor gave the members an account of the history of the town. After tea in the Parochial Hall, Canon Carmody showed his visitors the ancient registers and parish records.

REVIEW.

THE STONEWORTS.

The British Charophyta. By JAMES GROVES, F.L.S., and GEORGE RUSSELL BULLOCK-WEBSTER, M.A., F.L.S. Vol. I.—Nitelleae. Pp. 14+141. 20 plates. 8vo. London: Ray Society, 1920.

All students of the interesting group generally known as Characeae will welcome the first volume of the monograph of the British species on which Mr. Groves and Canon Bullock-Webster have been for some time engaged. Its publication by the Ray Society, moreover, has ensured full treatment, good printing, and adequate illustration. The authors follow Sachs in regarding the group not as belonging to the Algae, but as constituting a separate division co-ordinate with the Thallophytes, Muscineae, Vascular Cryptogams and Phanerogams. The systematic account of the group is preceded by several very interesting introductory chapters, in which the position of the Charophytes, their geological antiquity, geographical distribution, structure and development are dealt with. A conspectus of characters, glossary and classified list of Latin adjectival terms follow. In the latter part of the volume a full systematic account is given of the genera *Nitella* and *Tolypella*, with synonymy, descriptions, British distribution, and general notes on each species and its varieties. This is a model of what such work should be, and carries on the excellent tradition which the brothers Groves laid down in this difficult group, and maintained for so many years. Canon Bullock-Webster is to be congratulated on his part in the undertaking, and Mr. Groves on having found a worthy successor to his brother, whose death was so grievous a loss to British botany.

The distributional notes are full and clear, and bring our knowledge of the range in the British Isles of these plants up to the present time. We give an abstract of the Irish distribution as it appears from this publication, using the contracted names of botanical divisions as employed in "Irish Topographical Botany":—

Nitella opaca Agardh.—Common.

N. flexilis Agardh.—Kerry S. and N., Cork W., Longfd., Roscomn., Mayo E., Leitrim, Cavan, Monaghan, Ferman., Dongl. W., Armagh.

var. b. *crassa*.—Longfd., Dongl. W.

var. c. *nidifica*.—Kerry S., Roscomn., Cavan.

N. spanioclema Groves and Bullock-Webster.—Dongl. W.

N. translucens Agardh.—Kerry S. and N., Cork W., Mid. and E., Galw. W., Mayo W., Dongl. E. and W., Armagh, Down, Antrim, L'derry.

N. mucronata Miquel.—Monaghan.

N. gracilis Agardh.—Wicklów.

N. tenuissima Kütz.—Mayo W., Galw. N.E.

N. batrachosperma Braun.—Kerry S. and N., Mayo W., Dongl. W.

Tolypella intricata Leonh.—Dublin.

T. prolifera Leonh.—Dublin.

T. glomerata Leonh.—Kerry N., Limerick, Clare, Tipp. N., Carlow, Galw. S.E., W., and N.E., King's, Kildare, Dublin, Westmeath, Sligo, Dongl. E., Armagh.

var. *erythrocarpa*.—Leitrim, Dongl. W.

T. nidifica Leonh.—Wexford.

It will be noted that of 12 species occurring in Ireland, no less than six are on record from one division only. This suggests that further work on the group is still wanted in Ireland.

R. LI. P.

NOTES.

BOTANY.

A Note on some Howth Clovers.

On August 21st I found *Trifolium filiforme* L. in short grass on a rocky knoll or ridge to the north of the Red Rock on the south side of Howth. It was then, after an exceptionally cold and wet summer, in flower and fruit, and numerous seedlings were showing among the old plants. The station may, I think, be justly described as "wild ground." It occurred also in at least two other places, about 150 and 400 yards to the west, on grass beside the old cart-road leading to Sutton House; the cart-road is grass-grown and merges into pasture fields on each side. As neither Mr. Hart nor Mr. Colgan recorded the plant from Howth, the assumption that it is native here might be received with some scepticism, but the locality and the presence of other clovers not unusually associated with it certainly tend to warrant its claim to native status.

Ornithopus perpusillus L. grows with *T. filiforme* in the first station mentioned; it occurs in plenty at intervals along the ridge, on both sides of the boundary walk of Mrs. Bellingham's farm, and also about one quarter mile to the west on similar ground, where it is associated with *T. striatum*. The old records in "Cybele Hibernica" for *Ornithopus* at Sutton probably refer to the stations mentioned above; Mr. Colgan's own record is confined to "a rocky knoll," and Mr. Hart does not mention the locality at all, though he records it in three other places, where I have not yet seen it. If it is "much rarer now [1904] than it was in Mackay's time," as suggested by Mr. Colgan, the probable explanation is that some of its old stations have been destroyed by building or cultivation. *Ornithopus* was in flower and fruit in August, but the only piece of *T. striatum* that I saw was one withered stem; this occurred in the station recorded in "Cybele" by Miss R. Mahaffy. The same place is remarkable for the abundance of a practically white form of *Geranium molle*; *Erodium moschatum* is also there.

On August 21st *Trigonella ornithopodioides* DC. was found in flower and in abundance on the road leading to the Bailey Lighthouse and in short

grass at its edge. In the latter position it was exceedingly dwarf, the plants bearing one or two flowers and being less than half an inch across; but on the road itself they measured up to 8 or 9 inches in diameter. It also occurred in the dwarf form on the old grass-grown road leading off the Lighthouse road. Comparison of these records with those given in the "Cybele" leads to the conclusion that the plant is deserting the grass-grown road for the harder surface of the newer road.

Howth.

G. E. C. MACONCHY.

The Bee Orchis in Co. Cavan.

Quite recently I was shown a fine dried specimen of the Bee Orchis, *Ophrys apifera* Huds., gathered in Co. Cavan. It was sent in a fresh state to Miss S. Blackwood, of the Belfast Field Club, by a friend of hers, Miss M. Clarke. The latter found it growing by the roadside at Rice Hill, near Kilmore, between Cavan town and Crossdoney. It was a robust plant, bearing six blooms, and was collected about 22nd July, of this year. This is, I believe, the first record of the plant's occurrence in Co. Cavan.

Belfast.

W. J. C. TOMLINSON.

New Wexford locality for *Scutellaria galericulata*.

The Greater Skullcap (*Scutellaria galericulata*) appears to be much rarer in Leinster than in any of the other three Irish provinces; according to *Irish Topographical Botany* it has been ascertained to occur in only 10 localities, which are distributed among 8 of the 12 counties. On 24th August last I was glad to find two flourishing clumps of it among rushes in a boggy field at Mount Forest, near Ballycanew, Co. Wexford. This is its third Wexford station. The Mount Forest neighbourhood does not seem to produce *Scutellaria minor*, which was quite abundant in those parts of the county previously well known to me (where *S. galericulata* was absent).

Dublin.

C. B. MOFFAT.

ZOOLOGY.

A late *Zygaena*.

On August 5th I was searching Hog-weed blossom for Ichneumon Flies in one of my fields, when to my surprise I saw a *Zygaena* sitting on an umbel of the Hog-weed. I duly captured it, and it turned out to be a somewhat worn example of *Z. lonicerae*, a species which I had often taken here before, but never so late. It generally appears in the first week in July. I took it at Newcastle on July 27th, 1906, and on June 22nd, 1895.

Poyntzpass.

W. F. JOHNSON.

Scarcity of the Small Tortoiseshell Butterfly.

I can fully bear out the Rev. W. F. Johnson's experience as to the extraordinary scarcity of *Vanessa urticae* this year. During a whole month (9th August to 9th September) spent at Mount Forest, Co. Wexford, I saw but two examples of this usually abundant species. Instead of being the commonest, it was the scarcest of the four Vanessidae frequenting the district, the Red Admiral being fairly plentiful, the Peacock turning up four times, and the Painted Lady three times. The last-named, however, was disappointingly scarce compared with the numbers I had seen of it in the same district during June.

C. B. MOFFAT.

Dublin.

Argynnis aglaia at Poyntzpass.

August 14th was a very fine day, one of the few we had this summer, and I sallied forth into my fields net in hand to see what I might get in the way of insects. As I was walking down a sunny hedge my eye was caught by two butterflies, one of which was a White but the other looked yellow and too large to be a Wall Butterfly. I hastened towards them; as I did so they separated. The White flew off, but the yellow butterfly settled, and when I got close there was a beautiful Dark Green Fritillary sitting on a thistle head. I need not say that thistle head and butterfly were in my net the next minute. The nearest place where I have seen *A. aglaia* is at Newcastle, some twenty miles as the crow flies, a good fly for this little aeroplane.

W. F. JOHNSON.

Local Mollusca from the North-east.

I am sending a few notes on some species of Irish mollusca which I hope may prove interesting to the readers of the *Irish Naturalist*, particularly as regards distribution.

Helicella intersecta, a shell which occurs commonly on the sandhills at Portstewart, may also be found plentifully at Whitehead on a grassy bank near the tunnel. I took it there in 1917.

I also found quite a number in September, 1920, on the Portrush golf links during heavy rain. I believe these to be new stations.

Helix hortensis, which has been recorded for the graveyard of Downpatrick Cathedral, may be expected to occur elsewhere in the neighbourhood, as in 1918 I came across a large colony under a heap of stones close to Quoile Quay, about three miles from Downpatrick.

Vallonia pulchella, which is usually looked upon as a sandhill species in N.E. Ireland, but which has occasionally been found inland, was taken by me in the cricket field of the Friends' School, Lisburn, in 1917, and this year on the wall of old Shane's Castle, at Antrim, associated in the latter station with *Pupa muscorum*.

Testacella haliotidea I found in November, 1918, among vine roots in the garden of Derryvolgie House, Malone Road, Belfast. There is quite a large colony there, and I have obtained a considerable number this year. The specimens have been verified by Dr. Scharff, who tells me that this is the most northerly record in Ireland. I suppose the species has been introduced.

When in Bundoran in 1916, where so many extraordinary forms of *H. nemoralis* have been found, I came across a specimen weighing 42 grains, very much heavier than the usual examples.

E. FORSTER GREEN.

Bootham School, York.

Although unknown to William Thompson from Co. Antrim, *Helicella intersecta* has now proved to be widely distributed round the Antrim coast, though it is still unknown from that of Down. To Mr. Forster Green's stations given above may be added Bush Bay; the old chalk quarry at Ballycastle; the old quarry near the tunnel at Red Bay; and the slopes of the Little Deer Park at Glenarm. I have also taken one very large dead shell on the dunes at Red Bay, but have not seen it there alive.

Like Mr. Green, I think that *Helix hortensis* occurs more commonly than is known in the Downpatrick district of Co. Down, as I took a single shell under a stone below the waterworks on the other side of the town from the cathedral in 1899, while to the late J. N. Milne's station on Mahee Island I can add as a habitat the neighbouring Reagh Island. The western shore and islands of Strangford Lough have never been carefully worked. In Co. Antrim also *H. hortensis* is probably more widely spread in the Braid Valley than we suspect, as besides the single specimen taken by Mr. Jackson near the northern base of Slemish (somewhere near the farm), I have found the species fairly plentiful round the ruins of Skerry Church, a few miles away across the valley. Only the fine banded yellow form has been seen in Co. Antrim; in Co. Derry (at Downhill) only the bandless yellow one; but in Co. Down both these varieties occur.

Before recording this species care should always be taken that the "darts" have been removed from the animal and examined, as they are the only absolute guarantee that the shell is not a white lepped form of the common *H. nemoralis*.

Likewise is *Pyramidula rupestris* more generally distributed along the Chalk scarps of the Antrim coast than was formerly supposed. Indeed from Island Magee (S. of Hill's Port) to the northern face of Lurigethan overlooking Cushendall, I have found it to occur on almost all the naturally exposed surfaces of the Cretaceous rocks. I have also taken it on a wall built of basalt near the Sallagh Braes. Thompson's record from Scrabo, Co. Down, has never been verified. According to my reading of the MS. only a single specimen was taken "on a piece of sandstone" in the great quarry, and I suspect some error of identification.

Other records I have come to regard as doubtful are those of *Vertigo alpestris* for Derry and Antrim. Last year I had an opportunity of

examining the specimen taken by Mr. L. E. Adams by the river above Coleraine, and found it was only a rather large, not quite mature, specimen of *V. substriata*. The second tooth on the body whorl is not perfectly developed (owing to age). This probably accounts for its having been mistaken for *V. alpestris* by Mr. Adams and passed for such by Gwyn Jeffreys.

Having been recorded as Irish on such good authority, it was but natural that other collectors would be on the look-out for it, and not long afterwards Mr. Standen reported its occurrence in shell-pockets at Whitepark Bay, Co. Antrim (and Portsalon, W. Donegal). If sufficient shells of *Vertigo pygmaea* from these shell-pockets and the deposits in the sandhills be looked through, I believe it possible to pick out odd examples of this species which will agree with *V. alpestris* in size, shape and texture. The original record having proved erroneous, and no further living specimens having been found in Ireland, coupled with the fact that *V. alpestris* is not likely to occur in a sandhill deposit, I am inclined to refer Mr. Standen's shells to *V. pygmaea* and to suggest the removal of *V. alpestris* from the Irish list till reliable evidence is forthcoming that it has ever lived in Ireland.

A. W. STELFOX.

National Museum, Dublin.

The Common Wren.

Referring to my notes on the Common Wren in the March number of the *Irish Naturalist*, page 21, Mr. J. P. Burkitt, in the July number for 1920, page 68, seems to take exception to my statement that nests of the Wren other than cock-nests are built mainly by the female, and from his own observations there would seem to be no need for a female to build a nest at all, which is, I think, contrary to the habits of this species in this part of Yorkshire.

In substantiation of my position that the female does take part in the building of the nest which is built for breeding purposes, may I be allowed to give an extract from Macgillivray's "History of the British Birds." In volume 3, page 24, under the head of the Common Wren, the writer, a very competent field naturalist, states:—

"I this day, May 30th, 1837, had a favourable opportunity of observing the erection of one of the neatest of our British bird nests. Yesterday a pair of Common Wrens flew about for a considerable time in a particular spot in my shrubbery, as if in search of a proper situation for constructing the dwellin; which should contain their intended brood. About a quarter past six this morning they appeared to be engaged in the most serious consultation. At seven o'clock in one of the clefts of a Spanish juniper, about two feet in height from the ground, with the decayed leaf of a lime tree, the female began to lay the foundation of her building. Her perseverance was indeed astonishing, for she sometimes carried in bundles of leaves as bulky as herself. To her beloved partner she seemed to give

ecstatic delight, for he sat upon the branch of a Portugal laurel, a few feet above her, viewing most anxiously her operations, and now and then having mounted to the top of a plane tree he poured forth his distinct and sweetly modulated notes, which during the day he continued to do almost incessantly. I should have liked to have given in full this fascinating story, but it is only fair to state that at a later stage the male bird took a not unimportant part in the completion of the nest. Sufficient, however, has been quoted to show that the female does take part, and perhaps the main part, in the building of such nests as are built specially for the incubation of eggs and rearing of young."

There is one point mentioned by Mr. Burkitt in the economy of the Wren, in the *Irish Naturalist* for 1919, viz., that the male bird takes no part in feeding the young until these have left the nest. Is Mr. Burkitt quite sure of his facts? If so, this is but another instance how birds may differ in their range of distribution.

E. P. BUTTERFIELD.

Bank House,
Wilsden, Bradford.

Pied Flycatcher and Turtle Dove in Achill.

I am indebted to Mr. J. R. Sheridan for informing me of the following occurrences of rare birds, shot, I regret to say, at Dugort, Achill Island.

Pied Flycatcher (*Muscicapa atricapilla*). An adult male, the fifteenth Irish specimen, was obtained on May 7th, 1920.

Turtle Dove (*Turtur communis*). One, an immature female plumage, was obtained by Mr. Sheridan on 23rd September last. This bird had been observed for several days in the vicinity of Dugort, feeding along the roadsides.

Both above birds are, I think, new additions to the avifauna of Achill Island.

ROBERT F. RUTLEDGE.

Bloomfield, Hollymount,
Co. Mayo.

The Pine Marten in Ireland.

If Mr. Pack Beresford will look at the *Irish Naturalist* for August, he will find that a Marten was trapped near Drogheda last winter. It is headed "Pine Marten in Co. Louth." This should read "in Meath." I think another Marten was caught at Somerville, in Meath, a few years ago, and am making inquiries about it.

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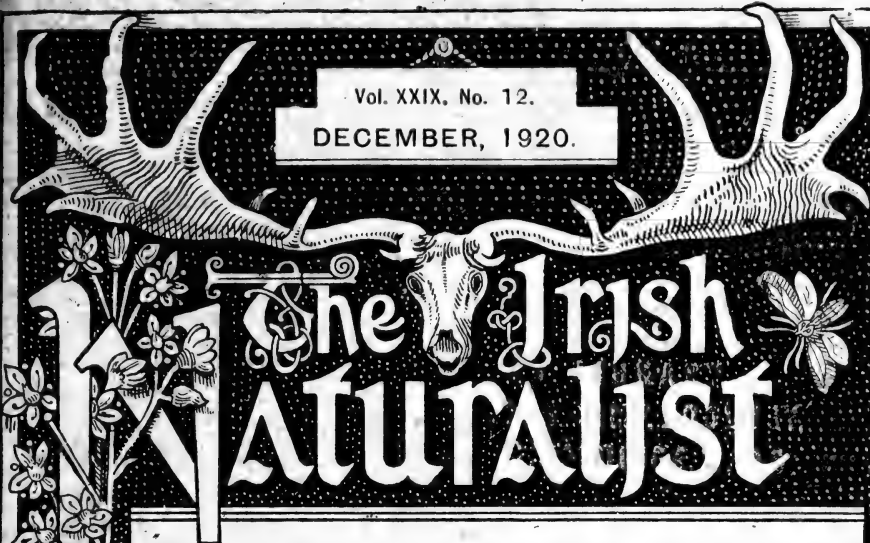
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OF

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ROYAL ZOOLOGICAL SOCIETY OF IRELAND
DUBLIN MICROSCOPICAL CLUB,
BELFAST NATURAL HISTORY & PHILOSOPHICAL SOCIETY,
BELFAST NATURALISTS' FIELD CLUB,
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EDITED BY

Prof. GEORGE H. CARPENTER, D.Sc., M.R.I.A.

AND

R. LLOYD PRAEGER, B.A., B.E., M.R.I.A.

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A Monthly Illustrated Journal of

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EDITED BY

T. SHEPPARD, M.Sc., F.G.S., F.R.G.S., F.S.A., Scot.,

THE MUSEUM, HULL;

AND

T. W. WOODHEAD, Ph.D., M.Sc., F.L.S., TECH. COLL.,

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THE PINE MARTEN IN IRELAND.

BY ROBERT F. RUTTLEDGE.

THE following is a collection of notes referring to the distribution of the Pine Marten (*Martes martes* Linn.) in Ireland which I have extracted from letters received from those in Ireland who very kindly replied to my inquiries in 1917; and I must thank Miss Pitt, of Bridgnorth, England, for whom I collected the information, for permission to publish it in the *Irish Naturalist* for the benefit of those in this country whom it may interest.

These notes must be regarded as supplementary to the papers¹ of Harting, Barrett-Hamilton, and Patterson, and to subsequent notes in the *Irish Naturalist*, summarised last October (p. 107) by Mr. D. R. Pack-Beresford. They only extend to 1917, and cover some years previous, so that the present-day status of the Pine Marten cannot be fully presented in this paper. It is hoped, however, that further investigations may take place, and that the status of this interesting mammal may be brought up to date.

In addition to the places hereafter mentioned, I find Mr. J. G. Millais² states that a few still exist in the ancient forests of Sligo, Wexford, Wicklow, Waterford, Kilkenny, Ballykyne near Cong in Mayo, round Loughs Mask and Corrib in Mayo and Galway, in Clare, in the Mourne mountains, Killarney woods, Kenmare and other places in Kerry; reports received by me show that they still exist in a great many of the above-mentioned places.

I have placed the counties in the following list, giving precedence to those in which the Pine Marten seems most plentiful:—

CO. WATERFORD.—I am informed that at Curraghmore, in this county, they are fairly numerous as a result of the protection afforded them by the late Lord Waterford. I heard from the keeper at Gardenmorris that he had shot

¹ *Zoologist*, March and April, 1894.

² "Mammals of Great Britain and Ireland," 1900.

three in the past fifteen years. He adds that in his opinion Pine Martens are more numerous in Co. Waterford than any other county he has been in.

CO. KERRY.—A correspondent informs me that in his opinion more come from Co. Kerry than any other county. I have the following records from that county, viz. :—one killed near Miltown ; one seen and one trapped in Beaufort Woods, on the road from Caragh Lake to Miltown. These three cases have all occurred in the last five years.

I believe Pine Martens are fairly numerous round Kenmare, and particularly the banks of the Sheen River, and they often come quite close to houses. I am told they gather about the Sheen River in August and September, and at that time can often be seen in Mountain-Ash trees. From all accounts they seem fairly plentiful all along the Cork border of Co. Kerry. Round the southern and western shores of Lough Leane they are said to be not uncommon.

CO. KILKENNY.—The Pine Marten exists, though rare, in the woods bordering the River Nore. Some years ago a young male and female were captured, and another pair afterwards seen in a wood near Coolmore House, and it is thought that Martens still exist in the woods there. On Woodstock estate, at Inistioge, they are reported to have become so numerous as to be an absolute pest.

CO. KILDARE.—I heard on October 12th, 1915, of a young male having been trapped on the Kildare-King's County border (see *Irish Nat.*, 1915, p. 218). Some years previous to this another was shot on this border. I believe a male was trapped near Grange in July, 1916, but of this I am not absolutely certain.

CO. GALWAY.—Pine Martens are still to be found at Coole Park, Gort ; they are, however, becoming very scarce. They are reported as not uncommon in Derryfill Wood, near Woodford, Co. Galway.

CO. CLARE.—Mr. Hibbert, of Woodpark, in this county, informs me that one, an adult female, was trapped there in April, 1915, and was set up by Messrs. Rowland Ward. He states that this is the only occurrence during his residence there of thirty years. At Raheen Manor, Tomgraney, three were, I am sorry to say, trapped a few years ago. Pine

Martens still exist there, but my informant states that he fears they are not holding their own.

Co. WICKLOW.—The only evidence I have of its occurrence in this county is the fact that one was taken near Powerscourt "years ago," and this record should hardly be included. According to Mr. Harting the Marten was apparently still holding its own in this county in 1892.

Co. CORK.—One of the gamekeepers at Mitchelstown Castle informs me that he caught a Marten in 1915. He knows of no other record in the county. He adds that it is fairly plentiful in Co. Waterford.

Co. MAYO.—I have not received a report of their occurrence in Mayo for many years, or of their capture, though they are said to exist still in Ballykyne Woods,¹ but I have no proof of the fact, none of the gamekeepers there having met with them.

The following are localities where I believe the Pine Marten exists; though I am by no means certain, evidence being very scanty. Around Kylemore Castle, Co. Galway, there are extensive woods, ideal places for Pine Martens. Also the western border of Lough Mask, where there are woods which they are supposed to inhabit; and the same remark applies to Lough Corrib, in Galway.

It seems, therefore, that at present the Pine Marten is, one might venture to say, plentiful in several of the southern counties; Waterford, from all accounts, appearing to contain most, while Kerry, if not having quite as many, appears to be not far behind Waterford. From various remarks made I gather that it is fairly locally plentiful in the West of Ireland. Most probably it is nowhere on the increase, except perhaps on the Rive Nore, in Co. Kilkenny; in fact, in most districts I think the reverse is probably the case. I think, however, one might safely say that the Pine Marten is far more numerous in this country than is generally supposed.

Bloomfield, Hollymount, Co. Mayo.

¹ Cf. Millais, "Mammals of Great Britain and Ireland," 1900.

REVIEW.

A BIBLIOGRAPHY OF BRITISH ORNITHOLOGY.

A Geographical Bibliography of British Ornithology from the earliest times to the end of 1918, arranged under counties, being a record of printed books, published articles, notes and records relating to local avifauna. By W. H. MULLENS, F.L.S., M.B.O.U.; H. KIRKE SWANN, F.Z.S., M.B.O.U.; and REV. F. C. R. JOURDAIN, M.A., M.B.O.U. London: Witherby and Co.

In the March number of the *Irish Naturalist* (p. 26) attention was drawn to the appearance of the first two parts of this important bibliography, fuller notice being postponed until the whole was forthcoming. As the sixth and last part is the only section concerned with the ornithology of Ireland, this was clearly the proper course to take. As already mentioned, the lists of books, papers and notes which compose the bibliography are arranged under counties—those of England, Wales, Scotland and Ireland being taken separately, but placed in alphabetical order for each section. There is also at the beginning of each section a list of papers dealing with the subject generally and not falling under the head of particular counties. The papers appear for each county in chronological order, so that every facility is afforded for a bird's-eye glance at the work done for ornithology in every part of our island from the days of Giraldus Cambrensis until now.

Simple and excellent as the plan appears, the execution (at least as regards Ireland) is far less satisfactory than might have been expected. The chief fault seems to lie in the want of any clearly defined plan as to the kind of papers deserving of a place in the bibliography.

The execution of the work has been apportioned by the editors to different hands. Consequently, unless a clear plan has been laid down, uniformity of work is not to be looked for; and it certainly does not appear.

The Irish part of the bibliography has been divided among three hands, among whom we are glad to find two such well-known Irish ornithologists as Mr. C. J. Carroll and Mr. Nevin H. Foster, the third being Mr. H. Kirke Swann, one of the editors of the whole work. Mr. Carroll is responsible for 15 Irish counties (scattered over the four provinces), while Mr. Foster has charge of 9 (nearly all in Ulster, but including Louth and leaving Cavan to Mr. Carroll), and Mr. Swann takes the remaining 8, which include Dublin and most of the South. It is impossible to say that Mr. Swann's work, on any interpretation of the plan laid down, has been very thorough. Having both Dublin and Wicklow in his province, he has contrived to omit from his bibliography Mr. Barrington's up-to-date list of the birds of those two counties contributed to the British Association Handbook for the Dublin meeting of 1908. In dealing with Cork he omits Mr. Ussher's "Birds of Cork,"

published in 1894; and in the general list of Irish papers, for which Mr. Swann is presumably answerable, a startling omission is made of Mr. Ussher's important article on the "Breeding Range of Irish Birds," contributed to the Royal Irish Academy's *Proceedings* in 1893. It would be impossible to find omissions comparable to these in any of the county lists drawn up by either Mr. Carroll or Mr. Foster. But apart from such manifest faults, it is clear that Mr. Swann follows a much more limited rule of choice than either of his coadjutors. He limits himself to papers that record facts of some distributional value, while articles dealing with habits or other peculiarities are admitted both by Mr. Carroll and by Mr. Foster in their lists for those counties in which the observations recorded were made. This leads to curiously contradictory results. Of two papers dealing with the same subject (the feeding habits of the Crossbill) contributed almost simultaneously to this Journal in 1916, one, as coming from an Ulster county, falls into Mr. Foster's jurisdiction and is admitted, while the other, from a Leinster county, falls into Mr. Swann's, and so is left out. Readers of the *Irish Naturalist* would expect, too, that a local contribution to the "luminous owl" controversy like that written by Miss Mildred Dobbs on the strength of her observations in Co. Waterford in 1911, might claim a place in the bibliography for that county; and had Miss Dobbs's observations been made on the Foyle instead of on the Blackwater the expectation would certainly have been gratified. It is about equally certain that Mr. Burkitt's excellent articles on the habits of the Whitethroat, Nightjar, Long-eared Owl, &c., written for this Journal in 1916 and 1917, would have been left unnoticed in the bibliography had the observations on which they are based been made in Co. Wicklow instead of Co. Fermanagh. No papers on similar lines have been admitted by Mr. Swann.

It will be seen that Irish ornithologists who consult this work must expect to meet with very different degrees of success, according to the part of the country on which their interest is centred. The preparation of the work has involved such an immense amount of labour that it is disappointing to find the result so marred by want of forethought. But the quantity of information given is sufficiently great to console us largely for the considerable amount withheld.

IRISH SOCIETIES.

ROYAL ZOOLOGICAL SOCIETY.

Recent gifts include a White Rat from Miss Betty White, a Raven from Miss Shackleton, a Carrier Pigeon from Mrs. Harris, six Vipers from W. Chichester, some Roach and Crayfish from J. O'Callaghan. Three Sebastopol Geese have been acquired in exchange, Scrub and Swamp Wallabys have been purchased, and three Lion cubs have been born, the parents being "Oseni" and "Sheila."

DUBLIN NATURALISTS' FIELD CLUB.

OCTOBER 16.—EXCURSION TO PORTMARNOCK AND MALAHIDE.—About twenty members of the Club, under the leadership of W. F. Gunn, travelled by the 12.45 train to Portmarnock. A somewhat threatening morning developed into a delightful afternoon, with good light, and just the faintest suspicion of haze over the sea,—an ideal October day for a Field Club ramble. On assembling a short distance from the station, the conductor in a few words indicated the nature of the excursion and some of the objects which would probably be found. In the absence of A. W. Stelfox, he co-opted C. B. Moffat to look after the interests of the zoologists, and J. de W. Hinch to demonstrate the geology of the district. A start was then made across the golf links for the Silver Strand. After a short halt for lunch the party proceeded along the strand, shells and other marine objects of interest being gathered. Amongst the former Scaphander, Trochus, Aporrhais, and various bivalves were obtained. *Helix itala*, *H. nemoralis*, and *H. acuta* were abundant on the grassy mounds, and in the hedge rows, but no specimens of *H. pisana* were taken. A number of birds were noticed, the most abundant probably being Dunlins.

Miss Edith Wade undertook to make a census of the plants in flower, and her list (no doubt incomplete) totalled over thirty species. Passing the "Ussher" Natural History Hut, Malahide was reached with ample time to partake of tea. N. D. Panter was unanimously elected a member of the Club, and one new candidate was nominated for election at the next meeting. A pleasant feature of the excursion was the unusual interest shown by the majority of the members in the pursuit of their particular phase of nature study.

DUBLIN MICROSCOPICAL CLUB.

OCTOBER 13.—The Club met at Leinster House. H. A. Lafferty, A.R.C.Sc.I., was elected President, and Prof. J. Alfred Scott, M.D., Vice-President for the session.

H. A. LAFFERTY exhibited microscopic preparations showing germinating teleutospores of *Melampsora lini*. Desm., the parasitic fungus which causes "firing" in flax. The spores were found to germinate only after a prolonged rest of several months, and the method followed the usual course as described for other forms belonging to this genus. Each teleutospore produced a promycelium which eventually became four-celled, and from each cell a short tapering basidium was produced which bore at its apex a single spherical or pear-shaped basidiospore.

Sir F. W. MOORE exhibited *Thielavia baricola* parasitic, on the roots of dwarf French Beans. The conidial stage breaking up into separate cells was shown. Up to the end of July the host plants were vigorous and healthy; by 21st September seventy per cent. had been killed by this pest.

W. F. GUNN showed *Leocarpus fragilis*, one of the Mycetozoa. This species is not common in Ireland, only four previous records existing. The sporangia are somewhat pyriform in shape, of a ruddy brown colour, and are borne on pale yellowish membranaceous stalks. The specimen exhibited was obtained in Westmeath, and is the first from that county.

NOTES.

ZOOLOGY.

Dermestes vulpinus in Belfast.

On October 18th I received from my friend, Mr. C. M. Davies, a little box containing a couple of beetles, and the accompanying letter explained that they had been found in a bale of flax which had come from Egypt. On examination the beetles proved to be *Dermestes vulpinus* F., a species which is practically cosmopolitan. The larvae of these beetles live in hides, furs, and natural history specimens, if these last be not properly preserved. They often do a great deal of damage, and are very difficult to get rid of, as the remedies which would destroy the beetles are also injurious to the hides. It is recorded that they destroyed a whole cargo of cork. They are probably the oldest larva known, as a number of them were found in Egyptian mummies, and from the conditions under which they were found it would appear most probable that they had entered the body before embalmment (*vide* Fowler, "British Coleoptera," vol. iii.). I wrote and asked Mr. Davies whether they had done any harm to the flax, but he replied that none had been detected, and in a further consignment sent me not only more *D. vulpinus* but also a larva probably of *vulpinus*, and a specimen of *Necrodes rufipes* De G. as well, whose habits are similar to those of *Dermestes*. The question, of course, arises, how did these beetles come to be in such apparently unsuitable surroundings? The bale of flax may have been near some hides or such like in which the *Dermestes* were and then have crawled into the flax promiscuously, or the larvae may have entered the flax for the purpose of pupating therein, for it appears that they are not very particular where they pupate. In the *Proceedings* of the Entomological Society of London for 1899, p. v., Mr. Blandford exhibits lumps of common salt sent from Queensland into which these larvae had burrowed, evidently in order to pupate, as salt would hardly be a very nourishing diet for them. The fact that no harm had been done to the flax though a living larva was found in it would point to the conclusion that they had gone into the flax to pupate. As far as I know there is only one other record for *D. vulpinus* from Ireland, and that is also from Belfast, where specimens were obtained by the late H. L. Orr (*vide* Johnson and Halbert, *Proc. R.I.A.*, vol. xix., p. 723). I am much obliged to Mr. Davies for sending me these beetles and giving me the information I asked for.

Poyntzpass.

W. F. JOHNSON.

Aeschna juncea at Inishtrahull.

Mr. A. O'Leary, keeper of the Inishtrahull lighthouse, has kindly sent me a specimen of this large dragonfly which he had caught on the island late in October. The species is common in most parts of Ireland; and on account of its powerful flight, it is not surprising that it should have been able to cross the wide sea-channel between the Donegal mainland and Inishtrahull.

G. H. CARPENTER.

Royal College of Science, Dublin.

Lepidoptera from East Tyrone and elsewhere in 1920.

On April 22nd a fresh example of *Chloroclystis coronata* was beaten out of Ivy, a very early date for this species here; and on May 3rd a single *Eupithecia dodoneata* was obtained flying at dusk along a Hawthorn hedge and later a few larvae were beaten from the Hawthorn bloom. *Mamestra glauca* was observed in some numbers at *Vaccinium* flowers in the Lough Fea district on May 31st. About the middle of June *Apamea unanimitis* was abundant at dusk among *Phalaris arundinacea*; and at Lough Neagh *Acidalia inornata* was not uncommon, and a single specimen of *Acronycta leporina* was found at rest on a birch trunk.

Nearer home, at Roughan Lough, *Drepana falcataria* was flying over the birches in the sunshine. During July a number of *Perizoma bifasciata* emerged; and numerous colonies of larvae of *Vanessa io* were found on nettles.

In August *Noctua dahlii*, *Agrotis agathina* and *Dyschorista suspecta*, were all more or less abundant at heather blossom near Tamnamore; and on the 28th a beautiful female *Argynnis aglaia* was captured near Grange; this locality is over thirty miles from the coast. At Stuart Hall in September, *Hadena protea* turned up again; two specimens at sugar, one in good condition, the second much worn, was not captured; at the same time *Amphipyra pyramidea* was also fairly abundant.

Quite recently I received from Mr. L. W. Newman, of Bexley, an example of *Sesia formicaeformis*, bred July, 1920, from Co. Kerry; this is an addition to the list of our native lepidoptera.

THOMAS GREER.

Curglasson, Stewartstown.

Leucophasia sinapis in Co. Dublin.

We started collecting butterflies some time ago, and we caught three specimens of the Wood White, which at the time we did not think very rare. A short time ago Mr. Halbert of the National Museum suggested that we should publish a record of the occurrence. We obtained the specimen above Rathfarnham at the place called "The Little Dargle."

Leinster Road, Rathmines.

M. AND H. DALTON.

Psithyrus rupestris in Co. Dublin.

On the 2nd of August I took an old female of this cuckoo-bee on the banks of the Grand Canal near Clondalkin. Mr. Sladen in his book "The Humble-Bee" does not include Dublin among the few Irish counties from which this species has been recorded. It is curious that the two specimens that enabled me to add Co. Wexford to the range of the same insect (*I.N.*, vol. xxvi., p. 154) were also taken in August. These belated specimens are, however, more easily detected than those that fly in June, when many females of *Bombus lapidarius*, the bee that *Psithyrus rupestris* resembles and victimises, are also on the wing.

C. B. MOFFAT.

Dublin.

The Marsh Tit in Dublin.

On the morning of September 10th, while working in the great "New Storehouse" of St. James's Gate Brewery, I noticed a small bird hopping about among the tiebars of the roof; on investigation I was much surprised to find that it was *Parus palustris*—a species which was pointed out to me near London last June. As an additional precaution I asked a man working near by to watch it for a while—he told me he thought it was a "finch," but it "wasn't a this-country bird anyway"—but he agreed with me that the top and back of the head were certainly black. As the building in question stands on rising ground, is 120 feet high, and brightly lighted all night, it may have some of the fatal attraction of a lighthouse for migrating birds. The bird remained in the roof for half an hour or so, apparently picking spiders and midges from joints in the tiebars, and then made its escape through an open window.

J. P. BRUNKER.

St. James's Gate, Dublin.

The Great Reed Warbler in Ireland.

In the *Field* for the 12th of June Mr. J. E. Harting announces the occurrence of the Great Reed Warbler (*Acrocephalus arundinaceus*) in Ireland, on the strength of an example picked up dead in a garden at Cosheen, Castle Townshend, on the 16th of May last, by Mr. E. D. Cuming. Mr. Cuming had the quickness of eye to be struck with the bright orange-yellow hue of the inside of the bird's mouth (a peculiarity mentioned in Saunders' "Manual," but not so often alluded to in description of this rare visitor as would seem to be desirable), and at once sent his "find" in the flesh to Mr. Harting. The addition of so rare a visitor to the Irish list is an event of considerable interest. Only about a dozen occurrences are on record for the British Islands, and statements as to its having been found nesting in England are not accepted as proven. Mr. Harting believes that the bird sent him by Mr. Cuming was a female,

Honey Buzzard near Belfast.

On June 28th, 1920, Messrs. Sheals, the well-known Belfast Taxidermists, received for preservation a Honey Buzzard (*Pernis apivorus*) which had been shot at Suffolk, Dunmurry, a well-wooded district near Belfast. On dissection it proved to be a male, and its crop contained a large quantity of Ants' eggs. It is interesting to note that the bird had every appearance of having been nesting, its breast being bare, and the boy who obtained it informed Messrs. Sheals that he had seen it about for some time previously.

Glenorchy, Knock, Belfast.

HERBERT T. MALCOMSON.

Little Stint and Fork-tailed Petrel obtained on Migration.

Although well known to migrate regularly, I believe that the late Mr. Barrington never received a specimen of the Little Stint from an Irish light-station, at least not during the years 1881-97 ("Migration of Birds at Irish light-stations," p. 215 of the Analysis of Reports). Through the kindness of Mr. J. Hamilton, Principal Keeper at St. John's Point lighthouse, Co. Donegal, I received a specimen in flesh killed at that station on September 26th last. The bird struck the telegraph wire, and with such force that the right wing was completely severed from the body and was picked up separately. The bird was a female, the body emaciated, and the stomach empty. Weather conditions—Wind south, force 6, cloudy and squally.

The Fork-tailed Petrel I collected myself at Slyne Head lighthouse. The bird, I am informed, had been killed, striking a few nights previous to my arrival, and I found it at the foot of the tower. It probably struck, then, about September 18th. On examination the bird proved to be a female. The stomach was empty. The marks on the head resulting from striking the lantern were only slight. Mr. Barrington stated ("Migration of Birds at Irish Light Stations," p. 240 of Analysis of Reports) that there was no direct evidence of the migration of this species in September. In the light of this the above record is of interest.

Bloomfield, Hollymount, Co. Mayo.

ROBERT F. RUTLEDGE.

Great Black-backed Gull nesting in Co. Down.

I have pleasure in recording the nesting of the Great Black-backed Gull (*Larus marinus*) in Co. Down. On the 22nd June, 1918, I discovered a nest containing three eggs on an island off the coast close to a colony of Herring Gulls, and again on the 20th June, 1920, a pair had a nest containing three eggs in quite a different locality, whilst I saw another pair, which undoubtedly had young judging by their movements. The average measurements of the clutch examined this year are 3'1 ins. x 2'05 ins.

Glenorchy, Knock, Belfast,

HERBERT T. MALCOMSON.

TO OUR READERS.

WITH very great regret those responsible for the publication of the *Irish Naturalist* have decided that the price—whether for single copies or subscription for the year—must be doubled. For the past three years the old rate has been maintained and an attempt has been made to keep expenditure within income by reducing the size of the monthly issues. Now the increased cost of printing and paper leaves no alternative but a charge of 1s. per copy and 10s. annual subscription if the publication is to be continued. The Editors believe that the subscribers and supporters of the *Irish Naturalist* are sufficiently interested in the continuance of the magazine to pay the increased cost willingly, if not cheerfully!

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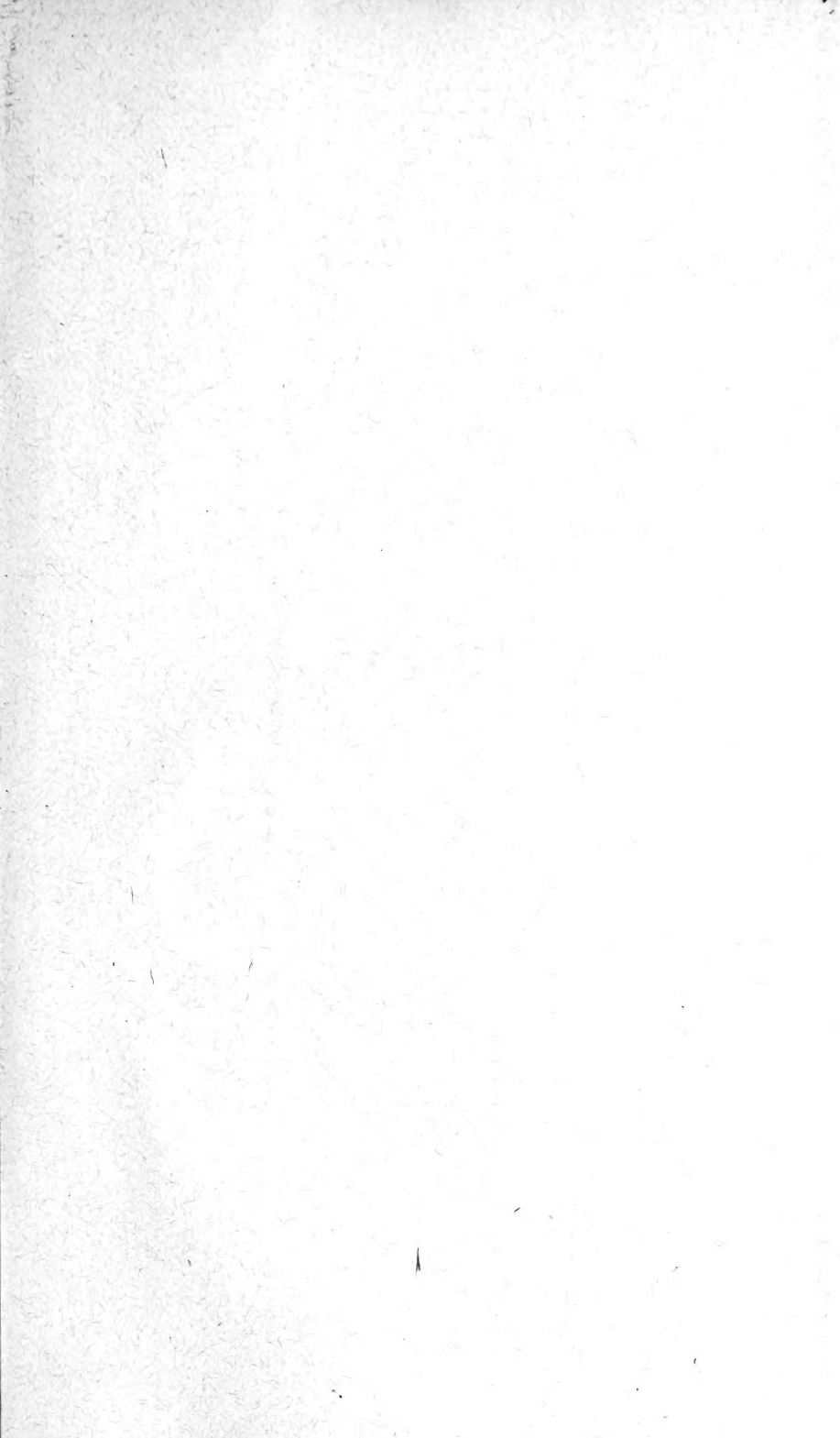
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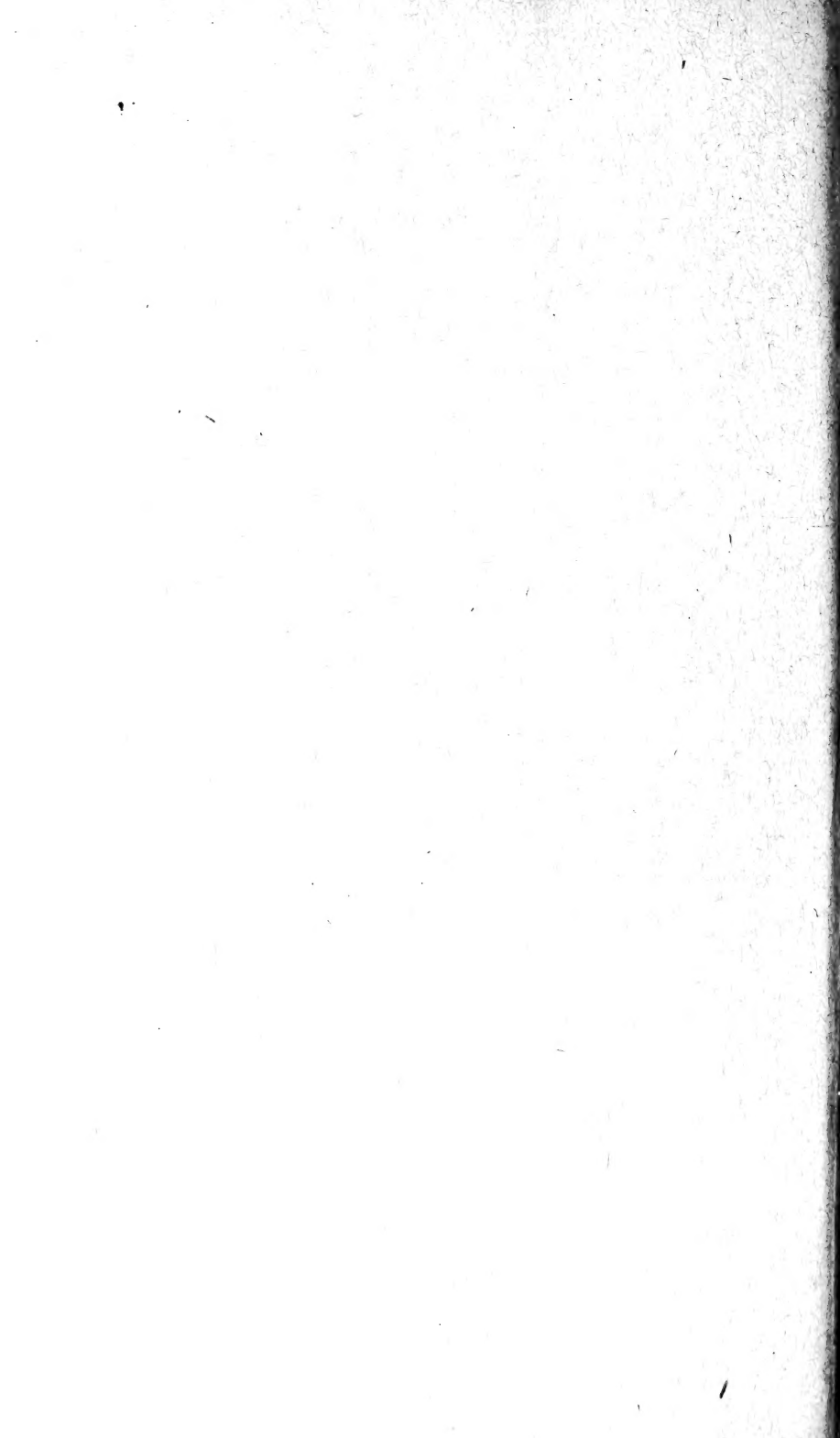
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