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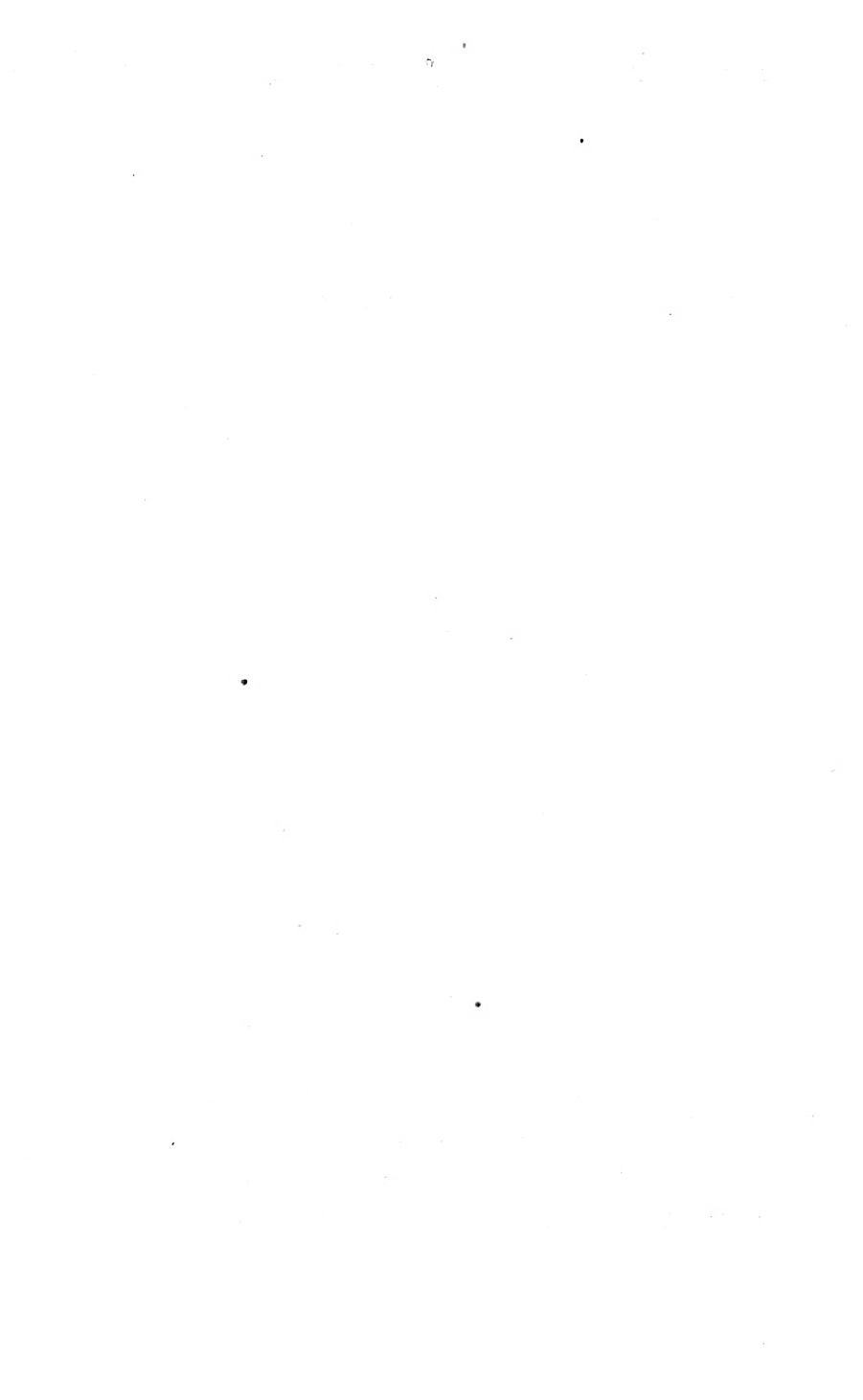
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ILLUSTRATIONS.

Grenville Arthur James Cole To face page 57

INDEX.

- Adalia bipunctata* and other Lady-birds in Co. Cork, 8.
Aporophyla nigra, 46.
Aquaria, 56.
 Archer, J. E.: Lough Neagh in legend and history (abstract), 43.
Athous difformis Lac. in Co. Dublin, 121.
 Baring, Cecil: Woodcock breeding on Lambay, 54.
 Bee Orchis in Co. Down, 110.
 Beetles: in Co. Dublin, 47, 121; Staphylinid new to Ireland, 67.
 Belfast Natural History and Philo-sophical Society, 43.
 Belfast Naturalists' Field Club, 11, 29, 100, 111, 139; medal, 139; work of, 12.
 Bennett, S. A.: Topography and geology of Rathlin (abstract), 139.
 Birds: British, 41, 56; in Isle of Man, 55.
 Birds, Irish: Collection of late Henry Blake Knox, 101; Large Flights over Belfast, 44; List of, 142.
 Bonaparte-Wyse, L. H., and Janson, Oliver, E.: Coleoptera from South Kerry, 125.
 Botanical Records for Co. Wicklow, 114.
 Brambell, F. W. Rogers, 108; Notes and Records of some Irish Birds in Collection of late Henry Blake Knox, 101.
 Brunner, J. P.: Botanical Records for Co. Wicklow, 114; Increase of *Saxifraga stellaris* in Glenasmole, 68.
Bryum atropurpureum, 23.
 Bunting, Gull, as an Irish Bird, 96.
 Burkitt, J. P.: Observations on Robin (noticed), 74, 123.
 Butler, J. Bayley: Mechanical Problems of Sea-shore (abstract), 99.
 Butterfly Lore, 40.
 Buzzard, Rough-Legged, in Co. Wicklow, 31.
 Carpenter, D. J.: Common Objects of Sea-shore (abstract), 29.
 Carpenter, G. H.: "Insects: Their Structure and Life" (reviewed), 145.
Cassida nobilis in Co. Dublin, 47.
 Cephalopod, A new Irish, 111.
Choleva nigrita in Co. Dublin, 47.
 Cole, Grenville Arthur James (obituary), 57.
 Coleoptera: at Lough Neagh, Co. Antrim, and Newcastle, Co. Down, 69; from South Kerry, 125; in Dublin District, 131.
 Cork Camera and Field Club, 24.
 Crake, Spotted, in Co. Louth, 124.
 Crawford, M. H.: "Little Nurseries in the Fields" (reviewed), 68.
 Crow, Hooded, at Hillsborough, 66.
 Cuckoo: Female, Observations on, 118; Great Spotted, in Co. Kerry, 30.
Dasychira pudibunda, in Clare, 124.
 Deane, A.: Large Irish Elk Antlers, 74.
 Delap, M. J.: Notes on Plankton of Valencia Harbour, 1906-1923, 1.
 Dogs, Breeds peculiar to Ireland and their origin, 77.
 Doyle, Joseph: Plant Life in the Tropics (abstract), 98.
 Dublin Microscopical Club, 10, 23, 42.
 Dublin Naturalists' Field Club, 98, 140.
 Editors: The "Irish Naturalist," 113; Localities for *Ino statices* and *Dasychira pudibunda*, 124; Marten in Co. Limerick, 43; Obituary of George Chichester May, 141; Ornithological Chestnut, 96; Rough-Legged Buzzard in Co. Wicklow, 31; Spoonbill and Great Spotted Cuckoo in Co. Kerry, 30; Squirrels near Central Area of Belfast, 43; To Our Contributors, 134.
 Elk, Irish, Large Antlers of, 74.
 Eltringham, H.: "Butterfly Lore" (reviewed), 40.
Erica stricta, 48.
 Falcon, Peregrine, breeding on Ireland's Eye, 109.
 Fauna of a Hatchery Filter, 135.
 Fish, Shoals near Glenarm, Co. Antrim, 7.
 Fisheries Research, International, 31.
Fissidens decipiens De Not, on Dublin Mountains, 42.
 Foster, G.: Kerry Moths, 46; *Mamestra persicariae* and *Aporophyla nigra*, 46.

- Foster, Nevin H.: British Gulls, Terns, and Skuas (abstract), 29; *Hieracium pellucidum* and *H. seratifrons* in Co. Down, 47; Hooded Crow at Hillsborough, 66; Spotted Crake in Co. Louth, 124.
Fulmars in Co. Clare, 123.
- Galium uliginosum* in Co. Wexford, 9.
Geranium sylvaticum, 9.
Gorgonia, Spicules of, 10.
Greeves, J. R. H.: Little Tern nesting at Magilligan Point, 110.
Grianan of Aileach, 141.
Grouse, Irish, 7.
Gull: Glaucous, off Greystones, 44; Lesser Black-backed, at Corrigeendauv, 116.
Gulls, Terns, and Skuas, British, 29.
Gunn, W. F.: Slides mounted with Judson's enamel (exhibit), 23; Spicules of species of *Gorgonia* (exhibit), 10.
Gwynn, A. M.: Localities for *Ino statices* and *Dasychira pudibunda*, 124.
- Halbert, J. N.: Coleoptera in Dublin District, 131.
Halibut, Greenland, in Irish Waters, 30.
Hall, F. J.: Robin Nesting in Letter-box, 74.
Harmer, Sir Sidney: "Mesoplodon and other Beaked Whales" (noticed), 142.
Harrison, A.: "Little Nurseries in the Fields," by M. H. Crawford (review), 68.
Hartog, Marcus (obituary), 39.
Hatchery Filter, Fauna of, 135.
Helicella herpensis in Co. Kildare, 67.
Hieracium pellucidum and *H. seratifrons* in Co. Down, 47.
Hodge, A. E.: "Vivarium and Aquarium Keeping for Amateurs" (reviewed), 50.
Huggard, Leslie: *Galium uliginosum* in Co. Wexford, 9.
Humphreys, Geo. R.: Observations on a Female Cuckoo, 118.
Hymenoptera Aculeata, specially in Dublin District, 13.
- Ino statices* in Co. Dublin, 124.
Insects of Dublin, 8, 13.
"Irish Naturalist," The, 113, 134.
Irwin, H.: Peregrine Falcon breeding on Ireland's Eye, 109.
- Janson, Oliver E.: Coleoptera at Lough Neagh, Co. Antrim, and Newcastle, Co. Down, 69.
Janson, Oliver E. and L. H. Bonaparte-Wyse: Coleoptera from South Kerry, 125.
Journal, A proposed New, 146.
Judson's enamel as mounting for slides, 23.
- Knowles, M. C.: *Erica stricta*, 48; *Geranium sylvaticum*—a correction, 9; *Spiranthes Romanzoffiana*, 75.
Knox, Henry Blake, Collection of Irish Birds, 101.
- Ladybirds in Co. Cork, 8.
Lafferty, H. A.: "Broken seedlings" of Trefoil (exhibit), 23.
La Touche, J. D.: Glaucous Gull off Greystones, 44.
Lee, William A.: Irish Sphagna, 98.
Loewenthal, Joan: Squirrels near Central Area of Belfast, 43.
- McArdle, D.: *Bryum atropurpureum* (exhibit), 23; *Fissidens decipiens* De Not, on Dublin Mountains (exhibit), 42; *Pottia Heimii* (exhibit), 10.
Mamestra persicariae, 46.
Marten in Co. Limerick, 43.
Massy, A. L.: New Irish Cephalopod (noticed), 111.
May, George C.: Marten in Co. Limerick, 43; Obituary Notice of, 141.
Megaw, W. R.: Mosses of Rathlin Island, 145.
Moffat, C. B.: Black Redstart on Migration, 141; "A Check-List of British Birds" by H. F. Witherby, F.Z.S. (review), 56; Gull Bunting as an Irish Bird, 96; Notes on Ruffs in Zoo, 25; "A Practical Handbook of British Birds," ed. by H. F. Witherby, F.Z.S. (review), 41; *Silene noctiflora* in Co. Dublin, 110; Supplementary Notes to "The Birds of the Isle of Man," by P. G. Ralfe (review), 55.
Mollusca of Dublin, 8.
Mosses of Rathlin Island, 145.
Moths in Kerry, 46.
- Natural History Records, Irish, 134.
Neagh, Lough, in legend and history, 43.
News Gleanings, 7, 108.

- Nichols, A. R.: New List of Irish Birds (noticed), 142.
- Night-jar in Fermanagh, 96.
- Norman, J. R.: Greenland Halibut in Irish waters (exhibit), 30.
- Obituary: Cole, Grenville Arthur James, 57; Hartog, Marcus, 39; May, George Chichester, 141.
- O'Mahony, E. G.: *Athous difformis* Lac. and other Beetles in Co. Dublin, 121; Dublin Insects, 8; Dublin Mollusca, 8; *Limax cinereo-niger* at Howth, 143; Records for *Choleva nigrita*, *Cassida nobilis*, and other Beetles in Co. Dublin, 47.
- Orchis, Bee, in Co. Down, 110.
- Orchis *Fuchsii* and *Orchis O'Kellyi*, White Form, 143.
- Ornithological Chestnut, An, 96.
- Orr, J., and A. W. Stelfox: A Proposed New Journal, 146.
- Pack-Beresford, Denis R.: Some new and rare Irish Spiders, 49, 62.
- Phalarope, Red-Necked, breeding in Co. Donegal, 109.
- Phillips, J. J.: Description of Grianan of Aileach (abstract), 141.
- Phillips, R. A.: *Adalia bipunctata* and other Ladybirds in Co. Cork, 8; New County and Vice-County Records for Irish Plants, 33; New Localities for some Rare Plants in Ireland, 129.
- Plankton of Valencia Harbour, 1.
- Plant Life in the Tropics, 98.
- Plants, Irish: New County and Vice-County Records, 33; New Localities for Rare, 129; Records for Co. Wicklow, 114; Southern, in Eastern Ireland, 97.
- Pottia *Heimii*, 10.
- Praeger, R. Eloyd: "Botany: a Junior Book for Schools" by R. H. Yapp (review), 10; *Rosa rugosa* as a Colonist, 9; Southern Plants in Eastern Ireland, 97.
- Ralfe, P. G.: Supplementary Notes to "The Birds of the Isle of Man" (reviewed), 55.
- Rathlin: Geology, Topography, and Zoology, 139; Mosses, 145.
- Redstart, Black, on Migration, 141.
- Renouf, L. P. W.: Marcus Hartog (obituary), 30; Spoonbill and Great Spotted Cuckoo in Co. Kerry, 30.
- Reviews: G. H. Carpenter's "Insects: Their Structure and Life," 145; M. H. Crawford's "Little Nurseries in the Fields," 68; H. Eltringham's "Butterfly Lore," 40; A. E. Hodge's "Vivarium and Aquarium Keeping for Amateurs," 56; P. G. Ralfe's Supplementary Notes to "The Birds of the Isle of Man," 55; H. F. Witherby's "Check-List of British Birds," 56, and "Handbook of British Birds," 41; R. H. Yapp's "Botany—a Junior Book for Schools," 10.
- Robin: Nesting in Letter-box, 71; Observations on, 74, 123.
- Rooks' Air Route, 45.
- Rosa rugosa* as a Colonist, 9.
- Route Naturalists' Field Club, 42, 141.
- Royal Zoological Society of Ireland, 24, 138.
- Ruffs in Zoo, 25.
- Ruttledge, Robert F.: Corrigeendauv—a Haunt of Lesser Black-backed Gull, 116; Distribution of Squirrel in Ireland, 73; Early appearance of Sand-martins, 54; Mutton Island Tern Colony, 95.
- Sand-martins, Early appearance of, 54.
- Saxifraga stellaris*, Increase of, in Glenasmole, 68.
- Saxifraga umbrosa* native in Wicklow Mountains, 60.
- Scharff, R. F.: International Fisheries Research, 31; On Breeds of Dogs peculiar to Ireland and their Origin, 77; Wolf in Ireland, 95.
- Sea-shore: Common Objects of, 29; Mechanical Problems of, 99.
- Seaver, E. L.: Bee Orchis in Co. Down, 110.
- Silene noctiflora* in Co. Dublin, 110.
- Southern, R.: Fauna of a Hatchery Filter, 135.
- Sphagna, Irish, 98.
- Spiders, Some new and rare Irish, 49, 62.
- Spiranthes Romanzoffiana*, 75.
- Spoonbill in Co. Kerry, 30.
- Squirrels: Distribution of, in Ireland, 73; near Central Area of Belfast, 43.
- Stears, S. M.: Large Flights of Birds over Belfast, 44.
- Stelfox, A. W.: Fulmars in Co. Clare, 123; *Helicella heripensis* in Co. Kildare, 67; *Ino statices* in Co. Dublin, 124; "Insects: Their Structure

- and Life" by G. H. Carpenter (review), 145; Irish Hymenoptera Aculeata, specially in Dublin district, 13; *Saxifraga umbrosa* native in Wicklow Mountains, 60; Staphylinid Beetle new to Ireland, 67; *Therapha hyoscyami* L. on Wicklow Coast, 68; "Vivarium and Aquarium Keeping for Amateurs," by A. E. Hodge, F.Z.S. (review), 56; White Form of *Orchis Fuchsii* and *Orchis O'Kellyi*, 143.
- Stelfox, A. W., and Orr, J.: A Proposed New Journal, 146.
- Stendall, J. A. Sidney: A Ringed Woodcock, 24; Work of Belfast Naturalists' Field Club (abstract), 12; Zoology of Rathlin Island (abstract), 139.
- Stoney, C. V.: Red-Necked Phalarope breeding in Co. Donegal, 109. Strangford Lough, Section of Shore (exhibit), 139.
- Swans, Wild, on the Barrow, 44.
- Terns: Colony at Mutton Island, 95; Little, nesting at Magilligan Point, 110.
- Therapha hyoscyami* L. on Wicklow Coast, 68.
- Trefoil, "Broken seedlings" of, 23.
- Vivaria, 56.
- Welch, R. J.: Great Shoals of Fish near Glenarm, Co. Antrim, 7.
- Westropp, M. S. D.: "Butterfly Lore," by H. Eltringham, M.A., D.Sc. (review), 40.
- Whales, Beaked, 142.
- Witherby, H. F.: "Check-List of British Birds," (reviewed), 56; Irish Grouse (noticed), 7; "Practical Handbook of British Birds" (reviewed), 41.
- Wolf in Ireland, 95.
- Woodcock: Breeding on Lambay, 54; Ringed, 24, 44.
- Workman, W. H.: A Ringed Woodcock, 44; Rooks' Air Route, 45.
- Wright, M. C. and W. B. Wright: Grenville Arthur James Cole, F.R.S. (obituary), 57.
- Yapp, R. H.: "Botany—a Junior Book for Schools" (reviewed), 10.
- Young, J. W.: Wild Swans on the Barrow, 44.

The Irish Naturalist.

VOLUME XXXIII.

FURTHER NOTES ON THE PLANKTON OF VALENTIA HARBOUR.

1906-1923.

BY MAUD J. DELAP.

FOR a number of years tow-netting for pelagic animals has been carried on in Valentia Harbour, which is a very suitable place for such work at almost any time of the year.

The results of past work have been already published, notably those of Mr. E. T. Browne and his colleagues, in the "Proceedings" of the Royal Irish Academy, Ser. III., vol. v., for the years 1895-1898.

The work was continued through the following years, and results published in the "Scientific Investigations" of the Fisheries Branch of the Department of Agriculture and Technical Instruction in 1905 and 1906 (Ann. Rep. Fish., Ireland, 1902-03, pt. ii., app. i. (1905), and Fisheries, Ireland, Sci. Invest., 1905, vii. (1906).)

The following notes are fairly complete for the years 1906-1910; but after that date, regular tow-netting was discontinued and only odd appearances recorded; for instance large shoals or drifts of ocean animals being stranded on the shores of the Harbour or neighbouring creeks, such as Cooscroum on Dingle Bay, and the shore between Murragh Point and Trawiganauun pier in Dohilla. This

latter shore is outside the Harbour to the westward of the lighthouse, and catches the ocean drift in a sort of back-water. Reenagiveen Point and the beach to the north of Knightstown are also good collecting grounds for drift material.

These notes are by no means exhaustive of the various animals seen, as many other organisms are common in their seasons, such as Oikoplura, Bipinnaria, fish eggs, copepods, etc.

RADIOLARIA.

1906.—A few *Acauthometron* and *Thalassicola* were taken in August, September and October. **1907.**—In July a good number were captured of both and a few in October and November. **1909.**—Very numerous in August.

CYSTOFLAGELLATA.

Noctiluca miliaris :—**1906.**—None seen. **1907.**—Fairly numerous in June. Abundant in August, and again in October and November. **1909.**—Crowds in July, choking the tow-net.

ANTHOMEDUSAE.

Amphinema dinema :—**1906.**—A few specimens in March, April, August, and November. **1907.**—Odd ones seen in April and August. **1909.**—A few seen in June.

Corymorpha nutans :—**1906.**—A few were taken in June. **1907.**—Very few in May and June. **1908.**—A few in May, more plentiful in June. **1909.**—Numerous in June.

Cytaeandra areolata :—**1908.**—One specimen seen on August 14.

Dipurena ophiogaster :—**1906.**—One taken on May 8, and two in August. **1908.**—One seen in May.

Dipurena halterata :—**1906.**—One specimen in August. **1907.**—Two taken in June.

Euphysa aurata :—**1906.**—Two seen in April and one in August. **1907.**—Three in May, two in June, and one in August. **1908.**—One seen in May.

Lar sabellarum :—**1906.**—A few in March and April; more plentiful in October and November. **1907.**—A few in June, August and November. **1908.**—In May and August a few were captured.

Lizzia blondina :—**1907.**—Frequent during May and June.

Margelis sp. ?—**1906.**—A young specimen taken in April. **1907.**—Two in April, one in May, and one in June. **1908.**—One in May. **1909.**—One in June.

Margellium oetopunctatum :—**1906.**—A good many taken in March and April, and again in June and September. **1907.**—One in January,

- some in March, many in April and May. 1908.—A few taken in May. 1909.—Several in September.
- Sarsia gemmifera** :—1906.—Two taken in August, and several in September. 1907.—One in June; a few in August.
- Sarsia prolifera** :—1906.—One in August, some in September, and a good many in October. 1907.—In May a good number were taken; continued fairly numerous through June; very plentiful in August. 1909.—A number seen in September.
- Sarsia tubulosa** :—1906.—A good many seen in June. 1907.—Two in April; two in June. 1908.—One in May; plentiful in June and August. 1909.—One in June.
- Tiara pileata** :—1906.—A few in April; more plentiful in June. 1907.—One in January; a few in April; more plentiful in May and June, and one in August. 1908.—One in May; plentiful in June and July. 1909.—A few in June and September.

LEPTOMEDUSAE.

- Agastra mira** :—1906.—One specimen taken in November.
- Dipleurosoma typicum** :—1906.—A few taken in October. 1907.—One in April. 1909.—Plentiful in June and September.
- Euchilota pilosella** :—1906.—In June a good many were seen. 1907.—A few in May and June. 1908.—A good many in May and June. 1909.—A few in June; many in September.
- Laodice calcarata** :—1906.—A good many in June. 1907.—A few in August. 1908.—Some taken in June. 1909.—A good many in September.
- Obelia nigra** :—1906.—Present in all tow-nettings from March to end of November. 1907.—Plentiful in March and throughout the rest of the year. 1908.—Taken in March, May and June. 1909.—Taken in August and September.
- Phialidium cymbaloideum** :—1906.—Plentiful through March, April, June, August and September. 1907.—Plentiful in March, May and June, and a few in August. 1908.—Numerous in May. 1909.—Numerous in September.
- Phialidium temporarium** :—1906.—Plentiful in March, April and June; a few in October, November and December. 1907.—In January one was taken; frequent in March; many in May, also in June, July and August. 1908.—A few in March, and many in May, June and July. 1909.—A few in February and March; very numerous in June and September.
- Polycanna** sp. :—1909.—In June about 20 specimens were captured, probably the species *vitrina*. 1923.—A large number of damaged large specimens were stranded on the shore on the 16 and 19 of September. None of these was perfect, but enough to show that the largest one was at least eleven inches in diameter. The colour was purplish blue, shading into pink in the canals.

TRACHOMEDUSAE.

Aglantha rosea.—1906.—Numerous all through October and November. 1907.—Numerous in May and June ; one seen in November. 1909.—A good many in September.

NARCOMEDUSAE.

Solmaris corona :—1907.—One specimen on August 12.

SIPHONOPHORA.

Veleva spirans :—1906.—From January 8 to end of that month, and also on February 1, quantities of *Veleva* were stranded on the rocks and shores of the Harbour, from very tiny ones two mm. in diameter to two inches long. This drift was accompanied as usual by numbers of barnacles attached to floating objects, such as bits of cinder, seaweed, corks, and wood. One small *Ianthina* and a *Spirula* and a few air-sacs of Sargasso weed. On October 30 several *Veleva* were taken. 1907.—On February 25 at Cooscroum on Dingle Bay, a large drift of *Veleva* was seen. On April 1 one was found in Valentia Harbour. 1908.—One specimen on February 5. In July a few were stranded by the tide. 1918.—Many on the shore near Knightstown. 1919.—A large number were stranded in the Harbour. 1921.—A large drift on January 17, specimens from one to seventy mm. in length. 1923.—During July considerable numbers seen. On August 1 at Dohilla, west of Valentia lighthouse many *Velevas* were seen afloat and stranded in a huge drift of *Salpae*. August 13.—Many seen in Valentia Harbour. Sept. 11.—A few seen in Dohilla.

Cupulita Sarsii—1906.—A few specimens in October on several days, and on two occasions in November. 1907.—Several seen in August. 1908.—Plentiful in June and July ; crowds on September 28.

Agalmopsis sp. :—1908.—One specimen taken on July 30.

SCYPHOMEDUSAE.

Aurelia aurita :—1906.—A few seen in June. 1907.—In June a few appeared. 1908.—Very few seen in June and July. 1909.—Ephyrae taken in February ; one adult specimen in June. 1923.—Crowds appeared in May.

Chrysaora isosceles :—1908.—Several were seen in July. 1909.—Plentiful all June and July. 1923.—Crowds of very large specimens were stranded on the shore during May ; umbrellas over 12 inches in diameter.

Cyanea Lamarcki :—1908.—One only seen in July.

Pelagia perla :—1906.—A good number seen in August ; very numerous in September, November and December. 1907.—Many in August.

Rhysostoma octopus :—1906.—One seen in September ; many in October.

CTENOPHORA.

- Pleurobrachia pileus** :—1906.—Plentiful in March, also in August, September, October and November. 1907.—A few in March, May, June and July, becoming very numerous in August; in crowds on August 24. 1908.—A few early in May, then in crowds till end of July. 1909.—Plentiful in June, July and in September.
- Bolina norvegica** :—1906.—A few in March; plentiful in June. 1907.—Numbers in August. 1908.—Many during July. 1909.—Many throughout June and again in September.
- Beroe ovata** :—1906.—Plentiful in June; a few in September; one in December. 1907.—One in May; numbers in August. 1908.—Some very large specimens in July. 1909.—A few in June; plentiful in September.

MOLLUSCA.

- Ianthina communis** :—1906.—On January 26 one small *Ianthina* ? *exigua* was found on August 19; two *I. communis* at Cooscroum. On September 2 two were picked up on Beginnis Island, Blasket Sound. One specimen found on Valentia, October 30. 1907.—One at Cooscroum on May 8. 1907.—A large specimen at Valentia on July 28. 1918.—A few found with *Verella*. 1919. A number stranded with *Verella*. 1921.—On January 17, one was found. 1923.—September 11 at Dohilla strand one large *Ianthina*, alive; on September 21 another live one with its float; another large shell on September 23.
- Spirula Peronii** :—1906.—On February 17 one shell found on the rocks at Reenagiveen. 1907.—Several at Cooscroum on May 28; one found on August 5. 1908.—One shell on February 5. 1923.—Two small shells found at Dohilla.
- Limacina retroversa** :—1906.—In March and April, August, September, October and November, present in small numbers. 1907.—A few in June, August, October, and November.
- Clio limacina** :—1906.—From March to November not numerous at any time. 1907.—In June, August, October and November. 1909.—A few in August.

TUNICATA.

- Thalia democratica-mucronata** :—1906.—None. 1907.—None seen. 1908.—*Thalia* appeared in considerable numbers on July 30; very plentiful from August 13 to 25. 1909.—None.
- Salpa runcinata-fusiformis** :—1908.—Plentiful, August 13-25. 1923.—In July large drifts of *Salpa*, large specimens, nearly all the chain individuals. On August 1, at Dohilla, an immense drift of *Salpa* in the bay (like porridge), and stranded thickly on each tide-mark; as far as could be seen these were entirely the chain individuals. On August 13 a big drift in Valentia; all were the solitary intermediate stage. September 11, at Dohilla, a good many seen, and a few odd ones up to September 16.

- Doliolum** :—1907.—August 12, a considerable number in the tow-net, and also on 16th; some very small ones; bigger ones with broad muscle bands.
- Barnacles**.—These occur so frequently that they are not always recorded. 1907.—In February, April and August. 1908.—In February a good many. 1923.—In August and September, many.

LARGE SHOALS OR DRIFTS.

- 1906.—January 8, 26, and February 1, a large drift of *Veleva* and Barnacles, one *Spirula*, one *Ianthina*, *Sargassum*, drift timber, etc., after a spell of westerly wind and heavy seas. In October immense shoals of *Pelagia perla* appeared as a purple patch, acres in extent, that could be seen half-a-mile away. Many remained about the Harbour during November, and many *Polycanna* with them.
- 1907.—At Cooscroum on Dingle Bay, February 25, large drift of *Veleva*, barnacles, *Sargassum*, quantities of hollow-stemmed *Laminaria*, and at same locality, in May, *Sargassum*, *Spirula*, *Ianthina*, barnacles, a damaged *Physalia*, and a Sea-bean (*Entada scandens*). In June, in Valentia Harbour, drifts of *Noctiluca* and *Aurelia*; also picked up a large piece of spawm of Angler.
- 1908.—In May and June great drifts of small jellyfish, *Pleurobrachia*, *Tiara*, *Sarsia*, *Euchilota*, etc. Continued through June, odd *Ianthina*, *Veleva*, followed by *Salpa*, blue (*Thalia*) and brown (*fusiformis*).
- 1909.—In June and July great drift of jellyfish, *Radiolaria* and *Noctiluca*, including a number of big jellyfish (*Chrysaora*, *Pilema*, *Polycanna*), *Cupulita*, *Sarsia*, *Agalmopsis*, etc., and one rarity, a number of *Catablema*.
- 1914.—In May, a Long-finned Bream, taken near Bray Head.
- 1921.—January 17, large drift of *Veleva*, *Ianthina*, *Spirula*, barnacles, and on 27 a small Loggerhead Turtle, dead, stranded on shore. Another turtle was reported from Bantry, and a great shoal of Portuguese Men-of-war about same date. A large piece of white coral covered with barnacles also floated in.
- 1923.—In May quantities of very large *Chrysaora* and *Aurelia* left on shores. July, drift of *Salpa*, *Veleva*, and a Sea-bean. In August at Dohilla, an immense drift of *Salpa fusiformis*, *Veleva*, *Spirula*, barnacles, and several Sea-beans. August 13, drift of *Salpa* in Valentia Harbour. September, *Salpa*; quantities of very large *Polycanna*, blue and pink, very damaged.

Valentia.

NEWS GLEANINGS.

The year just passed has brought with it various changes which have a bearing on Irish natural science. In the case of Prof. Carpenter, who bade farewell to our readers early in the year, Ireland's loss has been England's gain, since for the last nine months he has been busily engaged as Keeper of the Manchester Museum.

Mr. J. N. Halbert's retirement last spring from his post in the National Museum is another loss to Irish zoology, but fortunately there is no reason to think that he will, in consequence, relinquish his faunistic studies: it is to be hoped that the reverse will be the case.

At the end of the year R. Welch relinquished the presidency of the Conchological Society of Great Britain and Ireland, making way for J. Wilfrid Jackson; and R. Lloyd Praeger retired from his two-years' tenure of the presidency of the British Ecological Society, being succeeded by Prof. Weiss, F.R.S., of Manchester.

NOTES.

The Irish Grouse.

The announcement is made in *British Birds* for October that our Irish Red Grouse, to which Pastor Kleinschmidt in 1919 accorded specific rank under the name of *Tetrao hibernicus*, is considered by Mr. Witherby to deserve separation as a sub-species from the British form, and should therefore be known as *Lagopus scoticus hibernicus* (Kleinschmidt). To the same form Mr. Witherby refers the Red Grouse from the Outer Hebrides, which Pastor Kleinschmidt had separated as a third species under the name *Tetrao dresseri*. The most striking feature of the Irish and Hebridean Grouse seems to be the paler and more yellowish tint of its winter plumage; but a full description is to appear in the last number of the "Practical Handbook of British Birds."

Great Shoals of Fish near Glenarm, Co. Antrim.

Hearing that big shoals of fish had been seen near Glenarm, last September, I wrote the Rector, Rev. T. P. Waring, and he replies as follows:—"Fish have been very plentiful of late along this coast; fishermen say they are following the Herring fry which have remained near the coast much longer than usual. Many more large catches could have been made [than were made], but there is little demand for the fish, which are mostly "Blocken" or "Glashen" (*Merlangus carbonarius* Flem.), Lythe and Cod. On one occasion, that referred to in newspaper reports, the boats were filled to sinking point, and might have been so many times since, had there been a demand for the fish."

R. J. WELCH.

Belfast.

Dublin Mollusca.

While dredging at "The Pits," Kilbarrack, in June I brought in some half-dozen specimens of the var. *acuta* of *Limnaea auricularia*. Mr. Stelfox informs me that he thinks this is a new locality, the old records coming from more inland districts, but mentions some fossil shells taken by him in an alluvial deposit of the Broad Meadow Water, west of Swords, in 1921; these also are var. *acuta* Jeff.

Last June when collecting at Kilbarrack, in the field at the back of the graveyard I found a dead sinistral shell of *Helix aspersa* Müll. Mr. Stelfox to whom I showed it reports only one Irish record,¹ and he possesses a living specimen taken in his garden in the summer of 1921.

E. O'MAHONY.

Clontarf.

Adalia bipunctata and other Ladybirds in Co. Cork.

During the past summer I collected some Ladybird beetles, among them being *Adalia bipunctata* L., identified by Mr. J. N. Halbert of the National Museum, a species for which a single specimen collected at Waterford by A. Neale and mentioned in Johnson and Halbert's "List of Beetles of Ireland" (Proc. R. I. Academy 1900-1902) is the only previous Irish record, though a second specimen was taken in the same place by Mr. Bonaparte Wyse in 1915. It occurred in some plenty during 1922-1923 in my own garden, situated in East Cork, and this year in a garden south of the River Lee (Mid-Cork). The typical form of this insect has red wing-cases with a single black spot on each, but in the first-named locality I got several specimens in which these colours are reversed, the wing-cases being black with a red spot on each. This variety has, apparently, not been previously noticed in Ireland.

Other Ladybirds collected in the neighbourhood of Cork this year are *Coccinella vii-punctata* L., *C. variabilis* L., both widely distributed in Ireland, and *C. hieroglyphica* L. which I found on a cliff at Courtnacsherry (West Cork).

R. A. PHILLIPS.

Cork.

Dublin Insects.

On September 29 while at Killiney Strand I caught an ant, which proved to be a female *Lasius mixtus* Nyl., and is an addition to the Dublin list. Mr. Stelfox had previously asked me to look for it, as he had taken workers of an ant which he believed to be *L. mixtus* but could not be sure without seeing a female.

¹ See *I. Nat.*, vol. xiii., p. 189, pl. 2, 1904.

Among beetles captured during the 1923 season the following are worth placing on record, the rediscovery of *Amara consularis*¹ being of special interest:—*Amara consularis* Duft.—Kilbarrack, 25th April, 1923; *Choleva chrysomeloides* Panz.—Kilbarrack, 26th April, 1923; *Hister purpurascens* Hbst. var. *niger* Er.—Kilbarrack, 28th April, 1923; *Necrobia ruficollis* F.—Howth, 10th April, 1923 (taken by Miss Boyle); *Meloe proscarabaeus* L. var. *cyaneus* Muls.—Blackbanks, Raheny, 30th March, 1923. I am indebted to Mr. Halbert for the identification of the above insects, the *Meloe* vars. being verified by Mr. G. C. Champion.

E. O'MAHONY.

Clontarf.

Galium uliginosum in Co. Wexford.

Early in August last the writer noticed the above plant growing plentifully in a small marsh at the mouth of Wexford Harbour, not a quarter of a mile from the sea. For the most part it was buried deep in the tangled marsh grass, but its "stickiness" betrayed it to the touch when a hand was plunged into the grass. The leaves on all specimens examined were arranged in whorls of six, but one with a seven-leaved whorl was found on a subsequent search. The writer is indebted to Mr. Moffat for help in identification.

LESLIE HUGGARD.

Wexford.

Geranium sylvaticum—A Correction.

In the second supplement to "The Flora of North-East Ireland," recently published, it is stated, on page 18, that *Geranium sylvaticum* L. is naturalized in abundance in Hillsborough demesne. Doubt having been expressed by Mr. Stelfox, who had lately seen the plant *in situ*, as to its being *Geranium sylvaticum*, I asked Mr. Foster to send me fresh material for further examination. This shows that the plant is *Geranium Endressi* Gay, a Pyrenean species frequently cultivated in our gardens. The record for *Geranium sylvaticum* L. must therefore be withdrawn.

M. C. KNOWLES.

National Herbarium.

Rosa rugosa as a Colonist.

Rosa rugosa, Thunb., a handsome Japanese species, thrown out from a garden on the beach at Craigavad, Co. Down, has established itself, and has been spreading for some years. It now forms a patch of perhaps ten square yards in extent.

R. LLOYD PRAEGER.

Dublin.

¹ See p. 34, second part, "Guide to City and County of Dublin," 1878

REVIEW.

Elementary Botany.

BOTANY: A JUNIOR BOOK FOR SCHOOLS. By R. H. YAPP, M.A., Mason Professor of Botany in the University of Birmingham. 8vo. pp. xii. + 200. 1923. 3s. 6d. net.

Of elementary books on botany there is no end, but Prof. Yapp's contribution to this department of study deserves special commendation. He has produced an unusually attractive little book, written while the author was still with us as Professor of Botany in Belfast; and many of the excellent and helpful illustrations (drawn by the author) are no doubt derived from specimens collected by the Lagan or on the Black Mountain. All the leading phenomena of plant life are dealt with in the twenty-eight short chapters into which the book is divided. Some of these sections contain material of much practical interest, which is not often found in elementary or even in advanced text-books: the two chapters entitled "How Plants pass the Winter" are noteworthy in this respect, suggesting as they do the important truth that field botany is, or should be, an all-the-year-round study, if we are to understand the lives and forms of plants. The writing is, like the illustrations, simple, clear, and not devoid of imagination, and the plant is treated essentially as a plastic and variable living thing, existing in a world of diverse influences: a wonderful machine, which, within the narrow limits of a school-book, can only be lightly sketched.

R. LL. P.

IRISH SOCIETIES.

DUBLIN MICROSCOPICAL CLUB.

OCTOBER 10.—D. McARDLE exhibited fruiting specimens of *Pottia Heimii*, a minute tufted, yellowish green moss, distinctly maritime, and presenting curious features in which it differs from other species of the genus found in Ireland. The microscopic preparation showed the apex of the leaf serrated, the reddish nerve, stout seta, ovate-oblong capsule large for the size of the plant, wide mouthed, peristome none, lid obliquely rostrate from a flat base, columella attached to the lid elevating it beyond the mouth of the capsule which is a curious and striking characteristic of this species when in fruit. He also exhibited a drawing of the capsule and a leaf showing their peculiar characters.

A packet of specimens which were collected on a damp bank near the sea at Sutton, Howth, were also shown.

DECEMBER 4.—W. F. GUNN exhibited a slide of spicules of a species of *Gorgonia*. These spicules are embedded in the soft tissues or sarcode of the animal, and act as supporting structures to the body. They are stellate in shape, and tuberculated over the entire surface, and provide an interesting slide, especially when seen by transmitted light with a dark ground central stop.

BELFAST NATURALISTS' FIELD CLUB.

SEPTEMBER 29.—The ninth and final excursion of the Club was held, when fifty-seven members and friends visited Purdysburn Glen, under the guidance of Arthur Deane, M.R.I.A., F.R.S.E., in order to study the fungus flora. Mr. Deane gave a short account of the life history of fungi and their place in nature's economy.

Some interesting species of fungi were found, particularly among the gill-bearing class, but perhaps the most interesting were the Slime-fungi (*Myxomycetes*).

After an enjoyable afternoon spent in the woods a business meeting was held (Rev. W. R. Megaw, B.A., presiding), when eleven new members were elected.

OCTOBER 23.—The Club reverted to the old plan and held the Annual *Conversazione* at the commencement of the Winter Session instead of at the end, the practice for years past owing to curfew regulations.

There were forty tables in all of exhibits and six screens for photographs.

The President (J. A. Sydney Stendall, M.B.O.U.), S. A. Bennett, Captain Chase, J. A. Moffatt, J. Orr, and T. E. Osborne showed natural history and other exhibits from Rathlin Island.

In the zoological section the exhibits came from A. McI. Cleland, Miss Blackwood, James Orr, Miss McClure, Thomas Sawers, Professor Gregg Wilson, Miss Amelie C. Loewenthal, and R. J. Welch. Botany was represented by specimens from Nevin H. Foster, R. Welch, Professor Small, A. McI. Cleland, N. Carrothers, E. N. Carrothers, Rev. W. R. Megaw, S. A. Bennett, Captain C. D. Chase, James Davies, and Mrs. Gibson.

In the geological section were displays from Robert Bell, A. McI. Cleland and Mrs. Cleland. Archæology was represented by exhibits shown by Robert Bell, Mr. J. Skillen, T. E. Osborne, E. Burling, and R. J. Welch; Miss Joan Loewenthal, and Master R. H. Crawford. There were displays in microscopy from D. J. Carpenter, Messrs. Lizars, the President, A. McI. Cleland, and Professor Gregg Wilson.

Entomology was represented by specimens from W. M. Crawford and the B.N.F.C. Library. In photography there were fine examples from T. E. Osborne, Mrs. A. A. Campbell, C. Scott, W. A. Green, and Mrs. McCloy. Miscellaneous objects were exhibited by S. M. Macoun, W. M. Crawford, Miss Mawdsley, R. J. Welch, A. Albert Campbell, W. E. Mayne, Hans Iten, Mrs. Stendall, T. E. Osborne and Miss Minnie E. Johnston.

Awards in connection with the summer competitions, open to junior members, and *conversazione* prizes, were awarded.

The President gave a short address, following on which a series of lantern slides illustrating the summer excursions was exhibited by R. J. Welch.

NOVEMBER 27.—The President gave an opening address.

He dealt with a number of points touching the work of the Club, and declared that the North of Ireland should be proud of its museum connections. County Down gave to Britain the man who laid the foundations of what was probably the finest institution of its kind in the world. He referred to Sir Hans Sloane and the British Museum. Had Belfast been as important a city in Sloane's day as it was now there was no knowing but that he would have been the pioneer of the museum movement in the North of Ireland. They had to wait a period of some 68 years following Sloane's death, however, before any serious effort was made to put before the people of the North the idea which was eventually to lead to the formation of the old Belfast Museum.

It was in the year 1821 that the first steps were taken, when the Belfast Natural History and Philosophical Society was founded by a number of local gentlemen, and such was the energy they had in those days that in 1831 the building in which they were now meeting was erected. The collection made by those stalwarts of past days gave to each a great joy, but they lived at a time when a museum was looked upon as simply a store house. They must get away from the idea of a museum being merely a place of curiosities, and look more and more to it as an educational institution. As most of them were aware, there was now in course of erection in the Botanic Gardens Park a building of some magnitude which would in two or three years' time house the collections of natural history, ethnography, and art belonging to the citizens of Belfast.

Going on to refer to the Club as it is to-day, the President said that notwithstanding the present largely increased membership the number of active workers in the Club has seriously diminished. They still had old members who had done admirable work in the past, and were still doing so, but those of the younger school who were seriously engaged in the systematic study of any one group could be counted almost on one's fingers. In the past men and women worked well and faithfully for the Club and gave their services for the love of the thing—Tate, Stewart, Robinson, Patterson, Swanston, Wright, Praeger, Lett, Waddell, Grainger, Knowles, and others. They had men and women to-day who were prompted by the same motive, but it had occurred to him that they might commemorate their Diamond Jubilee by having a specially-designed bronze medal made as a means of recognising special merit.

The President went on to urge a greater keenness in the sectional research and survey work of the Club and a revival of the several sections—zoological, botanical, geological, and archæological—which flourished some years ago, and concluded by declaring that he was of the firm belief their old Club had sufficient strength to preen its wings and to continue its flight.

A discussion was entered into, each of the speakers paying a warm tribute to the President for the constructive policy set forth.

NOTES ON IRISH HYMENOPTERA ACULEATA,
WITH SPECIAL REFERENCE TO THE DUBLIN
DISTRICT.

BY A. W. STELFOX, M.R.I.A.

WHILE re-arranging the collection of Aculeates (Ants, Wasps and Bees) in the National Museum, I found, amongst material collected by Mr. J. N. Halbert in years past, examples of several species which had not been recorded from Ireland. Moreover during the last two summers I have made a few more additions to the list. At the same time I take this opportunity of recording the capture of some of the rarer Irish species—many of which have not previously been reported from the Dublin district—and of correcting a few errors which, from time to time, have crept into the Irish list. My own records are the more valuable for the reason that all my specimens have passed through the hands of Dr. R. C. L. Perkins, F.R.S., of Newton Abbot, Devonshire, to whom I am very deeply indebted and desire to tender my thanks. Since the Irish List—published by the late P. E. Freke in this Journal for 1895¹—appeared very little serious work at the Aculeates has been attempted in the South or East of Ireland except that done in Kerry and Cork by Col. Yerbury² and some sporadic work in Dublin and Kerry by the late H. Gore Cuthbert.³ In connexion with the Clare Island Survey a report on this group was written by Mr. Claude Morley,⁴ based upon his own work and that of the Rev. W. F. Johnson, J. N. Halbert, and P. F. Grimshaw. A portion of the material collected is now in the National Museum, and I regret to have to record the fact that all of it was not correctly determined, which tends to make me distrust several of the records for species of which I have *not* seen specimens. The chief

¹*Irish Nat.*, vol. v., pp. 39-43.

²*Ent. Mo. Mag.*, vol. xxxviii., 1902.

³*Irish Nat.*, vol. vi., p. 324. *Idem*, vol. vii., p. 65. *Ibid.*, p. 208. *Idem*, vol. xii., p. 46. See also E. Saunders in *Irish Nat.*, vol. xii., p. 68.

⁴Proceedings R. Irish Acad., vol. xxxi., part 24, 1911.

localities in which I have myself collected are as follows :— Ben Head, Gormanston, and the Ford of Fine, in Co. Meath; Rush, Portrane, Howth, Lucan, Knockmaroon, Glenasmole, Sandyford, The Dingle, in Co. Dublin; Glencree, Kilmalin, Enniskerry, Powerscourt, Newrath Bridge, The Devil's Glen, and Rocky Valley in Co. Wicklow; Rosslare and Carnsore Point in Co. Wexford.

FORMICIDAE.

Myrmica sulcinodis Nyl.—Recorded by Mr. Claude Morley from Tory Island, Cratlagh Wood and Glenveagh in Co. Donegal (*Irish Nat.*, xix., p. 185, 1910). The specimens from these localities are in the National Museum and were wrongly named. Mr. H. St. J. K. Donisthorpe, to whom I submitted them in 1920, divided them between the two common species *M. ruginodis* Nyl. and *M. laevinodis* Nyl. So far I have not seen any Irish specimens of *sulcinodis*, therefore I doubt the other records (Morley: Clare Island Report, Proceedings R. I. Acad., xxxi., part 24. H. L. Orr: *Irish Nat.*, xx., p. 76).

Stenammas westwoodi (Westw.).—Mr. R. A. Phillips has continued to extend the known range of this species, and since 1921 has sent me specimens from Tinnaranny Wood, Co. Kilkenny (a few miles above New Ross); Borrisokane, North Tipperary; and Clashganny, Co. Carlow.

Formica rufa L.—I took this ant in the Devil's Glen in June, 1921, and in September of same year saw a solitary large nest: this was built on a bare sloping rock, practically in the bed of the river, not far above the fall. Mr. R. A. Phillips sent me specimens in 1922 from Woodford, in S.E. Galway.

EUMENIDAE.

Odynerus trifasciatus Oliv.—I captured a single female in Glencree on 25th September, 1922. Previously only recorded for Cos. Mayo, Cork and Kerry.

O. sinuatus F.—Common in Kenure Park about the garden, 26th-29th June, 1923. Also taken in Glenasmole, between the reservoirs, in the following month. Recorded for Cos. Carlow, Kerry and Cork only.

BETHYLIDAE.

Authors have differed in their opinions regarding the position of this group, but it has probably come to rest for good amongst the Aculeates.

Bethylus fuscicornis Jurine.—There are three specimens in the Holiday collection taken by him at Donaghadee, Co. Down (probably between

1830 and 1840); and in the gravel pit by the railway near Herdstown, a little west of Donaghadee, I captured one on August 8th, 1922. Mr. R. A. Phillips sent me another from Rosslare, Co. Wexford, taken on 28th September, 1921. Haliday's notes on the habits of this or another species of the genus (*Ent. Magazine*, vol. 2, p. 219, 1834) are very interesting.

- B. sp. ?.—During the Clare Island Survey a specimen of another species—not yet identified—was taken by Mr. J. N. Halbert at Westport, Co. Mayo.

PSAMMOCHARIDAE (=POMPILIDAE).

- Psammochares** (*Pompilus*) **rufipes** L.—I found males not uncommon along the sandy bluffs south of the Martello Tower at Portrane on 14th June, 1923, and on 24th June, 1923, I captured a female in the same locality. The only previous Irish record seems to be that of Freke who, in 1894, took three specimens at Courtown, Co. Wexford.
- P. approximatus** Sm.—There is an unlocalized Irish specimen in the Haliday collection in the National Museum, and Dr. Perkins tells me he has seen one from Newcastle, Co. Down, taken by Mr. J. J. F. X. King of Glasgow.
- P. spissus** Sch.—A single male taken in the Devil's Glen in a sunny spot by the zig-zag road below the fall on 8th June, 1921. It has been recorded by Rev. W. F. Johnson from Co. Armagh.
- Pseudagenia carbonaria** Scop.—In Haliday's MS. list this is recorded as having been taken by him at Lough Neagh, and in his collection I found a pin (but no specimen) bearing both locality and species labels. If the sandy parts of the L. Neagh shore could be searched, other species new to the Irish fauna would probably be brought to light.
- Agenia variegata** L.—In recording this from Glenasmole in 1920 I wrongly stated it was new to Ireland, as Rev. W. F. Johnson has previously recorded it for Co. Donegal (*I. Nat.*, xxviii., p. 7). In 1923 I took it again in Glenasmole and also in Glencree.
- Ceropales maculatus** Fab.—Not only abundant along the coast as stated by Freke; but also occurs inland at Glencree. I was surprised to find it, however, in a quarry on the west side of Glanasmole at an altitude of 900 feet on 4th August, 1923.

PEMPHREDONIDAE.

- Pemphredon shuckardi** Mor. and **P. wesmaeli** Mor.—Freke, in his list, gives "Dundrum, Co. Dublin (Freke)" for the former species and "Monkstown, Co. Dublin (Cuthbert)" for the latter. Luckily there are specimens of both in the National Museum and these proved to be wrongly determined. Mr. H. M. Hallett to whom I submitted them in 1921 agreed that Freke's "*shuckardi*" from Dundrum is *P. lethifer* Shuck., and that Cuthbert's "*wesmaeli*" from Monkstown

is really *P. shuckardi* Mor. *P. shuckardi* I have taken myself in both Co. Dublin and Wicklow; but *P. wesmaeli* has never been taken in Ireland.

Passaloeus monilicornis Dbm.—I have taken this in July and August in Glenasmole; near Enniskerry; and there is a specimen taken by Mr. Halbert at Howth in the National Museum.

Psen (*Mimesa*) **unicolor** v.d. Lind.—To Cuthbert's record for Laytown (which is in Co. Meath, not Dublin, as stated by Freke) I can add North Bull, Dublin (J. N. Halbert), and Newcastle, Co. Down (J. J. F. X. King).

Psenulus (*Psen*) **pallipes** Pz.—Has been taken by Halbert in Avondale, Co. Wicklow.

NYSSONIDAE.

- Arpactus** (*Gorytes*) **tumidus** Pz.—The only Irish specimen I know of is in the National Museum. It was taken by Mr. J. N. Halbert in 1901 on the dunes at Tramore, Co. Waterford. Not seen by Dr. Perkins.
- Gorytes mystaceus** L.—Mr. R. A. Phillips sent me a female taken by him on 17th June, 1922, near Maryborough, in Queen's Co.

CRABRONIDAE.

- Crabro** (*Clytochrysis*) **chrysostrabus** Lep.—On 26th June, 1923, I took a male in the garden at Kenure Park, Rush. New to the Dublin district.
- C.** (*Blepharipus*) **cetratus** Shuck.—I captured a male on 1st July, 1923, in Glenree, near the copse wood. The only previous Irish record seems to be Yerbury's for S. Kerry.
- C.** (*Hoplocrabro*) **quadrimaculatus** F.—Mr. F. O'Mahony brought me four males taken by him at an old tree stump in the demesne at Lucan on 20th July, 1923. In the following month I took several males and a female at the foot of Glenasmole, running on the leaves of Burdock.
- C.** (*Physoscelis*) **clavipes** L.—Probably not uncommon in Glenasmole in August where I took males in 1923 and a female in 1921.

HYLAEIDAE.

- Hylaeus** (*Prosopis*) **minutus** Fab. (= *brevicornis* Nyl.).—Mr. Halbert captured a specimen, now in National Museum, in 1919 in the Vale of Clara, Co. Wicklow. It has not hitherto been recorded from Ireland.
- H.** **confusus** Nyl.—I have taken this twice in Glenree: a female on 18th September, 1922, and a male on 1st July, 1923. Also in Co. Antrim—a female—on the north shore of L. Neagh near Staffordstown on 3rd August, 1922.

COLLETIDAE.

- Colletes picistigma** Th.—Mr. E. O'Mahony captured a female on the coast near Raheny, Co. Dublin, in July, 1922. In 1923 it occurred very plentifully to me at Portrane at the end of June and beginning of July, where it was nesting all over the sandy slopes about the Martello Tower, while in the latter month I also captured it along the south cliffs at Howth.
- C. succincta** L. (= *glutinans* Cuv.).—A male in Glenasmole on 18th August, 1923 and a male and a female in Glenree on 9th September, 1923, are my only records for this species, which is probably not uncommon in the heathery parts of Wicklow and Dublin.
- C. montanus** Mor.—I discovered a large colony of this species, towards the end of June, 1922, nesting on the low cliffs (in clay) on the eastern side of Carnsore Point, and within a few hundred yards of this, the extreme S.E., corner of Ireland. The following day I saw several males on the dunes at Rosslare.

ANDRENIDAE.

In the genus *Sphecodes* there are, I am afraid, more erroneous than correct records for Ireland owing to the fact that the older generation had neither the papers written by Dr. Perkins dealing with this difficult genus, nor, what is still better, Dr. Perkins himself to assist them. All the corrections mentioned below, as well as the new records, are, of course, on Dr. Perkin's authority.

- Sphecodes monilicornis** K. (= *subquadratus* Sm.).—I have taken females of this in the Rocky Valley, 30th May, 1922; near Lusk and at the Ford of Fine, 11th June, 1923; and near Ben Head on the Meath coast on 18th June, 1923.
- S. spinulosus** v. Hag.—Erroneously recorded from Kilkenny* in Freke's list. The specimen, a female, is *S. rubicundus*, not hitherto recorded for Ireland.⁵
- S. pellucidus** Sm. (= *pilifrons* Th.).—The "Kilkenny" specimen referred to by Freke is not this species but merely one of the very large form of *S. divisus* K. Although the host of this species—*Andrena sericea* (*albicus*)—is a common species in the Dublin district I have taken no specimen of its parasite.
- S. divisus** K. (= *similis* Westm.).—Frequent in Cos. Dublin and Wicklow.
- S. rufescens** Fourc. (= *ferruginatus* Schk.).—The only Irish specimen I have seen is a female captured by me in the field behind the hotel at Newrath Bridge, Co. Wicklow, on 5th June, 1921. It is recorded for Cos. Donegal West (Johnson) and Mayo West (Morley).

⁵ I would much like to see the "Kilkenny" records verified, as amongst the insects given by the Rev. T. M. Gibson to the National Museum were many from Sussex, and I fear that some of the latter may have been subsequently labelled "Kilkenny" by mistake. If not, then, Kilkenny must provide some excellent collecting grounds for the aculeates.

- S. hyalinatus** Schk.—I have taken this three times: at 1,000 feet by the Slade Brook above Glenasmole on 2nd June, 1921; at the foot of Glenasmole on 11th August, 1923, both females; and two males in Glencree on 9th September, 1923.
- S. geoffrella** K. (= *variegatus* v. Hag.).—Recorded by Freke from Sandyford and Glencullen, but his specimen—a female—from Sandyford, in National Museum, is only *S. affinis*. Other records have proved to be likewise erroneous (see *Irish Nat.*, p. 51, 1921). Possibly the species does not occur in Ireland.
- S. affinis** v. Hag.—Abundant in Cos. Dublin and Wicklow, and certainly parasitic on *Halictus nitidiusculus* at Rush.
- S. dimidiatus** v. Hag.—Recorded by Freke from Sandyford, but a male and female of Cuthbert's from that locality are merely *S. affinis*, a species I found there also in 1923.
- Halictus lativentris** Schk. (= *iv-notatus* of E. Saunders, Brit. Aculeates, in part).—Amongst Mr. Halbert's captures I found a single female from each of the three following localities:—Thomastown, Co. Kilkenny; Tramore, Co. Waterford; and "Cork." In 1923 I took three females at The Dingle, Co. Dublin, on 27th May, 1923, and a male on 2nd September, 1923. This species has not yet been recorded as Irish, but the specimens recorded under *H. iv-notatus* K. by Mr. Morley from West Mayo, in his Clare Island Report, are possibly referable to it.
- H. freygessneri** Alf. (= *subfasciatus* of E. Saunders, Brit. Aculeates, in part).—Brought forward as new to Ireland by Mr. Morley in his Clare Island Report, but so far as I can trace all the specimens recorded from Ireland in the past under the name "*subfasciatus*" belong to the present species. It is very abundant in Cos. Dublin and Wicklow. Its close ally *H. fulvicornis* K. has not yet been taken in Ireland.
- H. punctatissimus** Schrk.—I have taken this in Cos. Wexford, Wicklow and Dublin, but it seems rather local.
- H. leucopus** K.—Frequent in Cos. Dublin and Wicklow.
- H. smeathmanellus** K.—Local in Cos. Dublin and Wicklow. Practically all my specimens (of the female) have a black abdomen (with scarcely a trace of the typical metallic sheen), and if run down by the table given by Saunders they would come out as *H. morio* F.
- H. morio** F.—This species is reported by Freke as "common," but so far I have taken no specimens of *H. morio*, and the only possibly Irish specimen I have seen is a male from the Haliday collection without data. I therefore much doubt Freke's record. Both Freke and Cuthbert seem to have mixed up the females of *H. leucopus* and *H. morio*.
- Andrena carbonaria** L. (= *pilipes* Fab.).—There are in the National Museum supposed Irish specimens of this large black species from both the Haliday and Trinity College collections. Moreover the species occurs

in Haliday's MS. list of Irish insects but does not bear his personal mark of verification. The specimens referred to almost certainly come from either the Tardy or Furlong collections. Neither sources are absolutely trustworthy when it comes to the matter of locality of capture.

- A. thoracica** F.—The specimen referred to in Freke's list from Armagh is a female *A. nitida*; the present species has not, I think, been taken in Ireland.
- A. cineraria** L.—Common in the upper part of Glenasmole in May, 1922. Also taken by me above the Devil's Glen on 4th June, 1921: in the Rocky Valley on 30th May, 1922; at Knockmaroon on 20th May, 1923; and on 29th July, 1923 I captured a female at Kilmalin above Enniskerry—a very late date for this species. New to the Dublin district.
- A. angustior** K.—On 30th May, 1922, I took several males and one female in the Rocky Valley, where they were flying mixed with the common *A. fucata* and not recognised till I got home. Not previously taken in Ireland.
- A. jacobi** Perkins (= *trimmerana* Saunders *et auct.*).—In his work on the British Aculeates Saunders included under the name "*Andrena rosae*" the present single-brooded species and the two double-brooded species *A. rosae* Pz. and *A. spinigera* K. Of these three the present, *A. jacobi*, is very common in the Dublin district and apparently widespread in Ireland generally. *A. spinigera* has not been taken at all, while *A. rosae* is apparently rare and local (*see below*).
- A. rosæ** Pz.—Dr. Perkins reports having seen a specimen captured by Rev. W. F. Johnson, presumably in Co. Armagh. Freke captured and recognised a female of the second brood at Borris, Co. Carlow, on 19th July, 1896, which is now in the National Museum.
- A. lapponica** Zett.—On 6th May, 1923, I took males (abundant) and fresh females (a few) in the old quarries at Sandyford and subsequently for about a month. I also captured females at The Scalp on 13th May, 1923; in the Deerpark at Powerscourt on 21st May, 1923; and in Glencree on 1st July, 1923. The last specimen had the pollinia of an orchid sticking to its face: it was very worn. Only once previously recorded for Ireland, namely, from Co. Armagh, by Rev. W. F. Johnson.
- A. helvola** L.—Freke's record for this species is erroneous. The specimen from Blanchardstown, Co. Dublin, is a female *A. fucata*. *A. helvola* has not been taken in Ireland.
- A. clarkella** K.—On 8th May, 1922, my wife captured a female entering a burrow in a bank near the foot of Glenasmole, while in April, 1923, I secured a male and numerous females near the upper end of the glen at Willows. Apparently only previously recorded for Co. Armagh.
- A. fulva** Schr.—There is a female on a green-headed pin from the Trinity College Collection, now in the National Museum, probably from Tardy's collection originally; but I much doubt if the species really occurs in Ireland.

- A. apicata** Sm.—I was lucky in 1923 to get a splendid day in Glenasmole when the willow catkins were out—2nd April, 1923—and was rewarded with two species new to Ireland. I took females on a willow tree by the river not far from the entrance to the waterworks at the foot of Glenasmole and a single example near the head of the upper reservoir. The males I captured were sunning themselves on paling posts, a habit which Dr. Perkins has noticed in the S. of England also.
- A. praecox** Scop.—Like the last species, new to Ireland. On 2nd April, 1923, I captured a male and a very fresh female close to the spot where I found *A. apicata* in Glenasmole.
- A. fuscipes** K.—Apparently common in Glencree in August and September on *Calluna*. Previously only recorded for S. Kerry.
- A. simillima** Sm.—Recorded by Edward Saunders⁶ from “Ireland (Haliday),” but I doubt and cannot trace the origin of the record.
- A. denticulata** K.—I have taken two males of this species; one in the quarries on Scrabo, Co. Down, on 7th August, 1922; the other at Kilmalin on 29th July, 1923. Both on bramble flowers.
- A. coitana** K.—Two females in Scrabo quarries, Co. Down, on 7th August, 1922; a male in the Copse Wood at Glencree on 29th July, 1923; and a female in the quarry on the west side of Glenasmole at 900 ft. alt. on 4th August, 1923. All the females were on bramble flowers, the male on that of *Jasione montana*.
- A. tarsata** Nyl. (= *analisis* Pz.).—Of this beautiful little bee I dug three females out of freshly made burrows in Glencree (old river bank near the Copse Wood) on a dull damp day (6th August, 1923).
The small black bees belonging to the group of *Andrena minutula* seem never to have been understood in our islands until Dr. R. C. L. Perkins worked them out a few years ago. Freke records “*A. minutula*” and “*A. nana*” as Irish. I have taken three species of the group as follows:—
- A. saundersella** Perkins.—This is probably the *A. nana* of Freke’s list. Frequent in Cos. Dublin and Wicklow. I have also taken it in Cos. Kildare and Meath.
- A. subopaca** Nyl.—The *A. minutula* of Freke’s list. Common in Cos. Dublin and Wicklow. I took a female of a second brood on Ragweed in the Deer Park at Powerscourt on 20th September, 1922.
- A. minutula** K.—Probably the genuine *A. minutula* has not before been recorded from Ireland. Amongst Mr. Halbert’s captures I found a male of the first brood (= *A. parvula* K.) taken in the Rocky Valley, and a female of the second brood taken in the Vale of Clara. Personally I have taken the second brood only—two females, one in the Deer Park, Powerscourt, on 20th September, 1922, the other in Glencree on 9th September, 1923. The above four localities are in Co. Wicklow and all practically in one district.

⁶ “British Aculeates,” p. 249.

- A. afzeliella** K.—Freke's record from Killiney is probably erroneous. I have seen no Irish specimens of this species, and those so labelled have all proved to be *A. wilkella*, which is common and widespread,

ANTOPHORIDAE.

- Nomada obtusifrons** Nyl.—On a dull day—23rd July, 1922—I captured a male and a female on the same flower of an Ox-eye Daisy near the quarry on the west side of Glenasmole, at 900 ft. alt. Probably parasitic on *Andrena coitana*, which I have taken in the same place in 1923.
- N. rufipes** F. (= *solidaginis* Pz.).—Abundant in Glencree—and no doubt parasitic on *Andrena fuscipes*—in September, 1922-23. Also in the Deerpark, Powerscourt, though in this locality I have not seen the *Andrena*. Like its host only previously recorded from S. Kerry, but the Haliday specimens in the National Museum most probably come from Co. Down.
- N. hillana** K. (= *ochrostoma* K.).—Very abundant in the Rush district in June, 1923, and much less common in the vicinity of Dublin. At Rush obviously parasitic on *Andrena wilkella*.
- N. leucophthalma** K. (= *borealis* Zett.).—Frequent in upper Glenasmole, where its hosts *Andrena apicata* and *A. clarkella* were taken in April, 1923.
- N. fabriciana** L.—In Glenasmole, a female, on 20th May, 1922; another on 5th May, 1923; and a male on 2nd April, 1923. This species is a well-known parasite of *Andrena gwynana*, but the dates upon which the two males were captured are rather late for the first brood of that species, which was out in Glenasmole in the first week of April, 1923, and much too early for the second brood. The specimen recorded by Mr. Morley from Clare Island was wrongly named: it is *N. obtusifrons*.
- Melecta armata** Pz.—There is a male specimen of this species⁷ in the National Museum from the Trinity College collection. This has a green-headed pin, supposed to indicate its Irish origin. No doubt it is originally from the Tardy collection and if truly Irish it was probably taken in Co. Wicklow. In Haliday's MS. list, under the name *M. punctata*, it is recorded as Irish on the authority of Tardy. It is, of course, the well-known parasite of *Antophora pilipes*.
- Antophora pilipes** F. (= *retusa* K. and Haliday MS.).—In the National Museum are four supposed Irish specimens, two females from the Haliday collection and a male and a female from the Trinity College collection. One of the Haliday specimens bears a label in Haliday's writing "*Antophora retusa*. 2. From Box 28 where the rest Irish."

⁷ This and *Antophora pilipes* are recorded on my authority and have not been seen by Dr. R. C. L. Perkins,

No doubt "Box 28" refers to the Tardy collection, and the green-heads to the pins, now attached to the specimens from Trinity College, were probably added subsequently. Haliday seems, however, to have been satisfied with the evidence, since he definitely records the species as Irish in his MS. list on Tardy's authority. Nevertheless if really occurring in Ireland it is strange that neither this nor *Melecta armata*—both large and conspicuous insects—have been captured since Tardy's time.

MEGACHILEIDAE.

- Megachile maritima** K.—Recorded by Cuthbert from Lambay and Killiney, Co. Dublin; but the only specimen so named by him and presented to the National Museum (from Courtown, Co. Wexford) is a female *M. willughbiella*. Possibly therefore his two records also refer to the latter species which I have taken about Dublin, though not recorded in Freke's list.
- M. willughbiella** K.—Quite common during the month of July in my own garden and in that of Dr. R. Lloyd Praeger, in Rathgar, Co. Dublin. In the latter garden this leaf-cutter bee lines its burrows with pieces cut from the leaves of *Epimedium*. Dr. Perkins has pointed out that the colour of the hairs on some of my specimens is different from that of the English form of the species.
- M. centuncularis** L.—Freke says that this is "common and generally distributed"; nevertheless all the Irish specimens so named that I have been able to trace belong to *M. versicolor*. But I have proof that *M. centuncularis* does occur in Ireland, as I captured both a male and a female in Dr. Praeger's garden with the last species on 26th June, 1921.
- M. versicolor** Sm.—This is probably the common Irish species referred to by Freke under *M. centuncularis*. Personally I have only taken it in my own garden and in that at Kenure Park, Rush, where I obtained it in the last week of June, 1923. A few years ago Mr. Nevin H. Foster, M.R.I.A., sent to the National Museum two "burrows" of this species lined with rose leaves, which had been discovered by a carpenter in dismantling the roof of an old house. From these burrows there subsequently hatched a female of the present species and two males of its parasite, *Coelioxys inermis* (= *acuminata*).
- Osmia aurulenta** Pz.—Sandhills at Rush and Portrane, June, 1923.

BOMBIDAE.

- Bombus sylvarum** L.—Since Mr. R. A. Phillips sent me the specimen from Rosslare⁷ I have myself captured a female in Mr. Jameson's field below Knockranny, Co. Wicklow, on *Vicia sepium* flowers, on 30th May, 1922, and Mr. Phillips has sent me two workers taken

by him at Kilkenny on 9th August, 1923. Possibly therefore some of Freke's or Cuthbert's records are referable to this species—and not to *B. derhamellus* as suggested to me by Mr. C. B. Moffat⁸—more especially so as I find that Cuthbert records⁹ both species as occurring in the Ballybunion district, Co. Kerry.

B. derhamellus K.—Frequent in Cos. Dublin and Wicklow, and particularly common in Glenasmole.

The parasitic species of the genus *Psithyrus* do not seem to have been well known to either Freke or Cuthbert, to judge by their records. I find, however, that the four species, *P. rupestris*, *P. distinctus* (no doubt the *vestalis* of Freke's list), *P. barbutellus* and *P. campestris* are very common in the Dublin district. *P. quadricolor* I have only taken in the mountains—the headquarters of its host *Bombus jonellus*—while I only know of the real *P. vestalis* as Irish from the female taken by Mr. Pack Beresford in Co. Carlow,¹⁰ and another captured near Killurin, Co. Wexford, in 1922 by Mr. J. G. Rhynehart.

National Museum.

IRISH SOCIETIES.

DUBLIN MICROSCOPICAL CLUB.

DECEMBER 19.—MR. H. A. LAFFERTY exhibited specimens of "broken seedlings" of Trefoil found in the germinating dishes during a germination test of a sample of this seed. He suggested that, in some cases at least, the fracture of the hypocotyl appeared to develop as a result of the great pressure necessary to rupture the seed-coat.

JANUARY 9.—D. MCARDLE showed the deep purple-red capsule, peristome with bright red lid, leaves, etc., of *Bryum atropurpureum*, a very distinct moss, differing from its nearest allies in the abruptly ending neck, not tapering from the seta to the capsule as in other species. The capsule is pendulous, small, thick and short, less than one line long. The specimens were collected at the Kilrock quarries, Howth.

W. F. GUNN exhibited a number of slides mounted by himself, in order to demonstrate the utility of Judson's enamel as a medium for the finishing ring. This preparation is easily worked, runs freely, dries quickly, and is sufficiently hard without being brittle. It can also be procured in conveniently small tins and in a variety of colours so that if desired a distinct colour may be used readily to distinguish one group of objects from another.

⁸ See *Irish Nat.*, vol. xxxi., p. 10.

⁹ *Ibid.*, vol. vii., p. 65.

¹⁰ Recorded by Sladen in "The Humble Bee," 1912, p. 209.

ROYAL ZOOLOGICAL SOCIETY OF IRELAND.

Recent gifts include a Rhesus Monkey presented by Mr. Henry, a Fox given by Commandant Colgan, two Badgers from Mr. M. Donohue, fourteen Rabbits from Master E. Munns, a number of Sparrow-Hawks from Mrs. Phillips, Miss E. Hamilton, and Mr. McGuckin, a Kestrel from Mr. R. Reeves Smyth, two Peregrine Falcons from Mr. Edmond O'Sullivan, four Sheldrakes from Mr. J. Blood-Smyth, a pair of Love-birds from Master E. Bailey, a small Crocodile from Mrs. Strickland, and a Lizard from Mr. Patrick Boylan.

The acquisitions by purchase include a Chimpanzee, a Hamadryas Baboon, a Crab-eating Macaque, a Sooty Mangabey, a Mona Monkey, two pairs of Marmosets, a pair of Capybaras, two Pacas, two Zorillas, and an Otter.

A Suricate and a Grey Parrot have been received on deposit. A number of young Alligators and Tortoises from the New York Zoological Gardens have also been added to the collection.

CORK CAMERA AND FIELD CLUB.

This Club was inaugurated last summer with headquarters at University College, and is open to all members of the College and others interested in photography and for natural history approved by the committee, which is composed of collegiate and non-collegiate members.

The Cork Naturalists' Field Club has brought itself to an end and made over its effects to the Camera and Field Club, to which the members on the last roll have been admitted for the current session.

A number of successful excursions were made during last summer and a programme of evening lectures and demonstrations for the winter is being carried out with enthusiasm.

Field members are particularly wanted. The honorary secretary is T. A. Conroy, Esq., the honorary recorder, Prof. L. P. W. Renouf, and the president Professor A. E. Dixon. The honorary recorder is compiling a fauna and flora list and will welcome any records—even of the commonest species—of plants or animals in Munster.

NOTE.

A Ringed Woodcock.

I have just received information of a Woodcock (*Scolopax rusticula* Linn.) having been recently shot by the Marquis of Hamilton at Baronscourt, Co. Tyrone, bearing a metal ring on one leg. The ring has a number upon it (not given) and the word "Helgoland." According to the Migration Reports, Northern Ireland claims the bulk of immigrant Woodcocks into our country, but I am unaware of any previous evidence as to their home land. I should be glad to hear of any, if extant.

As a breeding species this bird is undoubtedly increasing in the north. Belfast Museum.

J. A. SIDNEY STENDALL.

NOTES ON SOME RUFFS IN THE ZOO.

BY C. B. MOFFAT.

As the breeding habits of the Ruff (*Machetes pugnax*, Linn.) have been made the subject of a very exhaustive study by Mr. Edmund Selous¹ on the strength of observations made by him in Holland in the spring of 1906, I think some notes on the conduct of four of these birds that were kept in the Dublin Zoological Gardens in the spring of 1912 may possess some little interest, as favouring perhaps a different interpretation from that placed by Mr. Selous on the facts observed by him at the Dutch breeding-station.

The conduct of a few birds observed in captivity cannot, of course, pretend to a value comparable with that of facts gathered from wild birds in the field; and I think it is extremely unlikely that a fuller or better picture than that given by Mr. Selous of the habits of the Ruffs and Reeves at their breeding-quarters will ever be presented. But in his whole-hearted advocacy of the Darwinian theory of Sexual Selection it is possible that Mr. Selous has overlooked the significance of some of the facts he himself observed, such as the constancy with which each male bird (or Ruff) kept to his own patch of ground, waiting patiently and almost passively until some females (or Reeves) chose (if they did choose) to visit him. Mr. Selous argued from this that the female was obviously the deciding or selecting party; and as he also found it to be commonly the case that one Ruff would be visited by many Reeves while a number of other Ruffs remained totally neglected, he concluded that a fairly unanimous standard of taste prevailed among the female birds, and that the greater matrimonial happiness of the more fortunate among the Ruffs was the natural result of their more attractive appearance.

The four birds of this species that were in the Zoo in 1912 were two Ruffs and two Reeves. They were kept in one of the open-air enclosures outside the Nesbit Aviary.

¹ Zool. (4) vols. x. and xi.

By the middle of May the two male birds were (or appeared to be) in all the splendour of their spring "show," and a very interesting state of affairs had been established. The two Ruffs (as might be expected) were quite unlike, the frill of one of them being nearly black, and that of the other orange-red. On May 14th I found that they had divided the enclosure between them—or rather each had appropriated a quarter, so that they faced one another diagonally, the black-frilled Ruff being in the N.W. quarter and the red-frilled in the S.E. How they arrived at their scheme of partition I cannot say; but the quarter that belonged to the black-frilled Ruff was also inhabited by both the Reeves, and the red-frilled Ruff was living in lonely state.

Nothing could be clearer than that the black-frilled Ruff was the master-bird. Neither of the two Ruffs, except for feeding purposes, seemed ever to leave his own area; but the dark bird was fond of menacing his red neighbour, sometimes advancing with outstretched neck and vibrating frill to the very edge of his domain, though he did not go beyond the boundary—while the orange-frilled bird would reply to the defiance by a corresponding gesture, but remained fixed in the centre of his own area, so that no combat could come off.

Some interesting scenes occurred at feeding-time, as the trough to which all the birds had to resort lay outside both the appropriated areas (in the N.E. quarter of the square), and was further from the dark Ruff's than from the red Ruff's boundary. When the dark Ruff wished to feed he was accompanied to the trough by both his wives—who would naturally be hungry, as he never allowed them to leave his corner by themselves. The red Ruff, however, sometimes took advantage of these occasions to slip into the black Ruff's area, where he would be found on the return of black Ruff and party. Of course, as soon as this happened, the black Ruff made an angry charge; but the intruder never waited to be attacked, and was "off like a shot."

This incident at any rate proved that, whether any fighting had taken place or not, the black Ruff was known

by his rival to be physically the superior bird. It also seemed to suggest that, in some respect that was perceptible to the birds, though not to me, the territory monopolized by the black Ruff was a more desirable vantage-ground than the quarter occupied by the red.

The masterfulness of the black Ruff was asserted just as strongly over both his wives as it was over his unwelcome visitor. I have mentioned that he never allowed the Reeves to leave his area except when he himself went out to feed. The Reeves did not entirely appreciate these restrictions on their freedom. It was not unusual to see one of them make a start to leave the little parterre ; but the master of the harem was always on the watch, and showed a wonderful address in preventing the lady's escape. He would run rapid circles round his area, stretching out his frill to its utmost extent so as completely to outflank the run-away Reeve till she gave up the attempt as useless. (The use of the frill as a driving-bush on these occasions struck me, I must confess, as throwing unexpected light on the utility of that celebrated nuptial ornament). It is to be feared, however, that Reeves in a wild state would maintain an easy independence of such tactics as these by the use of their wings.

This interesting state of things—which may have been in existence for several weeks before I first noticed it—lasted throughout the third week of May ; but towards the end of the fourth week of that month a revolution occurred in the enclosures. The red Ruff, hitherto the unhappy outcast, was transformed into the master bird. He took possession of the quarter that had hitherto been the black Ruff's, leaving the black Ruff no option but to retreat into the opposite corner, the old residence of the red-frilled bird. I need hardly say that the two Reeves formed part of the exchanged property. The red-frilled Ruff now had their company as completely to himself as it had formerly been his rival's.

The cause of the change I cannot with any certainty state. My conjecture is that the black Ruff had assumed his " show " a little earlier than the red, and was beginning to moult it while the red bird was still in his fullest vigour.

But if so the visible change was so slight that I failed to make it out. That the changed relations subsisting among the four birds were due to a capricious change of preference on the part of the Reeves would be the natural way of accounting for the matter (as Mr. Edmund Selous might very justly contend) but for the fact that the red Ruff had also acquired possession of the black Ruff's old home, in which, only a week before, the masterful black Ruff would never allow him to set foot. This clearly shows that he had become the stronger bird, that he occupied his new home in right of conquest (though no battle may have taken place), and that the Reeves *probably* followed a more reasonable instinct than mere arbitrary fancy in throwing in their lot with the winner of the more coveted piece of ground.

The red Ruff did not long retain his rulership. By the 11th of June the display of both birds was over, the dark Ruff having moulted nearly the whole of his "show," while the red Ruff was reduced to a sort of half-and-half. The four birds now trotted sociably about over the whole enclosure, the two Ruffs, in particular, keeping by one another with the greatest amity. The Reeves seemed comparatively indifferent to each other's presence—they had had enough of it, perhaps, being together all the spring—and one of them seemed disposed for a few minutes (while I watched them) to start a little flirtation with the red Ruff, who, however, completely ignored her.

Imperfect as the foregoing record has been, I think it helps to show that the "Law of Territory" (in a form modified to suit the case of polygamous birds) is not without its influence in deciding for a species like *Machetes pugnax* to what individuals the carrying on of the kind shall be most largely intrusted. The existence of such a law is, indeed, almost suggested by what Mr. Selous himself has said¹ in his account of his observations in Holland—that "each Ruff has certainly a place of its own, and the most envenomed fights appear to me to result from one bird pitching down in another's place, when he flies in." And

¹ Zool. (4) vol. xi., p. 172.

as we have seen that in the Zoo, at any rate, the occupation of a certain selected part of the ground was the mark of the master Ruff, it is not difficult to infer that the Ruffs whom Mr. Selous saw fighting so fiercely knew well enough what they were fighting for, and had the best possible reason for insisting against all new comers on the maintenance of their particular "claims."

IRISH SOCIETIES.

BELFAST NATURALISTS' FIELD CLUB.

JANUARY 15.—The President (J. A. Sidney Stendall, M.B.O.U.) in the Chair. D. J. Carpenter, A.R.Sc.L., delivered a lecture on "Some Common Objects of the Sea-shore." The characters and habits of many common shellfish, including the limpet, razor-shell, piddock, shipworm, etc., were described, and it was pointed out that other shelly objects (*Spirorbis* and *Serpula*) found on seaweed, stones, shells, etc., were the homes not of molluscs but of sea-worms, which had created these stony abodes as a protection against their enemies. Having dealt with various kinds of barnacles and with sea-anemones, the lecturer explained how the sea-mat and the sea-fir, which look so like seaweeds, as well as the lace coralline, which encrusts seaweed, are really the homes of minute animals very like the sea-anemone. Touching on the common star-fish, the lecturer described its method of attacking oysters and other bivalves, and its remarkable power of self-mutilation and reparation. The lecture was illustrated by lantern views specially prepared by the lecturer from his own negatives of shells, urchins, etc., collected by himself on the Antrim and Down coasts. The President, the Rev. W. R. Megaw, R. J. Welch, and A. McI. Cleland, took part in the discussion which followed.

JANUARY 29.—The President in the Chair. Nevin H. Foster, F.L.S., delivered a lecture on "The British Gulls, Terns, and Skuas," illustrating his remarks with a series of fifty lantern slides, chiefly from photographs taken by R. J. Welch. He pointed out that Gulls may generally be distinguished at sight from birds of the other two groups by their fan-shaped tails, the Terns by their forked tails, and the Skuas by having the middle pair of tail-feathers longer than the others. Differences in the habits were also described, and a discussion followed, in which the President, R. J. Welch, and J. R. H. Greeves took part.

NOTES.

The Greenland Halibut in Irish Waters.

At a recent meeting of the Linnean Society in London Mr. J. R. Norman, F.L.S., exhibited a specimen of the Greenland Halibut (*Reinhardtius hippoglossoides*), a fish apparently new to the Irish fauna. The specimen was caught off the south coast of Ireland, latitude $52^{\circ} 30' N.$, at 170 fathoms, and was sent to the British Museum by Professor W. M. Tattersall, of Cardiff. Normally an arctic and sub-arctic species, it extends southwards on the western side of the Atlantic to the Grand Banks off Newfoundland (latitude $42^{\circ}-50'$); but on the eastern side it does not extend nearly as far southwards, and, according to Dr. Smitt, "perhaps not much south of the 70th degree of latitude." From its nearest relative, the Common Halibut, it differs especially in the plumper body, larger mouth and stronger teeth, in the left eye being on the upper surface of the head and the dorsal fin commencing behind it, and in being coloured on both sides. In the young, however, the blind side is colourless. It appears to be a species which is in process of discarding the habits characteristic of the order, and has regained to a certain extent its original symmetry.

Spoonbill and Great Spotted Cuckoo in Co. Kerry.

Through the courtesy of Mr. James Shuel, of Kinscraigie, Caherciveen, our museum will be enriched shortly by the addition of a specimen of the Spoonbill, shot on September 29 on the Valencia Estuary. Through the same gentleman I have received the remains of a Great Spotted Cuckoo from Mr. Charles O'Driscoll, who found it dead during February, 1918, near Caherciveen. It was originally accompanied by another with which it passed about a week, after which it was found dead and its companion vanished. At the same time a Hoopoe was in a neighbouring field for a week, after which it was shot, and a flock of about seven frequented another field about two miles distant. I am not yet sufficiently acquainted with the Irish fauna to be able to comment on these occurrences, which seem to me to be worthy of publication.

L. P. W. RENOUF.

University College, Cork.

The occurrence of so extremely rare a visitor as the Great Spotted Cuckoo (*Clamator glandarius*) is an event of such interest that we thought it advisable to await the result of some inquiries before publishing Prof. Renouf's note. The "remains" in question are undoubtedly those of a Great Spotted Cuckoo, in a very wretched and almost fragmentary state; and from Mr. Shuel's letters on the subject (kindly sent to us by Mr. Renouf) it appears that the dead bird remained in Mr. O'Driscoll's possession from the time he found it in the spring of 1918 until the 9th or 10th of October, 1923, when Mr. Shuel suggested to him

that the remains of so rare a visitor might most fittingly be offered to the Cork University Museum.

The following extract from a letter written to Mr. Renouf by Mr. Shuel gives the fullest account of the facts that seems to be available :—“ There is no doubt whatever that the Great Spotted Cuckoo appeared here in the month of February, 1918. The whole history of the bird is as follows :—A man named John Mahony told Charles O'Driscoll that there were two strange birds flying about his farm at Castlequin, about a half mile from Caherciveen. O'Driscoll went there and saw one of the birds flying about with the well-known flight of the common Cuckoo. He saw only one, though Mahony told him that the two had been flying about there for about a week before. A day or two afterwards O'Driscoll visited the place again and found this bird dead by the side of a hedge in a very emaciated state—evidently having died of starvation and exposure, for the weather was pretty hard at the time. He showed me the bird at the time immediately after finding it. In the same month he got a Hoopoe and had the Hoopoe mounted, but neglected to do anything with the Cuckoo. I am afraid we did not realise what a rare bird we had, but the foregoing may be accepted as being absolutely true.”

The only previous instance in which a bird of this species has been obtained in Ireland is that recorded by Thompson (*Nat. Hist.*, vol. i., p. 364) of one caught alive in a much exhausted state on the island of Omev, off Connemara, in the spring (probably in March) of 1842. A bird seen but not secured on the Great Skellig on April 30th, 1897, is believed by the best authorities on the strength of a lightkeeper's description (Barrington, *Migrations at Irish Light Stations*, p. 597) to have been of the same species. Prof. Renouf's is in any case the first record of an occurrence on the Irish mainland. It is of course to be regretted that the date was not recorded at the time. We learn from Messrs. Williams and Son that the Hoopoe referred to was received by them for mounting on the 10th of April, 1918.—*Eds.*

Rough-legged Buzzard in Co. Wicklow.

A very gratifying addition has been made to the collection of Irish birds of prey in the Dublin Zoological Gardens in the shape of a Rough-legged Buzzard (*Buteo lagopus*) that was taken in a trap at Ballinrush, in the vicinity of Lough Dan, in the second week of December.

This handsome bird—a common resident species in Scandinavia and northern Russia—is a rare winter visitor to Ireland, its recorded occurrences up to the date of its latest capture numbering only seventeen.

International Fisheries Research.

Some years before the war broke out the states of northern and western Europe appointed a committee with representatives from each state to discuss the problems relating to the great fishing industry and to conduct such researches as would add to our knowledge of the habits

of marine fishes and facilitate future fishery legislation. This body of experts is known as the "Permanent International Council for the Exploration of the Sea."

The discussions and results of their researches are published in a series of valuable reports. During the war the issue of these reports was naturally much restricted, but it is intended now to resume the work with renewed vigour.

Just before the outbreak of the war a paper of considerable interest to Irish fisheries was issued in what are called "Publications de Circonstance." It was written by a Swedish naturalist, Mr. David Nilsson, and dealt with the biology of the Mackerel. Although the investigations were carried out in Swedish waters, where the Mackerels seems to differ slightly from the Irish form, the results obtained will be of considerable value to anyone undertaking an intensive study of the Mackerel in Irish waters. The length and weight of the fish, its mode of growth, food, its parasites, sex, maturity, its eggs and larvae, as well as its variation, are noted and commented upon at length.

In the same series Dr. C. H. Ostenfeld published in 1916 a valuable catalogue of the various species of microscopic plants and animals observed in the plankton gathered between the months of July, 1908, and December, 1911. Together with the two catalogues issued in previous years this latest list furnishes us with a survey of the planktonic organisms in the seas within the purview of the International Council during the period of 1902-1911. As a good many references to Irish localities are given the catalogue will be useful to Irish naturalists interested in the microscopic forms of marine life.

Finally, in 1920, Mr. G. P. Farran published a paper "On the local and seasonal Distribution of the pelagic Copepoda of the South-west of Ireland." The author includes important observations upon salinity and temperature of the water both of which affect the distribution of these most valuable minute crustaceans. The latter, constituting one of the principal foods of young fishes, naturally affect and influence the migration of fishes. The total number of species taken during the period under consideration seems to be large, and yet the ninety species recorded by Mr. Farran only constitute a part of the microscopic copepoda occurring in this area. He acknowledges that the meshes of the net used allowed a very large proportion of the species to escape—in fact all those under 1.3 mill. in length. The species contained in the list are divided into four groups according to their mode of life. There are first the "neritic" or coast forms, secondly the "euryhaline" species or those whose abundance is not related to the salinity of the sea, then come the "oceanic" species, that is to say, those most abundant on the station or localities remote from the coast, and finally the "benthic" forms which are those living at or near the bottom of the sea. Thus of the two economically the most valuable and also the most abundant species, *Calanus finmarchicus* is described as being neritic, whereas *Metricaria lucens* is euryhaline.

SOME NEW COUNTY AND VICE-COUNTY RECORDS
FOR IRISH PLANTS.

BY R. A. PHILLIPS, M.R.I.A.

FREQUENT rambles in various parts of the country during the years that have passed since the publication of Dr. Praeger's "Irish Topographical Botany" (1901) and his supplement to same (1906) have given me opportunities for observing and collecting plants in most of the counties of the southern half of Ireland.

Among the plants collected during that time there are many specimens of critical genera not yet worked out or submitted to authorities for segregation, as well as of others which extend the known range of rare species in counties for which they have already been recorded. These I purpose to treat of, when time permits, in a future paper.

The following notes refer only to species which are additions to the county-division lists given in the above-mentioned works, which, so far as I can discover, have not already been recorded elsewhere.

Ranunculus circinatus Sibth.

15 Galway S.—Crow Lough, near Kinvarra.

R. auricomus L.

13 Carlow.—In copses by the Barrow near Tinnehinch.

Nasturtium sylvestre R. Br.

12 Wexford.—By the Slaney near Enniscorthy.

**Barbarea præcox* R. Br.

12 Wexford.—Plentiful on roadsides near Enniscorthy.

Erophila præcox Stev.

16 Galway S.—Old walls at Athenry.

17 Galway N.—Limestone rocks near Menlough.

Sisymbrium Thalianum J. Gay.

15 Galway S.—Walls at Loughrea and limestone rocks by Coole Lough.

16 Galway W.—Walls and railways near Galway.

**Erysimum cheiranthoides*, L.

14 Queen's.—Cultivated ground between Maryborough and Mountmellick.

†*Diplotaxis muralis* DC.

- 11 Kilkenny.—Kilkenny and Thomastown.
 12 Wexford.—Wexford and Macmine.
 14 Queen's.—Between Maryborough and Abbeyleix.
 15 Galway S.—Gort, Attymon and Athenry.
 16 Galway W.—Galway and Ballinahinch.
 18 King's.—Birr.

On railways in all above localities.

†*Lepidium campestre* R. Br.

- 9 Clare.—Noticed for several years at Kilrush as a weed in gardens and on waste ground by the docks.

**L. Draba* L.

- 11 Kilkenny.—Plentiful for many years on waste ground near the Fair Green, Kilkenny. Also near the railway station at Thomastown.
 12 Wexford.—A large patch well established by a roadside near Enniscorthy.

Viola Reichenbachiana Boreau.

- 7 Tipp. S.—In a grove at Goold's Cross.
 10 Tipp. N.—In a wood at Millpark, Roscrea.
 11 Kilkenny.—Woods at Graiguenamanagh and Thomastown.
 13. Carlow.—Clashganna Woods.
 17 Galway N.—Woods at Menlough.
 18 King's.—Common in woods near Birr.

**Lavatera arborea* L.

- 13 Carlow.—A garden escape spreading abundantly on roadside banks near Tinnehinch.

Geranium pyrenaicum L.

- 10 Tipp. N.—Roadsides near Portroe.
 16 Galway W.—Roadside near Clifden.

Trifolium fragiferum L.

- 7 Tipp. S.—Abundant in a damp field by the Suir near Thurles.
 9 Clare.—In damp pastures surrounding Ballybeg Lake near Ennis.

Lathyrus palustris L.

- 8 Limerick.—In a meadow by the Shannon above Limerick.

Rubus suberectus Anders.

- 12 Wexford.—Killoughrim Forest.
 13 Carlow.—Wood near St. Mullins.
 15 Galway S.—Woods at Woodford.

Rosa rubiginosa L.

- 18 King's.—Frequent near Birr.
 19 Kildare.—Near Monasterevan and Kildare.

R. sepium Thuill.

14. Queen's.—Plentiful by the canal near Portarlinton, in a hedgerow and on the esker near Maryborough, and on a roadside bank by the Great Heath.
 18. King's.—Frequent on eskers near Birr.

[*Saxifraga umbrosa* L.]

This plant covers a large extent of roadside fence near Copenagh Gap, Co. Kilkenny. It has probably been introduced by some means, as the form is that generally regarded as the "garden variety," though there are no gardens in the vicinity.]

**Sedum dasyphyllum* L.

- 15 Galway S.—Abundant on old walls and cottage roofs at Ballinasloe.

**S. rupestre* L.

- 12 Wexford.—Thoroughly established on rocks and walls about New Ross.

Epilobium angustifolium L.

- 14 Queen's.—Plentiful on edge of bog between Maryborough and Abbeyleix.
 19 Kildare.—Edge of bog near Monasterevan.

**Petroselinum sativum* Hoffm.

- 15 Galway S.—Abbey walls at Portumna.

**Carum Carui* L.

- 12 Wexford.—Railway at Macmine.

Œnanthe fistulosa L.

- 10 Tipp. N.—Drains by the Shannon near Portumna Bridge.

†*Galium Mollugo* L.

- 17 Galway N.—Abundant in a meadow between Galway and Ballindooly.

‡*Lactuca muralis* Fresen.

5 Cork E.—Roadside bank near Riverstown.

14 Queen's.—Wall and roadside between Abbeyleix and Durrow.

Hypopithys multiflora Scop.

9 Clare.—On wooded limestone crag near Ballybeg, Ennis.

18 King's.—Sparingly in the demesne, Birr Castle.

**Lysimachia Nummularia* L.

7 Tipp. S.—On the banks of a drain near Thurles.

28 Sligo.—Very abundant in woods by L. Gill.

Myosotis collina Hoffm.

11 Kilkenny.—In gravel pits and on walls near Kilkenny.

**Linaria minor* Desf.

12 Wexford.—Railway at Enniscorthy and Macmine.

16 Galway W.—Railway at Moycullen.

Lathræa Squamaria L.

10 Tipp. N.—In a grove at Mount St. Joseph's, Roscrea.

‡*Verbena officinalis* L.

14 Queen's.—Roadsides near Mountmellick.

Scutellaria galericulata L.

11 Kilkenny.—Near Mount Juliet.

Lamium hybridum Vill.

10 Tipp. N.—Near Templemore.

**Polygonum Bistorta* L.

7 Tipp. S.—Abundant by the Suir below Carrick.

†*Rumex pulcher* L.

9 Clare.—Several plants by a pathway at Kilrush, persisting for many years though periodically cut away with other associated weeds.

11 Kilkenny.—Single specimens seen on two occasions at Thomastown.

†*Mercurialis annua* L.

8 Limerick.—A wayside weed in Limerick City.

12 Wexford.—Waste ground by the railway at Macmine.

Salix triandra L.

9 Clare.—Type and var. *Hoffmanniana* Sm. by the River Fergus near Ennis.

19 Kildare.—Near Monasterevan.

S. pentandra L.

10 Tipp. N.—Frequent near Borrisokane. Between Templemore and Thurles.

Populus tremula L.

15 Galway S.—By Lough Derg near Portumna.

Neottia Nidus-avis Rich.

9 Clare.—In Cratloe woods.

14 Queen's.—Togher Wood near Maryborough.

Spiranthes autumnalis Rich.

11 Kilkenny.—Pasture near Thomastown.

Allium ursinum L.

7 Tipp. S.—Near Goold's Cross.

Colchicum autumnale L.

12 Wexford.—Abundant by the Barrow above New Ross.

Lemna polyrhiza L.

11 Kilkenny.—In Lough Macash near Kilkenny.

Butomus umbellatus L.

7 Tipp. S.—River Suir between Carrick and Kilsheelan.

Potamogeton lucens L.

11 Kilkenny.—River Nore near Bennet's Bridge.

16 Galway W.—Inlet of the Corrib west of Galway, type and var. *acuminatus* Fr.

P. prælongus Wulf.

15 Galway S.—Lough Atorick near Woodford. This station extends into Co. Clare.

P. flabellatus Bab.

15 Galway S.—Canal at Ballinasloe.

Cladium Mariscus R. Br.

12 Wexford. Macmine marshes.

Carex vulpina L.

13 Carlow.—Abundant between Tinninchin and St. Mullins.

C. axillaris Good.

9 Clare.—Side of a drain near Ennis.

C. strigosa Huds.

10 Tipp. N.—Plentiful in a wood near Templemore.

C. Pseudo-cyperus L.

11 Kilkenny.—Near Mount Juliet.

Kæleria cristata Pers.

11 Kilkenny.—Limestone rocks near Thomastown.

Poa nemoralis L.

10 Tipp. N.—The Abbey demesne, Templemore.

14 Queen's.—Abbeyleix demesne.

†*Poa compressa* L.

7 Tipp. S.—Wall at Thurles.

10 Tipp. N.—Carrigahorig bridge.

11 Kilkenny.—On several old walls at Kilkenny and at Thomastown.

14 Queen's.—Wall by railway at Maryborough, plentiful.

15 Galway S.—Wall-top near Portumna.

Glyceria aquatica Smith.

5 Cork E.—In a wet meadow at Little Island.

Brachypodium pinnatum Beauv.

4 Cork Mid } On railway cutting quarter of a mile

5 Cork E. } South of Charleville station.

7 Tipp. S. } Several places on each side of the railway

10 Tipp. N. } between Goold's Cross and Thurles.

Cystopteris fragilis Bernh.

8 Limerick.—Ferry Bridge near Limerick. Walls at Boher and Bruree.

Lastrea Thelypteris Presl.

17 Galway N.—By the lake at Ballindooly.

L. spinulosa Presl.

9 Clare.—Cratloe Wood.

Chara canescens Loisel.

15 Galway S.—In a small brackish lake near Kinvarra.

Tolypella glomerata Leonh.

11 Kilkenny.—River Barrow at Graiguenamanagh.

13 Carlow.—River Barrow and canal at Tinnehinch.

14 Queen's.—Canal at Mountmellick and Portarlinton.

16 Galway W.—River Corrib near Galway.

17 Galway N.—Stream near the waterworks, Galway.

OBITUARY.

Marcus Hartog.

All Irish naturalists will learn with deep regret of the death on January 22nd, in Paris of Marcus Hartog, for 39 years Professor at Cork. Born 75 years ago of an academic family, Hartog had a brilliant career as a biologist. Graduating from Trinity College, Cambridge, with first class honours in the Natural Science Tripos in 1874, he was appointed Assistant Director of the Royal Botanical Gardens, Ceylon. In 1879 he was demonstrator in Natural History at Owen's College, Manchester, where he remained until his appointment in 1882 to the Chair of Natural History in Queen's College, Cork. On the Chair being divided in 1909, he became Professor of Zoology, being made Emeritus Professor on his retirement in 1921.

Wide as was his biological knowledge in the three kindred branches, geology, botany and zoology, his learning was by no means limited to this field, for in addition to reading five or six languages and writing in at least three, he was an insatiable reader, and a keen and appreciative critic of music.

The author of several essays on Samuel Butler's works, it was due to him that Butler's writings were brought into more general notice. His scientific writings include articles to the "*Manchester Guardian*," the "*Contemporary*" and "*Fortnightly*" Reviews, etc., a collection of which under the title "*Problems of Life and Reproduction*" was published ten years ago by John Murray. As this title suggests his main research work was concerned with problems in cell-division, reproduction and heredity, his interest in these matters leading him to a bitter attack on Weismann's Theory of the germ plasm. On the morphological side his main interests were in the lower groups of the animal kingdom, and he was responsible for the section on Rotifers in the *Cambridge Natural History*.

A strenuous opponent of those with whom he disagreed, Hartog has left behind him the reputation of a just disciplinarian and a kindly and sympathetic teacher, remembered affectionately by a host of erstwhile colleagues and students, one of the latter having founded, some years ago, a Hartog Bursary, tenable at University College, Cork.

Hartog's own family furnishes material for study in one of the branches of biology in which he himself was so interested—heredity. His father, Alphonse Hartog, was professor of French at the London Royal Academy of Music, while his mother for some time kept a school in London, at which one of the most brilliant pupils was Hartog's cousin—Mrs Sarah Ayerton. His eldest brother, Numa, was one of the few to gain the double distinction of a first in Classics and the Senior Wranglership at Cambridge, whilst another brother, P. S., now vice-chancellor of the University of Decca, India, was formerly lecturer and demonstrator in the Chemistry Depart-

ment at Owen's College, Manchester. Hartog himself was a D.Sc. of London, F.Z.S. and F.R.H.S.

Mrs. Hartog, who survives him, is a native of Nancy, and of his two children his daughter is the wife of Professor Wm. Cramp of the Electrical Engineering Department of Birmingham University, and his son, Mr. W. G. Hartog, was for some time assistant professor of French in University College, London.

L. P. W. R.

REVIEWS.

Butterfly Lore.

BUTTERFLY LORE. By H. ELTRINGHAM, M.A., D.SC., etc. Oxford: The Clarendon Press. 4s. 6d.

Even in those who are not particularly interested in the study of insects, Dr. Eltringham's book cannot fail to arouse some admiration for the beauty and wonderful contrivances to be found in Butterflies and Moths.

Although written by one evidently deeply versed in butterfly lore, the facts are told in such a way that they can easily be understood and enjoyed by the uninitiated.

The chapters on the caterpillar and chrysalis give details, with elaborate drawings, of structure, concealment, etc. The various contrivances employed by the caterpillar to assist it in its struggle for existence are excellently described.

One of the more interesting chapters is that describing the life history of our Large Blue. It is now known that after a short time of feeding on the Wild Thyme, the larva leaves the plant and is carried by ants to their nest. The larva now proceeds to feed on the ants' larvae, and when full fed to pupate in the ants' nest. "Blue" butterflies in other parts of the world have similar habits.

Perhaps the most interesting chapter is that on concealment and mimicry. The devices adopted for concealment by butterflies and moths are marvellous, the dead leaf appearance being perhaps the most common.

Besides mimicking inanimate objects, butterflies mimic each other. Some species are not eaten by birds owing to a nauseous smell or acrid juice, and these are mimicked by others which are readily eaten. Dr. Eltringham mentions the well-known case of the three forms of the female *Hypolimnas misippus* (edible), which mimic the three forms of *Danaïa chrysippus* (inedible). The three forms of each are all found together in Natal.

The law of priority in the naming of lepidoptera appears to be now very rigidly applied, and the change of name often causes confusion. Dr. Eltringham mentions the mimicking forms of the females of *Papilio*

wardanus which used to be known as *P. cenea* and *merope* according to locality. Mention is also made of the seasonal dimorphism of *Precis sesamus* and *Natalensis*, the latter formerly known as *octavia*.

We would strongly recommend the book to all lovers of nature.

M. S. D. W.

British Birds.

A Practical Handbook of British Birds. Edited by H. F. WITHERBY, M.B.E., F.Z.S., M.B.O.U., Editor of *British Birds*. Authors of various sections: ERNST HARTERT, PH.D., M.B.O.U.; ANNIE C. JACKSON, H.M.B.O.U.; Rev. F. C. R. JOURDAIN, M.A., M.B.O.U., H.F.A.O.U.; C. OLDHAM, F.Z.S., M.B.O.U.; N. F. TICEHURST, O.B.E., M.A., F.R.C.S., M.B.O.U., and the Editor. Illustrated with Coloured Plates and numerous Text Figures. In Eighteen Parts. London: H. F. & G. Witherby. Parts 1 to 8, 4s. per Part; Parts 9 to 18, 4s. 6d. per Part.

The completion of the "Practical Handbook" on which Mr. Witherby and his collaborators have been engaged for the past five years is an event of high importance to the ornithological public, and one that deserves their warm appreciation. The Handbook differs from other works on British ornithology in the elaborate descriptions given in its pages to all subspecific forms, and also in the minute care taken to describe fully the successive changes of plumage undergone by each species from the nestling to the adult stage. It is under this latter heading that the merits of the work will be most perceptible to the ordinary field student, who need not greatly concern himself over the points of difference between the thinly-divided "splits."

The concluding part of the Handbook contains, as was promised, a full description of the Irish Red Grouse, lately severed from the British species, and apparently found only in this country, and in the Outer Hebrides. The difference between the two forms is of course very slight, and seems, so far as the colouring is concerned, to be limited to the winter plumage, and more noticeable (perhaps more constant) on the under than on the upper surface; but from Mr. Witherby's measurements of 23 Irish examples it would appear that the British bird is, on the average, the larger of the two.

The fulness and excellence of the descriptions forbid us to complain of the small amount of space devoted to habits and notes—a subject that in any case can never be exhaustively treated, and on which many other handbooks are available. But what is said on it, under the head "Field Characters," by Mr. C. Oldham, contains an amount of vivid and accurate information that is extraordinary for the space in which it is compressed—generally from 6 to 10 lines.

Many of the illustrations scattered through the book—especially those showing nestlings and parts of birds—are certain to prove extremely helpful. The Irish Dipper, like the Irish Coal Titmouse, strikes us as having been taken from a somewhat abnormally coloured specimen.

C. B. M.

IRISH SOCIETIES.

DUBLIN MICROSCOPICAL CLUB.

FEBRUARY 13.—D. McARDLE showed specimens and microscopical preparations of *Fissidens decipiens* De Not, var *brevifolius*, Lindberg, which he gathered recently at Killakee on the slopes of the Dublin Mountains. The only previous record we had of this moss being found in Ireland was published by Professor Lindberg of Helsingfors¹ under the name of *F. cristatus* Wils, var *brevifolius*, Lindberg, collected by him at Muckcross, Killarney, in company with the late Dr. D. Moore, who in the interest of science invited him to Ireland and brought him to the most interesting haunts of these curious plants, Hepaticæ and Musci. The preparations showed the distinct pale narrow band of cells round the leaves, which are shorter and indistinctly serrate. There was no fruit on the specimens collected and as in the type, its absence may be owing to the dioecious character. The reproduction by adventitious budding is very well marked and shown in the preparation, young shoots proceeding from the middle of a stem, each furnished with bright coloured root hairs, which would in their turn form perfect plants to carry on the life cycle.

ROUTE NATURALISTS' FIELD CLUB.

JANUARY 25.—The Hon. Helen Macnaghten (President) in the Chair. R. J. Welch (delegate from the parent society) gave a lecture on the prehistoric antiquities of Ireland, with special reference to those of Ulster. A number of flint implements sent by Mr. Robert Bell, of the Belfast Club, and some kitchen-midden finds from Antrim, Down, and Donegal, of the lecturer's own collecting, were exhibited and explained. Having passed in review the stone implements of various ages, such as the Larne, Whitepark, Dundrum, and Portstewart types—showing slides of some that had been found in recent excursions of the Club—the lecturer dealt with the stone forts, such as the Grianan of Aileach, Dun Aengus, and the Cashels of Mourne Mountains area and East Antrim. The dolmen (cromlechs so-called) were next described, both the free-standing memorials like Legananny, Castlewellan, and those which were certainly cairn chambers, like Mountstewart or Mount Money, Downpatrick. Cists, holed-stones, rock-scribings, and numerous crannoges were shown in detail; and the proceedings ended with a vote of thanks and some announcements of future lectures.

¹ Hepaticæ in Hibernia mense Julu 1873 Acta Societatis Scientiarum Fennicæ.

BELFAST NATURAL HISTORY AND PHILOSOPHICAL SOCIETY.

Professor W. R. Morton in the Chair. A lecture on "Lough Neagh in legend and history" was given by the Rev. Canon Archer, B.D., in the Museum, College Square North. The lecturer mentioned that the origin of the lake was believed by some authorities to be the result of ice action. Others held that it owed its being to volcanic action, and the lecturer inclined to that view, though he thought both actions might be responsible. Having shown how intimately the Lough is associated with the history of Northern Ireland, Canon Archer dealt with some features in its natural history, and made special reference to the Pollan, explaining the name of that fish as derived from an Irish word meaning a dark or shady pool. The shrimp which infests the lake was also referred to, and the remarkable swarms of the May-fly. Touching on the belief that Lough Neagh petrifies wood, the lecturer said it was certainly not the water that did this, for he had found many instances of this curious phenomenon above the level of the lake. The lecture was illustrated by lantern slides and maps, and a hearty vote of thanks was accorded on the motion of the President.

[It is a well known fact that the so-called "petrifications" are derived from the inter-basaltic beds.—Eds.]

NOTES.

ZOOLOGY.

Marten in Co. Limerick.

Sir Charles Barrington reports to me that a pair of Martens have lately been seen at Glenstal, Co. Limerick. They were hunting squirrels in the woods. As these animals are rare in Ireland you may wish to have a record of them.

Shawford, Hants.

GEORGE C. MAY.

[Mr. May has since informed us that two pairs of Martens were caught on this estate about the 14th of July last.—Eds.]

Squirrels near Central Area of Belfast.

There have been four squirrels in our garden at Lennoxvale, this winter. One is almost grey, another dark red, a third is light red, and the fourth, red with a white ring round its tail. They became so tame that when we put food out for them on the pantry window-sill they climbed up the spouting to get it, and sometimes they even came inside.

Belfast.

JOAN LOEWENTHAL

[Our young correspondent's note is interesting as recording the fact that squirrels have now reached the margin of the central area of the city and we hear are now close to the University and New Museum now building in Botanic Park.—Eds.]

Glauous Gull off Greystones.

I have to record the occurrence here of a Glauous Gull (*Larus hyperboreus*, Gunn) which was to-day (January 15th) flying up and down along the sea front in company with Herring Gulls. This would seem to be the first time that the Glauous Gull has been noticed on the shores of County Wicklow. Its visit is doubtless due to the prevailing bad weather.

J. D. LA TOUCHE.

Greystones, Co. Wicklow.

Wild Swans on the Barrow.

On the 29th of January I saw four wild Swans on the big floods on the Barrow river near here, when I was out after wild fowl. They were quite unmistakable, as I was within 120 yards of them. I do not know whether they were Whooper or Bewick's Swans; but three of the birds were small compared with the fourth, and all were in adult white plumage. I have only once before seen a wild Swan here—I think it was in 1890—and then only a single bird. It was also on the wide floods of the Barrow, about two miles from where I saw the birds last Tuesday.

JOHN W. YOUNG.

Stradbally, Queen's Co.

Large Flights of Birds over Belfast.

I noticed to-day (first week January) from day-light numbers of Green Plover flying south, and soon after, about ten o'clock, Field-fares flying S.S.E. Then came flocks of Redwings and Golden Plover and some flocks of Larks, all flying same direction. The wind at this time was S.S.E.; at one o'clock I brought my glasses down in case of further birds passing; the wind at this time changed to S.W. and after this time thousands of Larks came quite low all flying S.W. They settled in Ormeau Park for a rest, then came over river quite low and passed through the Gas Works on their journey, and it would be interesting to know where they stopped.

Sixteen Wild Geese also passed over about 250 yards high and four Swans all going the same direction. The Larks and Redwings flew till dusk in flocks of 100 to 200 at a time at intervals of five and ten minutes. The Green Plover flew also the next day, Friday, but were not quite so numerous.

S. M. STEARS.

Belfast.

A Ringed Woodcock.

With reference to Mr. Stendall's note on the above in the February number, it will interest students of bird migration to know the complete history of this particular Woodcock, *Scolopax r. rusticola*. As soon as I saw my friend Mr. Taylor's note in the "Northern Whig," I wrote for full

particulars of the ring, which was engraved as follows: "Retur, Zoolstat, Helgoland, No. 21311" It was quite a small dark bird, both primary feathers being well barred. I had a conversation with Mr. Taylor about this bird not long ago and he says there are two distinct varieties of Cock at Baronscourt, the dark, as he calls them Foreign Birds, and the lighter or home-bred birds. Mr. Taylor is a good field naturalist and I think as the sequel shows, he is right in his surmise.

On getting the above information, I immediately wrote to Mr. H. F. Witherby, the originator of the "British Birds" Ringing Scheme, giving him full particulars, to which he replied that he had heard from Dr. Weigold of the Biological Station, Helgoland, and he states that "the woodcock was ringed on Helgoland on April 20th, 1923, just on its way back to its breeding quarters." It was therefore presumably on its southern migration when it was shot by the Marquis of Hamilton on 31st December, 1923.

For some years Col. Ashley, of Co. Sligo, ringed large numbers of Woodcock, the result of which I condensed from the original article, and my notes were published in this journal, page 92, vol. 27 for 1918; they give some interesting data on the wanderings of this species.

Lismore, Windsor, Belfast.

W. H. WORKMAN.

Rooks' Air Route.

When reading Miss Frances Pitt's fascinating book "Shetland Pirates," I was greatly struck in her chapter on Rooks, *Corvus frugilegus*, with her observations on their air routes, and I am sure it will interest your readers to know that over Belfast, I have for many years observed how the rooks night and morning very closely follow one of these air routes which passes over my home in Windsor Avenue. It is most interesting to watch them in the winter mornings as it begins to get light, as they fly from Dunmurry; on fine mornings very high up, just specks in the sky, and if the morning is cloudy and in misty weather, down they come to a low elevation just over the trees and houses. On these mornings they are much later and evidently they are afraid of flying into a cloud and losing sight of land. Their destination is the sloblands at the head of Belfast Lough, over by the Victoria Park and down to the Kinnegar, where they spread out to feed.

In the evening according to the weather they start on their homeward flight, on wild stormy days they get home early and in the winter time during the short days they start home in good time passing over Ballymacarret, then over the southern corner of the City Hall and Windsor Avenue, straight on to Dunmurry, where they circle round and round above their roosting trees for a considerable time cawing loudly all the while. Finally as it begins to get a little dusk they settle down for the night. It takes the rooks roughly four minutes to fly from the City Hall

to Windsor Avenue, as I have had the flocks timed from my office to my home with the aid of the telephone.

It is extraordinary with what regularity they keep to this route, for they have no regular leader, but just fly haphazard. Still they all have a fixed idea as when to leave home each morning and when to return in the evening.

W. H. WORKMAN, M.B.O.U.

Lismore, Windsor, Belfast.

Mamestra persicariae and Aporophyla nigra.

There is a record in C. G. Barrett's Lepidoptera and also in the B.N.F.C. Guide for the capture at Rostrevor of *Mamestra persicariae*, which I fear is incorrect, and which arose in the following way. In 1891 I spent a couple of months, August and September, in that district and used to work for moths up the hill above Kilbroney, searching especially ragweed bloom. There I met with *Triphoena fimbria*, *Cosmia trapezina*, and made my first acquaintance with *N. glaveosa*. But one night two black moths made their appearance on a ragweed flower; I missed both, however, in my excitement. The next night, to my delight, they were there again and both were captured. On my return to Belfast, Dean Bristow came over to take notes of my collection for some list about to be published (no doubt Kane's List of the Lepidoptera of Ireland). Seeing the two specimens he was doubtful what they were, but finally named them as *Mamestra persicariae*, and took a note of their capture at Rostrevor, Co. Down. They are both rather rubbed, as they were exceedingly restless and nearly escaped me, but I have them still in my collection. But as far as I can make out they are not *Mamestra persicariae* at all, but *Aporophyla nigra*. Since then I have met with *nigra* on the county Down coast, two specimens turning up at Kircubbin, and September last I captured another resting on the flowers of *Tritoma* at Strangford. So unless there is some other Rostrevor record for *persicariae*, I fear this one must go. However, we have instead for *nigra*, the County Down coast generally.

(REV.) G. FOSTER.

Strangford.

Kerry Moths.

Bapta bimaculata. According to Barrett this geometer has not been recorded from Ireland; and Kane (Catalogue of Lepidoptera, p. 105) expresses a belief that Birchall's record of it as abundant at Killarney was erroneous. However, it is quite abundant at Caragh Lake, Co. Kerry, at least it was so a few years ago. But it is stated to be an uncertain species, one year abundant, and then disappearing; so I may have chanced on its year. With *bimaculata*, its near relative *temerata* is also abundant in the same locality, as already recorded. But

temerata is also plentiful in the Rostrevor woods, Co. Down, a more northern locality than any recorded by Barrett. At Caragh, *Semiothisa notata* was also abundant at the end of May and beginning of June, 1912, which is interesting, as Barrett's note runs, "In Ireland it was said by the late Mr. E. Birchall to be plentiful at Killarney, but I can find no recent confirmation of this statement." However, I beat several specimens out of the birch trees. *Eurymene dolobraria* is also to be found in the same locality.

(REV.) G. FOSTER.

Strangford, Down.

Records for *Choleva Nigrita*, *Cassida Nobilis*, and other Beetles in Co. Dublin.

During the 1923 Season I collected Coleoptera in Clontarf, Kilbarrack, and Howth.

The following list may be of interest as it contains some records of rare and local species, taken by me:—

Pristonychus terricola Hbst. In field, Kilbarrack, 27-4-23.

Tachypus flavipes L. Clontarf and Kilbarrack.

Conosoma pubescens Grav. On footpath, Clontarf.

Bledius spectabilis Kr. North Bull (Salt Marsh) 16-7-23.

Rhizophagus perforatus L. Clontarf, under stones.

Gastroidea polygona L. Field path, Baldoye.

Lochmaea suturalis var. *nigrita* Weise. Howth.

Otiorrhynchus auro-punctatus. Gyll. Six or seven taken in Kilbarrack, 25-3-23.

Choleva nigrita Er. Was taken by Mr. Hugo Boyle, from under a log on Dunbo Hill, Howth, 25-3-23, and *Cassida nobilis* L. by me at Kilbarrack, 27-8-23.

I am indebted to Mr. Tomlin for the identification of the *Choleva*, *Bledius*, and *Cassida* and to Mr. Halbert for the others.

EUGENE O'MAHONY.

National Museum.

BOTANY.

Hieracium pellucidum and *H. serratifrons* in Co. Down.

In 1920 I found numerous Hawkweeds growing on a bank which faced west at "Dick's Hole" in Hillsborough Demesne. Specimens of these were submitted to Rev. W. R. Linton who pronounced them *Hieracium pellucidum* Laestad. In June, 1923, I noticed another colony on a bank facing east, also in Hillsborough Demesne, at about 300 yards distance from the Dick's Hole situation. The plants in this latter place looked different—more robust and with flowers of a different yellow—so specimens from both colonies were sent to Miss Knowles, who submitted

them to Mr. Pugsley. He confirms the identification of the *H. pellucidum* from the Dick's Hole colony, and pronounces the later find *H. serratifrons* Almq. var. *grandidens* Dahlst. The *H. pellucidum* here appear to be restricted to an area of less than 100 square yards, and the first found colony of *H. serratifrons* is of approximately equal size, but several smaller outlying groups of plants of the latter species have since been noted near to the larger colony first discovered.

NEVIN H. FOSTER.

Hillsborough, Co. Down

Erica stricta.

In the *Journal of Botany*, 1872, p. 25, there is the following note about *Erica stricta* in Ireland, which on account of the recent discovery of this plant at Downhill, Co. Derry, and at Sallagh Braes, above Larne, Co. Antrim, may be of interest to Irish botanists. It was probably unknown to Dr. Praeger when he recorded the find (see *I.N.*, March, 1923). The note is from Mr. Britten's pen and runs as follows :—

“ERICA STRICTA, Andr., IN IRELAND.—The distribution of this species, as given in De Cand. Prod. vii. 666, is ‘in montibus Corsicæ, Sardinia, et Hispania australis (Boiss. !), etiam in Hibernia boreali (Lloyd in Herb. Hooker !).’ This notice seems to have escaped the attention of Irish botanists, and is not taken up in any book upon British botany. It seems therefore worth drawing attention to although some error has doubtless occurred. I have seen the specimen in the Kew Herbarium, and there is no doubt about its identity with *Erica stricta*. It is labelled in Sir W. J. Hooker's hand, ‘North of Ireland! Dr. Lloyd, 1834.’—JAMES BRITTEN.”

Erica stricta is placed among the excluded plants in Stewart and Corry's “Flora of the North-East of Ireland” as an erroneous record with a reference to the above note, and appears in the New Supplement as “*Erica stricta* Andr. error.” The fact, however, that the plant has been found recently in the counties of Antrim and Derry is, I think, fair presumptive evidence that Dr. Lloyd's specimen was collected in the “North of Ireland.” It may even have been gathered at one or other of the localities mentioned in Dr. Praeger's note.

National Museum

M. C. KNOWLES.

SOME NEW AND RARE IRISH SPIDERS.

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

IN the last notes on Irish Spiders, which I contributed to the *Irish Naturalist* in November, 1922, there were unfortunately several misprints. This was owing to the fact that my corrected proof was lost in the Post Office fire in the Old Rink shortly before that date. Most of the misprints were sufficiently obvious, but there was one which I should like to take this opportunity of correcting, inasmuch as it made a unique little spider, *Maso persimilis* Camb., of which species only a single specimen has yet been found anywhere, into the quite different genus of Maso.

I desire next to thank that indefatigable collector, Mr. R. A. Phillips, for a large number of most interesting collections from the South and West of Ireland. Thanks to his industry I am now able to give a long list of new localities for many of the rarer species, and to add three species new to the Irish list.

I have also to thank Mr. A. W. Stelfox, Mr. Nevin H. Foster, Mr. R. J. Welch, Mr. E. O'Mahony and my brother, Mr. R. J. Pack-Beresford, for collections they have kindly sent me at various times. I wish also specially to thank Dr. A. R. Jackson for naming for me the three species new to Ireland, for confirming many others, and for his invaluable kind help at all times. In the list which follows the three species new to the Irish list are—

Oxyptila sanctuaria Camb.

Cnephalocotes elegans Camb., and

Centromerus arcanus Camb.

all of which were found by Mr. R. A. Phillips.

Prothesima apicorum L. Koch—*P. subterranea* Koch (Carpenter, List Spid. I.).—Nowhere a common spider, it has occurred mostly as single specimens in Ulster, Leinster and Munster, but has not previously been recorded for Connaught. Mr. R. Welch, however, took a female on Lough Derg, Co. Galway, in 1908, and Mr. N. H. Foster another at Belclare, Co. Mayo, in 1910. I also found three females and several immature males at Ballyquinton Point, Co. Down, in June, 1910, this being the only spot in Ireland I have come across where it seems to be fairly numerous.

Clubiona grisea C. L. Koch. *C. stagnatilis*. Kulcz (Carpenter, List Spid. I).—Mr. R. A. Phillips has sent me a male he took at Ballinasloe in August, 1921, and two males and one female taken by him at Portumna, Co. Galway, in December, 1922, which extends the range of this spider into Connaught; but it has not yet been taken further north than Lough Ennel, in Co. Westmeath, where a single female was taken by Mr. J. N. Halbert some years ago. The only other counties in which it has occurred are Dublin, Carlow, Waterford and Wicklow, Mr. A. W. Stelfox having sent me a female he took on The Murrough, Co. Wicklow, in February, 1924.

Clubiona neglecta Cambr.—This rare spider seems only to occur on the coast in Ireland, having been taken in Counties Dublin, Wicklow, Waterford, Kerry, Mayo (Clare Island) and Antrim. Mr. R. A. Phillips has now taken it near Galway, having found a single female there in June, 1923.

Chiracanthium lapidicolens Simon.—Professor Carpenter recorded this Spider originally from a capture by Mr. Halbert on Inish McDara in 1896, and it was taken subsequently in 1899 at Kenmare, but only a single female in each case. When collecting on the sand hills at Arklow, Co. Wicklow, I took a single male in July, 1913; and in July, 1922, I found a single female on Fair Head, Co. Antrim. It is a rare spider in Ireland and seems only to occur on the coast.

Zora spinnimana Sund.—This Spider, which Professor Carpenter in his list describes as a scarce spider in Ireland, has up to the present been recorded only from six southern counties of Munster and Leinster, with the single exception of a capture near Londonderry by Mr. J. N. Milne in 1897. Mr. R. A. Phillips has now taken it in two localities in Co. Tipperary (Corrakean Island, Lough Derg, and near Roscrea) and two in Co. Galway; an adult pair at Portumna in August, 1921, and an immature male at Woodford in June, 1922.

Micaria pulicaria Sund.—A male taken by Mr. R. A. Phillips at Borrisokane, Co. Tipperary, in May, 1923, is the first record of this Spider in the province of Munster. It has been found in a few localities in the other three provinces.

Oxyptila sanctuaria Cambr.—A single female of this very rare species was taken by Mr. R. A. Phillips at Tramore, Co. Waterford, in August, 1923, and is an addition to the Irish list.

It was first identified by the Rev. O. P. Cambridge from specimens taken on the walls of the Church at Bloxworth, Dorset, and has occurred at four other places along the south coast of England and in the Island of Guernsey. Mr. Cambridge describes it as rare and local.

On the continent it has been found at five localities in France; and a single specimen is recorded from Hungary.

Dr. Jackson kindly identified the Irish specimen for me.

Oxyptila flexa Cambr.—This species has up to this only been recorded for three localities in Leinster, in Cos. Dublin and Carlow. Mr. R. A. Phillips has sent me now a female taken at Borrisokane, Co. Tipperary, in May, 1923, and a single male from Kilbarry Marsh, Co. Waterford, found in October, 1922; also a female taken at Ferns, Co. Wexford, in September, 1921.

Antistea elegans Bl.—*Hahnia elegans* Bl. (Carpenter List Spid. I.)—This species has not previously been recorded from Connaught, but Mr. R. A. Phillips found some immature specimens at Portumna, Co. Galway, in April, 1921, and I got several males and a female in a bog near the river Eriff, Co. Mayo.

Hahnia montana Bl.—Previously recorded from four localities in Ulster and Connaught, this uncommon little spider has now been found in Leinster. Mr. R. A. Phillips took a female at Portrane, Co. Dublin, in July, 1923, and I found a single female on Howth.

Amaurobius ferox Walck.—This spider was taken for the first time in Connaught by Mr. R. A. Phillips, who got a male at Portumna, Co. Galway, in April, 1921. It is common in the South of England, but seems to be confined to the South and East of Ireland.

Pholeus phalangioides Fuess.—Up to the present this species has only occurred in Munster; but Mr. R. A. Phillips has lately sent me specimens from both Counties Kilkenny and Wexford. It is an entirely southern species.

Ceratinella scabrosa Cambr.—Only recorded up to the present from Leinster (Cos. Dublin and Carlow). I have now received an adult male from Mr. R. A. Phillips taken at Borrisokane, Co. Tipperary, in May, 1923. Two female specimens recorded by Prof. Carpenter in his list as *C. brevis* Wid. from Ardara, Co. Donegal, and Lucan, Co. Dublin, proved on re-examination by Dr. Jackson to belong to this species.

Ceratinella brevis Wid.—I took a single female of this species, which is rare in Ireland, on the Hill of Howth in 1922. Mr. R. A. Phillips also sent me another which he got at Ballybeg, Ennis, Co. Clare, in July, 1923. These two and a male specimen I found in the Museum labelled as from the Galtees, Co. Tipperary, are, I believe, the only specimens yet taken in Ireland. The specimens recorded by Prof. Carpenter under this species from Ardara, Co. Donegal, and Lucan, Co. Dublin, proved on re-examination by Dr. Jackson to be referable to *C. scabrosa* Camb. The specimens referred to by Prof. Carpenter as from Lough Gilly, Co. Armagh, and Smithboro', Co. Monaghan, I have not been able to find.

Lophocarenum stramineum Menge.—This species, of which I gave records in my Supplementary List of Irish Spiders, must be removed from the Irish list, as all the specimens there noted prove on re-examination to be *L. nemorale* Bl. Dr. Jackson tells me he has now taken the true *L. stramineum* Menge. in England; but it has not yet been found in Ireland.

Minyriolus pusillus Wid.—In my Supplementary list of Irish Spiders (Proc. R. I. Acad. 1909) I recorded this minute species from Fenagh, Co. Carlow. Since that time Mr. N. H. Foster has sent me specimens from Bundoran, Co. Donegal: and Mr. R. A. Phillips has lately taken this species at Ballybeg, Ennis, Co. Clare, in Co. Galway at Ballinasloe, Portumna, and near Gort, and near New Ross, Co. Wexford.

Cnephalocotes elegans Cambr.—Mr. R. A. Phillips sent me a single female which he took by Lough Derg, near Dromineer, Co. Tipperary, in May 1922, another taken at Ennis, Co. Clare, in June 1923, and a third from Ballybeg, near Ennis, in July 1923, all of which Dr. Jackson identifies as this species, which is new to Ireland. It has been found in a good many places in England and Scotland and Dr. Jackson records it from a height of 2,800 on Snowdon. It seems to be a northern species. It has also occurred in France, Germany and Denmark.

Cnephalocotes obscurus Bl.—This species I have previously recorded in my Supplementary List of Irish Spiders (Proc. R. I. Academy, March, 1909) from Leinster (Fenagh, Co. Carlow) and Ulster (Bangor, Co. Down). Mr. R. A. Phillips has now sent me a single male from Kiltrush, Co. Clare, taken in July, 1921, which extends its range into the province of Munster.

Pocadicnemis pumilus Bl. *Walckenaera pumila*. (Bl. Spid. G. B. I.).—First taken by myself at Fenagh, Co. Carlow, and during the Clare Island survey both on the island and at Mallaranny. I have lately received specimens from Mr. R. A. Phillips taken by him at Ennistymon Glen, Lisdoonvarna, and Ballybeg, Ennis, in Co. Clare; also from Borrisokane and near Dromineer in Co. Tipperary, Graiguenamanagh, Co. Kilkenny, and Co. Galway (near Gort, Ballinasloe, and near Menlough) and I took a specimen myself on the banks of the Suir about five miles from Waterford.

Mr. J. A. S. Stendall has also recorded it from two localities in Co. Down (Ulster Spiders, 1915) and I took a single female specimen on the shore at Lough Erne, Co. Fermanagh.

Metopobactrus prominulus Camb. *Walckenaera prominula* Cb. (Spid. Dorset).—Mr. R. A. Phillips sent me a single male of this species, which is very rare in Ireland, taken near Gort, Co. Galway, in June 1923. The only previous records are a single female I took at Mallaranny, Co. Mayo, in July 1909 (Clare Island Survey, Proc. R. I. A., 1911) and a single male recorded by Mr. J. A. S. Stendall from Carr's Glen, Co. Antrim (Ulster Spiders, 1915).

Troxochrus scabriculus West. *Walckenaera scabricula* West (Cb. Spid. Dorset).—This little spider is evidently very local. I take it in numbers at Fenagh, Co. Carlow, but elsewhere only single specimens have been found. A pair have been taken in Co. Dublin, a single female

on the Curragh, Co. Kildare, by Mr. H. B. Cott, and Mr. R. A. Phillips took a single male at New Ross, Co. Wexford, in May, 1921, and a female near Menlough, Co. Galway, in June 1923.

Aræoneus crassiceps West. *Walckenaera crassiceps* West (Camb. Spid. Dorset).—This spider which had not previously been found further south than Lough Ree, Co. Roscommon, was taken by Mr. R. A. Phillips in Co. Tipperary (by Lough Derg near Dromineer) in May 1922.

Diplocephalus cristatus B. *Walckenaera cristata* Bl. (Spid. G. B. I.).—Only recorded up to now from Counties Dublin and Armagh, in my Supplementary List of Irish Spiders (Proc. R. I. A., 1909). I have since taken a female at Fenagh, Co. Carlow, and Mr. R. A. Phillips took another female at Portumna, Co. Galway, in April, 1921.

Diplocephalus picinus Bl. *Walckenaera picina* Bl. (Spid. G. B. I.).—In my last notes on Irish spiders published in the *Irish Naturalist*, Nov. 1922, I recorded captures of this spider in the provinces of Ulster and Munster. It had previously been recorded only for Leinster (Proc. R. I. Academy), 1909. I have now to record its occurrence in Connaught, a single male having been taken by Mr. R. A. Phillips at Woodford, Co. Galway, in June 1922. Mr. Phillips also got two males at New Ross, Co. Wexford, in May 1921.

Entelecara erythropus West. *Walckenaera erythropus* Cb. (Spid. Dorset).—The only records of this spider that have been published are those given by Professor Carpenter in his List of Irish Spiders (Proc. R. I. Acad. 1898), and were all from Ulster (Counties Antrim, Down and Monaghan). I have since received a single female from Co. Armagh, taken by Mr. N. H. Foster on Lough Neagh, and have myself taken two more females, one near Frenchpark, Co. Roscommon, and another on Howth Cliffs, Co. Dublin.

Entelecara trifrons. Camb. *Walckenaera trifrons* Cb. (Spid. Dorset).—Mr. R. A. Phillips took a female of this species at Spanish Point, Co. Clare, in May 1922, and I got another at Athlone, Co. Westmeath. It is a rare spider, and has previously only occurred in three Ulster and three Leinster counties.

Cornicularia vigilax Bl. *Neriene vigilax* Bl. (Spid. G. B. I.).—Prof. Carpenter recorded this species in his List of the Spiders of Ireland from a pair taken by Mr. Halbert at Clonbrock, Co. Galway, in 1896. It was not taken again till Mr. Nevin H. Foster sent me a single male taken by him at Eshnaglogh, Co. Monaghan, in June 1913. I have now received from Mr. R. A. Phillips a single male found at Kilrush, Co. Clare, in July 1921. It is a very rare species.

Cornicularia unicornis Cambr. *Walckenaera unicornis* Bl. (Spid. G. B. I.).—This spider has previously only been recorded from the province of Leinster, two females having been taken by Mr. S. N. Halbert at Portmarnock, in 1891, and several of both sexes by myself at Fenagh, Co. Carlow. I have now received from Mr. R. A. Phillips a single female

taken by him at Grauguenamanagh, Co. Kilkenny, in May, 1921, and another from the shores of Lough Derg near Dromineer, Co. Tipperary, found in May, 1922.

Cornicularia cuspidata Bl. *Walckenaera cuspidata* Bl. (Spid. G. B. I.).—Prof. Carpenter in his "List of the Spiders of Ireland" records a single male of this species taken by himself at Killarney in 1893. This is the only male that has yet been found in Ireland, but females have occurred. I have recorded one from Fenagh, Co. Carlow, and Mr. J. A. S. Stendall recorded two females from two localities in Co. Antrim (Ulster Spiders, 1915).

Mr. R. A. Phillips has now sent me another female from Lisdoonvarna, Co. Clare, which he took in May 1922.

Oedothorax fuscus Bl. and **O. retusus** West. *Stylothorax f.* and *r.* (Carpenter, List Spid. I.).—Dr. A. R. Jackson tells me that we have up to now interchanged the two species—*fuscus* Bl. and *retusus* West. All previous records of *O. fuscus* Bl. should now be referred to *retusus* West, and vice versa.

(To be concluded).

NOTES.

Early appearance of Sand-martins.

This year on March 19th (a day in advance of the earliest recorded appearance given in "Birds of Ireland") I observed, about midday, a Sand-martin over the canal between Loughs Mask and Carra, Co. Mayo. Two or three hours later there were five birds about. This appears to be an unusually early date for their arrival. On March 24th Sand-martins were about near Keel Bridge between Mask and Carra all day and there were more of them than observed on the 19th.

I am told that Sand-martins appear about Lough Carra annually in March. In 1923 they were seen about March 22nd, though not having been at home in that month for many years I have made no personal observations.

ROBERT F. RUTLEDGE.

Bloomfield,
Hollymount,
Co. Mayo.

Woodcock Breeding on Lambay.

While walking on the North side of Lambay with R. Mason on April 21st, my son, Rupert Baring, came across a Woodcock with three recently hatched young ones.

CECIL BARING.

Bishopsgate, London.

REVIEWS.

Isle of Man Birds.

Supplementary Notes to "The Birds of the Isle of Man." By P. G. RALFE, M.B.O.U. Edinburgh: Douglas and Foulis, 1923.

MR. RALFE'S "Birds of the Isle of Man," to which this supplement now appears, was published in 1905; and it is evident from the amount of additional matter in the "Supplementary Notes" now issued that the naturalists of the island have been far from idle within the past twenty years. Eight species that were either unrecorded or included with some doubt in 1905—the Blackcap, Lesser Whitethroat, Yellow Wagtail, Tree Pipit, Carrion Crow, Hen Harrier, Honey Buzzard, and Pink-footed Goose—are now definitely placed in the Manx list; and though most of these have only been enrolled as occasional visitors the Lesser Whitethroat has been ascertained to breed, while in at least one instance (and another of the same kind had been previously reported) a female Carrion Crow is known to have paired with a male of the resident Hooded species. Proof has also been obtained of the breeding of the Short-eared Owl, Woodcock, Common Sandpiper, Common Tern, and Great Black-backed Gull, bringing up the total number of species known to have nested in the island to 98, while the non-breeders consist of 48 regular and 45 occasional visitants, making altogether a total of 191 species. For an island whose area is somewhat less than two-thirds of that of County Dublin this is a very creditable record.

None of the species that make up Mr. Ralfe's full number is an absentee from the Irish list; but the Isle of Man is ahead of Ireland in having proof of the breeding of the Lesser Whitethroat and of the Short-eared Owl. On the other hand, it seems doubtful whether our Irish forms of either the Coal Tit or the Dipper (the island possesses no Jays) are represented in the Manx fauna. The only Coal Tits that have been examined belong to the British (which is also the Ulster) form, while of three Manx Dippers that have been compared with sets from the Irish National Museum and the Museum of Liverpool Mr. Ralfe considers that two resemble British specimens and the third is more similar to the Irish. Mr. Witherby, however, hesitates to refer this example definitely to either form. The recent opening of a Museum in Douglas should give an excellent stimulus to further investigation on these and similar points, so far as this can be carried on without unnecessary destruction; but this last is undoubtedly a most important proviso—the Dipper, for instance, being a much rarer bird in the island than the character of the Manx streams would lead one to expect.

The supplement is illustrated with a considerable number of good photographs, showing Manx nesting-places of some of the most interesting birds. We notice that the plate showing a Chough's nest is from a photograph taken by Mr. Athole Harrison.

British Birds.

A Check-List of British Birds, with a short account of the status of each, compiled from "A Practical Hand-book of British Birds." By H. F. WITHERBY, M.B.E., F.Z.S., M.B.O.U. London: H. F. and G. Witherby, 1924. Price, 3s. 6d. net.

UNDER the above title Mr. Witherby reprints the "Systematic List" which forms the principal appendix at the end of his "Practical Handbook"; and by leaving the right-hand pages blank for observers' notes he adds considerably to the usefulness of what would in any case have been a welcome publication. The list is brought up to date to the end of 1923. The birds dealt with, including, of course, many sub-specific forms, number 493, of which some 307 can claim a place in the Irish fauna. Among these last it may be remarked that Mr. Witherby includes the Cirl Bunting, accepting as satisfactory an observation that did not fully convince Mr. Ussher (see his List of Irish Birds, 1908) of its right to inclusion. The note on the status of the Kite as regards this country is rendered unintelligible by a printer's slip, which, fortunately, did not occur in the original list at the end of the Handbook. On consulting that list we find that the error consists in a misplacing of the word "Ireland," which should be transferred from the beginning to the end of the line. On the whole, however, the list is admirably brought out, and likely to prove a real boon to the ornithological public.

C. B. M.

Vivaria and Aquaria.*

To all naturalists, whether children, teachers or others, who desire to keep their captures alive for study at home, Mr. Hodge's little book will prove of great value as a guide. The author is undoubtedly an enthusiast and we like his introduction, in which he characterizes as a hopeful sign "the interest displayed by the rising generation in wildlife generally." Even though as he says "many a 'Tiddler' may meet an untimely end from suffocation in an ill-aerated bottle of water, the intentions on the part of the captor were no doubt good and not in the same category as the 'sportsman' who catches to kill." The reviewer cannot help feeling regret that we, in Dublin, have no one such as Mr. Hodge to assist in directing the energies of the Stickleback hunters along the Grand Canal, whose youthful energy might, if so directed, become a national asset. The book is well printed and illustrated, and even those who do not see their way to join the active section of the Aquarium Society will derive interest and knowledge from its perusal.

A. W. S.

* "*Vivarium and Aquarium Keeping for Amateurs.*" A practical guide to the hobby by A. E. HODGE, F.Z.S. H. F. and G. Witherby, London. Price 5s.



GRENVILLE A. J. COLE.

GRENVILLE ARTHUR JAMES COLE, F.R.S.

PROFESSOR GRENVILLE A. J. COLE, one of the most brilliant and versatile of the school of geologists which sprang up towards the end of the last century under the inspiring influence of Professor Judd, passed away at his residence at Carrickmines, Co. Dublin, on April 20th. He had long been a prominent figure in scientific circles in Dublin, and his place will be hard to fill. He held the Professorship of Geology in the Royal College of Science for Ireland from 1890 until his death and was Dean of the College for two years. In 1905 he became Director of the Geological Survey of Ireland, then for the first time brought under the control of an Irish Department.

Cole was born in London in 1859, and educated at the City of London School and the Royal School of Mines. A year after his appointment to the chair in Dublin he published his "Aids in Practical Geology," which had an immediate and striking success, running to seven editions. Few works have been so popular with all classes of geologists. Gifted with a fluent pen and a brilliant sense of literary values he produced from this on a series of books which showed, by their ready sale, their attractiveness to the general reader and their value as popular introductions to the science of geology.

Among his more serious contributions to science are to be reckoned papers on the metamorphic rocks of Tyrone and Donegal in which he applied and developed the theory of *lit-par-lit* injection of the French Schools. His studies of the tachylitic selvages of basic igneous rocks, begun in association with Judd, and extended later to other varieties of glassy rocks and their devitrification products, are well known. His description of the riebeckite-rock of Mynydd Maur was an important contribution to both petrological and glacial science, in that he clearly discriminated between that rock and the riebeckite-eurite so widely distributed as erratics along the shores of the Irish Sea, and now known to be derived from Ailsa Craig in the Firth of Clyde.

It is a relief in these days of narrow specialisation to review the life-work of a man of such refreshingly wide and varied interests. In addition to his petrological work he effectively dealt in turn with such varied subjects as glacial geology, mineralogy, and palæontology. His contributions to the latter include papers on *Hemitrypa hibernica*; the Fenestellidae of the Carboniferous, Oldhamia and other organic remains from the enigmatical Bray Series; *Belinurius kiltorkensis* and an Irish Cretaceous Cirripede. In association with O. H. Little he made some interesting determinations of the mineral condition of the calcium carbonate in fossil shells, and pointed out that, whereas the more recent fossils are mainly preserved as arragonite, those from the older formations are invariably calcite.

We have recently re-read some of Cole's scientific papers and addresses with the object of evaluating his contribution to the advancement of science. We are struck anew by one of his outstanding characteristics—the generous acknowledgment of the work of others. He had an amazing knowledge of the literature of his subject, and his meticulous care that no previous contribution should escape notice was sometimes carried to such an extent as even to obscure his own line of thought. This quality of appreciation he carried also into his daily relations with others, and it was always possible for those who worked under him to gain his sympathetic co-operation in any scheme which promised results of scientific value.

Cole travelled widely and acquired an extensive knowledge of European geology. His reputation spread far beyond the country of his adoption and was recognised in various ways. In 1909 he was awarded the Murchison Medal by the Geological Society of London in recognition of his petrological studies on the glassy igneous rocks and his work on the metamorphic rocks of Northern Ireland. He was President of the Geological Section of the British Association at Manchester in 1915, and in his opening address he took an original line in pointing out that mountain-building processes were subject to sudden and catastrophic culmination at certain periods of the world's history. Many of his conclusions and suggestions fore-

shadow the most modern developments of geological thought. In 1917 he was elected a Fellow of the Royal Society.

On the rise of Geography to the status of an independent science he took a keen interest in its development, was President of the Geographical Association in 1919 and of the Irish Geographical Association from its establishment in 1919 till 1922. His lectures and addresses in this capacity will be long remembered by those who have heard or read them as stimulating in the extreme and coloured by a delicate play of the imagination such as few scientific men can bring to the popularisation of their subject. One of them entitled "The Clearing" cannot fail to live as a gem of literary exposition.

An intimate association extending over many years has given the present writers the opportunity of realising and appreciating some very lovable features of a character whose outer brilliance and polish served but to cloak the man within. Most noteworthy of all was perhaps his intellectual courage—his refusal to gloss over the unpleasant facts of life by the use of any sophistry. He faced the world undaunted and interpreted it in the light of reason. Side by side with this scientific attitude, however, he cultivated and cherished a poetic faculty of no mean order, which found expression only seldom, but always with remarkable effect. Some of his poems show a rare appreciation of the beauty of nature and a delicacy of touch which one finds but rarely nowadays among the votaries of science. He owed much of this delightful faculty to his early training, but even more perhaps to his wife, whose mental vitality and classic culture gave them a bond of interest that became a very potent factor in influencing his development. One does not know whether to admire most in Cole his subtlety of mind, his wide intellectual outlook or the indomitable spirit which he displayed to the end—the spirit of Browning's Grammarian—

" Still with the throttling pains of death at strife
Ground he at grammar."

On his very deathbed he made plans for future activities, new books to write, new doctrines to teach, new schemes

for the spread of science and culture in the country to which he had bound himself by ties of affection and interest, strong enough to weather to the end the cruel disappointments and trials which seem inevitably to follow in the wake of political revolution.

W. B. WRIGHT.

M. C. WRIGHT.

Manchester, May 14th, 1924.

SAXIFRAGA UMBROSA NATIVE IN THE WICKLOW MOUNTAINS.

BY A. W. STELFOX, M.R.I.A.

THAT some of the less easily accessible cliffs amongst the higher mountains of Wicklow might yield botanical surprises has always appeared possible, especially so as the mountainous area around Lugnaquilla has never been systematically explored. It may have been with some such thoughts in our minds that Mr. J. P. Bruncker and I visited the head of Glenmalure on 11th May last, though upon such an early date, in a backward season, great expectations were not spoken of. To return home, therefore, with *Saxifraga umbrosa* in our bag was an undoubted surprise, as the probability of this conspicuous plant having escaped detection could hardly have been foreseen.

Yet it grows in some three places, at any rate, on cliffs at an elevation of at least 1,500 feet between the head of Glenmalure and Lugnaquilla, in the townland of Ballinaskea. If one stands at the ford five miles above Drumgoff and looks southward across the main valley, one faces a deep side-valley or corry surrounded on three sides by cliffs; those to the south have been smoothed by an ice-fall from an upper corry (lying to the north of the summit of Lugnaquilla) during the Glacial Period; but those to the east and west are precipitous and would appear to have

escaped glaciation during at least the later stages of the Ice Age ; numerous moraines encumber the corry floor and mark stages in the final retreat of the glacier up the valley. *Saxifraga umbrosa* grows on the cliffs along the eastern side—those on one's left hand as one looks up the corry—it being most plentiful in the gully which contains the largest waterfall. This gully lies in the quarter of a mile south of where the outlet of the lake tumbles over the escarpment into the corry and must not be confused with the waterfall at the head of the corry. Other habitats lie between the gully and the lake outlet. Possibly some botanists may hesitate to believe that *S. umbrosa* is native in this locality ; but before venturing an opinion I would ask them to visit the spot—as wild a one as any I have seen in western Ireland.

They will then see that it is not the cultivated, but the native Irish form of the plant which adorns the cliffs ; that its habitat is exactly similar to those in which it grows in Cork, Kerry, Mayo, and Donegal (I have never visited the stations for it in Counties Waterford and Tipperary) ; and that it grows intermixed with none but native plants amongst which I will only mention *Hymenophyllum unilaterale*, *Luzula maxima*, *Calluna vulgaris*, *Chrysosplenium oppositifolium* and *Saxifraga stellaris*. Moreover the gap in its distribution between the Wicklow station and those in Waterford and Tipperary is no greater than that which exists between its habitats in Mayo and those in Donegal, so that granted that it is native in the southern and western counties, there is nothing extraordinary in its occurrence in Wicklow, except its escape from observation until the present time.

SOME NEW AND RARE IRISH SPIDERS.

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

(Concluded from page 54).

Oedothorax apicatus Bl. *Gongylidium* Bl. (D.R.P.B. Sup. List Spid. I.) ; *Neriene apicata* Bl. (Spid. G.B.I.)—This spider, which has up to now only been found in Leinster, in the Counties of Dublin, Kildare, Carlow and Wicklow, has been taken by Mr. R. A. Phillips in Co. Clare. He got a single female at Cloonacoose, Kilfenora, in June, 1923.

Oedothorax gibbosus Bl. *Gongylidium gibbosum* Bl. (D.R.P.B. Sup. List Spid. I.) ; *Neriene gibbosa* Bl. (Spid. G. B. I.)—This is perhaps the rarest species of this genus, and is extremely difficult to identify with certainty in the female sex, though the males are very distinct. I have taken both sexes at Fenagh, Co. Carlow and a single female was sent me years ago from Lough Gullion, Co. Armagh, which was identified as this species by the late Mr. Cambridge.

Now I have received a female, taken by Mr. R. A. Phillips near Galway in June, 1923, which Dr. Jackson believes to be this species.

Gongyliellum vivum Camb. *Neriene viva* (Camb. Spid. Dorset).—I have received from Mr. R. A. Phillips two females of this rare species, one from near Ennis, Co. Clare, taken in July, 1921, and one taken by Lough Derg near Dromineer, Co. Tipperary, in May, 1922. I have recorded it previously from Recess, Co. Galway, Clare Island and Mallaranny, Co. Mayo, and I found a specimen in the Museum from Ardara, Co. Donegal. I have also received a single female from my brother, Mr. R. J. Pack Beresford, taken at Athlone, Co. Westmeath, in 1922 ; and I took another on the banks of the river Bann at Portna, near Kilrea, in Co. Antrim. Mr. J. A. S. Stendall also records a pair from the Castlereagh Hills, Co. Down (Ulster Spiders, 1915).

Erigone arctica White.—This spider has now been taken from four counties on the western coast of Ireland : Co. Kerry (Valencia Is.), Co. Galway (Roundstone, Rinivyle), Co. Mayo (Clare Is., Mallaranny) and Co. Donegal (Rough Island).

Micryphantes rurestris Koch.—A common enough spider in many places, but has so far been only found in the eastern counties. I, however, took it at Recess, Co. Galway, and Mr. R. A. Phillips has sent me some specimens taken near Gort in June, 1923.

Agyneta conigera Camb. *Microneta conigera* Camb. (D. R. P. B. Sup. List Spid. I.)—I have only seen two female specimens of this spider before, which I took in Co. Carlow. Mr. R. A. Phillips has now sent me a single female from Woodford, Co. Galway, which he took in June, 1923. Mr. J. A. S. Stendall (Ulster Spiders, 1915) records it from the Cregagh Hills, Co. Down, and Monks Hill near Belfast, Co. Antrim.

Agyneta decora Camb. *Microneta decora* Camb. (D.R.P.B. Sup. List Spid. I.).—Only six specimens of this rare spider have been found in Ireland. I found a male and two females on Mt. Leinster, Co. Carlow, as already recorded in my supplementary list (Proc. R. I. Acad., 1909) and I have since taken two females at Fenagh, Co. Carlow, and a single male near Kilrea in Co. Antrim.

Agyneta subtilis Camb. *Microneta subtilis* Camb. (D.R.P.B. Sup. List Spid. I.); *Neriene subtilis* Camb. (Spid. Dorset).—Previously recorded only from Counties Carlow and Kerry, a single female specimen only in each case. I have taken another near Kilrea in Co. Derry, and found another in the Museum from Ardara, Co. Donegal. I have now received from Mr. R. A. Phillips a female from Templemore, Co. Tipperary, a single male from Woodford, and two of each sex from near Menlough, Co. Galway. Mr. H. Wallis Kew also found both sexes on Clare Island, Co. Mayo.

Centromerus arcanus Camb. *Tmeticus arcanus* Camb.; *Linyphia arcana* Camb. (Spid. Dorset).—Mr. R. A. Phillips sent me a single female of this species, taken by him at Woodford, Co. Galway, in June, 1922. It had not occurred in Ireland before, and was kindly identified for me by Dr. Jackson. It has been found in a good many places in Great Britain, chiefly in mountainous districts. It was first identified by Mr. Cambridge from the Cheviot Hills, and has since been taken near the summit of Ben Lomond and the Hills of Glamorgan by Dr. Jackson and also in the Cumbrian Hills and Pennines.

On the Continent of Europe it is very rare, having been found, so far as I have been able to discover, at only two spots in south-western France and one in Hungary.

Centromerus sylvaticus Bl. *Tmeticus sylvaticus* Bl. (Carpenter list Spid. I.)—Professor Carpenter in his list recorded a single female taken by Mr. J. N. Halbert in Co. Galway, and Mr. R. A. Phillips has now sent me another female which he found at Tineranny Wood, Co. Kilkenny, in September, 1922. These are the only two specimens of this spider that have yet been taken in Ireland.

Centromerus expertus Cambr. *Tmeticus expertus* Camb. (Carpenter List Spid. I.).—A single female of this species taken by Mr. R. A. Phillips at Ferns, Co. Wexford, in September, 1921, extends its range into the province of Leinster. He also sent me two males and one female from Portumna, Co. Galway, which he took in December, 1922. These are the third and fourth records of this spider in Ireland.

Porrhomma Campbellii F. Camb.—In the *Irish Naturalist* vol. xxix, p. 32 (1920) I recorded the capture of a female of this species taken at Fenagh, Co. Carlow, but by an unfortunate oversight I omitted to record at the same time a single male taken under a stone by Mr. A. W. Stelfox on September 19th, 1914, near Connor Hill, Dingle Peninsula, Co. Kerry, at a height of 1850 ft. one mile east of Connor Pass.

I sent this specimen to Dr. A. R. Jackson, who recorded it in the *Lancashire and Cheshire Naturalist* in January, 1916. In his note on the capture Dr. Jackson says: "In October 1914, Mr. Britten sent a male new to me which he had found in a clay pit at Shotover, near Oxford, on October 10th. A few days later Mr. D. R. Pack-Beresford sent another similar specimen taken by Mr. A. W. Stelfox on Bonnor Hill (sic) South Kerry." Mr. Stelfox, however, tells me that his find was made on September 19th, not October as stated in Dr. Jackson's note, so that this was the first find of a male of this species in the British Isles. I have since taken two more females at Fenagh, Co. Carlow, all my captures being on paling posts in spring.

Dr. Jackson tells me that this species has been taken fairly commonly of late years in Moles' nests in England.

Porrhomma egeria Simon.—I took a second female of this species at Fenagh, Co. Carlow, last spring. This is the only spot in Ireland where it has yet been found, and this is only the second occurrence of a single individual in over fifteen years collecting there.

Sintula diluta Camb. *Neriene diluta* Cb. (Spid. Dorset).—The only place where the species has previously been found is at Fenagh, Co. Carlow. Mr. R. A. Phillips has however now taken females in Co. Tipperary (Roscrea, and Borrisokane), a single female near Gort, Co. Galway, and two adult males at Birr, King's Co. in November, 1922.

Bathyphantes nigrinus West. *Linyphia nigrina* Cb. (Spid. Dorset).—This spider, which is not rare, has not, however, been previously recorded from Connaught. Mr. R. A. Phillips took a female near Gort, Co. Galway, and I have taken specimens in Co. Mayo (Roona, Old Head).

Bathyphantes setiger F. Camb.—This very rare species has now occurred in Co. Clare, Mr. R. A. Phillips having taken two females at Kiltrush in July, 1921. The only other Irish record is from Fenagh, Co. Carlow, where I have taken both sexes. It has only been found in about four localities in England, and is unknown elsewhere.

Lepthyphantes ericaeus Bl. *Linyphia ericaea* Bl. (Spid. G. B. I).—This little spider has occurred in a good many places in central Ireland, but has not been found before in Ulster. I took two females on Fair Head, Co. Antrim, in July, 1922, and have also taken specimens near Kilrea in Co. Antrim.

Lepthyphantes flavipes Bl. *Linyphia flavipes* Bl. (Spid. G. B. I).—This species has not been taken before in Munster, but Mr. R. A. Phillips has now sent me several specimens from Co. Tipperary (Templemore, Roscrea, Portumna). It is an uncommon species, but has been recorded from a few localities in Ulster, Leinster and Connaught.

Lepthyphantes pallidus Camb. *Linyphia pallida* Cb. (Spid. Dorset).—Mr. Nevin Foster and Mr. R. Welch found a single female of this uncommon

species in hot-houses at Castlewella, Co. Down. It has only occurred in a few southern counties, usually in caves or cellars, though I have taken a few specimens in the open.

Lepthyphantes cristatus Menge. *Linyphia cristata* Cb. (Spid. Dorset).—Not at all a common spider, and so far only found in a few localities in Ulster and Leinster, Mr. R. A. Phillips has now sent me a single female from near Gort in Co. Galway, taken in June, 1923.

Linyphia impigra Cambr. *Lepthyphantes cultus* Cambr. (Carpenter List Spid. I.).—In "A list of Irish Spiders" Professor Carpenter records the occurrence of a single female spider collected near Dublin, and described by the Rev. O. P. Cambridge under the name *Lepthyphantes cultus* in 1893. This spider remained somewhat of a mystery till 1916, when Dr. A. R. Jackson, looking over some of Mr. Cambridge's specimens, discovered it to be a female of *Linyphia impigra*, first described by Mr. Cambridge in 1871.

In May, 1921, Mr. R. A. Phillips took a single male near Waterford, which Dr. Jackson has kindly named for me, and which proves to be the same species.

Linyphia impigra is a very rare spider, having so far as I can discover, only been found at some three or four localities in Dorset and Sussex. It is also recorded from three localities in Hungary by Prof. Kulczynski, and a single immature female is recorded by Mr. Simon from south-eastern France.

Bolyphantes luteolus Bl. *Linyphia alticeps* Bl. (Spid. G.B.I.).—Professor Carpenter records this species only from Leinster and Ulster, in his list, but I find from a note of his that he received a pair in September, 1897, from the Galtees, Co. Tipperary, and Mr. R. Welch got a single female on Brandon Mt., Co. Kerry, at over 1,500 ft. in 1910, and I got another on Croaghpatrick, Co. Mayo, in 1911. I have taken this species in low country, but it seems usually to inhabit mountains.

Eugnatha striata L. Koch.—This species was originally recorded as Irish in my Supplementary List of Irish Spiders (Proc. R. I. Academy, 1909) from a single immature male taken by Mr. Halbert in Co. Sligo in 1901. In August, 1921, Mr. R. A. Phillips captured another immature male on the lake shore at Portumna, Co. Galway.

Epeira patagiata Cl. *Araneus patagiatus* Cl. (Carpenter list Spid. I.).—Mr. R. A. Phillips took an adult female of this species on Corracean Island, Lough Derg, Co. Tipperary, in June, 1921, and I received another taken on Ram's Island, Lough Neagh, Co. Antrim. It had previously been found on the shore of Lough Corrib, Co. Galway; at Athlone; and at Glenveagh, Co. Donegal (Prof. Carpenter's List).

Pirata hygrophilus Thorell.—Professor Carpenter only records a single male from Co. Limerick and a single female from Co. Roscommon. I

have since taken two females at Stratford on Slaney, Co. Wicklow, and Dr. R. Ll. Praeger found another female at Roundstone, Co. Galway.

Pardosa monticola C. L. Koch.—I took a female of this spider at Ballycastle, Co. Antrim, and another near Kilrea in the same county, both adult in June. Mr. Nevin H. Foster also found females on the islands in Clew Bay, Co. Mayo. It had previously been found in two counties in Leinster (Dublin and Carlow), one in Munster (Waterford), and one in Connaught (Galway).

Pardosa palustris Linn.—This spider, though widely distributed, mostly round the coastal counties, has not yet been recorded for Connaught. I have, however, taken specimens in Co. Galway (Carrowroe, Costello, Dogs Bay, Roundstone and Lough Fee) and Mr. Nevin H. Foster took it in the neighbourhood of Louisburgh, Co. Mayo.

Heliophanus flavipes Hahn.—This is a rare spider in Ireland, having only been found so far in two counties in Leinster (Dublin, Carlow) and two in Ulster (Antrim, Derry). Mr. R. A. Phillips has now sent me an adult male which he got by Lough Derg near Dromineer, Co. Tipperary, in May, 1922.

Epiblemum cingulatum Panz.—Mr. R. A. Phillips took two males of this species near Menlough, Co. Galway, in June, 1923, and a female at Roscrea, Co. Tipperary, in June, 1921. It had previously only been found in Counties Kerry and Carlow.

Mr. A. W. Stelfox gave me lately a tube of specimens he collected in July, 1911, on Caher Island, which lies between Inishturk and the mainland of Co. Mayo. As the inhabitants of such a small island, which is about a mile long by half a mile wide, are always of interest, I give the names of the species collected which are as follows:—

<i>Xysticus cristatus</i> , Cl.	<i>Clubiona holosericea</i> , de G.
<i>Textrix denticulata</i> , Oliv.	<i>Pirata piraticus</i> , Cl.

There was also one phalangid *Mitopus Morio*, Fabr., and a woodlouse (*Trichoniscus pusillus*. Brandt).

NOTES.

Hooded Crow at Hillsborough.

A bird shot in Hillsborough Park on 10th May was brought to me for identification. It was a Hooded Crow, *Corvus cornix* Lin., and on dissection proved a female. Thompson states (*Nat. Hist. of Ireland*, Vol. II., p. 146) that about 1832 Hooded Crows nested at Lough Aghery [Achroony] only a few miles from here, but since that time they have been unknown in the district. The gamekeeper, whose life has been all spent in Hillsborough Park, says he never saw a bird like it before. The only place in Co. Down where this bird is now known to frequent is the Mourne Mountain district.

NEVIN H. FOSTER.

Hillsborough. Co. Down

A Staphylinid Beetle new to Ireland.

While collecting in Glencullen or rather the glen of the Cookstown River, about a mile above Enniskerry, in Co. Wicklow, on 18th April last, I discovered a large log riddled with holes about a quarter of an inch in diameter. Upon the outside of the log I captured several specimens of the small ant *Leptothorax acervorum* Fab. and in searching for more pulled off a lump of the rotten wood in which were numbers of a little brownish beetle belonging to the Staphylinidae.

Two of these beetles I brought away with me and they were identified by Mr. E. O'Mahony as *Bolitochara lucida* Grav. Mr. J. N. Halbert has since examined them and agrees with this determination. It would seem that there is no Irish record for this little beetle, but on this occasion I am sure I could have taken well on to a hundred had I wished to do so. From one of the large burrows in the log, which was, I think, Ash, I also took a male of the large rhinoceros-like beetle *Sinodendron cylindricum* L. The ants referred to above were peculiar in not being parti-coloured as is usual in *L. acervorum*, but were, on the contrary, of a reddish-brown colour all over.

A. W. STELFOX.

National Museum.

Helicella heripensis in Co. Kildare.

In this Journal for January, 1922, I criticised the Recorder of the Conchological Society of Great Britain and Ireland for definitely recording *H. heripensis* Mabilie from Ireland on the strength of two dead shells taken on the "camp ground, three miles N. of Kildare" by Mr. E. Stainton in 1918. I still consider that the Recorder was taking risks; but the finding of this snail, by me, abundantly in a gravel-pit near Sallins, in the same county, on 21st April last, settles the matter for all time. The gravel-pit is situated just south of where the Great Southern and Western Railway crosses the Grand Canal, about half a mile N.E. of Sallins station. Dead shells were taken very abundantly, and several alive, on the face of the old gravel-pit, behind the ruins of a large building, where the Glacial gravels are calcreted; but in no other spot near at hand, nor in the railway-cutting N. of the bridge could I see a trace of *H. heripensis*, though its associates in the gravel-pit—*H. itala* and *H. virgata*—were abundant throughout the whole area searched. The only problem that remains is whether the species is native or not, and neither Mr. Stainton's evidence nor mine is conclusive, one way or the other. The finding of the snail on one of the untouched esker ridges of this part of the central plain would, I think, be satisfactory evidence that it is native. Sallins would be about ten miles N.E. of Mr. Stainton's locality.

A. W. STELFOX.

National Museum.

Therapha hyoscyami L. on the Wicklow Coast.

In the *Irish Naturalist* for August, 1922 (p. 91), I recorded this beautiful red Hemipteron (Plant-Bug) as new to Ireland on the strength of a specimen captured on the Murrough of Wicklow, south of Newcastle. On that occasion I also saw but did not capture a second specimen; and on 20th April last, when again visiting the district, I took a third specimen about 200 yards south of Newcastle railway station.

A. W. STELFOX.

National Museum.

Increase of *Saxifraga Stellaris* in Glenasmole.

I am pleased to be able to record an extension of Mr. Colgan's Glenasmole station for the Starry Saxifrage. It has now established itself in considerable quantity along the west side of the pitched course of the Middleton Brook, and has already descended as far as Castlekelly Bridge. There is nothing to prevent its further descent, and it seems quite probable that it will soon extend along the flood-water cutting to the Lower Reservoir.

J. P. BRUNKER.

Dublin.

REVIEW.

A New Field Book.

LITTLE NURSERIES IN THE FIELDS. By MARIAN H. CRAWFORD. 7s. 6d.

MRS. MARIAN H. CRAWFORD'S new book, "Little Nurseries in the Fields," is a welcome addition to the somewhat overcrowded ranks of popular nature books. Written in an interesting and readable manner, and treating with equal freshness of birds, mammals, insects, and other forms of animal life, it should make a good text-book for schools, and would certainly be liked by the children much better than some of the rather tedious books so often supplied. Many a grown-up reader may also derive much advantage from its pages. The text is profusely illustrated with some of the best nature photographs we have seen for a considerable time.

A. H.

COLEOPTERA AT LOUGH NEAGH (CO. ANTRIM)
AND NEWCASTLE (CO. DOWN).

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

MY four previous entomological excursions to Ireland having been restricted to parts in the south and south-west and a few days in the Dublin district, I decided last summer to visit the north for a change, and Lough Neagh, the exclusive brittanic home of four of our coleoptera that were unrepresented in my collection was chosen as the first and most attractive locality for a short sojourn.

Deferring my departure for a fortnight owing to unfavourable weather I left London on June 14th, 1923, and travelling *via* Heysham and Belfast arrived at Antrim the following morning in a deluge of rain and secured quarters at McNally's Massareene Hotel, where I learned that since the recent malicious destruction by incendiaries of the fine modern Shane's Castle, the owner had retired to England and closed the demesne to visitors. This was rather disconcerting news, as it was there that I intended working for the special local rarities, and on failing to gain admittance at the lodge gate I then sought out the head keeper—a genial Scotsman, a resident in London in his youthful days and like myself an inveterate smoker—with these attributes of good fellowship we soon arrived at an amicable understanding whereby I was granted the privilege of entry by his private wicket-gate for the duration of my visit and, with an introduction to the watches who patrol the estate, I was able to pursue my work without fear of possible trouble or interference.

To a coleopterist the most attractive feature of this demesne is the fine broad sandy shore of the lough, intersected by beds of aquatic vegetation and eminently suitable for littoral beetles, and it was this ground that claimed my chief attention. The weather for the first week was generally cold and dull, or rainy, when few insects were to be found in the open, but by lifting stones, sifting vegetable debris and laying traps, numerous beetles were brought to light, whilst in some brief intervals of sunshine

many made their appearance, running over the sand, and in the course of a week of strenuous work I had the extreme satisfaction of securing quite a good series of all the four local rarities, the chief object of my visit, viz. : *Dyschirius obscurus*, *Bembidium argentolum*, *Stenus palposus* and *Cryptophagus bimaculatus*. The *Dyschirius* was found later in considerable numbers in the burrowings of *Bledius subterraneus*, both the brassy and the black forms occurring in about equal proportions. Other captures on this ground, mainly of interest as Irish records, include *Pelophila borealis*, a few under dried scum ; *Chlaenius vestitus* ; *Anchomenus scitulus*, an addition to the Irish List, four specimens ; *A. micans*, of which the authors of the Irish List state they had never seen an Irish example, four specimens : *Bembidium assimile*, in plenty ; *B. clarki* ; *B. atrocoeruleum*, a black variety ; *B. pallidipenne* ; *B. punctulatum*, including a large bluish black variety (v. *lutzi*, Reitt.) ; *Cercyon minutus* ; *Oligota apicata*, an addition to the Irish List, two specimens sifted from debris ; *Conosoma pedicularium*, in plenty ; *Philonthus nigrila*, a curious aberration with only five punctures in each of the dorsal thoracic series ; *Lathrobium punctatum*, only recorded from Waterford in the Irish List, one specimen ; *Stenus crassus* and v. *littoralis* ; *S. carbonarius* ; *Homalium allardi* ; *Atomaria gutta* ; *Cryptohypnus* ^oiv.-*guttatus* ; *Bagous claudicans* ; *B. glabrirostris* v. *nigritarsis* ; *Phytobius comari* ; *P. iv.-tuberculatus* ; *P. canaliculatus*.

With the advent of finer weather and several entire days of warm sunshine net work became more productive, and by sweeping on the lough shore I had much pleasure in securing two specimens of the scarce and pretty *Ceuthorhynchus arcuatus* ; *Grypidius equiseti*, *Thryogenes neries* and *Limnobaris pilistriata* also occurring here in some plenty. On turning my attention to the inner parts of the demesne *Cionus hortulanus* and *C. pulchellus* were found in some numbers on *Verbascum*, the latter being only recorded from Kerry in the Irish List ; and *Chrysomela hyperici* was plentiful on *Hypericum*. By general sweeping a specimen of *Ochrosis salicariae*, an addition to the Irish List, *Anaitis ocellata*, *Campylus linearis*, *Telephorus nigricans*

in plenty, and *Psylliodes picina* are worthy of record. Sweeping under fir trees produced about a dozen *Dryophilus pusillus*, a recent discovery in Ireland, and by beating dead boughs of the same a specimen of *Pityogenes bidentatus* was a capture of interest, as the only Irish record is a single example taken by Mr. Johnson in his garden at Armagh in 1892. *Bolitochara obliqua*, *Phloeocharis subtilissima*, *Epuraca pusilla*, *Rhizophagus depressa* and *R. dispar* occurred sparingly under the bark of fallen firs, and *Gyrophæna affinis*, only recorded from Galway in the Irish List, and *G. laevipennis* were plentiful on fungi. By evening sweeping, whenever the weather was suitable, I had the good luck to secure a fine example of the very rare *Colodentipes* and a few *C. brunneum*, *Anisotoma ovalis* and *A. calcarata*, this being the first occasion that I have succeeded in taking any of these interesting insects in Ireland. Of the more ordinary species that are not considered to be of general distribution in Ireland and are not recorded from Co. Antrim in the Irish List I met with the following: *Pterostichus anthracinus*, *Anacaena limbata*, *Aleochara brevipennis*, *Xantholinus longiventris*, *Lathrobium quadratum*, *Scaphisoma agaricinum*, *Scymnus suturalis*, *Cercus pedicularis*, *Ephistemus gyrinoides*, *Microcara bohemani*, *Telephorus pellucidus*, *Phyllodecta vitellinae*, *Galarucella calmariensis*, *Phyllotreta exclamationis*, *Aphthona lutescens*, *Dorytomus maculatus*, *Coeliodes rubicundus* and *Balaninus pyrrhocerus*. My collecting at Lough Neagh was entirely confined to the Shane's Castle demesne as the other country around Antrim, as far as I could see, was all closely cultivated arable or grass land where very little of interest was likely to be found.

Leaving Antrim on June 29th, I proceeded south to Newcastle, Co. Down, and although the weather continued fine and warm it proved a very disappointing change of ground and recalled to memory an observation of Mr. Champion's¹ that it was about the most unproductive locality he had ever visited. Two days were spent on the seashore in Dundrum Bay and the adjacent sand dunes and rabbit warren with most meagre results,

¹ Entom. M. Mag. xii, 1876, p. 82.

Harpalus tardus, *Amara tibialis*, *Diglotta mersa* and *Sphaeriestes ater* being the only captures of interest. Two days on the Mourne Mountains proved equally unprofitable, with the exception of *Choleva chrysomeloides*, unrecorded from Co. Down in the Irish List, and *Byrrhus dorsalis*, found under stones, only a few common species were met with; and I was not sufficiently encouraged to complete the laborious ascent of 2796 feet to the summit of Slieve Donard. Some hours were spent in a futile search for *Carabus arvensis* on the Quarry Hill where it was reported to have occurred, but *C. catenulatus* only was brought to light. The best capture was made in the Donard demesne on the last day of my visit, when two specimens of *Henoticus serratus*, an interesting addition to the Irish List, and a rarity in England, were found under the bark of a felled beech. *Homalium vile* and *Rhizophagus dispar* also occurred in the same tree, but for some unaccountable reason many other recently felled trees, chiefly oak and ash, that were examined produced absolutely nothing in the way of beetles.

On July 4th I returned to London well satisfied with the results of my three weeks holiday work in Ulster, and with a lasting impression of the charming scenery and restful solitude of the Shane's Castle demesne and the Mourne Mountains. Two hundred and sixty species of Coleoptera were taken at Lough Neagh (including thirty-eight unrecorded from Co. Antrim) and fifty-four at Newcastle, a few of which still remain undetermined.

The four additions to the Irish List are:

Anchomenus scitulus, Dej.—Lough Neagh.

A local and rather scarce species in the south of England and not found in the north, or in Scotland.

Oligota apicata, Er.—Lough Neagh.

A rare species in the south of England, and has occurred only as far north as Yorkshire.

Henoticus serratus, Gyll.—Newcastle, Co. Down.

A rare species in England and Scotland.

Ochrosis salicariae, Payk.—Lough Neagh.

Occurs locally in England as far north as Lancashire.

NOTE ON THE DISTRIBUTION OF THE SQUIRREL
IN IRELAND.

BY ROBERT F. RUTLEDGE.

A CERTAIN amount was written concerning whether or not the Squirrel is a native Irish species, in the *Irish Naturalist* for 1922. I am not qualified to enter into a discussion on that subject, but I should like to add what information I can with regard to its distribution in Ireland.

I noted, when reading one paper on the subject, that evidence of the Squirrel's occurrence in seven Irish counties appeared to be lacking. An observer shortly afterwards gave evidence of its occurrence in Co. Cork, thus lessening the number of counties in which there was no knowledge of its existence, to six.

I have evidence of its occurrence in both Limerick and Mayo. In the case of Limerick I have made no personal observations, but on reading the statement in the *Irish Naturalist* I wrote and enquired about Squirrels in that county, and received a reply that they existed in the more wooded parts of the county and had been there for many years. As regards Mayo, I have my own observations to go on as well as some notes which I made in 1916 as a result of my enquiries regarding its distribution in this county.

I had no idea, until 1922, that the Squirrel had never been reported from Co. Mayo. Here in south Mayo it is very common and at certain seasons constitutes a pest.

Some years they are more plentiful than others—thus in 1917 I noted their apparent scarcity, and again in 1918 they were particularly numerous. Squirrels breed plentifully throughout south Mayo.

Answers to my enquiries showed that Squirrels appeared first, according to one informant, on the southern borders of Mayo in 1883, but did not become plentiful there until many years later.

About 1896 they appeared at Cloonce on the shores of Lough Carra, and shortly after that were fairly well distributed throughout south Mayo.

Another informant wrote me in 1916 that Squirrels had not reached north Mayo, but that their appearance had been spoken of near Castlebar, and the same informant now tells me that Squirrels are still absent from north Mayo, not yet having crossed the river Moy from Co. Sligo.

It appears that Squirrels must have spread northwards to this county from Co. Galway.

Bloomfield, Hollymount, Co. Mayo.

NOTES.

Large Irish Elk Antlers.

A skull bearing a fine perfect pair of antlers, of the Irish Giant Deer (*Cervus giganteus*) with massive brow-tines measuring six feet from point to point has been presented to the Belfast Municipal Museum by the Rt. Hon. Lord Arthur Hill. It was found in a bog at Annamackeanan, parish of Donacloney, near Lurgan, in 1863. To the same Museum the Marquis of Downshire has presented a number of specimens, implements, etc. of the prehistoric period, chiefly of the Bronze Age.

A. DEANE.

Belfast Museum.

Robin Nesting in Letter-box.

One morning last year when taking out the letters I found some moss in the box and cleaned it out, thinking some school-children had put it in. Next morning more moss was in the box. I then thought a bird might be building and so stopped the postman from putting in more letters. In course of time a Robin laid five eggs and brought out her young quite safely. This year she came back, did some spring-cleaning, laid five more eggs, and as I write is sitting very closely. I am fond of small birds and find that they do a wonderful work in the orchard in keeping it clear of the grubs that we have to spray for so often.

FRANK J. HALL.

Loughgall, Co. Armagh.

Observations on the Robin.

An extremely important series of observations on the habits of the Robin as studied in Co. Fermanagh by Mr. J. P. Burkitt is published in "British Birds" for May. With a view to ascertaining as many facts as possible regarding the relation of song both to breeding and

to territory, Mr. Burkitt set himself to ring (in such a way that each of them could afterwards be identified at sight) all the Robins round his house that appeared to be in occupation of territories in the autumn and winter of 1922-3, and from that time forward until the date of his paper (Jan. 7th, 1924) he succeeded in ringing thirty birds, and though a considerable number of these afterwards disappeared from unknown causes, some ten were kept under close enough survey to yield results of great interest.

The retention of the Robin's song throughout the greater part of the year suggests a corresponding retention of territory. By marking the territories of each of his marked birds Mr. Burkitt has ascertained that the area held by a pair in the breeding-season is, on the average, about $1\frac{1}{2}$ acres, while half that space suffices for an individual bird during the winter. In other words the area in which his operations were carried on gave nesting grounds to seven or eight pairs, and in the following winter held thirteen to fourteen single birds.

The relation of song to territory is brought out with peculiar force by Mr. Burkitt's discovery of the fact that all his marked female Robins were in the habit of singing, though he adds that he has "no evidence yet that any female sings during the nesting season." The natural inference is that it is only (or at least chiefly) when she has a territory of her own to defend against all comers—her late husband included—that she makes use of her gifts as a vocalist. A great deal has, however, still to be learnt on these points, as so many marked birds slipped away before a year's record of their movements had been obtained. It is much to be hoped that Mr. Burkitt will find time to continue his observations to at least the end of another year, though the task involved is certainly not a light one—as he says himself, "the job meant ruling out other recreation."

Spiranthes Romanzoffiana.

The "Orchid Review," March 1924, contains a very interesting article on *Spiranthes Romanzoffiana* written by Mr. Henry Mousley, Eastern Townships, Canada, which should not be allowed to escape the notice of Irish botanists. The article is concerned mainly with the question as to whether this orchid is gemmiparous and refers to an important paper on the same subject in a previous number of the "Review" (Sept. 1922), written by Colonel M. J. Godfery, F.L.S., in which after quoting the original diagnosis of the species and examining all available evidence Col. Godfery sums up his conclusions as follows:—"The evidence is incontrovertible that *Spiranthes Romanzoffiana* is not gemmiparous, the name *gemma* being solely founded on a misapprehension of Drummond's ambiguous statement." Drummond's statement referred to above is "Buds destined to flower the following year are formed among the leaves at the bottom of the flower stalk . . . the following spring each bud puts forth a pair of oblong knobs . . . and becomes a separate plant."

This statement Col. Godfery says is "an inversion of the facts—the bud does not precede the tuber but the tuber the bud."

Mr. Mousley who lives in a district particularly rich in orchids—40 species and varieties growing within a few miles of his house—and who has been studying their underground development of the various species for some time past, finds that his experience with *Spiranthes Romanzoffiana* differs considerably from Col. Godfery's "and in a minor respect" also from Drummond's. He illustrates his various points with beautiful photographs and sets out his conclusions in the following passage:—

"Summing up the result of my studies, it seems evident to me that, in the main Drummond was right in what he said, although I do not agree with him 'that in the Spring each bud puts forth a pair of oblong knobs . . . and becomes a separate plant.' I maintain that these buds are put forth in the fall of the year, as is clearly shown by my photograph taken at that period, and not in the Spring, and that there is no such thing as each bud becoming a separate plant."

Col. Godfery's conclusions and Mr. Mousley's are so interesting I have set them out here in the hope that those of our northern botanists, who have access to the places where *Spiranthes Romanzoffiana* grows, may be induced this coming season to make some investigations, which will perhaps throw further light on the subject.

Towards the close of his paper Mr. Mousley has also something to say about the apparent differences between the north and south Irish forms of *Spiranthes Romanzoffiana*. He suggests that the differences may be due to habitat. ". . . it is evident [he says] from tracings of dried plants from near Cork, kindly sent me by Dr. Stephenson, of Winchester, that there is some difference between the south Irish plants and the ones I take here at Hatley in wet boggy ground, although they are very similar to others I have found at Coaticook, about nine miles from here, in drier loamy ground. The tubers of these latter plants are much thicker, and the leaves much broader as a rule, and not so long as those of the plants growing in the wet boggy ground at Hatley; in fact, they appear to be very similar indeed to the south Irish form, so far as I can judge from the tracings. As regards the plants from the North of Ireland, it seems pretty well agreed, I think, that they are practically, if not entirely, the same as we get in North America, *i.e.*, with the long narrow leaves as a rule, although I understand Dr. Schlechter keeps the Irish form apart from the American, not as a final decision, but merely because of the great geographical distance."

M. C. KNOWLES.

National Museum.

ON THE BREEDS OF DOGS PECULIAR TO IRELAND
AND THEIR ORIGIN.

BY R. F. SCHARFF, B.S.C., PH.D.

VERY few notes have been published in this Journal on the breeds or races of dogs endemic in Ireland. Indeed, comparatively little has ever been written on any Irish dogs except the Wolfhound, although it is a subject specially attractive to us, for the Irish, from the most remote times, have almost worshipped dogs, and ancient Irish history abounds in dog-lore. Of all the domesticated animals, the dog is, undoubtedly, the oldest, and he seems to cherish a peculiar affection for man. The domestic dog has a remote history. Several kinds were even known to the ancient Egyptians as far back as about 4,000 B.C. It is not surprising, therefore, that the origin of the dog has caused a great deal of discussion and speculation, and that the views of those who made a study of the subject differ often widely. Some would derive dogs from wolves, others from jackals, while the opinion that domesticated dogs took their rise from wild dogs has many adherents. Darwin came to the conclusion that the balance of evidence was strongly in favour of the multiple origin of dogs.¹ Most authorities now agree with this view. It is probable, therefore, that the origin of the domesticated dog is polyphyletic; that is to say, the dog arose independently from several kinds of wild dog-like ancestors in one or more regions of the world. The large and ancient group of Greyhounds may have been derived from the Pariah dog, which itself seems to be a descendant of the wild Dingo dog. It has been suggested by Studer² that the *Torfhund* or Turf-dog (as we may call it) was the ancestor of the Terriers, Pomeranian dogs, Chows and their allies. Some of the American breeds of dogs are believed to have

¹ Darwin, C.: "Animals and Plants under Domestication." London, 2nd ed. 2 vols. 1899.

² Studer, Th.: "Die praehistorischen Hunde." Abhandl. d. Schweiz. palaeont. Gesellsch., vol. xxviii., 1901.

originated from the Coyote or Prairie Wolf, although Allen denies their relationship.³

In the more remote times it was not customary to give accurate descriptions of the shape and colour of animals, but as regards our domestic stock, we derive a great deal of information from various ancient mural drawings and decorative paintings, as well as from sculptures. In this way we have gained some knowledge of the breeds of dogs kept by the Egyptians, the Assyrians, as well as the Greeks, Romans, and Gauls. Many of the primitive coins bear excellent impressions of domesticated animals. Even some of the northern colonies of Rome have yielded animal designs which give us glimpses into the domesticated fauna of central Europe at that time. The most precious and highly esteemed dog in ancient Egyptian times was the Greyhound, which on account of its agility and dash, was employed in hunting antelopes. This dog was apparently short-haired. Long-eared sporting dogs, sheep-dogs and hounds were likewise kept. Even from the Terrier and Pomeranian group there were examples, while one dog had the appearance of a modern *Dachshund*. The Assyrians, on the other hand, do not seem to have known so many breeds. The hunters favoured powerful Mastiffs, such as we see so faithfully represented in the sculptures and potteries contained in the British Museum. Layard suggested that these dogs might have been brought to Mesopotamia from India. A second Assyrian dog somewhat resembled the Greyhound. From Greece we gain our knowledge to a large extent from representations of dogs on coins.⁴ Among these there occurs a good likeness of a small dog of the Pomeranian or Eskimo type. A leaden statuette of a true hound with pendulous ears was found in the Akropolis of Athens, showing that this variety was known to the Greeks before the Christian era. The Romans seem to have imported that breed from Gaul. In a Roman mosaic discovered at Aventicum, the ancient

³Allen, G.M.: "Dogs of the American Aborigines." Bull. Mus. Comp. Zool., Harvard, vol. lxiii, 1920.

⁴Keller, C.: Die Abstammung der ältesten Haustiere. Zürich, 1902.

capital of Helvetia, various breeds of hunting dogs were figured. A skull of a dog of the type of a sheep-dog was unearthed in the Roman settlement of Vindonissa in Switzerland. The Romans had even adopted a rough classification of dogs into the three groups of *Canes villatici* (watch dogs), *Canes pastorales* (sheep-dogs) and *Canes venatici* (hunting-dogs).

The study of the origin and history of the various breeds has derived much assistance from a critical examination of the skulls and bones met with in caves, kitchen-middens, and all sorts of superficial deposits in many parts of the world. The ancient lake-dwellings of Switzerland have yielded a great deal of valuable material for such study which has been utilized particularly by Rütimeyer and Studer. Neolithic deposits on the shores of Lake Ladoga in Russia contained some dog-skulls which were described by Anutchin. It is of interest to note that they are of the type of the *Torshund* of Switzerland, but have an even more striking relationship with the dog from the crannog of Dunshaughlin in Ireland, which will be alluded to again later on. Nehring collected many skulls of dogs in German surface deposits, and described them. Ancient dog remains from Italy are dealt with by Strobel, and those from Bohemia and the neighbouring states by Woldrich and Ieitteles. French researches have been largely initiated by Geoffroy St. Hilaire, Bourguignat, Boule, and Mégnin. The origin of the dogs of the New World has been studied recently by Miller, Gidley, Allen and others. The rich collection of skulls and bones made by Pumpelly at Anau in Turkestan is worthy of special mention, because it enables us to reconstruct the fauna which lived during the accumulation of the different culture strata in that country. Duerst identified in the earliest of these deposits a sheep-dog showing relationship with the Australian Dingo and with an extinct Russian wild dog. He states that he has also seen similar skulls from Greece in the Museum of Vienna.⁶

⁵ Rütimeyer, L.: Die Fauna d. Pfahlbauten d. Schweiz. Neue Denkschr. d. Schweiz. Gesellsch. f. d. ges. Naturw., 1862.

⁶ Duerst, M.: "Animal Remains from the excavations at Anau." Carnegie Institution, Washington, Publ. No. 73, 1909.

Linguistic researches and historical references have also yielded useful information for the purpose of studying the derivation and origin of the breeds of dogs. I need only refer to Father Hogan's work on the Irish Wolfhound. Although these intricate problems cannot be regarded as solved, our knowledge of the subject has considerably increased of late years. We have already succeeded in tracing the origin of a large number of modern breeds from a few ancient fundamental types—I mean such as formed the original stock from which the existing breeds arose. These few breeds seem to have had a very wide range, and were probably modified in different directions either by cross-breeding or selection. The resulting breeds were, no doubt, influenced by climatic and other conditions of the countries of their origin.

It is customary to classify the modern dogs into groups, the members of which resemble one another in all essential points. Even in this respect, there is much difference of opinion among the experts. Dalziel proposed to classify them according to the manner they are used in hunting and the purpose for which they are kept.⁷ His first group consists of dogs that hunt their game by sight, such as the Irish Wolfhound. The second contains dogs that hunt their game by scent—for example, the Kerry Beagle. In the third group he places the dogs that find their game by scent, such as the Irish Setter; while in the fourth he puts the Irish Water Spaniel and other dogs used with the gun in questing and retrieving game. In the British Museum the dogs are arranged in six groups, viz., I. Wolf-like dogs; II. Greyhound group; III. Spaniel group; IV. Hound group; V. Mastiff group; VI. Terrier group. Fitzinger recognises one hundred and eighty different breeds which he places into seven divisions.⁸

As regards the dogs peculiar to Ireland, they may have originated in this country. The early settlers must have modified the dogs they brought with them from abroad in the manner above suggested. The Wolf was the only

⁷ Dalziel, H.: "British Dogs." Three vols., London, 2nd ed., 1889-97.

⁸ Fitzinger, L. J.: *Der Hund und seine Rassen.* Tübingen, 1876.

wild dog-like creature which inhabited Ireland when this country received its first human inhabitants. It is quite possible that it interbred with the large dog that no doubt accompanied these primitive hunters. All ancient historical references point to the Irish as being devoted to hunting and fighting. The early manuscripts abound in allusions to dogs. And, as Father Hogan tells us, all the descriptions of hunting dogs—both those in verse and those in prose—are carefully distinguished into two kinds. The one was employed in starting the game. It evidently hunted chiefly by scent, and was known in Irish by the name of *gadhar* (pronounced *guyer*).⁹ It is generally rendered as "Beagle" in the translation. But this word having for centuries past been applicable only to a diminutive hound used for small game, one would imagine that the ancient Irish *gadhar* was a larger hound, something of the nature of a Foxhound or even Staghound. This matter will be further discussed in dealing with the Kerry Beagle. While the *gadhar* was engaged in dislodging the quarry from its covert, the great hound was held in leash in his master's hand. The hunters sat on an elevated spot keenly watching the result of the *gadhar's* efforts. As soon as the game was turned out into the open, the larger hounds called *cú*, were slipped to bring it down. The remains of a hound from a Bronze Age deposit were discovered in a crannog at Lough Gur in County Limerick. It is now in the National Museum in Dublin, and was identified by Studer as *Canis familiaris intermedius*.¹⁰ The skull of another dog occurred in the crannog of Dunshaughlin in County Meath. It had somewhat the shape of that of the Irish Terrier. According to Studer it represents a rather primitive form of the old *Torfhund* which is widely distributed in the Swiss lake-dwellings. In ancient Ireland it may have been kept as a house-dog, where its capability as a vermin destroyer and its watchfulness would have been most useful. It belongs to the group of *Canis familiaris palustris*, which is the most ancient of European dogs.

⁹ Hogan, E.: "The history of the Irish Wolf-dog." Dublin, 1897.

¹⁰ Studer, Th.: "Ueber Hunde aus den Crannoges von Irland." *Mitteil. d. Naturforsch. Gesellsch. in Bern*, 1900.

Thus we have historical testimony that two kinds of dogs lived in Ireland in very early and probably pre-Christian times, and we possess fossil evidence of three ancient breeds. Since the early records deal largely with descriptions of hunting, a small dog that was not used for the chase would not be considered as worthy of mention. Remains of these three dogs, viz., *Canis f. Leineri*, *Canis f. intermedius*, and *Canis f. palustris* have also been found in the Swiss and South German lake-dwellings, which belong either to the Stone Age or Bronze Age. Hence Studer argued that they were the original European breeds from which all the others arose.

One of the first additions that were made to these three primary types of European dogs was the Sheep-dog, which arrived apparently with immigrations of eastern tribes of man during the Bronze Age. The original type of this dog, from which the many varieties of modern Sheep-dogs have sprung, was described under the name of *Canis f. matrix optima*. There is no evidence as to the country where it was first produced. It was probably some part of western Asia. Scotland has several races of Collie, but it is not known whether any distinct breed of Sheep-dog was ever developed in Ireland. When agricultural tribes with flocks of sheep arrived in this country, they no doubt brought this kind of dog with them, and that must have been in very remote times. Jesse, when alluding to Galway, mentioned that the Sheep-dogs, he noticed in that county were handsome animals with long thick coats and long tails.¹¹ They were curiously marked, the upper parts, including the head and tail, were black, the rest of the body light brown. This description reminds one somewhat of a Gordon setter. I have seen no other reference to Sheep-dogs or their early history in Ireland. I have to acknowledge, however, with thanks some help which was given to me by Miss Byrne to elucidate this subject. Miss Byrne, who is working at the Irish dictionary which is being published by the Royal Irish Academy, informs me that there

¹¹ Jesse, G. R. : "Researches into the history of the British Dog." London, 2 vols., 1866.

is an old word in Irish for Sheep-dog, viz., *Con-búachail* (literally *herd-dog*). The word is alluded to in the ancient Irish Laws as "the herd-dog of each cattle." In Welsh of the 10th century it is *b:geilgi*. It is evident, therefore, that the Sheep-dog was well-known in Ireland since very early times. We possess some evidence of this from the ninth or tenth century at a time when Olaf was in Ireland for the purpose of a foray. When a peasant entreated Olaf not to carry off his cattle, the latter replied "Take them if you can distinguish them, but don't delay us." The large house-dog of the peasant was sent into the herd of many hundred cattle and succeeded in driving out the number his owner wanted. All of them were marked with the right mark, which showed that the dog was very sagacious.

The words *matud* or *madrad*, according to Miss Byrne, were used in ancient times to signify an ordinary or common-place dog (a dog of inferior breed). In modern Irish these terms become *madadh*. They were sometimes employed contemptuously to persons, as "cur" is in English, and as the latter term was originally applied to a watch-dog or a "house-dog" from the Danish *korre*, we may assume that these Irish words also meant the same class of dog.

It seems probable, according to references given by Dalziel from a Greek source, that the Irish in early Christian times had two kinds of Greyhound—the smooth and the long-haired. Richardson thinks that the smooth-coated Greyhound is comparatively of recent date, but he gives no evidence in support of his belief.¹² Considering that smooth-haired Greyhounds were well-known in ancient Egypt, and probably also in southern Europe, it is quite likely that they found their way to Ireland at an early period in history. In fact the word *milchú* which occurs in Irish manuscripts has always been rendered as Greyhound. In the old Welsh laws of the 10th century, the word *milgi* occurs which has the same meaning, for *mil* is swift, and *gi* dog. It seems to have been considered rather a precious

¹² Richardson, H. D.: "The Dog, its origin, natural history and varieties." New ed., London, 1857.

hound, for Miss Byrne gave me two references in which it is mentioned as being led on a silver chain. It is also quoted among a list of Irish dogs in an old manuscript.

Another dog which is referred to in the list of dogs known in ancient Ireland is the *archú*, of which the literal meaning, according to Miss Byrne, is slaughter-hound. The contexts suggest that it was a large and fierce watch-dog. From these and other considerations we may assume for the present that it was the English Bloodhound. Dalziel quotes a second century description of a hound which seems to correspond with the modern Bloodhound. The latter is always considered as endemic in Britain. Like the Beagle, Foxhound and Harrier, it has large drooping ears and a smooth coat. All these dogs hunt by scent. In early Britain the ancestor of the Bloodhound or Sleuth-hound was known as the "Lymer" or "Lymehound." It was often employed in tracking wounded deer and deer-stealers, on account of which the name of Bloodhound was given to it. There is no reason to suppose that it was at all common in Ireland, or that it was ever used in the chase.

In ancient Ireland pet-dogs were also known. Miss Byrne tells me that they were called *messán*, and more recently *mess-chú*, both meaning a little dog. Although the word *orc* was generally applied to the young of various animals, it seems to have been used occasionally in the sense of pet-dog or lap-dog, instead of the words referred to. We cannot determine the actual breed and nature of this dog, for now-a-days we possess quite a number of them. Pet-dogs were already well-known in Roman times. A minute dog was imported both into Greece and Rome which has been identified with the modern "Maltese" dog, but it is not at all certain that it came originally from Malta. Some authorities hold that it was reared in Sicily. That small pet Spaniels were first introduced in King Charles's time is not authentic. They are probably much older. There are reasons for the belief in fact that the earliest pet-dogs were of the Spaniel type, and it is probable, therefore, that this was the kind of dog that found its way to Ireland long ago.

The Mastiff (Irish *maistín*) was probably brought to this country in comparatively recent times, for the Irish word is modern. It is an English breed, but the ancestor is stated by some to owe its introduction in England to the Normans. Leighton, however, looks upon it as the oldest of the native British dogs, and suggests its having been brought to England by the Phoenicians as early as 6th century B.C. The word Mastiff has possibly been derived from the Latin *mastinus*, while the Irish term may have been borrowed direct from the Spanish *mastin*.¹³

Having now dealt with a few preliminary considerations concerning domestic dogs in Ireland, we can proceed to the discussion of the breeds peculiar to Ireland and endeavour to trace their origin. At the present time the following breeds are regarded as endemic in this country :

Irish Wolfhound,
Irish Terrier,
Kerry Beagle,
Irish Water Spaniel,
Irish Setter.

I have arranged them approximately according to the date of their origin, but we have no reason to suppose that the modern Irish Terrier, for example, was exactly like the Terrier in ancient Ireland. We can only affirm that this type of dog was then present, although we know very little of the shape, size or colour that it possessed in the distant past. It is not my intention in the following notes on the Irish breeds to dwell at length on the general characters of the breeds. Any of the numerous books on dogs will supply that want. What will be more useful is a short resumé of the history of the breeds as far as can be ascertained, and any other observations not available in books of reference.

THE IRISH WOLFHOUND.

A good deal of mystery is attached to this dog, and some people actually believe that, like the Irish Elk, it became extinct long ago. But since no less than two books

¹³Leighton, Robert: "The Complete Book of the Dog." London, 1922.

and several learned disquisitions have been published on the nature and history of this dog, there should be no excuse for lack of knowledge on the subject. The earlier writings deal more especially with the general features and pedigree of the Wolfhound, whereas the more recent little book by the Rev. Dr. Hogan is an historical essay.¹⁴ Unfortunately almost the whole issue of this work was destroyed in a fire, and copies are difficult to obtain. Hence a brief resumé will not be out of place.

The Irish Wolfhound had acquired fame in very remote times. Even in Roman times it was exported to Rome for the games and excited the wonder of the people on account of its great size and strength. The best dogs were kept in Ireland for hunting and killing stags, white being the favourite colour. As an instance of the great value which was attached to these dogs, it may be mentioned that in the first century of our era the King of Leinster had a Wolfhound of such strength and breeding that six thousand cows and other things were offered for it by the King of Connacht. It is also of interest to note in connection with the origin of the Scottish Deerhound that in the same century the sons of Uisneach, in their flight from Ulster into Scotland, took with them 150 Greyhounds, as the Wolfhounds were then called. In the third or fourth century flourished the great warrior and hunter, Finn, son of Cumall. In an ancient poem are given the names of three hundred of his hounds. About the year 1280 Edward I. ordered deerhounds to be sent to him from Ireland. It was in the 16th century that we first learn something more definite about this dog, which henceforth was sometimes spoken of as the Irish Wolfhound. It is described as having a long rough coat, pendent ears, the forehead being slightly raised, muzzle long and the line of profile arched. Two such Wolfhounds had strength and courage enough to dispose of a Wild Boar, and were sufficiently tall and powerful to seize a Wolf across the loins and trot off with him as easily as a Greyhound can deal with a Hare. The colour of these dogs was of a dark-grey brindle without any white. Irish Wolfhounds were exported in great numbers during

¹⁴ Hogan, E. : "The History of the Irish Wolfdog." Dublin, 1897.

the 17th century, some of them to India, others to Spain, Italy, Sweden, Poland and Persia. Eventually, the country became so depleted of Wolfhounds that a great increase of Wolves took place. An Order in Council had, therefore, to be made in 1652 prohibiting their export. About the year 1694, the naturalist Ray described the Irish Wolfhound as the greatest dog he had ever seen, surpassing in size even the *molossus* (Mastiff), and being similar in all respects to the common Greyhound. Ricdinger figured it in 1720. At that time and later the Irish Wolfhound was evidently being crossed with the Great Dane, the Mastiff and other dogs, for the pure race was becoming scarce. A few gentlemen preserved them. Goldsmith commenting in 1770 on this fact said that the largest of them he had seen was about four feet high, or as tall as a calf of a year old. It was extremely like a Greyhound, but more robust and white in colour. Wolves had then become extinct in Ireland, but in Spain these fierce creatures were still hunted with the Irish Wolfhound.

The dog described by Lambert (Transactions Linnean Society, London, 1797), probably was one of the hybrids alluded to, for its figure is more like that of a Mastiff than of the hound mentioned by those who knew him intimately. Captain Graham considered Lambert's dog to be a degenerate specimen of the Great Dane.¹⁵ According to some authorities the true Wolfhound had become extinct about this time, but Richardson, Graham, and Father Hogan all agree that the type survived until the next century. The Irish Wolfhound Club carries on the task of keeping up the stock of the old breed, and its secretary, Mr. John F. Baily, who kindly allowed me to examine a copy of Graham's book, and who has studied the problem for many years, is in full agreement with Richardson, Graham, and others, that the modern breed corresponds in all essentials with the old one. In the earlier part of this paper I have already commented on Father Hogan's opinion that the Irish word *cú* was applied to this breed of dog. Originally of many shades, although white was the favourite hue, the Wolf-

¹⁵ Graham, G. A.: "The Irish Wolfhound." Dursley, 1885.

hound is now always bred of an iron grey colour. The stuffed head referred to by Dr. Hogan as being of Hamilton Rowan's strain, as well as a magnificent example of the Wolfhound given by The O'Mahony, which both agree with the old description, are now in the National Museum in Dublin.

The view that this modern and still existing strain of the Irish Wolfhound corresponds with the old breed is supported by the fact that the Scottish Deerhound is essentially of the same race. Richardson maintained long ago that the two were originally identical, although the Scottish Deerhound had assumed certain distinctive characters in the course of time.¹⁶ Bell, who made a special study of the Scottish Deerhound, comes to the same conclusion, confirming the opinion that it originated from the Irish Wolfhound.¹⁷ When we consider that the Irish conquered Scotland centuries ago, and that they took their deer-hunting hounds with them, it is not surprising that it should be so. In the olden times the Irish warriors who colonized Caledonia were called Scots. They kept up their breed of dogs for hunting, and even in the 17th century these dogs were still known as "Irish Greyhounds." Moreover, whereas we have numerous records of the exportation of Wolfhounds from Ireland, no evidence exists of any exports of Deerhounds from Scotland, showing that the latter are of more recent origin.

The case in favour of the argument that the existing strain of the Irish Wolfhound corresponds with the old one is even stronger when we call to aid the actual skulls of the two. Several skulls of a large wolf-like dog were discovered in a crannog near Dunshaughlin in County Meath and first identified by Sir William Wilde as those of the Wolfhound.¹⁸ These skulls are in the National Museum

¹⁶ Richardson, H. D.: "The Irish Wolfdog." *Irish Penny Journal*, May, 1841.

¹⁷ Bell, E. W.: "The Scottish Deerhound." Edinburgh, 1892.

¹⁸ Wilde, W.: Upon the unmanufactured animal remains belonging to the Academy. *Proc. R. Irish Academy*, Vol. vii., 1860.

ON THE BREEDS OF DOGS PECULIAR TO IRELAND
AND THEIR ORIGIN.

BY R. F. SCHARFF, B.S.C., PH.D.

(Concluded from page 88.)

in Dublin. They were subsequently examined by Prof. Leith Adams, who commented on their extreme likeness to those of Wolves.¹⁹ Yet he decided that they must have belonged to a breed of dog similar to the Scottish Deerhound. More recently casts of the same skulls were submitted to Prof. Th. Studer, of Berne, who pronounced them to belong to the Irish Wolfhound. By comparison with skulls of the modern breed, such as that of Capt. Graham of Dursley, or H. Walker of St. Moritz, he found the modern more slender and elongated than the prehistoric ones, but clearly of the same variety. He expressed the opinion that the ancient Wolfhound might have reached a height of over a metre (that is to say 39 inches) at the shoulders. He also stated that the skull of the Scottish Deerhound shows an agreement in shape and form with that of the Irish Wolfhound, but that it is somewhat more elongated and more slender.²⁰

Many authorities have commented on the very close relationship of the Irish Wolfhound to the Wolf, and some even doubt whether any valid and reliable distinction between the skeletons of dogs and Wolves can be found. Studer, however, first drew attention to a peculiarity which always seemed to distinguish dogs and Wolves from one another, and that is the position and shape of the eye-sockets. The eyes in the Wolf are placed somewhat more laterally than in the dog, with the result that they alter its whole physiomy. In the skull this fact becomes apparent by measuring the angle between the plane of the orbit and that of the brow by means of the clinometer. If that angle

¹⁹ Adams, Leith: On the recent and extinct Irish Mammals. *Proc. R. Dublin Soc. (N.S.)*, vol. ii., 1878.

²⁰ Studer, Th.: Die praehistorischen Hunde. *Abhandl. der Schweiz. palaeont. Gesellsch.* vol. xxviii., 1901.

measures from 40° to 45° the skull belongs to a Wolf. If it exceeds 45° the skull is that of a dog. Reynolds²¹ contends that even this useful distinction cannot be absolutely relied upon in all cases. He remains, therefore, in the position of those who acknowledge that there are no constant distinguishing characters between Wolf and dog. When examining the remains of undoubted Wolves from Irish caves, I found that the skulls and limb-bones were not as powerful as those of the Wolfhound. The latter, therefore, probably exceeded the Irish Wolf in strength and swiftness, but the teeth of the Wolves, particularly the first upper molars, were decidedly larger than those of the Wolfhound.²²

Richardson held that we are indebted to Greece for the ancient race of Greyhounds. How and when it reached Ireland he does not suggest. But he maintained that the original Irish Greyhound was unquestionably a long-haired dog, and that it attained a height of 36 to 40 inches. The view that the Irish Greyhound or Wolfhound as it is now called, had any relationship with the Great Dane he holds to be entirely mistaken, for those dogs are lethargic and sluggish in their movements, which rather fits them for the purpose of the boar-hunt. The desideratum of the Wolfhound on the other hand was a combination of extreme swiftness to enable him to overtake his rapid and formidable quarry as well as vast strength to seize, secure and slay him when overtaken.²³

THE IRISH TERRIER.

Vero Shaw, who wrote in 1886, declared that a decade previously the Irish Terrier was practically unknown. And yet he claims that its origin is lost in antiquity. He alludes to ancient manuscripts in which this breed is men-

²¹ Reynolds, S. H.: *The Pleistocene Canidae*. Palaeontographical Society, vol. ii., part 3, 1909.

²² Scharff, Seymour, and Newton: *The Exploration of Castlepook Cave*. *Proc. R. Irish Acad.*, vol. xxxiv. (Section B), 1918.

²³ Richardson, H. D.: *The Dog, its origin, natural history and varieties*. London (new edition), 1857.

tioned.²⁴ But where these manuscripts are to be found he does not tell us. According to Dalziel, the existing bright red breed of Irish Terrier is only fifty or sixty years old. This would place its origin about the forties ; but Richardson wrote in 1842 that the only kind of Terrier known in Ireland was the “ harlequin ” Terrier—a dog of a bluish slate colour.²⁵ Others assert that Ballymena in the north and Wicklow in the south both claim to be the birth-place of the modern red breed, which does not seem to have been exhibited before the year 1870. At that time it appears there were many strains in the country—all whites, yellows, blacks, blues, brindles and reds. In the neighbourhood of Killarney and Tralee was originally found a strain of Terrier with a soft coat and of a lilac or silvery blue colour, which may be the “ harlequin ” alluded to by Richardson. It would thus appear as if the Irish Terrier was quite a modern creation. But in the National Museum there is a dog’s skull from the crannog of Dunshaughlin in County Meath, that is to say dating from about the 10th century. Prof. Studer, to whom a cast of this skull was sent, declares that it agrees in its general characters with the ancient turf-dog (*Canis f. palustris*). Although this dog in its pure form is now extinct in Europe, it seems to have resembled the Irish Terrier in many respects. We may conclude, therefore, that the ancestors of the latter have probably existed in Ireland since very remote times, and have been brought by the early settlers long before the Christian era.

Gogan suggests *madadh gaedhealach* as a suitable Irish name for this breed and *madadh gorm* for the blue variety.

THE KERRY BEAGLE.

We know less about this breed than any other. The text books do not allude to it at all except Richardson and Dalziel. The former speaks of it as a fine, tall, dashing hound averaging from 26 to 28 inches in height. It has deep chops, broad and full pendulous ears, and when highly

²⁴ Shaw, Vero : *The illustrated book of the Dog.* London, 1883—1886.

²⁵ Dalziel, Hugh : “ *British Dogs.* ” London, 3 vols., 2nd edition, 1889—1897.

bred is hardly to be distinguished from an indifferent bloodhound. He informs us that it is quite confined to Ireland, and that it seems to be a genuine descendant of the old southern hound. It was used in Richardson's time, that is to say about a century ago, for deer-hunting.²⁵ Dalziel scarcely mentions the Kerry Beagle. He describes it as a miniature bloodhound, being of precisely the same colour and sharing many of that noble dog's chief characteristics. Mr. John F. Baily, Secretary of the Irish Wolfhound Club, tells me that the Kerry Beagle is a genuine breed of hound, as large as a foxhound, black-and-tan in colour, and well known in the South of Ireland. A family named Ryan, of Scrateen, Co. Limerick, always kept a pack of them, and tradition says that they were originally brought from Bordeaux to Kerry. According to Dalziel the term "beagle" was not used before Elizabethan times.²⁷ It was always applied to a small dog varying from 10 to 16 inches in height. It would scarcely be correct, therefore, to apply the term "Kerry Beagle" to a dog which is almost twice as tall.

Reference has been made to the fact that a dog possibly of the nature of a Beagle was employed in Ireland in very remote times for starting game; but we can have no direct evidence of its general features until we discover its remains.

THE IRISH WATER SPANIEL.

This large woolly dog is normally of a dark shade of liver or puce colour, which is a kind of reddish purple. Hence the name of "Red Fisherman" which has sometimes been applied to it. Dalziel describes it as having somewhat the appearance of an old ewe whose fleece has escaped last year's shearing. He thinks that it may be a cross of a Poodle or of a Russian Retriever. The woolly coat would seem to indicate a Poodle cross. At the time when Dalziel wrote his work on *British Dogs* about thirty years ago, two varieties of the Water Spaniel existed in Ireland, both characterised by the head being heavily furnished with

²⁶ Richardson, H. D.: "The Dog, its origin, natural history and varieties." New edition, London, 1857.

²⁷ Dalziel, Hugh: "British Dogs." 2nd ed., London, 1889—97.

a top-knot. Dalziel could not trace the breed back more than forty or fifty years. Hence it would seem as if this race of dog was of quite a modern origin. But we must remember that the Irish, according to Dalziel, owned Spaniels certainly since early Christian times, and he asserts that there are early Irish references to "hounds, greyhounds and spaniels." I have not been able to trace the origin of these references. The same author expresses the opinion that the Welsh and English are indebted to Ireland for the introduction of the Spaniel, which originally may have been brought to Ireland from Spain. If that is so, it must have been an old breed in Ireland, for the Spaniel was alluded to in the old Welsh laws of the 10th century under the name of *cholwyn*.²⁸ The Irish word *spáinéar* for Spaniel is comparatively modern, and *spáinéar uisci* would be an appropriate term for this breed.

There is in the National Museum a skull from a crannog in Lough Gur in County Limerick which was pronounced by Prof. Studer to be a dog originally described under the name of *Canis f. intermedius*.²⁹ It was first discovered in Bronze Age deposits in Austria, and may be referred to a group of modern dogs, including pointers, setters and spaniels. Prof. Studer informs us that the Lough Gur skull belonged to a dog of middle size, something like a shepherd's dog.

Colonel Cane states that there were originally three varieties of the Irish Water Spaniel. They were known as the Southern, Northern, and Tweed Spaniels. The last form is now quite extinct, and the Northern nearly so. The most remarkable fact about this dog is that it has a more pronounced individuality of type than any other breed. Considering that the typical Irish Water Spaniel—namely, the Southern variety—is believed to have originated less than a hundred years ago, it seems surprising that it shows no inclination to diverge from the type. But (as Col. Cane remarks) whether Justin McCarthy really originated this breed at the time referred to, or whether he merely re-

²⁸ Dalziel, Hugh: "British Dogs." London, 2nd ed., 1889—97.

²⁹ Studer, Th.: Über Hunde aus den Crannogs von Irland. Mitt d. Naturforsch. Gesellsch. in Bern, 1900.

suscitated a moribund race is not known.³⁰ That the latter theory is the more probable is indicated by the report of the existence of a picture supposed to represent an Irish Water Spaniel painted by the artist, John Wootten, in the early part of the 18th century. It is worth mentioning that the Primate of Armagh, Dr. Peter Lombard, alludes in the year 1600 to a water-dog that pursued water-fowl being bred in Ireland.

THE IRISH SETTER.

We fortunately possess an excellent account of this breed by Colonel Millner. Although at present the Irish Setter is of a rich reddish brown colour, described by some as blood-red, a hundred years ago it usually had a red and white coat. The latter variety indeed is not quite extinct, but being less popular than the other, it is eliminated. Of all the different kinds of Setters, the Irish is furthest removed from the Spaniel in appearance as well as in build, but the gradual development of the Setter can still be traced by a study of old pictures of dogs. Millner agrees that the change to the Setter type must have been accelerated when hawking went out of fashion on the death of Charles I. Shooting at flying birds was only practised in the latter half of the 18th century, and this, with the improvement of shot-guns, made shooting with the long-legged Spaniel a more popular sport. And it is at this period, according to Millner, that the Setter must have assumed its present form. The Irish Setter must, therefore, be looked upon as quite a modern breed.³¹ We cannot expect it to have an Irish name. Millner states that the term *Modder rhu* had been applied to it, but I think *Madadh ruagh* as it should be spelled, was often, and is still used, meaning "Fox." It could not be claimed as a suitable rendering of the words "Irish Setter." Gogan tells me that *gadhar gunna* is actually used in some parts of Ireland, but I should prefer words indicating its

³⁰ Phillips, C. A. and R. Claude Cane: *The Sporting Spaniel*. Manchester, 1906.

³¹ Millner, J. K.: "The Irish Setter, its history and training." London, 1924.

colour or country of origin. It was formerly called "Red Spaniel," hence *spáinéar ruadh* might meet the difficulty.

Richardson expressed the belief that Setters originated from land spaniels in the year 1335, and were produced by the Duke of Northumberland, and that the Irish Setter was the unmixed descendant of the original land spaniel.

Knockranny, Bray.

NOTES.

The Wolf in Ireland.

In my article on the Wolf in Ireland (*Irish Naturalist*, vol. xxxi., 1922.) I mentioned that the last Wolf was probably killed in the western mountains in 1770. Prof. A. Henry kindly drew my attention to another reference concerning this animal in Rev. G. N. Nuttall-Smith's recent book on "The Chronicles of a Puritan Family in Ireland." The author affirms that at the close of the Civil War about the year 1660, Wolves were still hunted in the neighbourhood of Dublin. As regards the last Wolf, he states that it was killed in the Knockmealdown Mountains, which separate the counties of Tipperary and Waterford, about the year 1770. It is curious that the dates of the supposed extinction of the Wicklow and Tipperary Wolf should coincide. There is a second interesting reference to the Wolf on page 69 in the same book, as follows: "Captain E. M. Connolly, of Castletowr, told my brother not long ago that he came across a letter of about the same date from Lord Clifden, of Gowran, asking his ancestor to send across his hounds from Castletown, near Celbridge, Co. Kildare, to hunt the Wolves in the Slieve Bloom Mountains." These mountains divide Queen's County from King's County, and one of the highest summits is still known as the Wolftrap. I wrote to Rev. Nuttall-Smith for further particulars, but he had none.

R. F. SCHARFF.

Mutton Island Tern Colony.

On June 28 this year I made a visit to Mutton Island, Galway, with the special object of ascertaining if the colony of Sandwich Terns, found there in 1917 by Mr. Glanville, still existed. My observations were, however, disappointing. On nearing the island I observed, along with many other terns, two Sandwich Terns, which came quite close to the boat. These were the only ones I noticed, although I was on the island for nearly an hour, and I did not see them a second time. There is now a large colony of Arctic Terns. I estimated from 150 to 200 pairs, and in places it was hard to walk without treading on eggs or young. I saw no Common Terns, and the young examined were all of the Arctic species. Mr. Glanville feared that the commoner Terns, then rapidly increasing,

would over-run the breeding-place of the Sandwich Terns, and I fear this has surely been the case. There were no Terns on an island a little distance from Mutton Island, and I did not come across any eggs of the Sandwich Terns on Mutton Island. I fear, therefore, that the colony has ceased to exist, at any rate temporarily.

Hollymount, Co. Mayo.

ROBERT F. RUTLEDGE.

An Ornithological Chestnut.

A northern newspaper contains the delightful announcement that "a Cuckoo hatching her own eggs is to be seen on the Round Hill, near Florencecourt, County Fermanagh, and many people have gone to see what is so rare." The paragraph having been brought under the notice of Mr. J. P. Burkitt, that gentleman lost no time in ascertaining that the supposed Cuckoo was, as might be expected, a Nightjar. We trust that her train of visitors have not embarrassed the poor bird. There is an old-world quaintness in the revival of this oft-repeated confusion between the Nightjar and Cuckoo. It was in the summer of 1770 that Gilbert White (as he tells Daines Barrington in his letter of October 8th) was taken to see "a young Fern-Owl in the nest of a small bird on the ground," and, of course, found it to be a young Cuckoo. And now, in 1924, an old "Fern-Owl" passes muster with quite a throng of visitors for a Cuckoo hatching her own eggs! Mr Burkitt, however, draws an ornithological inference of some interest from the mistake about the Fermanagh bird. He says "it corroborates my idea that the Nightjar is steadily increasing here, as evidently none of these people had seen one before, and they are cutting turf on this bog for ages."

The Cirl Bunting as an Irish Bird.

When reviewing in this Journal (*supra*, p. 56) Mr. Witherby's lately issued "Check-List of British Birds," I drew attention to the fact that here and in the "Practical Handbook" the Cirl Bunting (*Emberiza cirlus*) is credited with having occurred in Ireland on the strength of a record (*Zool.* 1902, p. 353), that had not been regarded by the late R. J. Ussher as sufficient warrant for admitting this species in 1908 into his "List of Irish Birds." Mr. Ussher was seldom unduly cautious, though it is possible that he may have been so in this solitary instance; and I did not mean in my short notice to convey a definite opinion one way or the other, but merely desired to call attention to the fact that a question on which two such high authorities as R. J. Ussher and H. F. Witherby have taken different views remains to confront the next reviser of the Irish Bird List. I find, however, that I have been understood in some quarters as objecting to Mr. Witherby's acceptance of the Cirl Bunting record. I therefore wish to say that there is—in the absence of any specimen—at least the strongest possible presumptive evidence that the record is correct, standing as it does in the name of so distinguished an English ornithologist as H. Eliot Howard, whose work on the "British Warblers"—to say nothing of his more recent "Territory in Bird-Life"—could

have been written by none but an observer of extraordinary acuteness and patience, and who claimed to have seen the bird in question near Dunfanaghy, Co. Donegal, on the 2nd of August, 1902. Mr. Howard's note to the *Zoologist* on the subject was quoted in full in this Journal (vol. xi, p. 324), and called forth at the time no comment or criticism of any kind; so we are now without information as to the exact grounds on which Mr. Ussher six years later hesitated to accept it as convincing. The fact that the Cirl Bunting appears to be one of the least addicted of all British Birds to over-sea migration probably did something to increase his wish for irresistible proof before adding it to the Irish list.

Dublin.

C. B. MOFFAT.

Southern Plants in Eastern Ireland.

I am much obliged to Miss Knowles for drawing attention (p. 48 *supra*) to Mr. Britten's note on the Irish record for *Erica stricta*, which I had quite forgotten when I wrote about this plant. The existence of this old record, backed by a specimen, considerably alters the situation, and gives rise to a lively hope that this plant may actually be indigenous in the North-east. The addition of so notable a plant of the N.W. Mediterranean to the flora of the British Isles would be of the highest importance, and I trust that northern botanists will ransack the neighbourhood of Agnew's Hill and of Downhill for it. It is little wonder that Stewart discarded this old record, in view of the knowledge then available of the range of southern plants in Ireland; but we have had in recent years to revise in many respects our views on this subject. The occurrence in Strangford Lough, for instance (and on the Shannon) of the Mediterranean *Glyceria festucæformis* presents an encouraging parallel to *Erica stricta*. The abundance of *Spiranthes Romanzoffiana* around Lough Neagh shows that the South-west can no longer be regarded as the focus of the American element; and now Mr. Stelfox announces his startling discovery of *Saxifraga umbrosa*, one of our western Lusitanians, on Lugnaquilla.

The occurrence of members of our Lusitanian, Mediterranean or American plant-groups in eastern as well as western Ireland, is not in itself a surprising thing, for in their homes these plants display no preference for soil or climate which would fit them for one side of Ireland more than the other. The surprise lies rather in the fact that they remained so long overlooked in the well-worked east, though long since known from the west. So long ago as 1895, Prof. Carpenter, discussing (*I.N.*, iv., 217) the finding of *Otiorynchus auropunctatus* along the eastern coast, drew attention to the occurrence of a whole group of southern animals in eastern Ireland. To account for this, he envisaged a forking of the migration-line from the south, one branch running up the west coast, the other following the now submerged river-valley that drained the Irish Sea lake and passed south-westward along St. George's Channel (In the case of upland species this route might equally well have lain along the south-eastern hill-ranges, which are still practically continuous). Later (*I.N.*, xii, 257-8) when discussing *Glyceria festucæformis*, I pointed

out that it would not be remarkable if this double line of migration, well-marked in the fauna, should be discovered also in the flora. Let us now endeavour to demonstrate that *Erica stricta* is another and a very remarkable case of migration to eastern Ireland.

R. LLOYD PRAEGER.

Dublin.

Irish Sphagna.

County Down is probably one of the best explored areas in Ireland from a bryological standpoint, but a recent gathering on and adjacent to the Mourne Mountains added a few records to the county total, showing that much activity will be necessary before a complete Irish list can be prepared. Two varieties included in the present list and marked with an asterisk are new to Ireland; all the records are additions to Division No. 38. As on previous occasions I have to thank Mr. J. A. Wheldon, M.Sc., A.L.S., for his kindness in identifying my specimens:—*S. subsecundum* Nees, var. **tenellum* W., f. *brachycladum* W.; *S. auriculatum* Schp., var. *ovatum* Wtf., f. *brachycladum* W.; *S. auriculatum* Schp., var. **laxifolium* W.; *S. turgidulum* W., (varieties of this species have been recorded from Divisions Nos. 27 and 28, but the type has not previously been noted); *S. papillosum* Lindb., var. *normale* W., f. *brachycladum* W., sub-f. *pallescens* Wheld.; *S. papillosum* Lindb., var. *sublaeve* Limpr., f. *glaucovirrens* Schlieph.

WILLIAM A. LEE.

Rock Ferry, Cheshire.

IRISH SOCIETIES.

DUBLIN NATURALISTS' FIELD CLUB.

OCTOBER 4, 1923.—The President in the Chair. This meeting was held by way of prelude to the fungus foray which had been arranged for the following Saturday. A lecture on Fungi, with lantern-slides, was given by M. J. Gorman, who described the characters that enable the different groups to be identified, drawing special attention to some of the common forms likely to be met with in late autumn.

OCTOBER 6.—FUNGUS FORAY IN HOWTH DEMESNE.—A party of some twenty left Amiens Street at 11.40 a.m. for Howth, conducted by M. J. Gorman. The demesne proved a fairly good hunting ground for fungi, and its other attractions added much to the interest of the excursion.

NOVEMBER 8.—The President in the Chair. A lecture illustrated with many beautiful lantern slides on "Plant Life in the Tropics" was given by Joseph Doyle, who dwelt on the importance of water to plant life, and pointed out that the tropics were really world areas of dry vegetation, the luxurious evergreen forest covering only a limited extent of ground, and everywhere soon giving way to savannah, thorn-forest, scrub or desert.

DECEMBER 13.—The President in the Chair. The evening was devoted to exhibits, among which A. W. Stelfox showed a series of the Irish Bumble-Bees and their parasitic kinsfolk the Psithyri, giving a brief account of the procedure of the latter: J. P. Brunker showed a Pigeon's nest, the interest of which consisted in its being entirely made of the bristles of old brushes; and M. J. Gorman a series of potatoes affected with black scab and other diseases due to fungus attack, the exhibitor giving a short account of recent investigations into this subject.

JANUARY 10, 1924.—ANNUAL GENERAL MEETING.—The outgoing President in the Chair. The annual report read by Mrs. Long showed that seven evening meetings had been held during the year, and excursions made to Kilbride valley (May 5th), Powerscourt (June 9th), Lambay (July 4th), Glenasmole (July 14th), Wicklow (September 15th), and Howth (October 6th). The report and statement of accounts having been adopted, the names of the Officers and Committee elected for 1924 were read out as follows:—President, J. de W. Hinch; Vice-President, A. W. Stelfox; Hon. Secretary, Mrs. Long; Treasurer, C. B. Moffat; Committee, Miss Booth, Miss Cooper, Mrs. Harford, Mrs. Hornsby, F. W. Rogers Brambell, J. P. Brunker, Joseph Doyle, M. J. Gorman, W. F. Gunn, Athole Harrison, Augustine Henry, R. Lloyd Praeger. The newly elected President being then called to the Chair delivered an address to the Club on the Post-Glacial Geology of the Dublin District.

FEBRUARY 14.—The President in the Chair. Professor Bayley Butler gave an address illustrated with lantern slides on "Some Mechanical Problems of the Sea-shore." The lecturer spoke of the problems that are created for slow-moving creatures like the mollusca by the rise and fall of the tide, and after explaining some of the contrivances by which these difficulties are met he discussed the serious perils caused to marine animals by changes of temperature, even a small rise being often fatal, while changes in the degree of salinity constituted a further problem.

MARCH 13.—The President in the Chair. A paper on "Woodcraft in relation to Natural History" was read by Athole Harrison, who gave an attractive picture of the extent to which habits of close observation add to the pleasure of every country walk. Many instances were given of the value of a correct interpretation of the meaning of sounds and of footprints and other tracks, while plant-lore and weather-lore also came in for a share of notice. The paper gave rise to an animated discussion in which many members took part. Some exhibits were also shown, including a sample of granite from Rockall, by the President; flowering plants of *Saxifraga oppositifolia*—illustrative of the difference between Irish and Welsh forms of this species—by the Vice-President; and a collection of sea-weeds from Encounter Bay, South Australia, by Mrs. Long.

APRIL 26.—EXCURSION TO BALROTHERY ESKER.—Leaving Terenure by steam-tram at 2 p.m. and reaching Balrothery at 2.15, a party of eight, conducted by the President, took the route past Timon Castle to Green Hills, the conductor expounding the nature of the fast

disappearing esker, while the flora of the neighbourhood also received attention, such interesting plants as *Viola hirta*, *Lamium amplexicaule*, and *Allium vineale* being pointed out by a member familiar with the ground. At a short business meeting held at 3.30 the President spoke feelingly of the great loss the Club had sustained in the death of Professor Cole, and a vote of sorrow to be communicated to Mrs. Cole was unanimously passed. The party then continued the walk to Dublin, via Kimmage, reaching Terenure about 5 o'clock.

MAY 24.—EXCURSION TO THE DARGLE.—About forty members and friends reaching Bray by various routes went by bus to the Dargle, conducted by J. P. Brunker and F. W. Rogers Brambell, and spent about 2½ hours (from 3 to 5.30 p.m.) exploring the two sides of the river. The day proved unfavourable for bird-song, but the characteristic plants of the locality were carefully pointed out. Returning to Bray the large party were most hospitably entertained to tea by Mr. and Mrs. Brambell, of Ashbury, Novare Avenue, to whom hearty thanks were conveyed in the Club's name by the President.

BELFAST NATURALISTS' FIELD CLUB.

APRIL 15.—ANNUAL MEETING.—J. A. SIDNEY STENDALL presided, and in opening the proceedings referred to the loss the Club had sustained during the previous week through the death of the Rev. Robert Workman. A vote expressive of the sorrow of the Club was unanimously passed. The annual report showed a membership of 777, and a junior membership of 73. The following office-bearers for 1924-5 were elected:—President, J. A. S. Stendall, M.B.O.U.; Vice-President, James Orr; hon. secretaries, A. A. Campbell, F.R.S.A.I., and T. M. Deans, LL.D.; hon. treasurer, T. Edens Osborne, F.R.S.A.I.; hon. librarian, W. M. Crawford, B.A., F.E.S., F.Z.S. As secretaries of the botanical, geological, zoological, archæological and junior sections respectively S. A. Bennett, B.A., B.Sc., A. McT. Cleland, S. M. Macoun, Joseph Skillen, and Miss S. Blackwood were elected.

MAY 31.—EXCURSION TO GARRON POINT.—Starting from College Square, a party of over 50, in motors, made their way by Ballynure and Larne to the coast road. After passing Glenarm the party walked up the old road to the "Slipping Village" of Straidkilly, which is slowly slipping down to the sea with the Lias clay slope on which it sits. On reaching Garron Tower the members scattered for their various interests. The zoologists collected a dozen species of land-shells, all common kinds with the exception of *Pyramidula rupestris*, with a few spiders and some Myriapods and Isopods. A fine Eucalyptus tree 70 years old, which is claimed to be the finest in the British Isles, if not the finest in Europe, was examined; as was a small mass of the rare Bedstraw, *Galium erectum*, in its only known County Antrim station. The amateur photographers turned up in considerable numbers, the President (Mr. Stendall) having a telephoto outfit for bird-work. After tea a business meeting was held and a number of junior members elected.

NOTES AND RECORDS OF SOME OF THE IRISH
BIRDS IN THE COLLECTION OF THE
LATE HENRY BLAKE KNOX.

BY F. W. ROGERS BRAMBELL, B.A., SC.B., PH.D. (DUBLIN),

Science Research Scholar of the Royal Commission for
the Exhibition of 1851.

HENRY BLAKE KNOX was born in the year 1844. Throughout his life he was deeply interested in, and devoted much of his time to, the study of ornithology. Being also a keen wildfowler, it was natural that he should amass a large collection of local birds, chiefly sea-birds. Many of the specimens he obtained are of considerable interest to Irish ornithologists, and include such rare visitors to our island as the Kite and the Greater Snow Goose. During the sixties and early seventies Mr. Blake Knox published many interesting papers and records, chiefly in the *Zoologist*. Subsequently, however, he seldom published any records or particulars of his observations, or even communicated them to other ornithologists. That his silence was not owing to a lack of material is evidenced by the number of unrecorded rarities with which his collection was enriched.

Henry Blake Knox died at the age of seventy-three, on 21 July, 1917. His entire collection passed into the possession of Mr. W. Williams, of Dame Street, Dublin, and only then did its full importance become known. The original stands of the mounted birds and many of the labels of the skins bear numbers. The Misses Blake Knox tell me that these numbers referred to an intended catalogue which their father never made. The only data, therefore, available are those written on the stands of the mounted birds and the labels of the skins, in most cases in Mr. Blake Knox's own handwriting, and those published by him between 1864 and 1871. Many of the birds, including the Kite, are undated, or are marked with the month but not the year. The rarer of those which are not recorded probably were obtained after 1871, as Mr. Blake Knox would have recorded them himself in all probability if they had come into his possession during his period of literary activity.

A large part of the Blake Knox collection has come into my possession recently, in consequence of which I have been requested to publish the more important records. To these I have added records of some of the birds from the collection which are not in my possession. I do not, however, wish this paper to be considered as exhaustive and complete, as I have not been able to obtain particulars of some interesting specimens which have passed into one well-known private collection of Irish birds.

It gives me great pleasure to take this opportunity of thanking Mr. C. B. Moffat for his help and advice in the preparation of this paper ; were it not for his encouragement it would never have been written. My thanks are also due to the authorities of the National Museum, to Mr. W. Williams and Mr. J. B. Nichols for their kindness in allowing me to publish data of some of the specimens now in their possession. I would also like to thank the Misses Blake Knox for their help.

All the specimens recorded, unless otherwise stated, are now in my private collection. Whenever possible the actual data written on the original stands or labels in Knox's own handwriting are given.

GREAT GREY SHRIKE. *Lanius excubitor* Linnaeus.

1. Mounted specimen. The stand bears the words " Ballycoris, Co. Dublin. Old stand lost." This bird is now in my collection.

2. Mounted specimen. The stand bears the words " Ballybrack [Co. Dublin], August, 1876. Shot by Goodwin Hughes." This specimen has, unfortunately, been stolen from me. This rare visitor to Ireland usually occurs in the winter, and according to Ussher in the " Birds of Ireland " has been obtained only once and once seen in August, all other records being from October to March. The second specimen recorded here is noteworthy therefore as a third August record. It has not been previously recorded so far as I know ; owing to absence of data I do not know whether the first specimen has been or no. All or many of the previous specimens obtained in Ireland had only one wing-bar, thus belonging to the form *L. major* of Pallas. This

form often occurs in England in winter according to Howard Saunders ("Manual of British Birds"). It seems probable to me that the same movements which bring it to England in winter account for its occurrence in Ireland during that season. Both the specimens recorded here, however, belong to the form with two wing-bars, and correlated with this is the fact that one of them occurred in August and that the season in which the other occurred is not known.

COMMON BUZZARD. *Buteo vulgaris* Leach.

Mounted specimen "purchased from Mr. J. Sheals [of Belfast]. Nov. 20th, 1876. Co. Antrim or Donegal. Date lost." This specimen is now in my collection and, I believe, has not been previously recorded.

KITE. *Milvus iclinus* Savigny.

The stand of this beautiful specimen, which is now in the National Museum, bears the following inscription in Mr. Blake Knox's own handwriting:—"Found dead on beach at Kilcool, Co. Wicklow, and probably shot by self some days before at sea in a fog. November. Fired at for an eagle representative." It is remarkable that this very rare visitor to Ireland was not recorded by Mr. Blake Knox, and its existence was consequently unknown until after his death. For reasons already given I think it probable that he obtained it subsequently to the year 1871.

GREATER SNOW-GOOSE. *Chen nivalis* Forster.

This specimen was brought to H. Blake Knox, October 2nd, 1886. Shot by Martin Gallagher, of Carclough, at Belmullet, while flying past his house. It was exhibited by Dr. R. B. Sharpe at the British Ornithologists' Club on 22nd November, 1899, and is recorded by Ussher in the "Birds of Ireland." It is now in the possession of Mr. J. B. Nichols, of London.

FERRUGINOUS DUCK. *Fuligula nyroca* Gldenstdt.

Blake Knox records the acquisition of two specimens of this species in the *Zoologist* for 1871 (p. 2645). In referring to this record in the "Birds of Ireland," Ussher says:—"The first, a male, was shot from a small flock of ducks off

the Dublin Coast in March, 1871, by Mr. H. Blake Knox, in whose collection it is preserved.

Another male, also preserved for Mr. H. Blake Knox, was probably obtained on the coast of Antrim; it was picked out of a lot of birds packing for London, in March, 1871."

I have been unable to trace the former of these specimens, which Mr. Williams assures me he never saw, but the latter is now in the National Museum. The stand of this specimen bears the following note in Blake Knox's writing: "Ferruginous Duck. 449. Adult male. March, 1871. Purchased and stuffed for me from a lot of wild fowl going to London, in Belfast. See *Zoologist*."

SPOTTED CRAKE. *Porzana maruetta* Leach.

1. Specimen mounted by Sheals. Male (?). Blake Knox records this bird in the *Zoologist*, 1864 (p. 8890):—"During a stay in Belfast last September I purchased a Spotted Crake, killed by a poor boy with a stone. Oct. 30th, 1863." This specimen is now in my collection.

2. Another specimen, mounted by Sheals, is now in my possession. Its stand bears the data, "May. Co. Dublin."

In the *Zoologist*, 1868 (p. 1458), Blake Knox records having shot a Spotted Crake at Shanganeagh, Co. Dublin, on September 5th. I have not been able to trace this specimen.

DOTTEREL. *Eudromias morinellus* Linnaeus.

A skin now in my possession bears on the label, in Blake Knox's writing, "Juv. 1st. Winter. Co. Mayo. 9.2.89. Put up by H. B. Knox." In the "Birds of Ireland" Ussher refers to twelve records of the Dotterel in Ireland, eleven of which relate to Ulster and Munster, the locality of the twelfth being unknown. None of these occurred in February. This is, therefore, probably the first authentic occurrence of this bird in Connaught, and in Ireland during February.

BLACK TERN. *Hydrochelidon nigra* Linnaeus.

An immature specimen now in my possession had the

following data written on the stand by Blake Knox: "Black Tern. 1st. Autumn. September. Salthill Sea, Dublin Bay. Shot and stuffed, H. B. Knox. 1005."

In the *Zoologist* for 1866 Blake Knox states in reference to the Black Tern: "I procured a yearling bird of this species in Dublin Bay this autumn." It is more than likely that this record refers to the specimen now in my collection.

LITTLE GULL. *Larus minutus* Pallas.

In the *Zoologist* for 1871 (p. 2646) is the following record: "Little Gull in Dublin Bay and in Londonderry.—A first winter example in December in Dublin Bay, and another at Lough Foyle, Londonderry.—H. Blake Knox." Ussher in the "Birds of Ireland" refers to this record, and states that Blake Knox sent him a photograph of one of the above specimens, an immature bird in his collection. One of these, an immature bird mounted by Mr. Sheals, is in my collection, but I have not been able to find any trace of a second specimen. The stand of my specimen bears the words "Dublin Bay" in red ink and underneath in blue pencil similar to Sheals' signature the words "or Londonderry." The latter are crossed out in pencil and "Londonderry, to be restuffed," written in pencil, in brackets, underneath, presumably as a correction. The date, "Dec., 1870," is written in red ink and also in pencil. The red ink and pencil is in Blake Knox's handwriting. It would thus seem that he wrote the data on the stand originally in red ink. When sent to be restuffed the suggestion in blue pencil was added. This Blake Knox later erased in pencil confirming the original data by repeating them in pencil. I would suggest that it is possible that this confusion led Blake Knox to erroneously record two birds, where really only one existed. In support of this is the fact that he only sent a photograph of *one specimen* to Ussher and that I have found no trace of a second specimen now extant.

GLAUCOUS GULL. *Larus glaucus* O. Fabricius.

A beautiful adult specimen with the data "January, 1901. Belmullet," is now in my possession. Other specimens, all immature, of this gull and of the Iceland Gull

(*Larus leucopterus* Faber) were in the collection ; but as these species *in immature plumage* are not uncommon in Ireland, I do not think that it is necessary to record them here.

GREAT SKUA. *Stercorarius catarrhactes* Linnaeus.

1. "Skin. Female. September, 1864. In old ditch Bank, Co. Wicklow. Not full mature. E. Hughes." "Breeder." The label of this specimen is not in Blake Knox's handwriting. It is now in my collection.

2. Mounted specimen now in my collection. "Co. Mayo. October. Stuffed by H. B. Knox. F. Bournes." 1st. Autumn.

3. Mounted specimen now in my collection. "Skua, adult, October, South Dublin Sea. Shot and stuffed, H. B. Knox. 1281."

So far as I know none of these specimens have been previously recorded. Ussher, in the "Birds of Ireland," only records nine specimens obtained and eleven others observed in Ireland, of which none are from Wicklow. Barrington, in his section of the British Association Handbook, 1908, on "The Birds of the Counties of Dublin and Wicklow," does not give any records of this species for the latter county. It is therefore probable that the first of the above specimens is the first authentic occurrence of the Great Skua in Wicklow.

The three other Irish species of Skuas were well represented in the collection. Indeed, for variety of plumage and number of specimens the series of Skuas constituted the most remarkable feature of the Blake Knox Collection.

BLACK-THROATED DIVER. *Colymbus arcticus* Linnaeus.

Ussher says, in the "Birds of Ireland" :—"The Black-throated Diver is much the rarest of the three species in Ireland, but it is probably of more frequent occurrence than is supposed, for Mr. H. Blake Knox, who has devoted special attention to the Divers, has met with it in several instances on Dublin Bay." Two specimens were in the Knox Collection.

1. An adult female specimen in full spring plumage is now in the National Museum. The following data were written on the stand by Blake Knox :—"Black-throated Diver 1268. Ad. ♀ spring. Dublin Bay. May, 1874. Restuffed, H. B. Knox." This specimen has not, I believe, been previously recorded.

2. An adult in winter plumage, but retaining much of the black throat, is now in my collection. Blake Knox records this bird in the *Zoologist*, 1868 (p. 1424). The stand bears the following note in Blake Knox's handwriting. "Black throated Diver. February 11th, 1867. Salt Hill, Dublin Bay. H. Blake Knox. This bird has retained a large amount of the summer plumage and apparently made but little autumn molt. 347."

In 1866 and again in 1867 Blake Knox records in the *Zoologist* obtaining a specimen of this species. I have not, however, been able to discover the existence of these specimens.

LEACH'S FORK-TAILED PETREL. *Oceanadroma leucorhoa*
Vieillot.

A mounted specimen obtained in Co. Dublin in March, 1867, is now in my collection.

In the *Zoologist* for 1868 (p. 1424) Blake Knox records shooting a specimen, which was in company with others, in Dublin Bay on Jan. 10th. I have not discovered this specimen.

SOOTY SHEARWATER. *Puffinus griseus* J. F. Gmelin.

A mounted specimen now in my collection bears the data :—"Co. Mayo. October." Ussher, in the "Birds of Ireland," only records two instances of this rare Shearwater being obtained in Ireland, though seen more frequently. So far as my knowledge goes, this bird has not been recorded previously.

The only British specimen, and the second European of the American Black-billed Cuckoo (*Coccyzus erythrophthalmus* Wilson), which was obtained in Co. Antrim on 25th September, 1871 (*Zool.*, 1872, p. 3022, and *Zool. Soc. Proc.*,

1872, p. 661), was supposed to have passed into the possession of Mr. H. Blake Knox. I have not been able to trace this specimen.

Specimens of the Night Heron (*Zool.*, 1866, p. 457), Two-barred Crossbill (Ussher, "Birds of Ireland," p. 73), and Honey Buzzard (*Zool.*, 1868, p. 1478) were also missing from the collection.

In addition to the birds mentioned in this paper the Blake Knox collection contained a very large number of specimens less worthy of note, among which the series of Puffins and Shags were particularly large. In closing this paper, I would like to take the opportunity of expressing my appreciation of the collection which, after many years spent in the pursuit and observation of Irish sea-birds, the late Mr. Henry Blake Knox amassed.

Department of Zoology,
Trinity College, Dublin.

NEWS ITEMS.

F. W. R. Brambell.

Our best congratulations are due to F. W. Rogers Brambell, Ph.D., of the Zoological School, Trinity College, a leading member of the Dublin Naturalists' Field Club, for his brilliant success in being awarded the 1851 Memorial Post-Graduate Scholarship on the first occasion on which that valuable prize has been open to competition in this country. The scholarship is annually awarded in each of the self-governing dominions to the university graduate who shows himself best fitted for successful scientific research. Dr. Brambell has been awarded the scholarship for 1924 for his work on animal cytology and the determination of sex, evinced by a number of papers that have appeared in different scientific journals. Amongst these are "The Activity of the Golgi apparatus in the Neurones of *Helix aspersa* (*Journ. Physiology*, vol. lviii., no. 6, August 16, 1923), "Sex Réversal and Intersexuality" (*Journ. R. Microscopical Soc.*, 1923), "Sex-Determination in Birds" (*Science Progress*, in press), and some important articles written in combination with Professor Bronte Gatenby on "The Genitalia of a Crowing Hen" (*Journ. Genetics*, in press), and kindred subjects.

NOTES.

Red-Necked Phalarope breeding in Co. Donegal.

It is with very great pleasure that I send you a new Irish breeding record of the Red-necked Phalarope (*Phalaropus lobatus*). Hitherto this species has only been known to nest in one locality in the extreme west of the country where it is a regular summer visitant. However, on July 3rd, 1924, accompanied by Mr. G. H. Lings and Mr. G. Tomkinson, both well-known English ornithologists, I visited a spot not far from the coast of Co. Donegal, where I had seen a pair of Phalaropes in June, 1916, though on that occasion I had failed to find a nest. Great, therefore was our satisfaction when we discovered a pair of birds occupying the same rush-fringed pool on which I had observed them eight years previously. On the present occasion the male showed great excitement, rapidly uttering his sharp notes of alarm, and repeatedly leaving the pool and making short flights over the surrounding marsh. A careful search of the latter at length revealed a nest containing one addled egg, placed in a thin bunch of marsh grass on a tiny hummock at some distance from the pool. Still keeping the birds under observation, in about an hour's time we witnessed the pleasing spectacle of the parents leaving the margin of the pool accompanied by two tiny chicks, not more than a day or two old. There was no evidence of more than one pair, and it appears to me probable that these birds have bred more or less continuously in the locality for several years.

It is interesting to note that an increasing number of species, whose proper home is in the Far North, now visit Co. Donegal for the purpose of breeding. I need only mention, in addition to the Red-necked Phalarope the Red-throated Diver (*Colymbus stellatus*), the Fulmar (*Fulmarus glacialis*), the Eider (*Somateria mollissima*), and, in an adjacent county, the Common Scoter (*Oedemia nigra*).

C. V. STONEY.

Peregrine Falcon breeding on Ireland's Eye.

On the 28th June of the present year I went to Ireland's Eye with two friends for the day. On landing we flushed a pair of Peregrine Falcons, which were feeding on a Puffin. They were joined shortly afterwards by two others. After traversing the island on the north side, we discovered under a large boulder the remains of a Peregrine's eyrie, inhabited this year, as it contained half an eggshell and a rabbit's head with flesh still on it. I think this might be of interest to some readers, as I have been told that this species has not recently been recorded as breeding on Ireland's Eye.

H. IRWIN.

Ross, Moyard, Co. Galway.

Little Tern nesting at Magilligan Point.

At the beginning of August, 1923, I was staying at Magilligan Point, Co. Derry, which is the extremity of the eastern shore of Lough Foyle. While there I noticed a flock of Little Terns (*Sterna minuta* L.) numbering about two dozen, and felt sure that they had bred there. Accordingly I visited the site again on June 14 of this year, when my expectations were fulfilled by the discovery of three nests containing eggs, together with a number of empty ones; the colony numbering about a dozen breeding pairs. The nests were fairly typical—merely depressions in the sand, very close to high-water mark—much deeper than those made by the Common Tern, not lined in any way, and each containing two eggs of grey stone colour, blotched and spotted with black or very dark brown. This is the first record of a breeding place in Co. Derry.

J. R. H. GREEVES.

Altona, Belfast.

Silene noctiflora in Co. Dublin.

I am glad to report the occurrence of a little colony of this species, which has been kindly identified for me by Miss Knowles, on some waste ground at Inchicore, where I noticed a few plants in flower a little after 9 o'clock (summer time) on the evening of July 18th. Owing to its late-flowering habit, its discovery was more or less a matter of accident in these days of legally postponed twilight; but on subsequent visits I saw about twenty plants, and found that while they often begin to open an hour before sunset the flowers are seldom at their best till some thirty minutes later. The ground occupied by the colony was part of a weedy waste in which grew *Thlaspi arvense*, *Sisymbrium Irio*, *Melilotus officinalis*, *Senecio squalidus*, *Matricaria discoidea*, and *Ballota nigra*, with a single plant of the Hare's-ear or Thorough-wax (*Bupleurum rotundifolium*), which does not seem to have been yet recorded as of casual occurrence in Ireland. Among such surroundings no one, of course, can doubt the recent and "assisted" origin of this settlement of the Night-flowering Catchfly; still it will be of interest to notice how long the little annual may retain possession of the ground. It probably depends for its fertilization on visits from moths.

C. B. MOFFAT.

Dublin.

Bee Orchis in Co. Down.

It may be of interest to northern botanists to know that the Bee Orchis (*Ophrys apifera*) is to be found in this district together with *Orchis pyramidalis*. The former is growing in the sandhills at Benderg Bay, and also in a meadow on the top of Killard Banks; the latter in the same meadow and in several other places near the shore. The only other record of the Bee Orchis from the north-east counties of which I am aware is one from Magheramorne, noted in the *Irish Naturalist* last year.

Killard, Strangford, Co. Down.

E. L. SEAVER.

A New Irish Cephalopod.

In the *Annals and Magazine of Natural History* for July, Miss A. L. Massy describes a new species of Cephalopod—*Cirroteuthis (Cirroteuthopsis) massyae*, Grimpe—of which the type specimen was trawled in Irish waters during investigations carried out by the Fisheries Branch of the Department of Agriculture, and was referred “with some reservation” on the advice of Dr. Hoyle, in 1907, to *Cirroteuthis umbellata* P. Fischer. Owing to the extreme scarcity of known examples of this family, great difficulty was experienced in closer investigation; but enough differences have since been ascertained to prove that the Irish animal belongs to a previously undescribed species, and it is evident from Miss Massy’s paper that much has still to be learned on the subject of its affinities. The specimen is preserved in the National Museum.

IRISH SOCIETIES.

BELFAST NATURALISTS’ FIELD CLUB.

JUNE 28. EXCURSION TO TOOME.—After leaving Belfast the first stop was at Edenduffcarrick, the ancient stronghold of the O’Neills on the shores of Lough Neagh. The ancient church at Cranfield and the adjacent Holy Well were visited. At Toomebridge the site of the ancient castle at “the ford of Toome” was first visited. Mr. Ellis kindly gave permission for a visit to the eel fishery, and Mr. M’Erlean, his manager, brought up live eels for inspection, and explained the method of capture. A visit followed to the building known as “The Temple of Liberty.” A hunt near the old ford for prehistoric implements was engaged in by several members of the party, some characteristic examples rewarding the searchers. The final visit was to the diatomaceous clay deposits. Meanwhile, the botanists had scattered widely, and afterwards reported a profitable time. The journey home was made *via* Moneyglass demesne.

JULY 12-14. EXCURSION TO BALLYCASTLE.—This summer the Club reverted again to their pre-war programme of a long excursion in midsummer, this year a three-day visit to their old headquarters for well over half a century—the Antrim Arms Hotel, Ballycastle. The area visited included Murlough Bay. Special attention was called by the conductor, R. J. Welch, to the many deep marine pot-holes in Carboniferous sandstone at the cottage. On the way down, Drumnakill volcanic dyke was examined. Some new and deep *Helix* crypts were found in some of the slipped Chalk masses. After tea at Mrs. Clark’s cottage the way up was through the glen, waist deep in ferns, the wonderful luxuriance of which this season was noted everywhere. Sunday, as usual, had no official programme. After church and lunch some visited Punamargy Abbey or strolled along the coast road past the mines to visit the North Star dyke. Another party motored to Tor Head and Portaleen Glen. The band of crystalline limestone which runs round the head about half way up, riddled with *Helix* crypts, was

found to be sheltering many living *Helix nemoralis* aestivating during the daytime. A fine large specimen of gneiss was selected and brought home for the new Public Museum. On Monday the party, joined by a good contingent of the Route Club, paid a visit to Whitepark Bay, its kitchen-middens, and stone circle, often before described in this Journal. After tea at headquarters, the party motored to Ballymoney on their way home, *via* Stranocum. Belfast was reached before 9 p.m.

JULY 26. GLENOE.—Over sixty members and friends visited Glenoe. The old church of Glynn was first visited. Shortly before five o'clock the old-world village of Glenoe, nestling among the hills, was reached. Tea was served by Mrs. Mehaffey, who was most attentive to the comfort of the party. After tea a short business meeting was held—the vice-president (Mr. James Orr) in the chair—when a junior member was elected. Mr. Robert Bell then led the way to the quarries, where there is a good section of Chalk, containing numbers of flint nodules lying along the planes of bedding. The limestone in these quarries is remarkably pure, containing, according to the analysis of Professor Hodges, no less than 99.10 per cent. of carbonate of lime. On the way to the railway station some members visited the interesting rath in a field to the left of the road.

AUGUST 23. EXCURSION TO SILENT VALLEY.—A party of 112 members and visitors left Belfast by the 10.50 train and motored *via* Newcastle.

On reaching the Water Commissioners' property the motors passed up the new avenue, lined with young trees, to the resident engineers' houses, where the party lunched before scattering—as there was no blasting going on—on their various collecting hobbies. Both geologists and botanists had here much to interest them, the former following Mr. M'Illdowie, one of the resident engineers, who kindly acted as local conductor, rendering the work of R. Bell and G. C. Reilly, the scientific conductors for the day, a light task.

Both hon. secretaries were with the party taking general direction. The botanists directed their efforts to refinding a rare plant, the Narrow-leaved Sundew, *Drosera intermedia*, in which they were successful. The habitat of this plant will be deeply submerged by the waters of the new reservoir.

The great glacial moraine running across the mouth of the valley was inspected with interest. From its summit a fine view of the valley was obtained. Most of it will be used for the new embankment, and it would be submerged in any case.

After a couple of pleasant hours or more spent in the valley the party returned to Newcastle for tea at the Slieve Donard Hotel, where everything possible was done for their comfort.

The usual business meeting was held, the Vice-President (Mr. G. Orr) in the chair.

THE "IRISH NATURALIST."

WITH much regret we announce that with the end of the present year the *Irish Naturalist* will cease to appear. For thirty-three years this Journal, founded to promote the study of Natural Science in Ireland, has steadily fulfilled its purpose. In the earlier portion of its life it was able to pay its way, but with the great increase in the price of printing since the European War, and the loss by death or otherwise of many of its former supporters, it has been maintained at a steadily increasing annual deficit. This loss has been borne by the generous contributions of a body of guarantors, whose number, like that of our subscribers, has of recent years diminished, owing to the same causes. It is felt that it is no longer fair to these friends to maintain this burden upon them, and very reluctantly it has been decided to discontinue publication.

During its life the "*Irish Naturalist*" has published a great body of material dealing with almost every branch of zoology, botany and geology in our island. The Editors feel that their final duty towards their readers should be the provision of adequate Indexes by means of which this material may be made readily accessible. An excellent Author-Index to the first twenty-five volumes, the work of the late Mrs. Scharff, was published with the completion of the twenty-fifth volume. A similar Author-Index to the remaining eight volumes will be issued with the forthcoming December number. But it is felt that in addition to this, a Subject and Title-Index to the whole series is very desirable. A number of specialists have expressed their willingness to co-operate in this undertaking, and we do not doubt that the whole work can be carried out as a labour of love. But its publication will involve considerable outlay, and we shall be glad to hear from our readers whether they will be willing to contribute towards this expense. If sufficient support is offered the task can be commenced at an early date.

THE EDITORS.

A

SOME BOTANICAL RECORDS FOR CO. WICKLOW.

BY J. P. BRUNKER.

FOR the past year I have been spending most of my spare time in an effort to fill in gaps in the known distribution of plants in Co. Wicklow, and now venture to submit some notes which may be of interest to readers of the *Irish Naturalist*. I have been forcibly struck by the paucity of the existing records, except in the most northerly portion of the county and along the coast; and have come to the conclusion that further investigation—particularly of the western area and the more remote parts of the mountains—may result in some interesting discoveries.

I have not attempted to separate my finds according to their standing—some of them are obvious strays; while others, no doubt, are more or less naturalised—but I have marked those of which I can find no previous record with an asterisk. I am indebted to Mr. Stelfox and to Miss Knowles for identification of several specimens.

* *Arabis hirsuta* Scop.—Along the river at the lower end of Poulaphuca gorge.

* *Draba muralis* L.—On a wall-top north of Kilpedder, on the main road to Wicklow.

Cochlearia danica L.—Abundant on the railway line west of Glenealy, over six miles from the sea.

Sisymbrium Thalianum Gay.—On the ruins of Baltinglass Abbey.

* *Sisymbrium Columnae* Jacq.—On the railway line west of Glenealy; also at Greystones station.

Cerastium tetrandrum Curt.—On the railway west of Glenealy, with *Cochlearia danica*.

Trigonella ornithopodioides L.—Well-known on the Murrough, this little plant also flourishes on the south side of Wicklow harbour, near the Black Castle.

Medicago maculata Sibth.—Abundant on a wall in front of Brittas national school, and in turf by the roadside near the bridge. The only previous Co. Wicklow record is from a field near Rathnew railway station.

Trifolium scabrum L.—Above the southern end of the Cable Rock tunnel at Bray Head.

Trifolium glomeratum L.—I could not find this clover in the station recorded by Dr. Praeger in 1909—"in chinks of a low wall near Brittas Bridge." It has no doubt been driven out here by the more aggressive *Medicago maculata*; but it is flourishing on sandy ground on both sides of the road for some distance south of the school. On the Murrough, too, it has somewhat shifted its quarters. It has become quite scarce in the old station by the riverside; but it is abundant and very large close to the west wall of the old railway station, in front of the disused hotel. The building of six new houses on the Murrough has made a sad breach in the best of the old clover ground.

* **Saxifraga tridaetylites** L.—Sparingly on a wall-top in the village of Newtownmountkennedy.

Erigeron acre L.—Recorded in the "Irish Flora," 1833, as growing "along the riverside between Enniskerry and Lough Bray." I have not seen it there, or even noticed any suitable ground for it; but it grows by the Cookstown River about half way from Enniskerry to Glencullen; and the old record may be a mistake for this station.

* **Bidens cernua** L.—Mr. Stelfox told me in 1922 that he had found this plant in the large pond on the right as one enters Blessington by the Dublin road. I found it here in abundance last year, but had not an opportunity to see how far it extended to the other ponds and marshes, which are a feature of what I may call the "Deerpark salient" of the county. I have now traced it to the two large ponds towards the N.W. corner of Blessington Deerpark, over a mile from the first find and about 250 to 300 feet higher up.

Linaria vulgaris Mill.—Still sparingly on the Murrough, near the 27th railway milepost.

Mimulus luteus L.—Abundant along the course of the Little Slaney River, in Glen Imaal, nearly reaching to the 800 feet contour.

Orobanche minor Sm.—By the railway on the Murrough, about half a mile north of the manure works.

Scutellaria galericulata L.—Quite abundant between the foot of Lough Dan and Oldbridge, growing with *S. minor*. I searched for, but could not find, a hybrid.

Galeopsis speciosa Mill.—While exploring Glen Imaal with Mr. Stelfox, I came on a potato-field full of this handsome species, by the Slaney near Gibstown Bridge.

* **Chenopodium murale** L.—On the North Shore at Greystones.

Neottia Nidus-avis Reich.—Mr. Stelfox tells me that in 1921 he found this in abundance near the entrance to Enniskerry Glen. I could not find it this year.

Ophrys apifera Huds.—All the older records for this beautiful Orchis are from the Bray-Enniskerry district; and I was surprised to find

it sparingly at the Silver Strand, south of Wicklow Head; also quite abundantly in damp hollows of the dunes at Brittas, east of the school.

Carex curta Good.—Abundant in the Blessington area, especially in the marshes of Blessington deerpark and along the east side of Dowry Hill. Mr. Stelfox has also pointed it out to me in the bog between Lough Bray and Sally Gap, at 1,650 feet.

* **Carex teretiusecula** Good.—In a marsh to the north-east side of the swampy wood on the east side of Blessington demesne, about three-quarters of a mile due north of the ruined courthouse.

Lastraea spinulosa Presl.—In a cut-out bog near the Little Slaney, between Coan and Knockanarrigan, Glen Imaal.

Dublin.

CORRIGEENDAUV—A HAUNT OF THE LESSER BLACK-BACKED GULL.

BY ROBERT F. RUTTLEDGE.*

THE late Robert Warren long ago discovered this island as a nesting haunt of the Lesser Black-backed Gull, and perhaps some notes about it may be of interest with regard to the colony which still exists there. The island is one of the most isolated in Lough Mask, being just over a mile from the nearest shore. It is covered with rank vegetation and small bushes, while it is bordered by bare rocks on its shores. Mr. Warren found that about twenty pairs were breeding there when he visited it in the nineties. Owing to the state of the weather it was not practicable to visit the island this year during the early summer. However, I took the chance on July 26th, and give my observations on the colony.

Although there was a dead calm, when at 100 yards distance one discovered that the island was going to be pretty "strong" when one was ashore! I counted the birds when I landed and found that, young and old together, they numbered roughly eighty. Proceeding to examine the island I found that there were the remains of close on twenty nests; no doubt there were more which

had become covered with vegetation. The nests had been well made and spacious, as mentioned in the "Birds of Ireland." At so late a date I was rather surprised to find some half-dozen young gulls still unable to fly; one or two indeed could not have left the nest long, being still covered with down and only partially feathered.

I should think that rather more than twenty pairs breed now, as there were over forty adult birds still about the island.

I noted that about six large flat rocks were used in particular as feeding-places, where the gulls brought their food and tore it up. Although this species is known as an omnivorous feeder, I mention some articles of food which I found on these "tables" in a more or less fresh condition. There were, of course, innumerable bleached bones, bits of dried skin, and so forth. I found remains of six freshly devoured Moor-hens, the legs and feet of which remained connected by the pelvis—the wings also were present. I counted the legs of three young ducks also, probably Mergansers. Also I saw the fresh remains of a young rabbit and a fresh-water crayfish.

There is, I think, a point of interest about the Moor-hens. The remains were those of nearly mature birds, judging by the wings. Now the nearest possible place where Moor-hens could be found is at least two miles away—possibly more—and as the legs were found intact, and the wings, it is to be supposed that the birds were brought entire, a distance of at least one mile from the nearest shore, and further from wherever they were captured—the same would apply to the young rabbit. An almost fully grown Moor-hen seems a large load to bring entire for a mile or more, even for so large a bird as this gull, and it would be interesting to see the performance taking place. It is possible of course that the birds took rest on the water *en route*.

I was interested to see that a small colony of Arctic Terns had bred on the north point of the island and were still feeding young. How the eggs and young had survived in such close proximity to the gulls I do not know, but I observed that if any of the latter came near the north

end of the island they were at once attacked and driven off by the terns, and a young gull unable to fly, on the water off the point, was having a very poor time.

This settlement of Lesser Black-backed Gulls is, I believe, the largest, in a confined space, to be found inland in Ireland and is seldom molested.

Bloomfield,
Hollymount, Co. Mayo.

OBSERVATIONS ON A FEMALE CUCKOO.

BY GEO. R. HUMPHREYS, M.B.O.U.

THIS year I was so fortunate as to come across a female Cuckoo (*Cuculus c. canorus*) about to deposit her egg, and as I was witness of the procedure the following account drawn up from notes made at the time may be of interest.

On the 24th May, 1924, accompanied by John Maloney, a very intelligent and observant youth, I visited a certain place at Lucan, Co. Dublin, to inspect the nest of a Willow Warbler (*Phylloscopus t. trochilus*) which Maloney had assured me contained the exceptional number of eight eggs. Unfortunately the nest had been destroyed by boys, and I was therefore unable to verify this interesting statement.

A few minutes later we were crossing a piece of uneven ground, on which some hawthorns were growing singly and in hedge form at a spot where the ground was intersected by a deep ditch, when Maloney remarked that he saw a hawk. At that moment I also saw the bird and identified it as a Cuckoo being chased by a Meadow Pipit (*Anthus pratensis*). A Song Thrush (*Turdus philomelus clarkei*) also appeared in the line of flight. It at once occurred to me that the Cuckoo was a female about to deposit her egg, and calling Maloney to my side, I decided to keep her under observation.

By this time the Cuckoo had flown into a hawthorn and the Meadow Pipit and Song Thrush had disappeared.

From this hawthorn, which commanded a view of the spot where the nest was ultimately located, the Cuckoo attempted to make two glides to the ground but without success. On both occasions, after gliding some 20 yards or so, she flew off in the opposite direction from where we were standing partly hidden by a bush.

Returning to the same perch the Cuckoo made a third glide which landed her on the ground about 20 yards in advance of the position taken up by us. She proceeded to inspect something in front of her, then turned her head and appeared to look towards us, after which she took wing. There is no doubt that while on the ground the Cuckoo examined the position of the nest. It is open to question whether she would have gone on to the nest straight away had we not been present. However I decided to change our position to a point further back where we could conceal ourselves behind a hawthorn and at the same time retain a commanding view of both the spot where the nest appeared to be situated and the hawthorn from which the Cuckoo had, to our knowledge, already made three glides without attaining her object.

In about five minutes time Maloney told me the Cuckoo was again on her gliding off perch, and she at once commenced to glide, alighting on the ground at approximately the same spot, with her tail towards us. By means of a few short hops, three or four at the outside, she moved on to the nest with head lowered and neck stretched forward. Arriving on the nest she erected her tail, exposing the light feathers of the belly; then by a slight backward and a series of side to side movements we could distinctly see she was gauging her position on the nest. While these movements were going on, the wings were held in a drooping position on each side of the nest. Directly the movements ceased the tail was depressed, and in a very few seconds raised to its normal position, as the Cuckoo backed off, and took wing, leaving from a half right direction. During this time nothing was seen of the Meadow Pipits.

As soon as the Cuckoo had departed we decided to inspect the nest. In order to do this we had to make

a detour to negotiate the deep ditch. On inspection the nest was found to contain a Cuckoo's egg only. Maloney, who could not resist the temptation to take it up, at once remarked that it was quite warm, which I said could only be expected as the Cuckoo had just laid it as we had seen.

The nest was a typical Meadow Pipit's, placed on the ground on a small grassy bank facing the position taken up by us while watching the Cuckoo. The grass immediately around the nest was of sufficient length to completely hide it from view in the ordinary way, but the Cuckoo in going on had so parted the grass as to leave the nest exposed.

I did not like to search for and inspect the nest before the Cuckoo had laid, having considered that by doing so we should disturb her too much. The fact that at that time we did not know the exact position of the nest, and the deep ditch had to be negotiated increased the risk. It is, however, probable that the Cuckoo took the one and only Pipit's egg out of the nest as she went on. As already mentioned, her head was lowered as she went on to the nest. I regret to say I had left my binoculars at home, and the distance, about 40 yards, from which these observations were carried out, was too great to enable us to see with the naked eye if the Cuckoo picked up an egg in her bill or carried one away.

The hour at which the Cuckoo made the last and successful glide was 7.2 p.m. (B.S.T.). The time by the sun would be approximately 5.35 p.m. From the moment she alighted on the ground to the time she left the nest we recorded 40 seconds.

As previous experience went to shew that there was considerable risk of the nest being destroyed by boys I decided to take the egg. Before doing so a search was made for a substitute; the only one procurable was the egg of a Common Wren (*Troglodytes t. troglodytes*), and this was placed in the nest simultaneously with the withdrawal of the Cuckoo's egg, the grass being re-arranged in its original position. On inspecting the nest two days later we found it still contained the single egg, clearly shewing that it had been deserted by the Meadow Pipits.

Being anxious to see how long it would take this pair of Pipits to construct a new nest and produce a full clutch of eggs I decided to follow up this point. It so happened that I was unable to carry out my intention until the 8th June. A search made on that date resulted in our flushing a Meadow Pipit off a nest containing four of her own eggs incubated about six days. This nest was situated about 10 yards from the original one in which the Cuckoo had laid her egg, and I have no hesitation in saying it belonged to the same pair of Meadow Pipits.

Dublin.

ATHOUS DIFFORMIS LAC. AND OTHER BEETLES IN COUNTY DUBLIN.

BY EUGENE G. O'MAHONY.

On August 10th. while sweeping long grass under pines in the grounds of "St Anne's," Clontarf, Co. Dublin, I obtained two males and one female of *Athous difformis*, and on the following day another male, but though I have searched the locality carefully since I have not been able to get any more examples. This is an addition to the Irish list, and my specimens have been seen by Mr. J. N. Halbert, who agrees with my identification.

The following captures are also of interest as a number of them are new to the county:—

Carabus granulatus L. var. **interstitialis** Duft.—Kilbarrack.

Amara consularis Duft.—Since my former record¹ I have taken this beetle three times at Kilbarrack and once at Portmarnock.

Laemostenus complanatus Dej.—Clontarf. In hollow elm tree, about ten feet from the ground.

Hypocryptus longicornis Payk.—Howth. In moss at foot of tree back of Dunbo Hill. Named by Mr. J. R. le B. Tomlin. An addition to the Co. Dublin list.

Eusphalerum primulae Steph.—Flew into my room from Leinster Lawn. Also an addition to the County list, and named by Mr. Tomlin.

Corylophus cassidioides Marsh.—Kilbarrack. (J. R. le B. T.).

Halysia XVIII-guttata L.—"St. Anne's," Clontarf. By sweeping under pines.

¹ See *Irish Naturalist*, p. 9, 1924.

- Omosita discoidea** F.—North Bull (salt marsh) and Clontarf.
- Rhizophagus dispar** Gyll.—“St. Anne’s,” Clontarf. Under bark.
- Melanophthalma fuscula** Humm.—Kilbarrack. (J. R. le B. T.).
- Aphodius granarius** L.—Kilbarrack. One specimen under stones. New to Dublin.
- A. lapponum** Gyll.—Glenmacnass, Co. Wicklow. Taken by Mr. A. W. Stelfox.
- A. pusillus** Herbst.—Kilbarrack. Also new to Dublin.
- Trigonogenius globulum** Sol.—North Earl St. Taken by Mr. Jack O’Mahony, second Irish specimen (the first was taken in grass seed, also in the city. It is an introduced species).
- Priobium castaneum** F.—“Swan’s nest,” Raheny. In an old elm stump.
- Ptilinus pectinicornis** L.—In company with above, and also at “St. Anne’s” (one male under pines) and Clontarf.
- Ochina hederæ** Mull.—“St. Annes.” By sweeping.
- Cis bidentatus** Ol.—“St. Anne’s.” In decaying elm.
- Strangalia aurulenta** F.—Rathdrum, Co. Wicklow. Taken by Mr. A. W. Stelfox.
- S. quadrifasciata** L.—“Lakepark,” Co. Wicklow. Taken by Miss Mavis Hamilton. Taken in the vicinity of Lough Dan; it is the first Irish specimen I have seen, and it is new to Leinster.
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|----------------------------------|----------------------------------|
| Rhinosimus ruficollis L. | } “St. Anne’s.” Mostly in pines. |
| R. planirostris F. | |
| Salpingus castaneus Panz. | |
| S. aeratus Mull. | |
- Narceodes melanura** Schmidt.—National Museum yard.
- Meloe violaceus** Marsh.—Black banks, Raheny. (J. R. le B. T.).
- Otiorrhynchus auropunctatus** Gyll.—Clontarf. In whitethorn. Malahide, under stones in wall, at Rob’s wall.
- O. maurus** Gyll.—Glendoo Mountain. Taken by Mr. Stelfox, 1,200 feet up, and also on top of Tibbradden.
- Acalles turbatus** Curt.—“St. Anne’s.” Under bark. (J. N. H.).
- Hypera polygoni** L.—Howth. Two or three at Drumleck point, under stones.
- Rhopalomesites tardyi** Curt.—Clontarf, Raheny, and Howth.
- Hylesinus fraxini** Panz.—Raheny and Clontarf. In ash poles.
- Myelophilus piniperda** L.—“St Anne’s.” In pines.
- Phloeophthorus rhododactylus** Marsh.—Bray Head. In whin.
- Pityophthorus pubescens** Marsh. } “St. Anne’s.” Both in pines, apparently new to county Dublin.
- Pityogenes bidentatus** Herbst. }

I have to thank Messrs. J. R. le B. Tomlin and J. N. Halbert for identifying some of the above species, and for confirming my naming in other cases.

NOTES.

Observations on the Robin.

In the September number of "British Birds" Mr. J. P. Burkitt continues his account of the "Study of the Robin by means of Marked Birds," to which we drew attention in our issue of July (pp. 74-5). In the first paper the story of Mr. Burkitt's observations was brought up the 6th of January in the present year, at which time the writer had in his area seventeen marked birds, of whom fourteen were in occupation of definite sites, while the other three would seem to have been comparatively erratic in their appearances. In eight of these seventeen winter residents Mr. Burkitt had made sure of the sex, and seven of the eight were males, all his marked females of the previous year's nesting season having left his grounds some time before winter set in. In the course of the spring, however, two of the old marked females returned, as well as some new birds of both sexes; while several males disappeared, of whom one was seen to be forcibly ejected from his territory to increase the domain (a fairly large one already, Mr. Burkitt considers) of one of the newly-formed pairs. Altogether nine pairs were formed, while two of the marked winter residents, presumed to be both of the male sex, were left mateless.

It is worth remarking that no single case occurred of any of Mr. Burkitt's Robins pairing in 1924 with the same mate as had been his or her consort in 1923. One bird (14 F) who had had two mates (9 M and 17 M) in 1923, mated in 1924 with a third husband (18 M), though the old mate (9 M) was still available, and subsequently obtained another wife (36 F). But there was less inconstancy in regard to land than to husbands; for we are told that "the two marked females which returned became mated in territories, part of which in each case was a part of their previous year's territory." Altogether, Mr. Burkitt's two papers, containing as they do individual histories of as many as forty marked birds, are among the most valuable contributions that have ever been made to the study of so common and familiar a bird as the Robin. The amount of patience needed for such sustained observation is incalculable. Still we cannot refrain from hoping that the study may be continued for at least one more year.

Fulmars in Co. Clare.

I have to report seeing Fulmars on the Cliffs of Moher, Co. Clare, during the first week of July last. They had evidently bred there, as little family parties appeared to be scattered about the cliff face amongst the other birds. One family, not far from where I was lying on the cliff edge, seemed greatly interested in our party, and one bird came several times within a few yards of me, so that all details, including the bill, could be plainly seen with the unaided eye. The parents of this family appeared to be teaching their baby a few "stunts," and took their turn in "showing off," which antics I watched for a considerable time. In

an article on the "Courting Display of the Fulmar,"¹ Mr. Henry Boase describes these flights very accurately. As each bird left the ledge of rock, it soared upwards and seawards until it was perhaps 100 yards from the cliff face, then swinging round in a wide circle the bird swooped at a terrific speed towards the nesting place, as if to dash itself against the cliff face; when but a few yards from this the wings were vigorously used as a brake, and the bird appeared to be about to alight, when suddenly it shot upwards for perhaps 20 or 30 feet, repeating the circuit time after time, but finally alighting, when another bird took its place in the air. Whether the young one took its turn in the performance or not I could not be sure. Mr. Boase suggests that the Fulmars may find it difficult to land on the cliffs, but it appeared to me to be part of the game to pretend to land and then rise vertically with the updraft along the cliff face. When the wings were acting as a brake, the primaries could be seen extended like the fingers of one's hand, and at a distance it appeared as if these alone, and not the whole wings, were in motion.

A. W. STELFOX.

National Museum, Dublin.

Spotted Crake in Co. Louth.

On 17th September of this year Mr. A. Beresford Swan shot a specimen of the Spotted Crake, *Porzana porzana* (Lin.) near Dundalk, and has kindly submitted the skin to me. Since the publication of Ussher and Warren's "Birds of Ireland," in 1900, I have not observed any instance of this bird's occurrence in Ireland. In that work upwards of sixty Irish-taken specimens of the Spotted Crake are cited, three of them having been obtained in County Louth.

NEVIN H. FOSTER.

Hillsborough, Co. Down.

Localities for *Ino statices* and *Dasychira pudibunda*.

Two instances have come to my notice this year of moths turning up in districts for which they are not recorded by South in his "Moths of the British Isles."

In the first case I saw in June and July several Forester Moths in the valley between Kilmashogue and Three Rock (Co. Dublin). I obtained a female, and have at present caterpillars from eggs laid by her.

In the second case I found on a Broad-leaved Willow on the Clare bank of the Shannon, about two miles above Limerick, a Pale Tussock caterpillar, which I still have. This was about the middle of August.

A. M. GWYNN.

13 Palmerston Road, Rathmines.

[Mr. A. W. Stelfox informs us that he has also taken the Green Forester Moth (*Ino statices*) in Co. Dublin, at the head of Glenasmole.—EDS].

¹ *British Birds*, July, 1924, p. 47.

COLEOPTERA FROM SOUTH KERRY.

BY OLIVER E. JANSON, F.E.S., AND L. H. BONAPARTE WYSE.

THIS year we spent our summer holiday, a whole month, in Ireland, and devoted most of the time to collecting insects, principally coleoptera. Leaving London on the evening of June 23 we arrived at Killarney next day in the early afternoon and drove thence by motor-car to the Muckross Hotel, which we found under new management and much improved since our last visit in 1919. A week was spent here collecting, chiefly in the beautiful Muckross demesne, but on one or two occasions we went further afield, and on the 28th, notably, visited the western shore of Lough Guitane, near the foot of Mangerton, where some interesting captures were made. On July 1 we took train to Killorglin and motored from there to Glencar Hotel which we made our headquarters for a whole fortnight. Unfortunately cold and wet weather dogged our steps and rendered collecting difficult and discouraging. The very few fine days, however, were made the most of, and one of us took advantage of them to make the ascension of Caher, Carrantuohill, and the rarely visited Benkeragh, and met with the usual mountain beetles such as *Cychnus rostratus*, *Carabus catenulatus*, *Nebria gyllenhali*, *Leistus montanus*, and *Patrobus assimilis*; also *Patrobus septentrionis*—an addition to the Irish fauna. In the woods adjoining the hotel much work was done and some good things taken, but beetles on the whole were decidedly scarce and many common species entirely absent. We had counted upon turning up some of the rarities recorded in the *Irish Naturalist*¹ by Messrs. Bouskell and Donisthorpe more than twenty years ago, such as *Carabus clathratus*, *Lema septentrionis*, *Elater praeustus*, and *Hylecoetus dermestoides*, and for our failure in this we blamed the inclement weather.

On July 15 we left Glencar and drove on an "outside car" over some fine, though somewhat desolate, mountain country to Glenbeigh by way of Caragh Lake. At Glenbeigh

¹ Vol. xii, 1903, p. 59.

we found excellent accommodation at the hotel, but only stopped three days, notwithstanding the attractions of a beautiful garden which would have done credit to a nobleman's mansion. The country around did not strike us as especially interesting from an entomological point of view, the extensive sandhills of Rossbeigh close by offering perhaps the best hunting ground. These we visited on the 16th and took some of the usual coastal species. On the next day we toiled up the Windy Gap (which well deserves its name), and found a few things under stones: there was no sun, alas! to entice beetles to run on the road. On the morning of the 18th the proprietor of the Glenbeigh Hotel drove us in his motor-car to Killarney where we spent the remaining few days of our stay at the Erin Hotel, the owner of which, Mr. E. Bullock, is an enthusiastic entomologist. Some pleasant hours were spent with our host looking over his extensive collections of insects of which some were of great local interest. The three of us employed the greater part of Saturday, July 19, exploring Lord Kenmare's demesne for specimens though with meagre results, but still some new additions were made to our bag, notably the local *Phyllobretica quadrimaculata*, which Mr. Bullock first turned up here some years ago.

On the 21st Mr. Janson left Killarney homeward bound, but Mr. Bonaparte Wyse lingered on a couple of days longer and continued collecting on his own. A visit was paid next day to Derrycunihy some eight miles distant on the Kenmare Road and not far from the famous waterfall; on the banks of a small stream, a few *Donacia* were obtained by sweeping, including the large species *D. crassipes* on *Nymphaea*. On the return journey the Wood Ant (*Formica rufa*) was observed running on the road near Tower Lodge and a few taken.

Despite the bad weather experienced during the whole of our trip, we succeeded in taking over three hundred species of coleoptera and several of considerable interest. We are able to bring forward five species new to Ireland as follows:—

1. PATROBUS SEPTENTRIONIS, Dej.—A single specimen taken by Mr. L. H. Bonaparte Wyse under a stone on the

top of Carrantuohill (3,414 feet) on July 14. In Britain it is confined to the Highland districts of Scotland.

2. *DADOBIA IMMERSA*, Er.—Several shaken from the chippings of felled trees by Mr. O. E. Janson at Glencar, July 8. A widely distributed but not common species in England and Scotland. It was formerly included in the genus *Homalota*.

3. *MYCETOPORUS PUNCTUS*, Gyll.—One specimen found under moss growing on rocks near Lough Guitane by Mr. O. E. Janson, June 28. A rather rare but widely distributed species in England and S. Scotland

4. *MELASIS BUPRESTOIDES*, L.—A single female example found by Mr. O. E. Janson on a dead portion of a standing oak at Glencar July 9. An important addition, being the first member of the family Eucnemidae discovered in Ireland. It is a local and rather scarce insect in Britain and not recorded from further north than Yorkshire.

5. *MALTHINUS BALTEATUS*, Suff.—One specimen beaten from whitethorn near the lake shore at Muckcross by Mr. O. E. Janson, June 29. A not uncommon species in the south of England but not recorded from the north or Scotland.

We append a list of some of our more interesting captures with our initials attached to those of which only one of us succeeded in taking examples, and an asterisk to those that are new records for Kerry.

Notiophilus aquaticus, L.—Two black varieties near summit of Benkeragh at an elevation of about 3,300 feet. (L. H. B. W.)

Leistus montanus, Steph.—Five specimens on Caher at an elevation of between 2,500 and 3,000 feet, 7 and 14. vii. 24. (L. H. B. W.)

Acupalpus exiguus var. **luridus**, Dej.—A specimen in flood refuse, Glencar. (L. H. B. W.)

***Bradycellus similis**, Dej.—Lough Acoose. (O. E. J.)

Anchomenus parumpunctatus, F.—A var. with coppery-red elytra, Glencar. (O. E. J.)

A. micans, Nic.—One specimen among chips of wood in swampy ground at Lickeen near Glencar. (L. H. B. W.)

***Sphaeridium bipustulatum**, F.—Muckcross, one specimen. (L. H. B. W.)

***Cercyon haemorrhous**, Gyll.—Glencar. (L. H. B. W.)

C. obsoletus, Gyll.—Glencar. (L. H. B. W.)

Myrmedonia limbata, Pk.—In moss, Lough Guitane. (O. E. J.)

***Homalota currax**, Ka.—A specimen amongst shingle on shore of Lough Eighter, on the Reeks (elevation 1,200 feet). (L. H. B. W.)

Tachyusa atra, Gr.—Muckcross (O. E. J.)

- **Tachyporus pusillus*, Gr.—Rossbeigh.
Mycetoporus lepidus, Gr.—Glencar. (O. E. J.)
M. longulus, Man.—In flood refuse near Lake Hotel, Killarney.
 (L. H. B. W.)
M. splendidus, Gr.—In flood refuse near Lake Hotel, Killarney.
 (L. H. B. W.)
Quedionuchus laevigatus, Gyll.—One specimen in an oak stump, Glencar.
 (O. E. J.)
 **Quedius attenuatus*, Gyll.—Muckcross. (O. E. J.)
Philonthus longicornis, Steph.—Lough Guitane. (L. H. B. W.)
P. agilis, Gr.—One specimen in flood refuse, Glencar. (L. H. B. W.)
P. trossulus, Nord.—Muckcross and Glencar. (O. E. J.)
Actobius cinerascens, Gr.—Glencar. (O. E. J.)
Othius myrmecophilus, Kies.—Lough Guitane and Glencar.
Stenus lustrator, Er.—Glencar. (O. E. J.)
S. carbonarius, Gyll.—Muckcross. (O. E. J.)
 **S. picipennis*, Er.—Glencar. (O. E. J.)
Lesteva pubescens, Man.—Glenbeigh. (O. E. J.)
Acidota crenata, F.—In moss, Lough Guitane. (O. E. J.)
Homalium pusillum, Gr.—Muckcross and Glencar. (O. E. J.)
 **H. planum*, Pk.—Glencar. (O. E. J.)
 **Choleva chrysomeloides*, Pz.—Muckcross. (O. E. J.)
 **Cychramus luteus*, F.—Muckcross. (O. E. J.)
Rhizophagus dispar, Pk.—Glencar and Killarney. (O. E. J.)
Atomaria umbrina, Gyll.—Glencar. (O. E. J.)
 **Sinodendron cylindricum*, L.—Muckcross. (O. E. J.)
 **Aphodius putridus*, St.—Rossbeigh.
Corymbites cupreus var. *aeruginosus*, F.—Windy Gap, Glenbeigh.
 (L. H. B. W.)
Helodes marginata, F.—Lough Acoose, Glencar. (O. E. J.)
Microcara bohemanni, Man.—Glencar. (O. E. J.)
Podabrus alpinus, Pk.—Near Long Range, beyond Muckcross. (L.H.B.W.)
Malthodes atomus, Th.—Muckcross. (O. E. J.)
Thanasimus formicarius, L.—Muckcross. (O. E. J.)
Cis alni, Gyll.—Glencar. (O. E. J.)
Liopus nebulosus, L.—Muckcross and Glencar.
Pogonochaerus dentatus, Fourc.—Muckcross.
Lema lichenis, Voet.—A black variety, Glencar. (L. H. B. W.)
 **Phyllodecta vitellinae*, L.—On *Salix*, locally common, Muckcross and
 Glencar.
Aphthona nonstriata var. *aenescens*, Weise.—Killarney. (O. E. J.)
Clinocara undulata, Kr.—Muckcross. (O. E. J.)
Lissodema iv-pustulata, Mar.—Lickeen. (O. E. J.)
 **Acalles ptinoides*, Mar.—Glencar. (O. E. J.)
A. turbatus, Boh.—Muckcross. (O. E. J.)
 **Coeliodes quercus*, F.—Glencar. (O. E. J.)
Ceuthorhynchus quadridens, Pz.—Glencar. (O. E. J.)
Mesites tardyi, Curt., The Holly Weevil.—Muckcross and Glencar.

NEW LOCALITIES FOR SOME RARE PLANTS IN IRELAND.

BY R. A. PHILLIPS, M.R.I.A.

THE following notes refer to a few of the more interesting plants met with during rambles through various parts of the southern counties in recent years.

PYRUS LATIFOLIA Syme.—This plant has not hitherto been recorded as occurring in Ireland. In June, 1908, I found it (two small trees) in an old hedgerow about two miles south of Rosbercon, Co. Kilkenny, and later on, another specimen on a rock close to New Ross, Co. Wexford. In September, 1922, Mr. A. W. Stelfox and I, while visiting the Piltown marshes, Co. Wexford, in search of *Carex divisa*, which we found, discovered this *Pyrus* in abundance by the Piltown creek, and, not having time to search further ourselves, were informed by a local inhabitant that it was scattered through many hedges in the district. The following day we discovered it in some quantity in a rocky wood in Co. Carlow near Graiguenamanagh. In 1923 I found it again, a solitary small tree, on the bank of the River Nore, about two miles above Kilkenny.

In most of those localities it has all the appearance of a native, flowering and fruiting freely.

This tree was regarded as a hybrid (*P. Aria* and *P. torminalis*) by some of the earlier continental botanists, but Professor Henry, in a recent note, informs me that "there is no doubt that it is a truly wild species."

PYROLA MINOR L.—On June 29th, 1919, I met with a large patch of this interesting plant flowering in a wood adjoining an extensive bog near Mount Butler, Roscrea, Co. Tipperary (North), and saw it there again (leaves only) in March, 1924. The habitat is only a few yards, on the Tipperary side, from the line of division between that county and King's County. This is in all probability the species recorded by How in his "Phytologia Britannica," published 1650, as *P. vulgaris* Lob. "In a bogge by Roscre in the King's County. Mr. Heaton."

The habitat was probably at that date part of the bog from which it is now separated by the railway and a

drain. No *Pyrola* has, apparently, been noticed in King's County or Tipperary since How wrote until now,¹ but his record is placed under *P. minor* in "Cybele Hibernica," Ed. I, and doubtfully under *P. rotundifolia* in "Cyb. Hib." Ed. II. and "Irish Topographical Botany."

RUMEX PULCHER L.—Several old Dublin records, dating from 1833 to 1868, exist for this plant, but recent writers appear to have regarded it as now extinct in the county. However, in July, 1923, Mr. C. B. Moffat and I discovered it growing in great abundance on each side of the road between Portrane and Donabate. It is still widespread and abundant about Youghal and Whitegate, Co. Cork, and in July, this year, I found one plant by a roadside near Kilkenny and several plants in a new station near Thomastown, Co. Kilkenny.

CALAMAGROSTIS EPIGEIOS Roth.—In August, 1917, I found this rare grass on an island in Lough Atorick, an interesting extension of its known range. The line of division between Clare and Galway crosses this lake, the island is on the Clare side.

FESTUCA PROCUMBENS Kunth.—In June, 1901, I saw this plant in some plenty in a salt marsh near the mouth of the Blackwater near Youghal, Co. Cork. On visiting the place again last August I found that it is still there. It has been recorded for several stations in Ireland, in some of which it is now extinct, but is not, apparently, regarded as a member of our indigenous flora.

A few other items, of interest as extending their known range in Ireland, which have come under my notice are:—*Cochlearia danica* L., common on old walls at Athenry, Galway South-east, about thirteen miles inland. *Helianthemum guttatum* Mill., abundant on the Calf Islands near Cape Clear. *Trifolium arvense* L., frequent about Poulsallagh, Co. Clare. *Geranium pyrenaicum* L., *G. columbinum* L., and *Orobanche rubra* Smith, all on Inishmore, Aran Islands, August, 1915. *Limosella aquatica* L., found by Mr. A. W. Stelfox and me in several small rain-pools on the limestone

¹ "A bog near Dunkerrin," in King's County, is mentioned as a locality for *Pyrola rotundifolia* in an old book, "The Scientific Tourist," by "An Irish Gentleman," published in 1818. The entry may be based on How's, but the change in the description of the site is curious, Dunkerrin and Roserea being six miles apart,

rocks at Poulsallagh, Co. Clare, in July, 1924. *Teucrium Scordium* L. is plentiful on the shore of Ballyspillane Lake near Borriskane, Co. Tipperary North. *Epipactis latifolia* All., sparingly in the demesne at Birr Castle, new to King's County. *Habenaria conopsea* Benth., plentiful on both sides of the railway near Charleville, Co. Cork (Mid and East). *Habenaria intacta* Benth., near Loughrea and Athenry, Co. Galway (South-east). *Typha angustifolia* L., abundant and native in Ballybeg Lake near Ennis, Co. Clare. *Sesleria caerulea* Arduin, on a hillside between Birr and Roscrea, and *Agropyron caninum* Beauv. in Birr Castle demesne, both new to King's County.

COLEOPTERA IN THE DUBLIN DISTRICT.

BY J. N. HALBERT, M.R.I.A.

THE rain storm which occurred on the night of 6th September was of the sudden and violent kind which is likely to cause the right conditions for finding insects amongst the refuse swept down by river floods. As soon as the flood had gone down a little I visited the River Tolka between Finglas and Cardiff's Bridge in search of Coleoptera, and a quantity of flood refuse was sifted out and brought home for examination.

To the coleopterist there is a pleasing element of luck about this method of collecting, as there is always a chance of finding local riparian species which are otherwise seldom met with. On this occasion more than a hundred different kind of beetles were found among the refuse, and some of these are noteworthy, especially as so little is known of the insect fauna of this interesting river valley. At least seven species have not been previously recorded from the Dublin district. These are *Trechus micros*, a ground beetle which is known as Irish from two Ulster localities and the Mitchelstown Cave, in Co. Cork; *Megarthus affinis* was reinstated as an Irish species when Mr. E. Bullock found it at Killarney; it occurs also among vegetable refuse at Glasnevin; *Trogophloeus rivularis*, *Cryptophagus distinguendus*, *C. affinis*, *Coccinella heiroglyphica* and *Phyllotreta atra*. There were also the following species:—*Notiophilus substriatus*, *Bradycellus similis*, *Bembidium obtusum*, *Sphaeridium bipustulatum*

(the variety *marginatum* with only faint traces of spots), *Cercyon unipustulatus*, *C. pygmaeus*, *C. analis*, *Oligota punctulata*, *Quedius maurorufus*, *Q. attenuatus*, *Ocyopus compressus*, *Philonthus longicornis*, *P. ebeninus*, *Stenus guttula*, *S. flavipes*, *S. pubescens*, *S. cicindeloides*, *S. nitidusculus*, *S. paganus*, *S. latifrons*, *Homalium excavatum* (common), *Micropeplus margaritae*, *Corylophus cassidioides*, *Hister carbonarius*, *H. xii-striatus*, *Grathoncus nannetensis* (the correct name for the insect under this name in British collections is uncertain, it should possibly be *G. rotundatus* Kug. (Fowler, Brit. Col., vol. vi.)), *Corticaria pubescens* (common), *C. elongata*, *Antherophagus pallens* (one), *Paramecosoma melanocephalum* (common, the variety *infuscatum* only, which replaces the typical form in Ireland), *Aphodius foetens*, *A. porcus* (two specimens) *Chrysomela Banksi*, *Sitones hispidulus*, *Barynotus elevatus*, and *Ceuthorrhynchus quadridens*.

On the following day I went to Leixlip and searched the right bank of the River Liffey below the Salmon Leap; the flood had run down very rapidly there and insects were not common. The most interesting capture is a weevil of the genus *Barypeithes*, of narrow elongate shape and sparsely punctured thorax, which seems to be a species new to these islands. Only one specimen occurred in the refuse, but I hope to find more and definitely record the species another time. Two unexpected captures are *Bembidium Clarki* and *Tropiphorus obtusus*, both new records for the Dublin district; and the following are also worth mentioning:—*Lesteva longelytrata*, *Trogophloeus arcuatus*, *T. elongatulus*, *Aphodius foetens* and *Barynotus Schonherri*.

In an old and very productive mound of decaying leaves, cut grass, and other vegetable refuse in the Glasnevin Botanic Gardens, I found, during last October, a few examples of the rove-beetle *Quedius cruentus*, variety *virens*, recorded from Antrim and Armagh in the "Irish List." The typical form of this insect, with bright red wing cases, has not been found in Ireland. This dark variety, *virens*, might easily be mistaken for *Q. xanthopus*, but the former differs in the shorter antennae, impressed side margins of the thorax and the *first* body segments have little or no

trace of paler margins. Mr. G. C. Champion has kindly verified this identification. The *Quedius* was in company with its congener *Q. mesomelinus* and a host of other beetles which make their home in this kind of habitat, notably *Sphaeridium bipustulatum*, variety *marginatum*, *Cercyon terminatum*, *C. quisquilius*, *Microglossa suturalis* (apparently not recorded as an Irish species, though I believe my friend Mr. E. Bullock has taken it at Killarney), *Cilia silphoides*, (common), *Philonthus umbratilis*, *P. cephalotes*, *P. longicornis* (common), *P. ventralis*, *Lithocaris ochracea*, *Homalium caesum*, *H. Allardi* (one), *H. concinnum* (a few), *Megarthrus affinis*, *Euconnus fimetarius*, *Euplectus sanguineus*, *Hister xii-striatus*, *Sericoderus lateralis* (common), *Choleva fusca*, *Mycetaea hirta*, *Micropeplus margaritae*, *Monotoma picipes*, *Cartodere ruficollis* (one specimen). I had previously found this little species, which is recorded only from Belfast in the "Irish List," under the bark of pine logs which were lying near haystack refuse close to Finglas (in a similar habitat, in the Tolka Valley, was *Ptinella testacea*, an unrecorded Irish species), *Cryptophagus pilosus*, *C. distinguendus*, *C. affinis*, *C. bicolor*, *Atomaria munda* (a few), *Typhaea fumata* (common), *Ptinus crenatus*, and *Anthicus floralis* (common).

In another locality near the village of Finglas many of the above-mentioned species were found among vegetable refuse, including *Quedius cruentus* variety *virens*, *Atomaria munda* and *Cryptophagus distinguendus*. There were also *Leptacinus linearis* (common), *Xantholinus fulgidus*, *Phloeobium clypeatum*, *Atomaria umbrina* (*fuscicollis*, Marsh) and a single specimen of *Alexia pilifera*, a species which has not been recorded from this country.

During visits to Howth some coleoptera were collected on the south shore and cliffs between Sutton and the Baily, a promising locality which should repay a close search. The ground beetle *Platyderus ruficollis* occurs there, a single specimen was found under an embedded stone on the shore in November, 1911, the only recorded occurrence of this local species in Ireland. With it were the littoral rove-beetles *Cafius xantholoma* and *C. sericeus*; *Quedius nigriceps* is also an Irish rarity; I found one running on the road at

the top of the cliffs in October (1911). On the sloping face of the cliffs, where there is a plentiful growth of *Silene maritima* and other interesting plants, a number of uncommon species may be found such as *Metabletus foveola*, *Meligethes obscurus*, *M. erythropus*, *Corticaria umbilicata*, *C. denticulata*, *Phyllotreta nigripes*, *Longitarsus membranaceus* (not recorded from Ireland), *Apion miniatum* and *Ceuthorrhynchus rugulosus*.

There remain two interesting species to record; these are the handsome leaf-beetle *Chrysomela orichalcea* and *Leptinus testaceus*, single specimens of both were found among dead leaves under trees on the bank of the River Tolka at Glasnevin. The former seems a scarce insect, and this is the first time I have met with it in Ireland. The *Leptinus* has been once found in the Dublin district, when it occurred on a living field mouse, in company with numbers of parasitic Gamasid mites, caught by Dr. R. F. Scharff in the Rocky Valley, Co. Wicklow, in the month of January. The species is known to occur on small rodents, and in other peculiar habitats, such as in bird's nests, and also in the nests of ants and bumble bees.

The names used in the foregoing notes are those of Messrs. Beare and Donisthorpe's "Catalogue of British Coleoptera," published in 1904.

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TO OUR CONTRIBUTORS.

ALTHOUGH the pages of the *Irish Naturalist* will no longer be available, we hope to be able to arrange for the publication in Ireland of communications of importance relating to Irish natural history, such as have hitherto been sent to this Journal. We shall be glad, therefore, if contributors will send to us new records and other matter which they deem important, and we will communicate to them what arrangements we may have been able to make regarding their publication. It seems to us desirable that such material should be published in the country to which it refers.

THE EDITORS.

THE FAUNA OF A HATCHERY FILTER.

BY R. SOUTHERN, B.SC.

DURING the present year the salmon hatchery at Glenties, Co. Donegal, on the River Owenea, now vested in the Department of Fisheries, has been reconditioned and greatly enlarged. In the course of these operations it was necessary to clean out and make certain alterations in the filter through which passes the water-supply for the hatchery boxes. The filter, which is built of brick and concrete, is divided by partitions of the same material into twelve compartments, each 4 feet by 3 feet 9 inches, the depth ranging from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet. They are filled with river gravel, the particles of which vary in size from coarse sand to large pebbles. In course of time, a certain amount of fine mud, derived mainly from peat, is deposited from the water in the interstices of the gravel. The water flows from one compartment to the other through openings which are alternately at the top and bottom of the partitions, and the whole filter is loosely covered with sheets of corrugated iron. The water is derived from the River Owenea and is led through a narrow sluice for 20 yards, and then through iron pipes for 35 yards. The intake of the sluice is on the right bank of the Owenea, about 200 yards above its junction with the Stracashel River.

It was on June 19th of this year, after the gravel had been emptied out of the filter and the compartments were still full of water that these notes were made of the fauna which had established itself. The filter had last been emptied and cleaned in July, 1923, and allowed to remain empty and dry till the end of October.

The catchment basin of this branch of the Owenea is composed of metamorphic rocks, mostly mica-schists containing occasional thin beds of crystalline limestone, quartzites, and altered basic intrusives (epidiorites). The limestone is not present in sufficient quantity to have much effect on the character of the water. The valley is cultivated, but the higher ground, where a number of lakes

lie, is mostly covered with upland pasture and peat bogs, and the water is typical of such a district, its character being determined by the absence of limestone in any quantity, and by the presence of non-calcareous rocks and peat. The water is soft and slightly acid, the hydrogen ion concentration (pH) being 6.8. The temperature of the water during the previous twelve months had ranged from 0° to 23° C.

The most conspicuous inhabitant of the filter was the gymnoblastic hydroid *Cordylophora lacustris* Allman, the stalks of which covered the walls of the compartments. This genus and species was first described by Allman¹ from material collected on an old submerged boat in the Grand Canal Docks, Dublin, in 1842. It does not appear to have been recorded subsequently from Ireland. It has been since found in various parts of Great Britain, in Belgium, Holland, Germany, Sweden and the United States. This species occurs most commonly and luxuriantly in brackish water. It was suggested by Prof. Carl Semper² that it had originally been an inhabitant of estuaries and the mouths of rivers. "Since that time, 1854, the animal has in many places migrated into rivers." There seems little evidence to support this statement, and it is now known to occur at localities far distant from the sea. This species, the only one of its group living in fresh water, would naturally be found most frequently near the sea, where it would attract the attention of students of the Hydrozoa. In fresh water, it shuns the open, it is inconspicuous, and so is easily overlooked. Kraepelin³ records *C. lacustris* as an important constituent of the fauna found in the pipes of the water-supply of Hamburg. In the year 1890, De Vries⁴ also observed it in large quantities in the pipes carrying the water-supply of Rotterdam.

¹ Proc. R. Irish Academy, 1844, vol. ii, p. 395; Phil. Trans. Roy. Soc., 1853, p. 367.

² Animal Life, p. 152.

³ "Die Fauna der Hamburger Wasserleitung." Abh. Naturwiss. Ver. Hamburg, ix., 1885.

⁴ "Die Pflanzen und Thiere in den dunkeln Räumen der Rotterdamer Wasserleitung." Bericht üb. d. Biolog. Unters. d. Crenothrix-Commission zu Rotterdam vom Jahre 1887.

Hydra vulgaris Pallas, was extremely abundant on the walls and bottom of the compartments. Swimming about in the water were numerous specimens of the copepod *Cyclops vulgaris* Koch,¹ mostly bearing egg-sacs, and a few immature water-mites. Several specimens of a small cladoceran *Chydorus sphaericus* O. F. Müller, and of the fresh-water shrimp *Gammarus pulex* (L.) were noted. In the mud at the bottom of the filter were numbers of large oligochaetes belonging to the species *Lumbriculus variegatus* Müller, very numerous specimens of a Chironomus larva living in long mud-covered tubes, and a few other insect larvae. A single specimen of the hair-worm, *Gordius* sp., doubtless introduced by some insect in which the larval stage is parasitic, was found, but the species to which it belonged was not determined.

In the forest of *Cordylophora* stems lived large numbers of oligochaetes. The common and widely spread species *Stylaria lacustris* (L.) was very abundant, and a few specimens of a rarer form, *Chaetogaster diaphanus* (Gruith.) were observed.

Floating on the surface of the water was a single specimen of a large ephemerid having a close superficial resemblance to a Mayfly. It has been examined² by Mr. M. Mosely and named by him *Siphylurus armatus* Eaton. This species has been found in various parts of Great Britain, and there is a single Irish record, from Killarney, but the species has apparently not yet been observed on the continent. This large and conspicuous insect would undoubtedly be called a Mayfly by anglers who were not experienced entomologists, and its presence in Ireland indicates the necessity of regarding with caution statements of the occurrence of Mayflies on waters where, for various reasons, one would hardly expect to find them.

Department of Fisheries, Dublin.

¹ I am indebted to Mr. A. C. Gardiner for the correct identification of this species.

IRISH SOCIETIES.

ROYAL ZOOLOGICAL SOCIETY OF IRELAND.

Among the gifts received during the year were a handsome consignment sent by the Canadian Government, including a pair of Wapiti, a pair of Rocky Mountain Goats, a pair of Rocky Mountain Sheep, and two Canadian Bears. A four-year old Lion was very generously presented by Sir R. Coryndon, the Governor of Kenya Colony. The Monkey-House was enriched with an Orang-utan, the gift of Mr. E. McG. Morphy, of Greystones; also with a Brown Capuchin Monkey from Mrs. Powell, a Macaque from Mr. A. Irlande, a Dog-faced Baboon and a Green Monkey from Mr. T. A. Finch, a Mona Monkey from Mr. C. H. Bretherton, and another from Mrs. Clendining, and a Rhesus Monkey from Miss Yeates. Other gifts include a pair of Leopards from Mr. W. Murphy, a pair of Great Grey Kangaroos from Dr. R. H. Fetherston of Melbourne, two Canadian Porcupines from Mr. M. Randolph, a Porcupine from Mr. H. E. Rogers, a Suricate from Miss Shackleton, a Seal from Mr. A. Irlande, a pair of Grey-backed Porphyrios from the Zoological Society of London, a pair of Adelaide Parrakeets from Mr. A. K. Minchin, of the Zoological Gardens, Adelaide, some Java Sparrows and Cardinals from an anonymous donor, two Elephantine Tortoises from Sir Joseph Byrne, of the Seychelles, and two Iberian Tortoises from Mr. Eugene O'Mahony. Gifts of native Irish animals include a Pine Marten from Co. Kilkenny, six Badgers, two Foxes, a Hedgehog, a Hare, a Kestrel, and a Pheasant. The Fish Hatchery was presented with 4,000 salmon ova from the Department of Agriculture, 4,000 more from the Lismore Fishery, and 15,000 trout ova from the Solway Fisheries.

Animals purchased include three Chimpanzees, a Yellow Baboon, a pair of Hamadryas Baboons, two Ruffed Lemurs, a Leopard, a Serval, two Sea-Lions, a pair of Polar Bears, a Russian Brown Bear, three Fennecs, a Zebra, a Tamandua Ant-eater, two Armadillos, a Woodward's Kangaroo, a Rat-tailed Opossum, two Tasmanian Devils, an Emu, a Piping Crow or Australian Magpie, six Flamingoes, a pair of Vulturine Guinea-Fowl, two Egyptian Kites, a Rough-legged Buzzard (from Co. Wicklow), a hundred mixed African seed-eating birds, a Leopard Tortoise, two Geometric Tortoises, and three Alligators. Two litters of Lion-cubs and two Bison calves were born in the Gardens during the year, as were also a Zebu calf, a Wapiti calf, and a Rocky Mountain lamb. Among animals placed on deposit should be noticed some very interesting birds—a number of Curassows, three Kagus, and two Ground Hornbills—as well as several Tree Frogs and Green Lizards.

The Gardens are at present particularly well stocked with Bears, the European, Himalayan, North American and Polar species of these animals being all well represented. The Elephantine Tortoises from the Seychelles—especially the larger of the two, which is credited with a weight of 15 stone—are also a feature of more than ordinary interest in the collection.

BELFAST NATURALISTS' FIELD CLUB.

MARCH 4.—The Sixth Winter Meeting of the Club was held, when an exceptionally large number of members and visitors assembled in the Museum for a "Rathlin Night." The President (Mr. J. A. Sidney Stendall) occupied the chair. Mr. S. A. Bennett dealt with the topography and geology of the Island, which is composed of indurated chalk and basalt, both giving finer cliffs than on the mainland only a few miles away. The chalk is much rifted with vertical joints which, under the erosion of the great Atlantic swell sweeping through the Rathlin Channel, give fine, tall narrow caves. The basalt cliffs, north of the Bull, are at one place seventy feet higher than Pleaskin Head, the finest of the Giant Causeway Cliffs.

Mr. J. A. Moffatt gave an account of the history of Rathlin. Captain Chase described the botany, and the President dealt with the zoology of the Island, especially the sea-bird life on the cliffs at the Bull, special mention being made of the Fulmar Petrel, the Chough, and the Raven.

The addresses which were the result of recent visits to Rathlin, *via* Ballycastle, were fully illustrated by lantern views by the President, T. E. Osborne, R. J. Welch, and the young son of the Rev. Mr. Stevenson, a former Rector. At the close a hearty vote of thanks was accorded to the speakers on the motion of Mr. A. McT. Cleland. Three new members were elected.

OCT. 21.—ANNUAL CONVERSAZIONE.—This year also the Club commenced the Winter session with a *conversazione*. There was a large attendance, the hall of the Assembly buildings being well filled. There was a large number of exhibits. The exhibit which attracted most attention was a section of shore of Strangford Lough, grass, pebbles, sand, mud, seaweed fringe with merganser nesting, various stuffed shore birds in their natural surroundings; this was about 40 square feet in area, arranged by the President and Vice-President.

During the proceedings there was a business meeting, in which the President (J. A. S. Stendall) referred to the change in the constitution, whereby only 50 members can be elected annually, and dwelt upon the importance of fostering the junior section.

An interesting ceremony then took place, when the newly-instituted medal of the Club was bestowed for the first time. This medal, designed in the form of the Club's seal, is only to be given to members of ten or more years' standing who have contributed materially to the advancement of scientific or antiquarian knowledge in Ireland. It can only be awarded once a year, and may be withheld should there be no member eligible. The medal is struck to commemorate the Club's jubilee, celebrated in 1923, and this year both the 1923 and 1924 medals were given. The honour of being the first recipient goes to William Swanston, F.G.S. The 1924 medal has been awarded to Nevin H. Foster, F.L.S., M.R.I.A., M.B.O.U.

Mr. Swanston, unfortunately, was prevented by illness from being present, but Mr. Foster acknowledged his medal in a brief speech, in which he also emphasised the importance of the junior section. Junior prizes were awarded to Miss Agatha Crawford, Master R. H. Crawford, Miss Nora Stendall, and Miss Nora O'Neill.

DUBLIN NATURALISTS' FIELD CLUB.

JUNE 14.—EXCURSION TO KILMASHOGUE. A party of eleven, conducted by A. W. Stelfox, having gone by the 2.30 train from Harcourt Street to Dundrum, walked out to St. Columba's College, where they were met and kindly shown over the grounds by the Warden, and on passing out were joined by some of the students for the walk up the mountain. Within the College grounds some interesting fungi were seen, and a fine example taken of the red-tailed "usurper bee" *Psithyrus rupestris*. On the slope of the mountain a fair number of bog-plants were seen in flower, though the season was distinctly late; *Galium uliginosum* was found in some plenty. A few of the party proceeded to Caldbeck's Castle. The return was made across the head of the Little Dargle to Doyle's tea-house, which was reached at 7 o'clock. At a short business meeting after tea a new member (Mr. G. Connor) was elected, and the members then walked back to Dundrum in time to catch the 9 p.m. train home.

JULY 5.—EXCURSION TO HOWTH.—A party of nine leaving Amiens Street at 1.30 were met on leaving the summit tram at Baily Post Office by Miss Knowles, Miss Massy, and Miss A. Kinahan, who guided the party down to the beach below Earl's Cliff, where about two hours were spent, Miss Knowles pointing out the remarkable zoning of the algae, Miss Massy showing some interesting shells and Miss Kinahan some of the less common phanerogams, including the Red-berried Bryony (*Bryonia alba*), of which both sexes were seen in abundant flower. A good view was obtained of a Seal, who was intent on observing the movements of the party. Professor Bayley Butler, at a later stage, joined the excursion and showed the members through his Department's gardens at the Lion's Head. The afternoon proving continuously wet, the return was made by tram to Howth, where tea was provided at the Cosy Café, a short business programme gone through, and a new member (Mr. Alfred Miller) elected. The return to Dublin was made by the 6.30 train.

SEPTEMBER 13.—EXCURSION TO THE NORTH BULL.—Leaving the Pillar by tram at 1.30 a party of about twenty spent the afternoon in studying the plant-associations and other features of interest in the botany of the North Bull, under the guidance of Professor Doyle, J. P. Bruncker rendering important assistance. The idea of a complete survey of the natural history of the Bull was much discussed towards the close of this excursion. Tea (in the garden) was provided at the Dollymount Restaurant; a short business programme was gone through, and a new member (Mr. J. Butler) elected to the Club.

OCTOBER 11.—EXCURSION TO LUCAN. The last excursion of the Club took (as usual) the form of a fungus foray, and was conducted through Lucan demesne (with the kind permission of the proprietor) by M. J. Gorman. There was a large attendance, and great interest was taken

in the conductor's exposition of the distinguishing features of the various fungi found, but the season was distinctly adverse to the finding of any large assortment—the lack of sunshine being the probable reason of this. After tea at the Freshfield Hotel, near Leixlip, the party returned by tram to Dublin, reaching Kingsbridge soon after 7 p.m.

ROUTE NATURALISTS' FIELD CLUB.

AUGUST 16. An excursion was made to the Grianan of Aileach by motor *via* Coleraine and Londonderry.

A technical description of the palace was given by Mr. J. J. Phillips, who pointed out that this residence was one of the most remarkable and important of its kind erected by the ancient Irish as the palace of the Northern Irish kings from the earliest age of historic traditions down to the commencement of the twelfth century.

OBITUARY.

George Chichester May, K.C.

We deeply regret to record the death of George Augustus Chichester May, who, after several years of declining health, expired on the 3rd of November, at his English home (The Down House, Shawford, Hampshire). The son of a former Lord Chief Justice of Ireland, Mr. May graduated at Trinity College, Dublin, in 1880, and lived in Dublin until about three years ago, when his doctors advised him that change of climate was essential. His loss was felt with especial severity by all who were interested in the movement for protection of Irish birds, this being the subject of his greatest enthusiasm and most persevering efforts. Though making little profession to expert knowledge, he occasionally contributed to this Journal and to a few English scientific papers notes that showed habits of careful observation. He was President of the Dublin Naturalists' Field Club in 1920 and 1921, and maintained his interest in the Club, as well as in the protection of Irish bird-life, after his removal to England.

NOTES.

Black Redstart on Migration.

In a letter from the Fastnet Rock lighthouse, written on November 3rd, Mr. P. Heneghan informs me that "a flock of slate-coloured birds with yellow tails" visited the rock during October, and were objects of much interest to himself and his shipmates. A specimen picked up dead which he forwarded for identification proved (as the description would have suggested) to be a Black Redstart—a species that has, perhaps, been more frequently received from the Fastnet than from any other Irish station. I think the statement that these birds came in a flock is of sufficient interest to deserve record. In More's and Barrington's Irish Migration Reports a few instances are noticed of parties of ten and even twenty Black Redstarts having been seen at the Tearaght and Skelligs; but definite evidence of gregarious migration on the part of this little bird—so thinly distributed as a rule during its visits here—is scanty enough to give considerable value to Mr. Heneghan's note.

List of Irish Birds.

We have reason for believing that the National Museum will soon be able to offer to the public a new List of Irish Birds, which has been prepared and brought fully up to date by Mr. A. R. Nichols. Such a list will certainly be a real boon to students of nature. It may, no doubt, be expected to follow in the main the lines of the previous lists drawn up by A. G. More (1885 and 1890) and by R. J. Ussher (1908), serving at once as a concise work of reference regarding the ornithology of Ireland and as a ready guide to the collection of Irish birds in the Museum. As much interesting matter has come to light during the sixteen years that have elapsed since the publication of Mr. Ussher's list, a new issue, revised in the thorough manner that may be expected from so good an authority as Mr. Nichols, is plainly called for.

The Beaked Whales.

There are many references in the past volumes of this Journal to Irish whales. A particularly troublesome group to identify are the Whales belonging to the genus *Mesoplodon*. They are included among the "Beaked Whales," have a wide distribution and most of them are rarely met with. As the skulls and skeletons of these whales are scattered in various museums of the world comparison between them becomes a difficult task. In a reference to Sir Sidney Harmer's new Irish Beaked Whale in the Nov.-Dec. *Irish Naturalist* of 1919, allusion was made to a further detailed study by the same author on the Beaked Whales. This has now been published in a paper on "Mesoplodon and other Beaked Whales" (*Proc. Zool. Soc. London*, 1924, part ii, pp. 541-587). Sir Sidney Harmer now gives us a much better account of the salient characters of the species of *Mesoplodon*. He particularly directs attention to the form of the base of the rostrum and to the autorbital region of the Beaked Whales. The only Beaked Whale which is at all common in Irish waters is the Bottle-nosed Whale (*Hyperoodon rostratus*). Of the genus *Mesoplodon* one species has been known for a considerable time as being occasionally met with on our coasts, viz., *M. bidens*. A whale described by the late Prof. Anderson as *Mesoplodon hectori* was first obtained on the Galway coast and is now definitely ascertained to be *M. mirus*. Another species of Beaked Whale (*Ziphius cavirostris*) has been met with on the Wexford coast as already commented on (*Irish Nat.*, vol. xxv., p. 68).

Limax cinereo-niger at Howth.

While collecting on a rocky heather-covered slope near Shielmartin, Howth, last August, I took from under a stone a slug which Mr. A. W. Stelfox identified as *Limax cinereo-niger* Wolf. var. *punctata* Less. This is apparently a new locality for the species so far as the Dublin district is concerned, as Mr. Stelfox knows of no records except those from the mountains and glens of South County Dublin and Wicklow.

The White Form of *Orchis Fuchsii*¹ and *Orchis O'Kellyi*.

It is with considerable diffidence that I venture to deal with this subject, but I consider that it is best to draw the attention of botanists to the probability that the *Orchis O'Kellyi* Druce² of Co. Clare is not synonymous with the white-flowered forms of *O. Fuchsii* Druce, which are widespread throughout Ireland and no doubt other places. The discovery is not mine, but, as we might expect, that of Mr. R. A. Phillips.

It is more than 10 years since Mr. Phillips told me he believed the white orchid of the Burren hills in Co. Clare to be distinct. This summer I spent the month of July in Co. Clare and had ample opportunity of considering Mr. Phillips's suggestion. I had no hesitation in coming to the same conclusion, though whether the distinctions between *O'Kellyi* and ordinary white *Fuchsii* are specific differences is quite another matter. At any rate I am convinced that Dr. Druce is mistaken in referring to his own *O'Kellyi* the ordinary white *Fuchsii* which I sent him from the Dublin district some two or three years ago, and which I understand—though I may be wrong—passes under the name of *O'Kellyi* with most botanists.

My first experience of *O'Kellyi* was last July, a few miles north of Ballinalackan and just to the north of Poulsallagh. The stiff upright growth of the plant, its glaucous leaves and stems and the strong sweet scent of the flowers, as pointed out to me by Mr. Phillips, were at once evident. But what attracted my attention most was the fact that though growing in the greatest profusion, there was no typical *Fuchsii* growing with it; and that it was just coming into flower, while a couple of miles south of the spot, I had just seen an abundant growth of *Fuchsii* (growing amidst the same plant associations), which was almost out of flower—many spikes indeed were quite over. Closer inspection of *O'Kellyi* at once drew my attention to the crinkled edge of the labellum, which in shape was more that of *ericetorum* Linton, than of typical *Fuchsii*, the lateral lobes being somewhat broad and rounded, though there is considerable variation, of course. Moreover, I soon discovered that all the plants had not perfectly white flowers; a considerable percentage having these flushed with a magenta-purple. At first these suggested the possibility that they might be hybrids with *Fuchsii*; but even in the most highly coloured specimens, *no trace of the normal Fuchsii markings appeared on the petals*. The conclusion I came to therefore was that *O'Kellyi* is not an albino form in the true sense of the word and in support of this I would add that the anther of *O'Kellyi* is not pink as in white *Fuchsii* but a rich buff-yellow, a fact which was pointed out to me by Mr. J. P. Brunner, to whom I had sent specimens of both orchids from Co. Clare. The white *Fuchsii* I speak of was taken near

¹ I use this name to avoid ambiguity, as the controversy over the name *O. maculata* L. still waxes strong.

² Originally discovered by Mr. P. B. O'Kelly of Ballyvaughan, Co. Clare, who named it *O. immaculata*, but did not describe it.

the foot of the Caher Valley, just south of Black Head, and was growing within a few yards of *O'Kellyi*, from which it was at once recognised as distinct by the eye. I am permitted to say that Miss M. C. Knowles, to whom I had forwarded fresh specimens from Clare, agrees with me in what I have written above, and Mr. R. A. Phillips is still of the same opinion. Miss Knowles has also told me that even when the plants arrived in Dublin, the scent of the flowers, which I would liken to almond-essence, was quite perceptible. Although perhaps not unscented, I do not think that the flowers of *Fuchsii* ever smell so strongly and sweetly. The leaves of *O'Kellyi* are of course always unspotted.¹

A. W. STELFOX.

National Museum, Dublin.

Mosses of Rathlin Island.

During a week's visit to Rathlin, July-August, 1924, I gathered the following mosses which have not so far been recorded from the island:—*Catherinea undulata* Web. and Mohr., *Polytrichum urnigerum* L., *P. piliferum* Schreb., *Dichodontium pellucidum* Schp., *Campylopus flexuosus* Brid., *Fissidens bryooides* Hedw., *Rhacomitrium heterostichum* Brid., *Hedwigia ciliata* Ehrh. (scarce), *Tortula laevipila* Schwaeg. (one tuft only on apple tree behind the Manor house; S. A. Stewart may have been mistaken about this moss; he gives it as rupestral whereas it is almost entirely arboreal—*vide* Dixon's "Handbook"); *T. intermedia* Berk., *T. ruralis* Ehrh., *Barbula unguiculata* Hedw., *Weisia curvirostris* C. M. (*vide* H. N. Dixon), *Funaria hygrometrica* Sibth., *Mnium undulatum* L., *Pterygophyllum lucens* Brid. (only one tuft seen); *Pterogonium gracile* Swartz (seen at Brockley, only on a single stone), *Climacium dendroides* Web. and Mohr. (this moss, common elsewhere, is rare on Rathlin), *Brachythecium rivulare* B. and S., *Eurhynchium myurum* Dixon, *Plagiothecium denticulatum* B. and S., *Hypnum stellatum* Schreb., *H. revolvens* Swartz, *H. commutatum* Hedw., *H. Patientiae* Lindb. (confined to one field), *H. giganteum* Schp., *Hylocomium splendens* B. and S., *H. triquetrum* B. and S. (not common).

W. R. MEGAW.

Belfast.

¹ Dr. Druce in his original diagnosis (*Irish Nat.* vol. xviii., p. 211) gives the leaves as spotted, but five lines further down says they are unspotted.

REVIEW.

Insects: Their Structure and Life. A primer of Entomology. 2nd edition, revised. By GEORGE H. CARPENTER, D.Sc. J. M. Dent and Sons, Ltd. London and Toronto. 1924.

We must congratulate Dr. Carpenter on the issue of a second edition of his well known and very useful book. This edition is enriched by four very beautiful colour-printed plates illustrating the protective modifications of colour in caterpillars under the influence of their surroundings (after Poulton); forms of British moths showing Mendelian inheritance (after Bateson); oriental silk moths and their cocoons (after Watson); and mimetic forms of a South African butterfly, *Papilio dardanus*, and the four species which the varieties of its female imitate.

The chapter on the Evolution of Insects has been mainly rewritten and some other parts of the book are "brought up to date," always a difficult and somewhat unsatisfactory labour. We note that the queen wasp in Fig. 174 is still very unlike the species—*Vespa sylvestris*—which it purports to be. But no matter—and we hope this edition will serve its purpose as well as the first edition appears to have done.

A. W. S.

A PROPOSED NEW JOURNAL.

The Belfast Naturalists' Field Club has under consideration a proposal to establish under its auspices a monthly magazine of natural history, archaeology and literature. Such a venture being beyond the means of the Club it is at present seeking to ascertain the measure of support likely to be received from outside sources, by way of guarantee or annual subscription.

It is proposed that the magazine should be not only a journal of scientific records, but to a large extent a popular magazine, with comments, personal notes, reviews, etc., and thus made to appeal to all interested in natural history, antiquities or literature. A special feature, it is hoped, will be its helpful advice to those engaged in the teaching profession throughout the country.

Several offers of financial assistance have been received, though many more are needed. The guarantee fund is unlimited, with a minimum of half a guinea, and offers of support should be sent to either of the undersigned. It is calculated that the proposed magazine would cost £200 per annum to print less advertising space, while the promoters are anxious that the annual subscription be not more than 6s. The editorial staff will consist of specialists in the several departments under a Chief Editor, and its work will be entirely voluntary.

A. W. STELFOX.

National Museum, Dublin.

JAMES ORR,

Museum, College Sq. N., Belfast.

THE IRISH NATURALIST.

VOLS. XXVI-XXXIII.

AUTHOR INDEX.

With the last number of vol. xxv. (1916) we issued an Author Index to the first twenty-five volumes of the "Irish Naturalist" which was kindly compiled for us by the late Mrs. Scharff. We now issue a similar Index for the succeeding eight volumes.

THE EDITORS.

- Abbott, Wm. :
1918. Scarcity of Fieldfare and Redwing, **27**, 79.
Jays feeding on Wheat, **27**, 131-2.
1919. Large Flock of Ring Doves in Spring, **28**, 94.
1920. Bramblings in North-east Cork, **29**, 27.
1922. Squirrels in Co. Cork, **31**, 83.
1923. Sandwich Terns at Rosslare, Co. Wexford, **32**, 30.
Migration of Swallows in South-east Wexford, **32**, 40-2.
Homing Instinct in Swift, **32**, 76.
- Adams, A. :
1918. Prehistoric Settlements on Lough Neagh (abstract), **27**, 30.
- Allen, W. N.—Exhibits :
1917. *Dictydiaethalium plumbeum*, **26**, 33.
1919. Slides of Hepaticae, **28**, 51.
- Archer, J. E. :
1924. Lough Neagh in Legend and history (abstract), **33**, 43.
- Armstrong, Edward A. :
1922. At home with Fur and Feather (abstract), **32**, 24.
1923. Shakespeare's "Scamel," **32**, 19.
Squirrel in Ireland, **32**, 50.
- Baker, E. G. :
1920. British Stork's-bills (noticed), **29**, 58.
- Baring, Cecil :
1918. Lepidoptera of Lambay, **27**, 65.
1920. Note on Fauna of Lambay, **29**, 69-70.
1921. *Acherontia atropos* on Lambay, **30**, 135.
1922. Ravens at Lambay, **31**, 34.
1924. Woodcock Breeding on Lambay, **33**, 54.
- Belfast Natural History and Philosophical Society :
1923. **32**, 4, 127-8.
1924. **33**, 43.
- Belfast Naturalists' Field Club :
1917. **26**, 14-5, 52, 85, 152-4, 185.
1918. **27**, 30, 50, 68, 74, 90, 110, 150.
1919. **28**, 24, 42, 52-3, 78.
1920. **29**, 67, 73-4, 117.
1921. **30**, 14-5, 22, 38-9, 50, 60-1, 68, 83-4, 99-100, 112, 133-4, 143-4.
1922. **31**, 24, 31-2, 45-6, 70-1, 80-1, 87-8, 131-2, 139.
1923. **32**, 5-6, 29, 49-50, 64, 82-4, 103-4, 128.
1924. **33**, 11-12, 29, 100, 111-2, 139.
- Bell, Alfred :
1919. Fossil shells from Wexford and Manxland, **28**, 109-14.
1922. British Oysters, Past and Present (noticed), **31**, 33.
- Bell, Robert :
1922. Swans on Strangford Lough, **31**, 140.
- Bennett, Arthur :
1919. *Potamogeton panormitanus* in Ireland (noticed), **28**, 106.
- Bennett, S. A. :
1921. Comer Estuary (abstract), **30**, 143-4.
1924. Topography and geology of Rathlin (abstract), **33**, 139.
- Bennis, Ernest H. :
1919. *Carabus clathratus* in Co. Clare, **28**, 91.
- Benson, Charles W. :
1917. Summer Migrants at Balbriggan in 1916, **26**, 54.
1918. Stray Bird Notes, Autumn, 1917, **27**, 14.
Bird Notes from Balbriggan, **27**, 173.

- Berry, Basil, and Patrick Berry :
 1923. Curious Sites for Robins' Nests, **32**, 62.
- Betegh, L. von :
 1917. *Hydrocoele embryonalis* (noticed), **26**, 122.
- Beveridge, Fred S. :
 1918. Green Sandpiper in Co. Westmeath, **27**, 112.
- Beveridge, G. S. :
 1919. Jay in Westmeath, **28**, 44.
- Bigger, F. J. :
 1918. Pigeons in Belfast, **27**, 65.
- Bingham, J. N. :
 1922. Combats of Butterflies, **31**, 81.
- Blackwood, G. G. :
 1923. Beech Fern in Co. Cavan, **32**, 107.
- Bolam, George :
 1918. Owls and Sparrow Hawks clapping their wings, **27**, 15.
- Bonaparte-Wyse, L. H. :
 1919. *Argynnis aglaia* in East Waterford, **28**, 12.
Leucophasia sinapis in Co. Cork, **28**, 92.
 1920. Coleoptera and Lepidoptera from Co. Kerry, **29**, 61-64.
 1921. Obituary of Canon W. W. Flemyng, **30**, 148.
 1923. Fortnight's Entomology in Co. Waterford, **32**, 9-17.
 1924. Coleoptera from South Kerry, **33**, 125-8.
- Brade-Birks, Hilda K., and S. Graham Brade-Birks :
 1918. Notes on Myriapoda. VIII. Recent Additions to Irish Fauna, **27**, 27-9.
 1919. Notes on Myriapoda XV. Miscellaneous, **28**, 4-5.
- Bradshaw, D. B. :
 1917. *Filago minima* at Howth, **26**, 17.
- Brambell, F. W. R. :
 1924. Records of Irish Birds in Collection of late Henry Blake Knox, **33**, 101-8.
- Brierly, J. C. A. :
 1922. Radio-Activity in relation to Geology (abstract), **31**, 45-6.
- Britten, James :
 1919. Irish Plants (noticed), **28**, 44.
- Brunker, J. P. :
 1918. New Station for *Lathraea squamaria* in Co. Dublin, **27**, 110.
 1919. Plants of Co. Louth, **28**, 95.
 1920. Marsh Tit in Dublin, **29**, 133.
 1921. *Cnicus pratensis* in Co. Dublin, **30**, 79.
 1922. Plants of Co. Dublin, **31**, 94-5.
 1924. Increase of *Saxifraga stelleris* in Glenasmole, **33**, 68.
 Botanical Records for Co. Wicklow, **33**, 114-6.
- Bullock-Webster, G. R. :
 1917. Characeae of Fanad, East Donegal, **26**, 1-5.
Tolypella nidifica, Leonh., **26**, 134-5.
 1918. Characeae of the Rosses, West Donegal, **27**, 7-10.
 1919. A New *Nitella*, **28**, 1-3.
Tolypella glomerata var. *erythrocarpa* (noticed), **28**, 106.
 1920. Some Charophyte Notes, 1919, **29**, 55-8.
- Burkitt, J. P. :
 1917. Migrant Notes, **26**, 103.
 Wood Wren in Fermanagh, **26**, 196.
 1918. Some notes on Birds, especially the Whitethroat, **27**, 140-7.
 1919. The Wren, **28**, 85-9.
 Relation of Song to the Nesting of Birds, **28**, 97-101.
 1920. A Brambling Season, **29**, 59.
 Common Wren, **29**, 68, 107.
 Bird Notes from Co. Fermanagh, **29**, 71-2.
 1921. Relation of Song to Nesting of Birds, **30**, 1-10, 113-124, 136.
 Migration Season of the Corncrake, **30**, 16.
 Wren, **30**, 26.
 1922. Song of Birds, **31**, 55, 117-125.
 1924. Observations on Robin (noticed), **33**, 74-5, 123.
- Burrows, C. R. N. :
 1918. Irish Psychid Moths, **27**, 11-12.
- Butler, J. Bayley :
 1924. Mechanical Problems of Seashore (abstract), **33**, 99.
- Butler, J. G. :
 1922. Eskers of Ireland, **31**, 35-6.
- Butterfield, E. P. :
 1920. The Common Wren, **29**, 21-2, 123-4.
- C., J. :—
 1922. Hares in Belfast, **31**, 84.

- Callaghan, H. R. :
 1920. Glacial and Postglacial Deposits of Waterville, Co. Kerry, **29**, 81-8.
- Campbell, D. C. :
 1917. Hoopoe in Co. Donegal, **26**, 195.
 1919. Hoopoe in Inishowen, **28**, 93.
 1921. Time of Singing of Birds, **30**, 75-7.
 1923. Stock-Dove breeding in Co. Londonderry, **32**, 7.
 Early Flowers, **32**, 52.
- Carpenter, D. J. :
 1924. Common Objects of the Seashore (abstract), **33**, 29.
- Carpenter, G. H. :
 1917. Useful Studies for Field Naturalists, **26**, 66-70.
 Review of P. H. Grimshaw's "Guide to Literature of British Diptera," **26**, 100.
 Review of A. McHenry's "Geological Map of Dublin Area," **26**, 102.
 Notes on Dublin Gorilla, **26**, 125-30.
 1918. Obituary of William Francis de Vismes Kane, **27**, 97-101.
 1919. Importance of Rats and Mice, **28**, 49-50.
 Warfare of Animals (abstract), **28**, 53.
 Review of H. S. Gladstone's "Birds and the War," **28**, 96.
 1920. Review of J. Cash and G. H. Wailes' "British Freshwater Rhizopoda and Heliozoa," **29**, 24.
 Review of S. C. Johnson's "Pastimes for the Nature Lover," **29**, 24.
 Review of W. J. Lucas' "Monograph of British Orthoptera," **29**, 92.
Aeschna juncea at Inishtrahull, **29**, 132.
 1922. Further Observations on Life-History of Warble-Flies, **31**, 77-9.
 1923. To Readers of the "Irish Naturalist," **32**, 3.
- Carpenter, G. H.—Exhibits.
 1917. Pupa of female Snake-fly, **26**, 32.
 Parasite Monocystis, **26**, 33.
 Jaws of Turnip Moth, **26**, 104.
 Jaws of Wireworm, **26**, 152.
Symphylurinus Grassii var. *aethiopica*, **26**, 187.
 1918. Reproductive organs of Warble-fly, **27**, 16.
 1918. Jaws of Mayfly, **27**, 30.
 Spiracles of Horse Bot larva and Ox Warble Maggot, **27**, 51.
 Larval flat fishes, **27**, 75.
 Spiracles of larva of Warble-flies, **27**, 91.
 1919. Feeler of Common House-fly, **28**, 8.
 Jaws of *Bibio marci*, **28**, 51-2.
 1920. Ovary of noctuid moth, **29**, 28.
 1921. Snowy Fly and Vine Coccid, **30**, 67.
Tarsonemus Woodi in Hives, **30**, 135.
- Carroll, C. J. :
 1917. Little Bustard in Co. Clare, **26**, 36.
- Chase, Corrie D. :
 1922. County Down Plants, **31**, 95.
 1923. Down and Antrim Plants, **32**, 96.
- Chavasse, H. :
 1917. *Anosia archippus* in Co. Cork (noticed), **26**, 18.
- Clampett, G. T. :
 1922. Review of "The Provinces of Ireland," ed. by G. Fletcher, **31**, 91-3.
- Clarke, R. :
 1919. Obituary of Alexander MacHenry, **28**, 102-4.
- Clarke, W. Eagle :
 1917. Recovery of a Woodcock supposed to have been ringed in Ireland, **26**, 139.
 1918. Woodcock marked in Ireland and recovered in Shetland, **27**, 15.
- Cleland, A. McL. :
 1919. Interim Report of Strangford Lough Survey Sub-Committee of Belfast Naturalists' Field Club (abstract), **28**, 24.
- Cole, Grenville A. J. :
 1918. Obituary of Edward Hull, **27**, 17-19.
 1920. An Irish Cretaceous Cirripede, **29**, 59.
 1921. Meteorite of Crumlin, Co. Antrim, 1902, **30**, 73-4.
Adare Meteorite, **30**, 78.
 1922. Alleged Eruption of Knocklayd, **31**, 85-7.
 Review of O. J. R. Howarth's "The British Association—a Retrospect," **31**, 103-2.

- Colgan, N. :
 1917. *Elymus arenarius* and *Asparagus officinalis* on North Bull, Dublin, **26**, 34-5.
 Note on *Pectinaria Koreni* from Dublin Bay, **26**, 136-8.
 Apparent Mnemic Action in *Chlora perfoliata*, **26**, 189-93.
 1918. Lusitania and Kerry, Botanical Contrast, **27**, 20-6.
 Notes on some Alien Plants of Co. Dublin, **27**, 86-90.
 On the Reproduction of the Common Garden Snail, *Helix aspersa*, **27**, 165-170.
- Colgan, N.—Exhibits :
 1917. Varieties of orchid seeds, **26**, 70-1.
 Papillae of seed of Common Groundsel, **26**, 186.
 1918. Sclereids of fruit of *Ericaceae*, **27**, 75.
- Collinge, Walter E. :
 1918. *Porcellio Rathkii*. A woodlouse new to Irish fauna, **27**, 1-2.
- Cork Camera and Field Club :
 1924. **33**, 24.
- Cork Naturalists' Field Club :
 1917. **26**, 15-6.
 1918. **27**, 51.
- Cosmos Club :
 1918. **27**, 76.
- Cott, H. B. :
 1922. Notes on the Birds of Inishbofin, **31**, 34-5.
- Crawford, W. :
 1921. Aberration of *Argynnis aglaia*, **30**, 15.
- Dahl, Dr. and C. H. Ostenfeld, :
 1918. *Arenaria ciliata* (noticed), **27**, 95.
- Dalton, H., and M. Dalton :
 1920. *Leucophasia sinapis* in Co. Dublin, **29**, 132.
- D'Arcy, Charles F. :
 1920. Nathaniel Colgan. An Appreciation, **29**, 23.
- Darling, J. Ffolliott :
 1919. Pollan in Lough Ree, **28**, 93.
 Incubation of Birds, **28**, 93.
- Deane, A. :
 1924. Large Irish Elk Antlers, **33**, 74.
- Delap, M. J. :
 1921. Drift on Kerry Coast, **30**, 40.
 1922. Breeding of Fulmar Petrel in Ireland, **31**, 130.
 Swans in Valencia Harbour, **31**, 140.
 1924. Plankton of Valentia Harbour, 1906-23, **33**, 1-6.
- Dixon, H. N. :
 1922. Butterfly Habits, **31**, 81-2.
 1923. *Porotrichum angustifolium* in Ireland, **32**, 45-7.
- Donisthorpe, Horace St. J. K. :
 1917. *Elater praeustus* F., an Irish Beetle, **26**, 99-100.
 1919. Wasps attacking Flies, **28**, 107.
 1921. *Gymnetron squamicolle* Reitter, a Beetle new to the British List, **30**, 135.
- Doveton-Dunlop, H. W. :
 1923. Kingfisher at Blackrock, Co. Dublin, **32**, 7.
- Douglas, S. R. :
 1918. Migration of Woodcock, (noticed by W. H. Workman), **27**, 92-5.
- Doyle, J. :
 1924. Plant Life in Tropics (abstract), **33**, 98.
- Dublin Microscopical Club :
 1917. **26**, 13-14, 32-3, 70-1, 85, 104, 152, 186-7.
 1918. **27**, 16, 29-30, 51, 68, 75, 91, 171.
 1919. **28**, 8, 41-2, 51-2, 79, 120, 133.
 1920. **29**, 20, 28, 35, 130-1.
 1921. **30**, 13, 37-8, 67, 84, 135, 143.
 1922. **31**, 7, 23, 31, 137.
 1923. **32**, 29, 50.
 1924. **33**, 10, 23, 42.
- Dublin Naturalists' Field Club :
 1917. **26**, 15, 85-6, 124, 138-9, 187-8.
 1918. **27**, 31, 50-1, 90-1, 160-1.
 1919. **28**, 43.
 1920. **29**, 35-6, 115-7, 130.
 1921. **30**, 22, 39, 50, 100, 132-33, 144.
 1922. **31**, 46-7, 60, 80, 137-9.
 1923. **32**, 92-4.
 1924. **33**, 98-100, 140-1.
- Dunbar, K. :
 1918. Life History of some British Lepidoptera (abstract), **27**, 50.

Editors :

1917. Records of Irish Birds, **26**, 19, 194.
 Review of W. H. Fitch's "Illustrations of British Flora," **26**, 33.
 Obituary of William Gray, **26**, 47.
 New Science Club, **26**, 71.
 Prof. G. A. J. Cole, F.R.S., **26**, 135.
1918. *Sedum Drucei*, **27**, 31.
 Obituary of William Hugh Patterson, **27**, 76.
 Obituary of Robert Oliver Cunningham, **27**, 128-9.
 Obituary of Alice Scharff, **27**, 162.
 Obituary of Arthur B. E. Hillas, **27**, 162.
1919. Records of Irish Birds, **28**, 94, 136.
 Review of F. Robson's "The Seashore" **28**, 105.
 Review of F. W. Frohawk's "Birds Beneficial to Agriculture," **28**, 105.
1920. Obituary of George Macloskie, **29**, 23.
 Age of a Plaice, **29**, 25.
 Notice and Review of W. H. Mullen, H. K. Swann, and F. C. R. Jourdain's "Geographical Bibliography of British Ornithology," **29**, 26, 128-9.
 National Museum, **29**, 60.
 Bird Photographs, **29**, 76.
 To Our Readers, **29**, 135.
1921. Obituary of Sylvanus Wear, **30**, 23.
 Records of Irish Birds, **30**, 40.
 Review of Cardiff Naturalists' Society's "Faunistic Survey of Glamorgan," **30**, 70.
 Zoology in Dublin University, **30**, 84.
 Obituary of W. J. C. Tomlinson, **30**, 108.
1922. National Museum, **31**, 47.
 "The Irish Naturalist," **31**, 65.
 Belfast Naturalists' Field Club, **31**, 96.
 Review of H. N. Milligan's "Horniman Museum," **31**, 116.
1923. Belfast Natural History Museum, **32**, 18.
 Records of Irish Birds, **32**, 31.
 Migration of Swallows in S.E. Wexford, **32**, 42.
 Squirrel in Ireland, **32**, 50-1.
- Review of S. Wear's "Second Supplement to, and Summary of Stewart and Corry's Flora of North-East of Ireland," **32**, 108.
 Obituary of Madame Christen, **32**, 108.
1924. Irish Natural Science, **33**, 7.
 Greenland Halibut in Irish Waters, **33**, 30.
 Spoonbill and Great Spotted Cuckoo in Kerry, **33**, 30-1.
 Rough-legged Buzzard in Co. Wicklow, **33**, 31.
 An Ornithological Chestnut, **33**, 96.
 F. W. R. Brambell, **33**, 108.
 The "Irish Naturalist," **33**, 113.
 To Our Contributors, **33**, 134.
 Obituary of George Chichester May, **33**, 141.
- Farran, G. P. :
 1922. Obituary of Ernest W. L. Holt, **31**, 97-9.
 1923. Rare Fishes in Irish Waters, **32**, 106-7.
- Fleming, William W. :
 1917. Hoopoes in County Waterford, **26**, 140.
Colias edusa near Tramore, Co. Waterford, **26**, 193.
 1918. Sphinx convolvuli attacked by Larvae of Dipteron, **27**, 13.
 A Magpie's Flight, **27**, 96.
 1919. *Argynnis aglaia* in Co. Waterford, **28**, 55.
- Foster, G. :
 1924. *Mamestra persicariae* and *Aporophyla nigra*, **33**, 46.
 Kerry Moths, **33**, 46-7.
- Foster, Nevin H. :
 1917. Measurements and Weights of Birds' Eggs, **26**, 41-7.
 Mourne Mountains (abstract), **26**, 52.
 Waxwing in Co. Down, **26**, 54.
 Winter of 1916-17 and its Effect on Bird-Life in Co. Down, **26**, 118-20.
 Migrant Notes, **26**, 122-3.
 Departure of Swifts, **26**, 195.
1918. Early Arrival of Spring Migrants, **27**, 96.
Draba muralis in Co. Down, **27**, 110-11.
Spiranthes Romanzoffiana in Co. Armagh, **27**, 103.

1919. Early Arrival of Redwings and Fieldfares, **28**, 107.
1920. Bewick's Swan in Co. Down, **29**, 26.
Greenland Falcon at Lambay, **29**, 68.
Ulster Myriapods (noticed), **29**, 88.
Migration of Goldfinch, Lesser Red-poll and Lapwing, **29**, 104.
1921. Return of Golden-crested Wren and Long-tailed Titmouse, **30**, 15.
Birds' Songs at Hillsborough, Co. Down, **30**, 20-1.
Armadillidium vulgare, **30**, 61-2.
1922. Birds of Hillsborough, Co. Down (noticed), **31**, 12.
Hairy-armed Bat in Co. Down, **31**, 35.
Early Swallow, **31**, 55.
Birds, extinct and living (abstract) **31**, 71.
1923. Sleeping Habits of Tree-Creeper, **32**, 1-2.
Greenland Wheatear in Co. Derry, **32**, 6.
Egg of Fulmar Petrel, **32**, 7.
Early Arrival of Chiffchaff in Co. Down, **32**, 51.
Variation in Size of Eggs of Little Tern, **32**, 86.
Swifts in May, 1923, **32**, 86.
Comparison of Eggs and Down of Pochard and Tufted Duck, **32**, 94.
Arrival of Spring Migrants in 1923, **32**, 95.
Fox in County Down, **32**, 96.
1924. British Gulls, Terns, and Skuas (abstract), **33**, 20.
Hieracium pellucidum and H. serratifrons in Co. Down, **33**, 47-8.
Hooded Crow at Hillsborough, **33**, 66.
Spotted Crake in Co. Louth, **33**, 124.
- Friend, Hilderic :
1922. Irish Enchytraeids in the Faroes, **31**, 112-14.
- Gilmore, J. :
1923. Coal Bore at Washing Bay, Lough Neagh (abstract), **32**, 93.
- Gorman, M. J. :
1923. Fungus Galls (abstract), **32**, 93.
- Green, E. Forster :
1920. Local Mollusca from the North-east, **29**, 121-2.
- Green, W. S. :
1919. Courtship of Birds, **28**, 72.
- Greer, Thomas :
1917. Hadena protea in Tyrone, **26**, 121.
Cardamine amara in East Tyrone, **26**, 196.
1918. Notes on Lepidoptera from East Tyrone in 1917, **27**, 4-6.
Notodonta bicoloria in Co. Kerry, **27**, 65.
1919. Lepidoptera from East Tyrone, **28**, 118-19.
1920. Lepidoptera from East Tyrone, **29**, 132.
1921. Sesia formicaefornis, a correction, **30**, 24.
Argynnis aglaia in Co. Tyrone, **30**, 63.
New Station for Cardamine amara in Tyrone, **30**, 64.
1922. Gynandromorphs of Euchloe cardamines in East Tyrone, **31**, 139.
1923. Pearl-bordered Fritillary, **32**, 107.
Aster laevis at Lough Neagh, Co. Tyrone, **32**, 107.
Foxes in Co. Tyrone, **32**, 116.
- Greeves, J. R. H. :
1921. Sea Birds (abstract), **30**, 50.
1924. Little Tern nesting at Magilligan Point, **33**, 110.
- Groves, James :
1917. Tolypella nidifica, Leonh., **26**, 134-5.
1919. Tolypella glomerata var. erythrocarpa (noticed), **28**, 106.
- Guinness, Howard :
1919. Distribution of Jays, **28**, 12.
- Gunn, W. F. :
1917. Trichia affinis, **26**, 54.
1918. Fuligo septica var. candida, **27**, 52.
Irish Myxomycetes, **27**, 174.
1919. Some Irish Mycetozoa, **28**, 45-8.
1920. Irish Mycetozoa, **29**, 76.
- Gunn, W. F.—Exhibits :
1917. Trichia affinis, **26**, 13, 54.
Arcyria punicea, **26**, 32.
1918. Tubifera ferruginosa, **27**, 16.
Reputed $\frac{1}{50}$ inch objective, **27**, 91.
Hemitrichia Vesparium, **27**, 171.

1919. *Badhamia utricularis*, **28**, 8.
Sugar substitutes, **28**, 51.
1920. Peduncle of Yellow Water-Lily, **29**, 20.
Arcyria ferruginea, **29**, 28.
Leocarpus fragilis, **29**, 131.
1921. "Streaming" movement of
Badhamia utricularis, **30**, 13.
1922. Slide of radium salt, **31**, 7.
1923. New portable microscope,
32, 29.
1924. Spicules of *Gorgonia*, **33**, 10.
Slides mounted with Judson's
enamel, **33**, 23.
- Gurney, J. H. :
1918. Meaning of "Swiney" and
"Thricecock," **27**, 80.
1919. Gannets at Dunmore, **28**, 72.
Gurney, R. :
1921. Notes on some Irish Ento-
mostraca, **30**, 17-20.
- Gwynn, A. M. :
1924. Localities for *Ino statics*
and *Dasychira pudibunda*, **33**,
124.
- Halbert, J. N. :
1918. *Sphinx convolvuli* attacked
by Larvae of Dipteron, **27**, 13.
Convolvulus Hawk-Moth in Ire-
land, **27**, 81-5.
List of the more important Writ-
ings of W. F. de Vismes Kane,
27, 101-3.
1919. Lepidoptera collected in
Ireland by Lieut. R. E. Cusack,
28, 57-71.
Ploiaria culiciformis in Co.
Armagh, **28**, 91.
Planorbis corneus in Co. Dublin,
28, 135-6.
1920. *Rhyssa persuasoria* in Ire-
land, **29**, 25.
1922. *Magdalis carbonaria* and
other Insects at Powerscourt,
31, 8-10.
Calocoris striatus at Wooden-
bridge, Co. Wicklow, **31**, 32-3.
1923. Macrolepidoptera of Co.
Tyrone, **32**, 42-3.
1924. Coleoptera in the Dublin
District, **33**, 131-4.
- Halbert, J. N.--Exhibits :
1917. *Calocoris striatus*, **26**, 85.
1918. *Lasioseius fucicola*, **27**, 75.
1919. Water-Mite, *Arrhenurus in-*
sulanus, **28**, 8.
New species of Acarina, **28**, 51.
Planorbis corneus, **28**, 133.
1921. *Trigonogenus globulus*, **31**,
38.
1922. New acarid of genus *Rhaphig-*
nathus, **31**, 31.
- Hall, F. J. :
1924. Robin Nesting in Letter-Box,
33, 74.
- Harmer, S. F. :
1917. Reports on Cetacea stranded
on British coasts (noticed),
26, 123.
1918. Report on Whales and Dol-
phins stranded in Ireland
(noticed), **27**, 164.
1921. Report on Cetacea stranded
on Irish Coast during 1919 and
1920 (noticed), **30**, 71-2.
1924. *Mesoplodon* and other
Beaked Whales (noticed),
33, 142-3.
- Harrison, Athole :
1921. Some Irish Birds, **30**, 64, 109.
1922. Bird Life of Dublin City,
31, 37-41.
1924. Review of M. H. Crawford's
"Little Nurseries in the Fields,"
33, 68.
- Hart, W. E. :
1917. Habits of *Vanessa Io* in Co.
Donegal, **26**, 121.
1918. Abnormal Caterpillar of
Chaerocampa, **27**, 172.
1919. Abnormal Caterpillar of
Chaerocampa, **28**, 44.
- Harting, J. E. :
1920. Great Reed Warbler in
Ireland (noticed), **29**, 133.
- Henry, Augustine :
1921. Obituary of Margaret Greer
Flood, **30**, 65-7.
- Hinch, J. De W. :
1918. Development and Decay of
Irish Sea Glacier, **27**, 53-63.
1921. Post-Glacial Climatic Opti-
mum in Ireland, **30**, 85-96.
Eskers of Ireland, **30**, 137-42.
1922. Eskers of Ireland, **31**, 36.
1923. Review of A. R. Dwyer-
house's "Glaciation of North-
Eastern Ireland," **32**, 124-6.
- Hinde, W. H. :
1921. Records of English Birds,
30, 82.
- Holland, M. :
1918. Some Cork Aliens, **27**, 63.
1920. *Oenanthe crocata*, **29**, 33.

- Huggard, Leslie :
 1923. Raven in Co. Wexford, **32**,
 40.
 1924. *Galium uliginosum* in Co.
 Wexford, **33**, 9.
- Huggins, H. C. :
 1918. Limnaeae of alpine Lakes
 in the Glengarriff District, West
 Cork, **27**, 119-128.
- Humphreys, G. R. :
 1923. Malahide Tern Colony. **32**,
 87.
 1924. Observations on a Female
 Cuckoo, **33**, 118-121.
- Irish Naturalist, An :
 1923. The Balance of Nature, **32**,
 113-4.
- Irwin, H. :
 1924. Peregrine Falcon breeding
 on Ireland's Eye, **33**, 109.
- Jackson, J. Wilfrid :
 1918. *Limnaea glabra* in Ireland,
27, 77.
- Janson, Oliver E. :
 1920. Coleoptera in Co. Kerry,
29, 1-6.
 1923. Fortnight's Entomology in
 Co. Waterford, **32**, 9-17.
 1924. Coleoptera at Lough Neagh
 (Co. Antrim) and Newcastle
 (Co. Down), **33**, 69-72.
 Coleoptera from South Kerry,
33, 125-8.
- Jeffers, F. W. :
 1923. Variation in Size of Eggs
 of Lesser Tern, **32**, 52.
- Johnson, Thomas :
 1923. Canon Lett's Irish Sphagna,
32, 55-61.
- Johnson, W. F. :
 1917. Irish Ichneumonidae, **26**, 37-
 40.
Lissonata basalis Brischke in
 Ireland, **26**, 82-3.
 Larva of Death's Head Moth in
 Co. Down, **26**, 194.
 1918. Aculeate Hymenoptera from
 Armagh and Donegal, **27**, 2-3.
 Purple Sea-Urchin at Inishkeel,
 Co. Donegal, **27**, 10-11.
Convolvulus Hawk-Moth in
 Antrim and Down, **27**, 12.
 A Late Wasp, **27**, 12.
 Some more Irish Ichneumonidae
 and Braconidae, **27**, 106-109.
 1919. Aculeate Hymenoptera from
 Donegal, Fermanagh and
 Armagh, **28**, 6-8.
 Entomological Notes from Done-
 gal, Fermanagh and Armagh,
28, 20-3.
 Irish Ichneumonidae and Braconi-
 dae, **28**, 33-7.
Athous hirtus Herbst, a correc-
 tion, **28**, 80.
Ploiaria culiciformis in Co. Armagh
28, 91.
Rhyssa persuasoria in Down and
 Fermanagh, **28**, 115-18.
 Entomological Notes for 1919,
28, 127-9.
 Irish Hymenoptera Aculeata in
 1919, **28**, 132-3.
 1920. Irish Ichneumonidae and
 Braconidae, **29**, 7-10.
 Five species of Ichneumonidae
 new to Britannic List, **29**, 19-20.
Necrobia rufipes in Belfast, **29**,
 25.
 Hibernating Ichneumon Flies, **29**,
 65-6.
 Scarcity of Small Tortoiseshell
 Butterfly, **29**, 77.
Halictus rubicundus and *Lycosa*
picta, **29**, 89-91.
 Irish Sawflies, **29**, 110-5.
 A late *Zygaena*, **29**, 120.
Argynnis aglaia at Poyntzpass,
29, 121.
Dermestes vulpinus in Belfast,
29, 131.
 1921. Notes on Lepidoptera in
 1920, **30**, 11-13.
 Irish Hymenoptera Aculeata, **30**,
 33-7.
 Distribution of *Argynnis aglaia*
 in Ireland, **30**, 44-6.
 Irish Hymenoptera Aculeata—
 some corrections, **30**, 51.
Physalia on Co. Derry Coast,
30, 71.
 Irish Ichneumonidae and Braconi-
 dae in 1920, **30**, 104-7.
 Abundance of Red Admiral
 Butterflies, **30**, 146.
 1922. Insects at Carlingford, Co.
 Louth, **31**, 13-17.
 Humming-bird Hawk-Moth in
 December, **31**, 54.
 Corncrake in December, **31**, 56.
 Diptera and Hymenoptera at
 Poyntzpass in 1921, **31**, 66-70.
 1923. Entomological Notes from
 Rostrevor, **32**, 35-8.

- Keane, T. W. L. :
 1918. Abundance of Lepidoptera
 in 1917, **27**, 52.
- Kennard, A. S. and B. B. Woodward :
 1918. Post-Pliocene Non-Marine
 Mollusca of Ireland (noticed
 by R. L. Praeger), **27**, 69.
- Kennedy, A. J. :
 1923. Birds at the Tearaght Light-
 house, **32**, 7.
- Kerr, Helen M. Kait. :
 1918. Green Sandpiper in King's
 County, **27**, 14.
 Notes on Birds in King's County,
27, 31.
 Incubation Period of Birds, **27**,
 112.
1921. Lesser Whitethroat in Dublin
30, 82-3.
- Kew, H. Wallis :
 1921. *Cheifer scorpioides* Herm.,
 a False-Scorpion new to Irish
 Fauna, **30**, 62.
- Kirkwood, Maud :
 1919. Black-tailed Godwits in Co.
 Mayo, **28**, 108.
- Knowles, Matilda C. :
 1917. *Elymus arenarius* on the
 North Bull, **26**, 56.
 Co. Antrim Proverbs, **26**, 87.
1924. *Geranium sylvaticum*—a
 Correction, **33**, 9.
Erica stricta, **33**, 48.
Spiranthes Romanzoffiana, **33**,
 75-6.
- Lafferty, H. A.—Exhibits :
 1917. *Gibberella Saubinetti* (Mont.)
 Sacc., **26**, 13.
Polyporus squamosus, **26**, 13.
1918. *Phytophthora* parasitic on
 Tomatoes, etc., **27**, 16.
Ustilago hordei, **27**, 51.
Colletotrichum lincolnum, **27**, 171.
Pestalozzia funerea, **27**, 171.
1919. *Phytophthora* cryptogea,
28, 8.
Typhula pharcorrhiza, **28**, 52.
 Dodder parasitic on flax, **28**, 133.
1920. *Botrytis* on flax-seeds, **29**, 20.
 Flax "browning" disease, **29**, 28.
Melampsori lini, **29**, 130.
1921. *Melampsori lini*, **30**, 13.
 "Browning" fungus on flax,
30, 37.
Thielavia basicola, **30**, 143.
1922. *Phytophthora syringae*, **31**,
 137.
1924. "Broken seedlings" of
 Trefoil, **33**, 23.
- Langham, Sir Charles :
 1917. Entomological Notes, **26**,
 114-17.
1920. Some Irish Records of Dra-
 gon-flies, **29**, 11-12.
1921. Notes on Lepidoptera, **30**, 24.
 Bats in Co. Fermanagh, **30**, 26-7.
1922. *Gonia fasciata* in Fermanagh,
31, 32.
 Forms of *Pieris napi* in Co. Fer-
 managh, **31**, 42-5.
- La Touche, J. D. :
 1924. Glaucous Gull off Greystones,
33, 44.
- Lee, William A. :
 1917. *Selaginella Kraussiana* in
 Ireland? **26**, 87-8.
1921. Mosses and Hepatics of Sligo
 and Leitrim, **30**, 81.
1922. Irish Sphagna, **31**, 18-23.
Eucalyptus globulus in County
 Wicklow, **31**, 131.
1923. Irish Sphagna, **32**, 28-0,
 121-3.
1924. Irish Sphagna, **33**, 98.
- Le Fanu, T. V.
 1922. The Squirrel in Ireland, **31**,
 83-4.
- Lilly, C. J. :
 1923. Early Flowers, **32**, 52.
- Loewenthal, Joan E. :
 1922. Hares in Belfast, **31**, 84.
1924. Squirrels near Central Area
 of Belfast, **33**, 43.
- M'Ardle, David. :
 1917. Musci and Hepaticae of Glen
 of the Downs, Co. Wicklow,
26, 73-82.
- M'Ardle, D.—Exhibits.
 1917. *Eurhynchium rusciforme*
 Milde var. *inundatum*, **26**, 32.
Amblystegium serpens, var. *an-*
gustifolia, **26**, 33.
Scapania umbrosa, **26**, 186-7.
1918. *Dicranella heteromalla*, **27**,
 16.
1919. *Lejeunea ovata*, **28**, 41-2.
Lejeunea Macvicari, **28**, 51.
Lejeunea minutissima, **28**, 79.
 Paraphylla on *Eucalypta strepto-*
carpa, **28**, 120.
1921. *Plagiochila punctata*, **30**, 67.
Blepharostoma trichophylla in
 fruit, **30**, 143.
1922. Poplar-twig Fungus, **31**,
 137.
1923. *Diphyscium foliosum*, **32**, 50.

1924. Fruiting specimens of *Pottia Heimii*, **33**, 10.
 Capsule of *Bryum atropurpureum*, **33**, 23.
Fissidens decipiens De Not, var. *brevifolius*, **33**, 42.
- Maconchy, G. E. C. :
 1920. Note on some Howth Clovers, **29**, 119-20.
- Malcomson, Herbert T. :
 1920. Honey Buzzard near Belfast, **29**, 134.
 Great Black-backed Gull nesting in Co. Down, **29**, 134.
- Massy, A. L. :
 1922. Black Redstart on Hill of Howth, **31**, 56.
 1923. Red Cowslips, **32**, 63.
 1924. New Irish Cephalopod (noticed), **33**, 111.
- May, G. C. :
 1917. Jays in County Dublin, **26**, 53.
 Carrion Crow nesting at Ireland's Eye, **26**, 140.
 1919. Glaucous Gull at Sandymount, **28**, 55.
 1920. Bird Protection (abstract), **29**, 36.
 Jer or Greenland Falcon at Lambay, **29**, 60.
 1921. Serin in Queen's Co., **30**, 64.
 1924. Marten in Co. Limerick, **33**, 43.
- Megaw, W. R. :
 1918. *Galium sylvestre* in County Antrim, **27**, 164.
 1920. Popular Study of Mosses (abstract), **30**, 22.
 1923. In the Heart of the Country (abstract), **32**, 5.
 Plea for Moss Study, **32**, 114-5.
Galium sylvestre in Co. Derry, **32**, 116.
 1924. Mosses of Rathlin Island, **33**, 145.
- Mettam, A. E. :
 1917. Report on outbreak of *Furunculosis* on Liffey, 1915 (noticed), **26**, 122.
- Moffat, C. B. :
 1917. Obituary of George Dunleavy, **26**, 34.
 Black Redstart in Co. Wexford, **26**, 36.
 Frogs Spawning in Severe Weather **26**, 53.
- An Exterminating Winter: its Effects on Bird-Life in Co. Wexford, **26**, 89-98.
 Migrant Notes, **26**, 131-3.
Psithyrus rupestris in Co. Wexford, **26**, 154.
 Quail in Co. Wexford, **26**, 155.
1918. Poisonous Properties of *Oenanthe crocata*, (noticed), **27**, 130.
 Scarcity of the Fieldfare, **27**, 132.
 Owls clapping their Wings, **27**, 132.
Argynnis aglaia in North-west Wexford, **27**, 172.
 New Locality for *Thecla betulae*, **27**, 172.
 Return of the Gold-crest, **27**, 173.
1919. Obituary of Charles William Benson, **28**, 73-8.
Leucophasia sinapis in Co. Wexford, **28**, 106.
 Review of "A Practical Handbook of British Birds," ed. by H. F. Witherby, **28**, 134-5.
1920. Notes on *Oenanthe crocata*: its character as a poisonous plant, **29**, 13-18.
 New Book on Birds—A Correction, **29**, 26.
 Colours of Birds in Relation to their Habits, **29**, 37-49.
 Review of A. W. Rees' "Heron of Castle Creek and Other Sketches of Bird-Life," **29**, 70.
Corydalis claviculata in Co. Wexford, **29**, 76.
 New Wexford locality for *Scutellaria galericulata*, **29**, 120.
 Scarcity of Small Tortoiseshell Butterfly, **29**, 121.
Psithyrus rupestris in Co. Dublin, **29**, 133.
1921. Review of R. de Villamil's "Soaring Flight," **30**, 27-8.
Ranunculus auricomus and *Chelidonium majus* in Co. Wexford, **30**, 72.
 Mountain Pansy and its Time of Flowering, **30**, 80.
 Lesser Whitethroat in Co. Dublin, **30**, 83.
Acaena sanguisorbae an Alien Colonist, **30**, 98-9.
 Curious Behaviour of Bat, **30**, 110-11.
 Breeding of Squirrels, **30**, 111.
1922. What Bats are common? **31**, 12.

- Two small Parasitic Hymenoptera, from Co. Wexford, **31**, 55.
 Habits of Red Admiral and Painted Lady Butterflies, **31**, 61-5.
 Habits of Long-eared Bat, **31**, 105-11.
1923. Shakespeare's "Scamel," **32**, 20.
 Study of Common Wild Flowers, **32**, 21-7.
 Sleeping Habits of the Tree-Creeper, **32**, 30.
 Is the Squirrel a Native of Ireland? **32**, 33-5.
 Food of Irish Squirrel, **32**, 77-82.
 Swifts in May, 1923, **32**, 86.
 Review of H. K. Swann's "Chronological List of British Birds," **32**, 127.
1924. Ruffs in the Zoo, **33**, 25-9.
 Review of H. F. Witherby's "Practical Handbook of British Birds," **33**, 41.
 Review of P. G. Ralfe's Supplement to "Birds of Isle of Man," **33**, 55.
 Review of H. F. Witherby's "Check-List of British Birds," **33**, 56.
 Cirl Bunting as Irish Bird, **33**, 96-7.
Silene noctiflora in Co. Dublin, **33**, 110.
 Black Redstart on Migration, **33**, 141.
- Moore, F. W.—Exhibits:
 1917. *Colletotrichum orchidearum*, **26**, 32.
Pyrus floribunda, wood, **26**, 71.
Crassula namaquensis, **26**, 85.
Opuntia tunica, **26**, 104.
 1919. Bud of *Drosera auriculata*, **28**, 51.
Rhizoctonia violacea on Mangel, **28**, 133.
 1920. *Exosporium Tiliae*, **29**, 35.
Thielavia baricola on French Bean roots, **29**, 130.
 1921. *Chrysomyxa abietis*, **30**, 37.
 1922. Bark of *Eucommia ulmoides*, **31**, 7.
- Morrison, Robert N. :
 1920. Bewick's Swan in Co. Down, **29**, 12.
 1923. Early Arrival of Chiff-chaff in Co. Down, **32**, 51.
- Mullin, W. J. :
 1923. Curious Sites for Robins' Nests, **32**, 62.
- Murphy, Paul A.—Exhibits :
 1921. Swarm-spores of myxomycete, **30**, 13.
 Leaf roll in potato, **30**, 37.
 Onion Mildew fungus, **30**, 143.
 1922. Supposed *Puccinia Porri* on leeks, **31**, 7.
 Potato Blight fungus, **31**, 23.
 1923. Potato resistant to Pink Rot, **32**, 50.
- Nichols, A. R. :
 1924. New List of Irish Birds (noticed), **33**, 142.
- Nicholson, G. W. :
 1917. Additional Coleoptera from Meath and Cavan, **26**, 28-31.
 1920. *Longitarsus castaneus*, Duft—a Correction, **29**, 34.
 Coleoptera from County Cavan, **29**, 34.
- Noonan, James :
 1919. *Vaccinium Myrtillus* on Rath, **28**, 105.
- O'Mahony, E. :
 1924. Dublin Mollusca, **33**, 8.
 Dublin Insects, **33**, 8-9.
Choleva nigrita, *Casida nobilis*, and other Beetles in Co. Dublin, **33**, 47.
Athous difformis Lac. and other beetles in Co. Dublin, **33**, 121-2.
Limax cinereo-niger at Howth, **33**, 143.
- Orr, James and A. W. Stelfox :
 1924. Proposed New Journal, **33**, 146.
- Ostenfeld, C. H. :
 1921. An Irish Crane's-bill (noticed), **30**, 23-4.
- Ostenfeld, C. H., and Dahl, Dr. :
 1918. *Arenaria ciliata* (noticed), **27**, 95.
- Pack-Beresford, Denis R. :
 1920. New and Rare Irish Spiders, **29**, 29-33.
 Marten in Ireland, **29**, 107.
 1921. Records of Woodlice, **30**, 57.
 Ravens on Howth, **30**, 136.
 1922. New and Rare Irish Spiders, **31**, 126-9.
 1923. Algal Discolouration of Lough Neagh and River Bann, **32**, 89-91.
 1924. New and Rare Irish Spiders, **33**, 49-54, 62-6.

- Pack-Beresford, Hugh D. :
 1921. Woodcock in Dublin, **30**, 24-5.
- Pack-Beresford, R. J. :
 1922. Curlews' Eggs in Wild Duck's Nest, **31**, 72.
 1923. Early Breeding of Wood Pigeons, **32**, 43.
- Palmer, J. A. S. :
 1923. *Thracia pubescens* near Dublin, **32**, 8.
- Patten, C. J. :
 1917. Quail on Migration at Rockabill Light Station, **26**, 18.
 Short-Eared Owl on Migration at Rockabill Light Station, **26**, 18.
 Quail and Wren on Migration at Maidens Lighthouse, **26**, 35.
 Fulmar Petrels at Inishtearaght, **26**, 155.
 Sandwich Terns breeding on Mutton Island, Galway, **26**, 155.
 Arctic Skuas on Migration on Mutton Island, Galway, and at Moville, Co. Donegal, **26**, 156.
 Wood-Warbler on Migration at Maidens Lighthouse, Co. Antrim, **26**, 156.
1918. Woodchat-Shrike on Migration, obtained at Tuskar Rock, **27**, 79-80.
1920. Sora Rail at Slyne Head, Co. Galway, **29**, 59.
 Remains of Little Gull at Slyne Head Light Station, **29**, 78.
 Sanderlings obtained on Migration from Slyne Head Light-House, **29**, 79.
- Pentland, G. H. :
 1917. Swans and their Nests, **26**, 18-9.
 Speed of flight of Leisler's Bat, **26**, 19-20.
 Badgers and Hedgehogs, **26**, 20.
 Boldness of a Stoat, **26**, 20.
1919. A Wasps' Nest, **28**, 54-5.
 Jay in Co. Louth, **28**, 72.
1920. Unusual Capture of a Seal, **29**, 79-80.
 Pine Marten in Co. Louth, **29**, 80.
 Pine Marten in Ireland, **29**, 124.
- Pethybridge, G. H. :
 1917. Review of W. C. Worsdell's "Principles of Plant Teratology," **26**, 101-2.
1918. *Chrysomyxa abietis* in Ireland, **27**, 130.
1919. Heterocarpy in *Picris echioides*, **28**, 25-32.
- Pethybridge, G. H.—Exhibits :
 1917. Smut fungus, *Tilletia laevis*, **26**, 71.
 Germinating Flax seeds, **26**, 85.
1918. Wood in Domnach Airgid Shrine, **27**, 68.
Keithia thujina, **27**, 171.
 Heterocarpism in Bristly Ox-tongue, **27**, 171.
Papulaspora sepedonioides, **28**, 79.
1919. "Firing" in flax, *Melamp-sora lini*, **28**, 41.
1920. *Sphaeropsis malorum*, **29**, 20.
Cronartium ribicola on Black Currant, **29**, 28.
 Supposed *Ustilago anomala*, **29**, 35.
1921. *Lophodermium lineatum* on needles of *Pinus excelsa*, **30**, 37.
Cyclamen neapolitanum, **30**, 38.
1922. Powdery mildew on "seeds" of Sheep's Parsley, **31**, 23.
- Phibbs, G. B. :
 1921. Variations in Segmental Spines of Fourth-Stage Larva of *Hypoderma bovis*, **30**, 53-7.
 1922. Larval Mouth-Hooks of *Hypoderma*, **31**, 25-30.
- Phillips, J. J. :
 1924. Description of *Griana* of Aileach (abstract), **33**, 141.
- Phillips, K. C. J. :
 1923. Larva of Hydrophilid Beetle, *Megasternum boleto-phagum*, **32**, 109-12.
- Phillips, R. A. :
 1918. Recent extensions of Range of *Pisidium hibernicum*, **27**, 33-50.
 Note on *Limnaea glabra* in Ireland, **27**, 78-9.
1920. Distribution of *Brachypodium pinnatum* Beauv. in Ireland, **29**, 73.
1921. Nests of Ant, *Stenammina Westwoodi*, discovered in Ireland, **30**, 125-7.
- Donistorpea mixta* and *D. umbrata*, two Ants new to Ireland, **30**, 147.
1923. Pearl-bordered Fritillary in Ireland, **32**, 91-2.

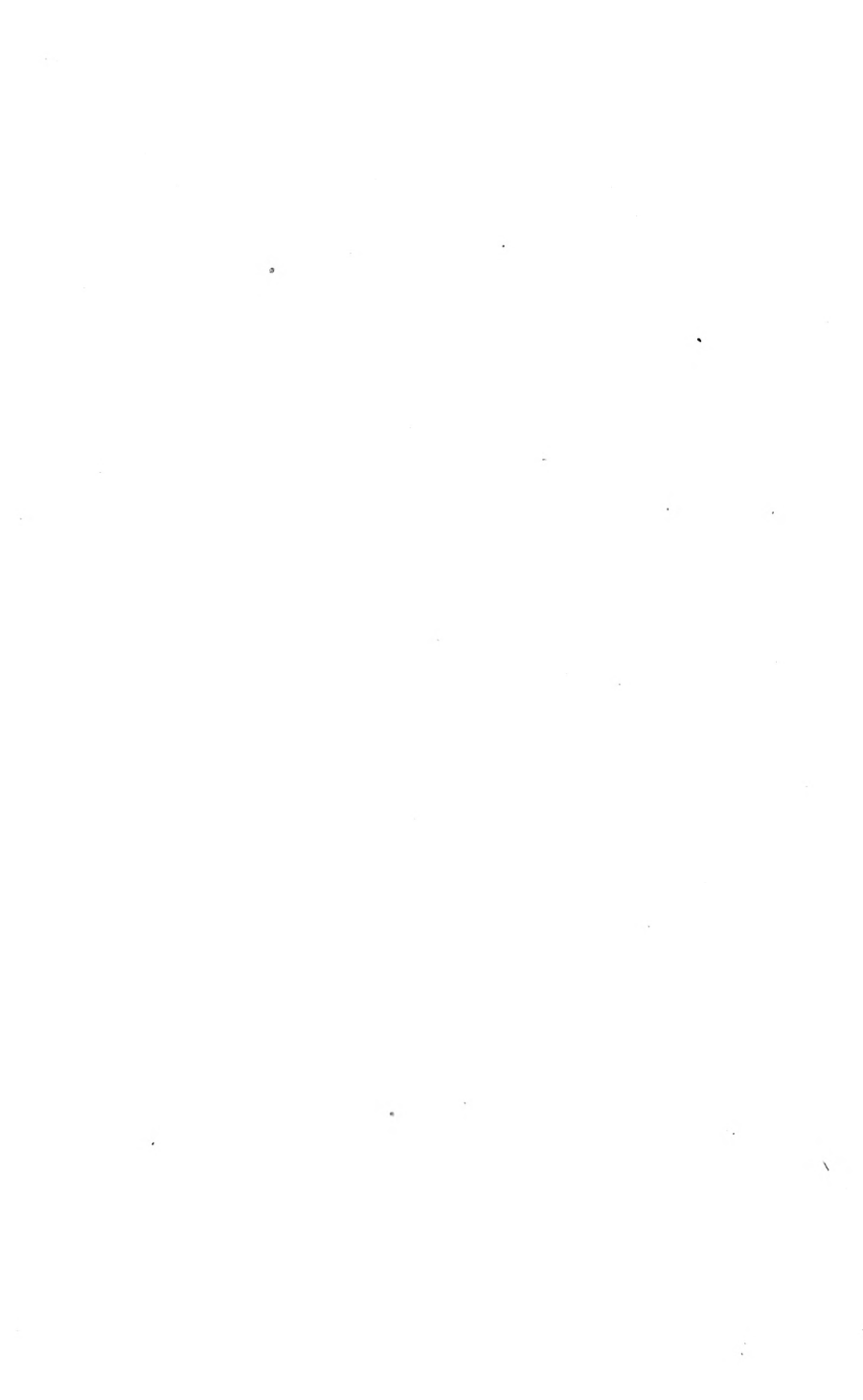
1924. *Adalia bipunctata* and other Ladybirds in Co. Cork, **33**, 8.
New County and Vice-County Records for Irish Plants, **33**, 33-8.
New Localities for some Rare Plants in Ireland, **33**, 129-31.
- Pollard, F. J. S.—Exhibits :
1917. Spiracles of larva of Warble-flies, **26**, 187.
1918. Spiracles of larva of Horse Bot and Ox Warble Maggot, **27**, 51.
Spiracles of larva of Warble-flies, **27**, 91.
- Porter, Lilian :
1922. Lichens on *Veronica Traversii*, **31**, 48.
- Praeger, R. Lloyd :
1917. *Hypopithys multiflora* in Co. Leitrim, **26**, 17.
Naia flexilis in Donegal, **26**, 17.
Arbuti Corona, **26**, 21-7.
Aquatic Fungi, **26**, 55.
Leitrim Fungi, **26**, 55-6.
Foxgloves killed by Cold, **26**, 72.
Unusual Flight of a Kingfisher, **26**, 72.
Obituary of Robert Donough O'Brien, **26**, 113.
Effects of the late Spring, **26**, 120.
Blue Wood Anemones, **26**, 120.
Equisetum litorale in Ireland, **26**, 141-7.
1918. *Sedum Drucei* (noticed), **27**, 31.
Review of W. Trelease's "The Woody Plants," **27**, 32.
Irish Fossil Mollusks, **27**, 69-74.
Natural History Societies in Derry and Cork, **27**, 79.
Botanical Notes from Inistioge, **27**, 103-105.
Some County Down Plants, **27**, 116-8.
Derc-Ferna: the Cave of Dunmore, **27**, 148-58.
W. H. Harvey and Charles Darwin, **27**, 162-3.
Spiranthes Romanzoffiana in Co. Armagh, **27**, 163.
1919. *Asplenium Adiantum-nigrum* var. *acutum*, **28**, 13-19, 53-4.
The Two-barred Crossbill, **28**, 56.
Clavaria argillacea, **28**, 79.
Viola stagnina in Fermanagh, **28**, 95.
Obituary of Rev. Cosslett Herbert Waddell, **28**, 108.
Obituary of Nathaniel Colgan, **28**, 121-6.
1920. Notes on Antrim Plants, **29**, 95-105.
Ferns in Dublin City, **29**, 108.
Review of J. Groves and G. R. Bullock-Webster's "British Charophyta," **29**, 118-9.
1921. Birds' Nests and their Fate, **30**, 25-6.
Obituary of Henry William Lett, **30**, 41-3.
Review of R. and S. G. Gurney's "Book about Plants and Trees," **30**, 70-1.
Antrim Plants, **30**, 80-1.
Behaviour of a Fritillary, **30**, 97-8.
Acaena Sanguisorbae an Alien Colonist, **30**, 99.
Notes on Down and Dublin Plants, **30**, 101-3.
Equisetum litorale Kuhlw., **30**, 145.
1923. *Thracia pubescens* near Dublin, **32**, 8.
Colour-Variation in Cowslip and Primrose, **32**, 31-2.
Erica stricta in Antrim and Derry, **32**, 32.
Review of G. A. J. Cole's "Memoir and Map of Localities of Minerals of Economic Importance in Ireland," **32**, 38-9.
Obituary of William H. Phillips, **32**, 48.
Early Flowers, **32**, 52.
Obituary of Joseph Wright, **32**, 53-5.
Ireland and Switzerland, a Botanical Contrast, **32**, 97-103.
1924. *Rosa rugosa* as a Colonist, **33**, 9.
Review of R. H. Yapp's "Botany: a Junior Book for Schools," **33**, 10.
Southern Plants in Eastern Ireland, **33**, 97-8.
- Rathbone, H. B. :
1918. *Gonepteryx rhamni* in Co. Fermanagh, **27**, 173.
- Rea, M. W. :
1917. Records for Irish Mycetozoa, **26**, 57-65.

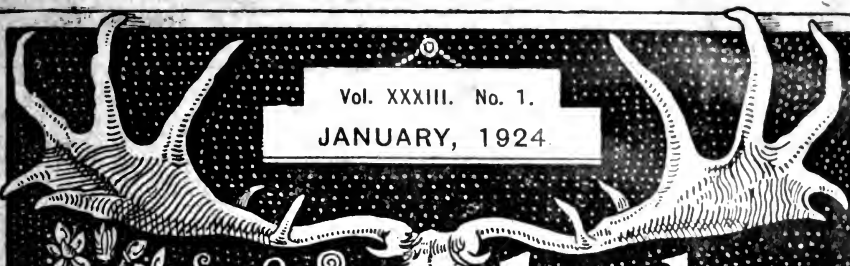
- Renouf, L. P. W. :
 1924. Spoonbill and Great Spotted Cuckoo in Kerry, **33**, 30.
 Obituary Notice of Marcus Hartog, **33**, 39.
- Rhynchard, J. G.—Exhibit :
 1921. Jaws of *Trichocera relegationis*, **30**, 135.
- Roberts, P. B. :
 1921. Protective Devices in Butterflies and Moths (abstract), **30**, 144.
- Roebuck, W. Denison :
 1917. Variation in *Arion ater* in Cork North-east, **26**, 121-2.
- Route Naturalists' Field Club :
 1923. **32**, 94, 105, 128.
 1924. **33**, 42, 141.
- Royal Irish Academy Fauna and Flora Committee :
 1923. **32**, 85.
- Royal Zoological Society :
 1917. **26**, 13, 48-52, 84, 104, 151, 186.
 1918. **27**, 29, 66-8, 74, 110, 158.
 1919. **28**, 24, 38-41, 78, 120.
 1920. **29**, 27-8, 50-3, 72, 105, 129.
 1921. **30**, 51, 58-60, 112.
 1922. **31**, 30-1, 57-60, 115.
 1923. **32**, 64, 84-5.
 1924. **33**, 24, 138.
- Ruttledge, Robert F. :
 1917. Migration at Mutton Island, **26**, 35-6.
 Russet variety of Snipe in Mayo, **26**, 104.
 Ornithological Notes from South Mayo, **26**, 148-51.
 Arctic Skua and Black Tern on Lough Mask, Co. Mayo, **26**, 194.
 1918. Sandwich Terns breeding in Co. Galway, **27**, 15.
 Migration on Lough Mask, **27**, 32.
 1920. Notes on Habits of Wren, **29**, 109.
 Pied Flycatcher and Turtle Dove in Achill, **29**, 124.
 Pine Marten in Ireland, **29**, 125-7.
 Little Stint and Fork-tailed Petrel obtained on Migration, **29**, 134.
 1921. Ornithological Notes from Mayo and Galway, **30**, 46-9.
 1924. Early Appearance of Sandmartins, **33**, 54.
 Distribution of Squirrel in Ireland, **33**, 73-4.
 Mutton Island Tern Colony, **33**, 95-6.
 Corrigendau—Haunt of Lesser Black-backed Gull, **33**, 116-8.
- Ruttledge, William :
 1918. Snow Geese at Mutton Island, Co. Galway, **27**, 112.
 Black Terns on Lough Carra, Co. Mayo, **27**, 130.
 1919. *Argynnis aglaia* in South Mayo, **28**, 72.
 1920. Velvet Scoter and other Birds at Mutton Island, Co. Galway, **29**, 26.
 Lepidoptera from Co. Mayo, **29**, 106.
 1921. Iceland Falcon in Co. Kerry, **30**, 63.
- Salmon, C. E. :
 1920. British Stork's-bills (noticed) **29**, 58.
- Scharff, R. F. :
 1917. Earthquake or landslip? **26**, 27.
 On Variation of Lizard (*Lacerta vivipara*), **26**, 84.
 Should Wasps be killed? **26**, 88.
 Advances in Irish Marine Zoology, **26**, 105-13.
 On the Irish Pig, **26**, 173-85.
 1918. The Irish Red Deer, **27**, 133-9.
 1919. Obituary of William Spotswood Green, **28**, 81-4.
 A New Irish Whale, **28**, 130-1.
 1920. The New Irish Whale.—A Correction, **29**, 27.
 Notes on the Basking Shark, **29**, 53-4.
 Hooded or Bladder-Nosed Seal, *Cystophora cristata*, **29**, 93-4.
 1921. Turtles on Irish Coast, **30**, 29-30.
 The Earliest Irish Zoologist, **30**, 128-32.
 1922. Thirty Years' Work of the "Irish Naturalist," **31**, 1-7.
 Obituary of Henry Lyster Jameson, **31**, 49-50.
 Is the Squirrel a Native Irish Species? **31**, 51-4.
 Notes on the Irish Sheep, **31**, 73-6.
 Wolf in Ireland, **31**, 133-6.
 1923. Review of J. F. Daniel's "Elasmobranch Fishes," **32**, 47-8.
 Squirrel in Ireland, **32**, 63.
 Origin of Irish Cattle, **32**, 65-76.
 Irish Alpine Flora, **32**, 117-20.

1924. International Fisheries' Research, **33**, 31-2.
Breeds of Dogs Peculiar to Ireland and their Origin, **33**, 77-95.
Wolf in Ireland, **33**, 95.
- Slater, W. L. :
1922. "The Zoological Record," **31**, 72.
- Scott, J. A.—Exhibits :
1920. Dark ground illumination, **29**, 28.
1921. "Streaming" movement in *Badhamia utricularis*, **30**, 13.
- Scully, Reginald W. :
1918. Reappearance of *Lathyrus maritimus* in Kerry, **27**, 113-5.
1919. Stray Botanical Notes, **28**, 80.
Eriophorum latifolium in County Dublin, with some notes on the rarer county species, **28**, 89-90.
1921. *Spiranthes Romanzoffiana* in Co. Kerry, **30**, 79.
1922. Mr. Stelfox and *Cybele* II, **31**, 116.
- Seaver, E. L. :
1924. Bee Orchis in Co. Down, **33**, 110.
- Shaw, Sir Frederick W. :
1917. Night Heron near Dublin, **26**, 72.
- Sheals, Alfred :
1921. Breeding of Squirrels, **30** III.
1922. Rare Birds in Ulster (noticed), **31**, 115.
- Sheehy, F. J.—Exhibit :
1918. Soil Protozoa, **27**, 68.
- Shoebottom, J. W. :
1922. Irish Collembola (noticed), **31**, 24.
- Smiles, Aileen :
1923. Curious Sites for Robins' Nests, **32**, 62.
- Southern, Rowland :
1917. State of Ireland, **26**, 6-11.
1924. Fauna of Hatchery Filter, **33**, 135-7.
- Stears, S. M. :
1924. Large Flights of Birds over Belfast, **33**, 44.
- Steele, W. B. :
1919. *Viola stagnina* in Fermanagh, **28**, 95.
- Stelfox, A. W. :
1918. Recent Extensions of the Range of *Pisidium hibernicum*, **27**, 33-50.
Possible Hunting-Grounds for the Characeae, **27**, 64-5.
Obituary of James Napier Milne, **27**, 129.
1919. Notes on the Lake-Forms of *Limnaea pereger*, **28**, 9-12.
Pisidium parvulum in Co. Antrim, **28**, 92-3.
1920. *Poa compressa* in Dublin : a Tragedy, **29**, 108.
Local Mollusca from the Northwest, **29**, 122-3.
1921. Snails and other things (abstract), **30**, 22.
Note on *Carex muricata* L. and its segregates *C. contigua* Hoppe. and *C. Pairaei* Schultz, **30**, 31-2.
Wood White Butterfly in Co. Dublin, **30**, 97.
Humble Bees of Lambay, **30**, 108-9.
Curious Behaviour of a Bat, **30**, 109-10.
Prunus Padus in Wicklow and Kildare, **30**, 145.
Carex axillaris in Co. Dublin, **30**, 145-6.
Two Aculeate Hymenoptera new to Ireland, **30**, 146-7.
1922. Mites as guests in Ants' nests, **31**, 10.
Bombus sylvarum in Ireland, **31**, 10-11.
Helicella heripensis : supposed occurrence in Ireland, **31**, 11.
Bees and Clovers : a day on the Murrough of Wicklow, **31**, 89-91.
Poa compressa survives ! **31**, 95.
Botanical Notes from S.E. Wexford, **31**, 100-2.
Littorella lacustris in Co. Dublin, **31**, 130.
1923. Hybrid Sedge new to Co. Dublin, **32**, 39.
An Enemy of Wireworm, **32**, 44.
Cranberry in Glenasmole, **32**, 63.
Helicella itala L., addition to Fauna of Lambay, **32**, 87.
Rubia peregrina L. and *Tragopogon porrifolius* L. on Lambay, **32**, 88.

- Golden Samphire near Rush, Co. Dublin, **32**, 88.
 Botanical Notes from Down and Armagh, **32**, 96.
 1924. Irish Hymenoptera Aculeata, specially in Dublin District, **33**, 13-23.
 Review of A. E. Hodges' "Vivarium and Aquarium Keeping for Amateurs," **33**, 56.
Saxifraga umbrosa native in Wicklow Mountains, **33**, 60-1.
 Staphylinid Beetle new to Ireland, **33**, 67.
Helicella heripensis in Co. Kildare, **33**, 67.
Therapha hyoseyami L. on Wicklow coast, **33**, 68.
 Fulmars in Co. Clare, **33**, 123-4.
 Green Forester Moth in Co. Dublin, **33**, 124.
 White Form of *Orchis Fuchsii* and *Orchis O'Kellyi*, **33**, 143-4.
 Review of G. H. Carpenter's "Insects: Their Structure and Life," **33**, 145.
 Proposed New Journal, **33**, 146.
 Stelfox, M. D. :
 1917. *Trichia affinis* in Connaught and Ulster, **26**, 34.
 Records for Irish Mycetozoa, **26**, 57-65.
 Stendall, J. A. S. :
 1918. Sunfish at Larne Harbour, **27**, 14.
 Allotments and Allotment Economics (abstract), **27**, 68.
 1919. Two-barred Crossbill, **28**, 56.
 1922. Spiders (abstract), **31**, 31-2.
 Fulmar breeding on Rathlin Island, **31**, 56.
 Felted Beech Coccus in Ireland, **31**, 96.
 Egg of Fulmar Petrel—Irish example, **31**, 96.
 1924. Work of Belfast Naturalists' Field Club (abstract), **33**, 12.
 A Ringed Woodcock, **33**, 24.
 Zoology of Rathlin (abstract), **33**, 139.
 Stoney, C. V. :
 1922. Breeding of Roseate Tern in Ireland, **31**, 129.
 Breeding of Fulmar Petrel in Ireland, **31**, 129.
 1923. Irish Breeding Birds (noticed) **32**, 51.
 1924. Red-Necked Phalarope breeding in Co. Donegal, **33**, 109.
 Swanston, W.
 1923. Tunny stranded at Castle-rock, **32**, 116.
 Swiney, J. H. H. :
 1917. Bat Flying in Daylight, **26**, 36.
 Taylor, R. C.—Exhibits :
 1917. Copepod parasites on Salmon, **26**, 152.
 1918. Lignite from Carrig-a-hulliar, Portrush, **27**, 29.
 Tebb, R. H. S. :
 1919. *Leucophasia sinapis* in Co. Wicklow, **28**, 92.
 Thomson, J. S. :
 1921. *Brachypodium pinnatum* in Co. Dublin, **30**, 99.
 Tomlinson, W. J. C. :
 1920. *Eryngium maritimum* in Co. Derry, **29**, 75.
 Quail in Co. Antrim, **29**, 78.
 Bee Orchis in Co. Cavan, **29**, 120.
 Torrens, D. S. :
 1921. Review of W. Macewen's "Growth and Shedding of the Antler of the Deer," **30**, 68-70.
 1923. Review of J. D. F. Gilchrist's and C. von Bonde's "Practical Zoology for Medical and Junior Students," **32**, 18.
 Ulster Society for the Protection of Birds :
 1922. **31**, 33.
 1923. **32**, 48.
 Waddell, C. H. :
 1917. Rare plants of Co. Down Coast, **26**, 12-13.
Pterogonium gracile Swartz in Co. Down, **26**, 17.
 Walker, F. H. :
 1921. Lepidoptera at Dollymount, Co. Dublin, **30**, 62-3.
 Watt, H. B. :
 1923. American Grey Squirrel in Ireland, **32**, 95.
 Wear, Sylvanus :
 1918. *Cardamine amara* in East Tyrone, **27**, 95.
 Webb, W. M. :
 1920. Gilbert White Bicentenary: Bird Sanctuary as a Memorial, **29**, 77.

- Welch, R. J. :
 1922. *Trichoniscus roseus* at Belfast, **31**, 82.
 Brown Lizard, *Lacerta vivipara*, at Whitehead, **31**, 82.
 Gull and Golf Ball, **31**, 140.
 1924. Great Shoals of Fish near Glenarm, Co. Antrim, **33**, 7.
 Prehistoric Antiquities of Ulster (abstract), **33**, 42.
- Westropp, M. S. D. :
 1919. *Colias edusa* in Co. Cork, **28**, 120.
 1924. Review of H. Eltringham's "Butterfly Lore," **33**, 40-1.
- Wheldon, J. A. :
 1923. Canon Lett's Irish Sphagna, **32**, 55-61.
- Williams, W. J. :
 1917. Jay in Ireland, **26**, 88.
 1921. Records of Irish Birds, **30**, 82.
- Wilson, Gregg :
 1918. Crabs (abstract), **27**, 30.
 1921. Frogs and their Relatives (abstract), **30**, 38-9.
 1923. Life History of Fish (abstract), **32**, 5-6.
- Wilson, J. Mackay :
 1918. Corncrake in Trinity College Park, **27**, 96.
 Bird Life at Currygrane, Co. Longford, **27**, 111.
 A Jay in Co. Longford, **27**, 174.
- Witherby, H. F. :
 1924. Irish Grouse (noticed), **33**, 7.
- Woodward, B. B. and A. S. Kennard :
 1918. Post Pliocene Non-Marine Mollusca of Ireland (noticed by R. Ll. Praeger), **27**, 69.
- Workman, W. H. :
 1917. Bittern in Co. Tyrone, **26**, 53.
 Snowy Owl in Co. Antrim, **26**, 194-5.
 Hoopoe in Co. Donegal, **26**, 195-6.
 1918. Great Increase of Butterflies and Moths in Ireland, **27**, 11.
 Migration of Woodcock, notes on an article by Captain Douglas, **27**, 92-5.
 1921. British Long-tailed Tits in Belfast, **30**, 26.
 "Song and Nesting of Birds," **30**, 52.
 Bittern in Co. Antrim, **30**, 52.
 1924. A Ringed Woodcock, **33**, 44-5.
 Rooks' Air Route, **33**, 45-6.
- Wright, M. C. and W. B. Wright :
 1924. Obituary of Grenville Arthur James Cole, **33**, 57-60.
- Wright, W. B. :
 1917. Application of Geology to Development of Mineral Resources (abstract), **26**, 152.
- Yapp, R. H. :
 1919. Fenland of East Anglia and its Vegetation (abstract), **28**, 52.
- Young, J. W. :
 1924. Wild Swans on the Barrow, **33**, 44.





Vol. XXXIII. No. 1.
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CONTENTS.

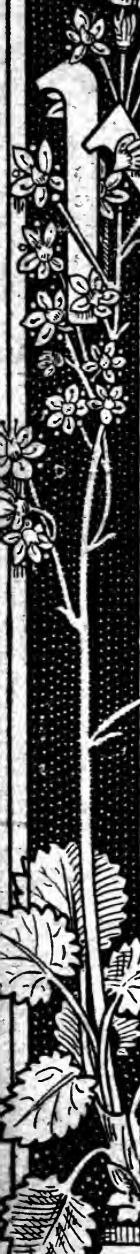
	PAGE
Further Notes on the Plankton of Valentia Harbour— MAUD J. DELAP	I
NEWS GLEANINGS	7
NOTES :	
The Irish Grouse	7
Great Shoals of Fish near Glenarm, Co. Antrim—R. J. WELCH ..	7
Dublin Mollusca—E. O'MAHONY	8
Adalia bipunctata and other Ladybirds in Co. Cork—R. A. PHILLIPS.	8
Dublin Insects—E. O'MAHONY	8
Galium uliginosum in Co. Wexford—LESLIE HUGGARD ..	9
Geranium sylvaticum—A Correction—M. C. KNOWLES ..	9
Rosa rugosa as a Colonist—R. LLOYD PRAEGER	9
REVIEW :	
Yapp's Botany for Schools—(R. LL. P.)	10
IRISH SOCIETIES :	
Dublin Microscopical Club	10
Belfast Naturalists' Field Club	11

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CONTENTS.

	PAGE
Notes on Irish Hymenoptera Aculeata—(A. W. STELFOX)	13
 IRISH SOCIETIES:	
Dublin Microscopical Club	24
Royal Zoological Society of Ireland	24
Cork Camera and Field Club	24
 NOTE:	
A Ringed Woodcock--(J. A. SIDNEY STENDALL)	24

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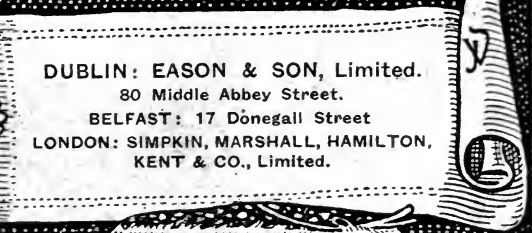
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CONTENTS

	PAGE
Notes on Some Ruffs in the Zoo—(C. B. MOFFAT) ..	25
IRISH SOCIETIES :	
Belfast Naturalists' Field Club	29
NOTES :	
Greenland Halibut in Irish Waters	30
Spoonbill and Great Spotted Cuckoo in Co. Kerry—(PROFESSOR L. P. W. Renouf, The Editors)	30
Rough-legged Buzzard in Co. Wicklow	31
International Fisheries Research	31

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CONTENTS

	PAGE
Some New County and Vice-County Records for Irish Plants—R. A. PHILLIPS, M.R.I.A.	33
OBITUARY :	
Marcus Hartog	39
REVIEWS :	
Eltringham's Butterfly Lore	40
Witherby's Practical Handbook of British Birds	41
IRISH SOCIETIES :	
Dublin Microscopical Club	42
Route Naturalists' Field Club	42
Belfast Natural History and Philosophical Society	43
NOTES :	
Marten in Co. Limerick—GEORGE C. MAY	43
Squirrels near Central Area of Belfast—JOAN LOEWENTHAL	43
Glaucous Gull off Greystones—J. D. LA TOUCHE	44
Wild Swans on the Barrow—JOHN W. YOUNG	44
Large Flights of Birds over Belfast—S. M. STEARS	44
A Ringed Woodcock—W. H. WORKMAN	44
Rooks' Air Route—W. H. WORKMAN	45
Mamestra persicariae and Apophylla nigra—REV. G. FOSTER	46
Kerry Moths—REV. G. FOSTER	46
Records for Choleva Nigrita, Cassida Nobilis, and other Beetles in Co: Dublin—EUGENE O'MAHONY	47
Hieracium pellucidum and H. serratifrons in Co. Down—NEVIN H. FOSTER, F.L.S.	47
Erica stricta—M. C. KNOWLES	48

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CONTENTS.

	PAGE
Some New and Rare Irish Spiders—DENIS R. PACK- BERESFORD, M.R.I.A.	49
 NOTES :	
Early appearance of Sand-martins—ROBT. F. RUTLEDGE ..	54
Woodcock Breeding on Lambay—HON. CECIL BARING ..	54
 REVIEWS :	
Ralfe's Supplementary Notes to "Birds of the Isle of Man" ..	55
Witherby's Check-List of British Birds	56
Hodge's Vivarium and Aquarium Keeping for Amateurs ..	56

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CONTENTS.


	PAGE
Coleoptera at Lough Neagh and Newcastle—O. E. JANSEN, F.E.S.	69
Note on the Distribution of the Squirrel in Ireland—R. F. RUTTLEDGE	73
 NOTES:	
Large Irish Elk Antlers—A. DEANE	74
Robin nesting in Letter-box—FRANK J. HALL	74
Observations on the Robin	74
Spiranthes Romanzoffiana—M. C. KNOWLES	75

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CONTENTS.

	PAGE
On the Breeds of Dogs Peculiar to Ireland and their Origin—R. F. SCHARFF, B.SC., PH.D.	77

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CONTENTS.


	PAGE
On the Breeds of Dogs Peculiar to Ireland and their Origin (concluded)—R. F. SCHARFF, B.SC., PH.D. ..	89
 NOTES :	
The Wolf in Ireland—R. F. SCHARFF	95
Mutton Island Tern Colony—ROBERT F. RUTTLEDGE	95
An Ornithological Chestnut	96
The Cirl Bunting as an Irish Bird—C. B. MOFFAT	96
Southern Plants in Eastern Ireland—R. LLOYD PRAEGER	97
Irish Sphagna—WILLIAM A. LEE	98
 IRISH SOCIETIES :	
Dublin Naturalists' Field Club	98
Belfast Naturalists' Field Club	100

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CONTENTS.


	PAGE
Notes and Records of some of the Irish Birds in the Collection of the late Henry Blake Knox—F. W. ROGERS BRAMBELL, PH.D.	101
 NEWS ITEMS:	
F. W. R. Brambell	108
 NOTES:	
Red-Necked Phalarope breeding in Co. Donegal—C. V. STONEY	109
Peregrine Falcon breeding on Ireland's Eye—H. IRWIN	109
Little Tern nesting at Magilligan Point—J. R. H. GREEVES	110
Silene noctiflora in Co. Dublin—C. B. MOFFAT	110
Bee Orchis in Co. Down—E. L. SEEVER	110
A New Irish Cephalopod	111
 IRISH SOCIETIES:	
Belfast Naturalists' Field Club	111

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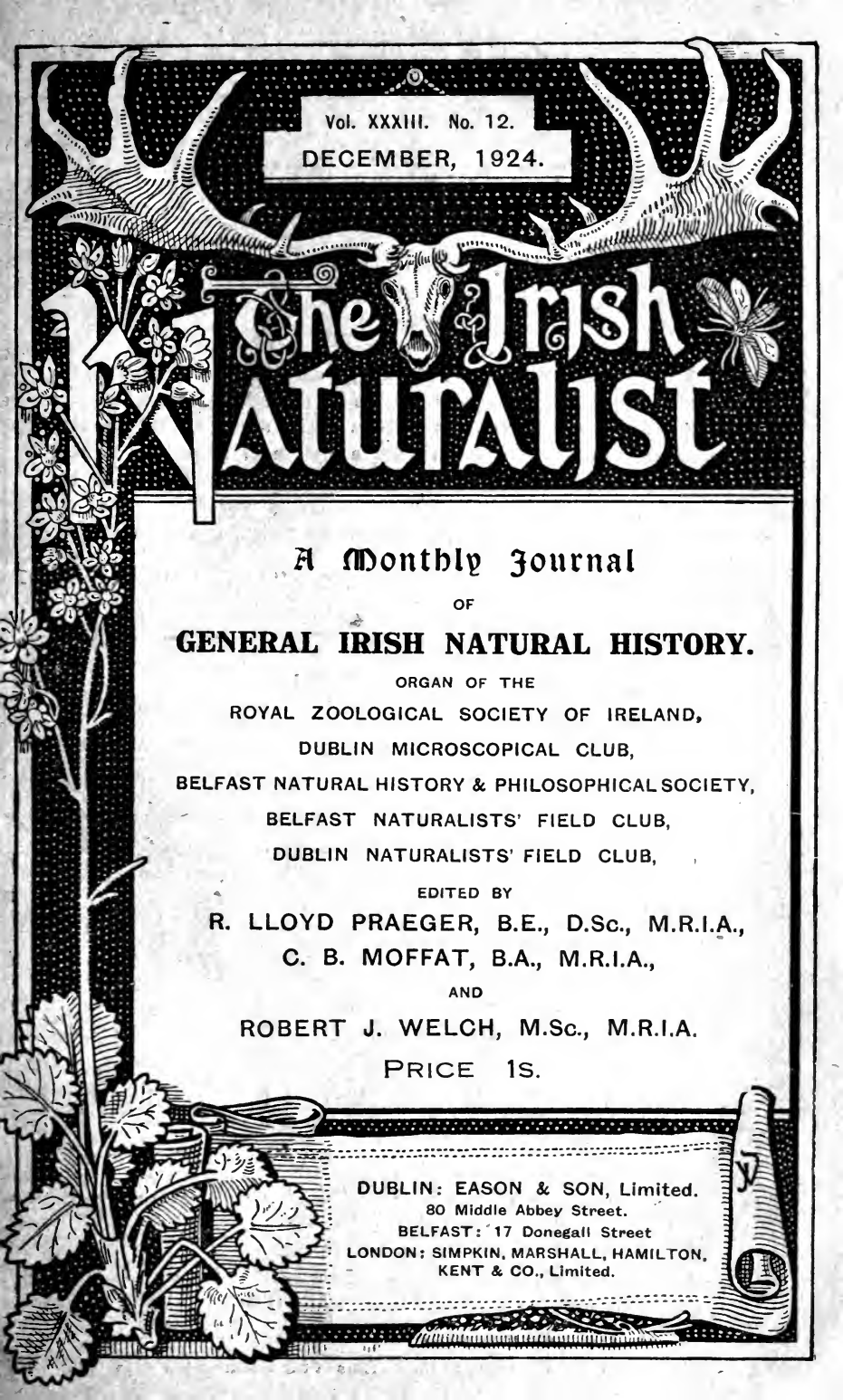
CONTENTS.

	PAGE
The "Irish Naturalist"	II3
Some Botanical Records for Co. Wicklow—J. P. BRUNKER	II4
Corrigeendauv—A Haunt of the Lesser Black-backed Gull—ROBERT F. RUTTLEDGE	II6
Observations on a Female Cuckoo—G. R. HUMPHREYS, M.B.O.U.	II8
Athous difformis Lac. and other Beetles in County Dublin —EUGENE G. O'MAHONY	I2I
 NOTES:	
Observations on the Robin	I23
Fulmars in Co. Clare—A. W. STELFOX	I23
Spotted Crake in Co. Louth—NEVIN H. FOSTER	I24
Localities for Ino statics and Dasychira pudibunda—A. M. GWYNN	I24

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CONTENTS.

	PAGE
Coleoptera from South Kerry—OLIVER E. JANSON, F.E.S., L. H. BONAPARTE WYSE	125
New Localities for some Rare Plants in Ireland—R. A. PHILLIPS, M.R.I.A.	129
Coleoptera in the Dublin District—J. N. HALBERT, M.R.I.A.	131
To Our Contributors	134
The Fauna of a Hatchery Filter—R. SOUTHERN, B.SC. ..	135
IRISH SOCIETIES;	
Royal Zoological Society of Ireland	138
Belfast Naturalists' Field Club	139
Dublin Naturalists' Field Club	140
Route Naturalists' Field Club	141
OBITUARY ;	
George Chichester May, K.C.	141
NOTES :	
Black Redstart on Migration—C. B. MOFFAT	141
List of Irish Birds	142
The Beaked Whales	142
Limax cinereo-niger at Howth—EUGENE G. O'MAHONY	142
The White Form of Orchis Fuchsii and Orchis O'Kellyi—A. W. STELFOX	143
Mosses of Rathlin Island—W. R. MEGAW	144
REVIEW ;	
Insects; Their Structure and Life—A. W. S.	145
A Proposed New Journal—JAMES ORR AND A. W. STELFOX	145

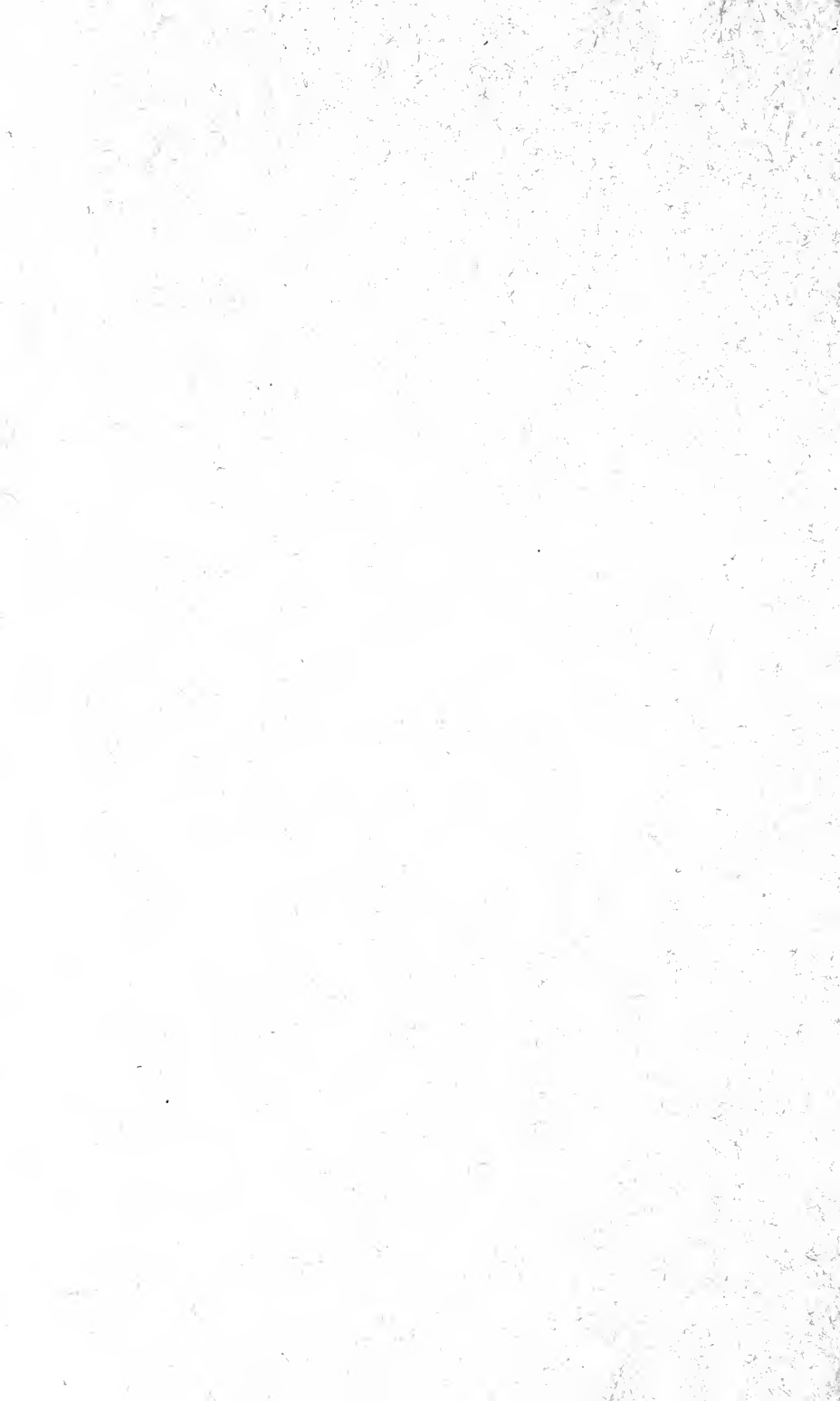
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