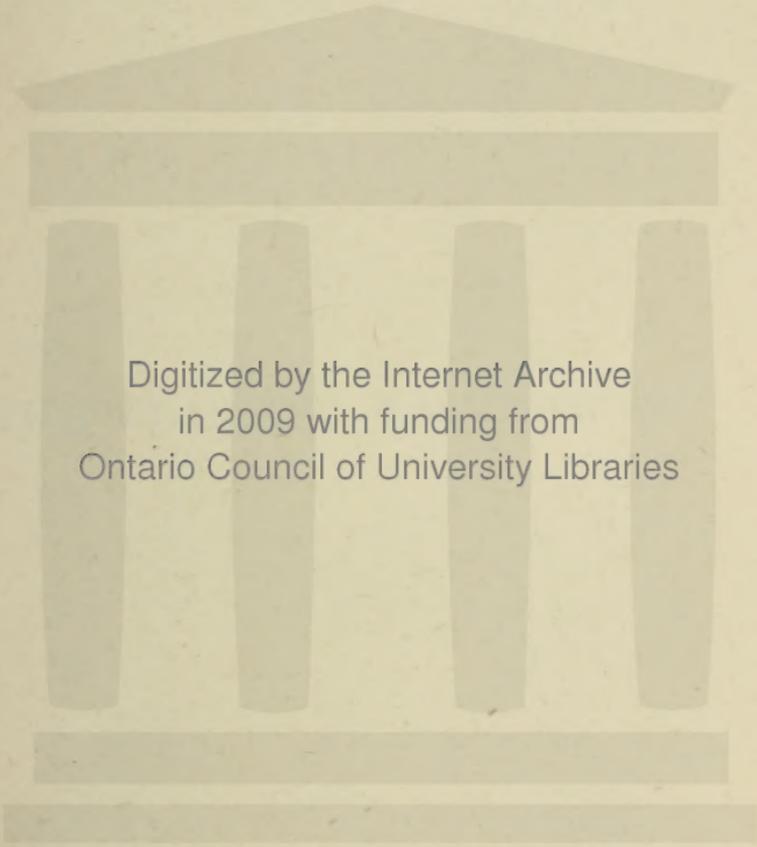


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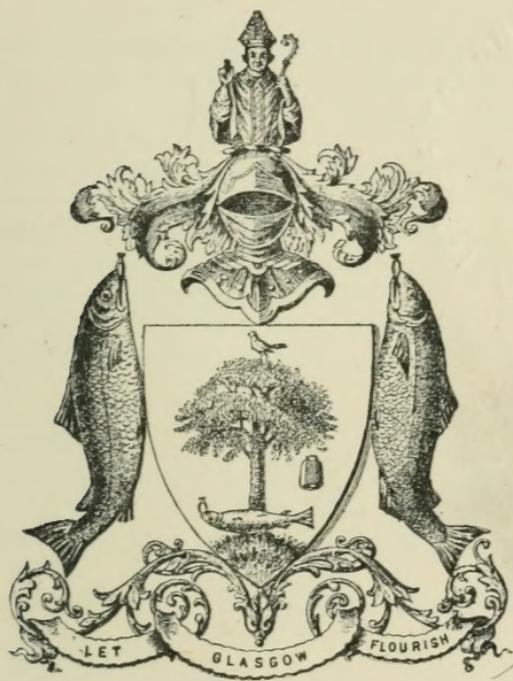
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NATURAL HISTORY SOCIETY OF GLASGOW

(Including the *Transactions and Proceedings* of
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Photo

G. Paxton.

YEW-TREE AT LOUDOUN CASTLE.

The Glasgow Naturalist

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Vol. V., No. 1.]

[November, 1912.

In Memoriam.

REV. DAVID LANDBOROUGH, LL.D.

THE announcement of the death of Dr. Landsborough, which took place on 22nd November, has been received with deep regret by a very wide circle of friends, both at home and abroad, by whom he was held in the highest esteem, alike for his scientific attainments, public services, professional labours, and personal worth.

Born in 1826, at the Manse of Stevenston, in Ayrshire, his early years were spent under conditions well fitted to foster and develop the keen love of nature which was one of his most marked characteristics throughout the whole course of a long and active life. His father—the Rev. David Landsborough, D.D., parish minister of Stevenston—attained considerable eminence as a successful worker in various fields of research, particularly in zoology, botany, geology, palæontology, and archæology. Among the best known of his numerous publications may be mentioned the *Popular History of British Zoophytes*, *Popular History of British Seaweeds*, and *Natural History of Arran*. He also contributed to the *New Statistical Account of Scotland* an elaborate description of the Parish of Stevenston, which contains much valuable and interesting information regarding the natural history and antiquities of that district. Under such home influences, it is not surprising that the development of young Landsborough's tastes should have been so directed as to render him an enthusiastic and helpful colleague to his father.

Together they made long excursions in search of rare plants and fossils, explored the wooded glens and rocky headlands of the Ayrshire coast, climbed the lofty mountain peaks of Arran, and dredged many hidden treasures from the depths of the sea. This loving companionship was only broken by the death of the elder Landsborough in the year 1854.

As an independent worker, young Landsborough bestowed much attention on marine zoology, especially the nudibranch mollusca and zoophytes. His discoveries were so numerous and important as to bring him under the notice of the leading British naturalists of the time, who gladly availed themselves of his assistance, and repeatedly acknowledged their indebtedness for services rendered by him. In further testimony of their appreciation of his work, a nudibranch (*Eolis Landsburgii*) was named after him by Messrs. Forbes and Hanley. During the course of a long ministry at Kilmarnock, begun in 1851 and extending over half-a-century, his intervals of leisure were largely devoted to scientific pursuits. His great love for Arran—a notable characteristic inherited from his father—led him to turn his attention to the effects produced by the genial climate of that island on foreign species of trees, shrubs, and plants when grown in the open air. Under his direction many Australian and other species were experimentally cultivated, and his observations thereon formed the subject of a series of papers communicated to the Botanical Society of Edinburgh. For many years he was accustomed frequently to contribute popular articles on botany, geology, local history, folk-lore, and kindred subjects, to the columns of the *Kilmarnock Standard*. These were largely instrumental in creating among the people a taste for the pursuits in which he himself found delight, and on which he discoursed so pleasantly. His interest in the moral and intellectual welfare of the working classes induced him to take a leading part in the institution of the Kilmarnock Glenfield Ramblers' Society, of which he was the first and only Honorary President. The remarkable success of that Society has been due in great measure to his individual efforts and influence.

Among the most important of his literary productions was a book entitled *Arran: its Topography, Natural History, and Antiquities*, published in 1875. This consisted of a revised

edition of his father's work on Arran, to which was added a memoir of Dr. Landsborough senior, and several extra chapters. He also published in the *Annals of the Glenfield Ramblers' Society* two notable papers on the Botany of Ayrshire, which have proved very helpful to local workers. His other published papers extended over a wide range of subjects, and are too numerous to be mentioned. Many of them appeared in the Transactions of the Botanical Society of Edinburgh, Geological Society of Glasgow, Society of Antiquaries of Scotland, and Glenfield Ramblers' Society. He was elected a Corresponding Member of the Natural History Society of Glasgow in 1887, and several of his communications have appeared in the Society's Proceedings and Transactions.

Dr. Landsborough was predeceased by his wife, but is survived by a family of five sons and two daughters, to whom must be tendered the sympathy of the Members of the Society in the great loss which they have sustained.

The figure in Plate I. of this volume is the subject of this notice.

PETER CAMERON.

WHILE much regret at the death of this well-known entomologist will be felt in scientific circles all over the world, the close of his distinguished career must be especially lamented by his former friends and associates in our own Society, with which he was so long and intimately connected.

Mr. Cameron was born in Glasgow about sixty-five years ago. While a young man he entered the employment of Messrs. James Black & Co., calico printers, in whose Glasgow office he remained for a considerable period, but was afterwards transferred to their establishment in Manchester. While resident in our city he devoted his spare time to the pursuit of natural history, into which he entered with characteristic earnestness. Having at first been attracted to the study of plants, he became a member of the Glasgow Botanical Society, and made the acquaintance of the late Mr. Roger Hennedy, lecturer on botany in the Andersonian University, and author of the *Clydesdale Flora*, with

whom he afterwards remained on terms of close friendship. At this period he developed a taste for entomology, which ultimately became his exclusive subject of study. After turning his attention to various orders of insects, he finally concentrated his work on the Hymenoptera, which up till that time had been neglected by local naturalists. Through his influence the Botanical Society was induced to extend the range of its operations so as to include entomology. It accordingly became known as "The Glasgow Society of Field Naturalists," until amalgamated with the Natural History Society in 1879. He was admitted a member of the latter institution in 1871, and continued while resident in Glasgow to take an active interest in the various departments of the Society's work. As an office-bearer he rendered many important services, which are gratefully remembered by his former colleagues in the Council. He also frequently took part in the business of the meetings as an exhibitor of specimens or author of papers. Numerous communications from his pen have appeared in the Proceedings and Transactions of the Society. He also contributed a List of Hymenoptera (in two parts) to a series of publications on the Fauna of Scotland, formerly issued by the Society. To the Handbook on the Fauna and Flora of the West of Scotland, prepared in connection with the visit of the British Association to Glasgow in 1876, he contributed an article on the Entomology of Clydesdale, as well as lists of the species of Cynipidæ and Tenthredinidæ occurring in the district.

About the year 1873, he commenced to collect materials for his great work on the British Phytophagous Hymenoptera. This was published in four volumes by the Ray Society, and continues to be the standard British text-book on the subject to which it relates. Many descriptions of species of Hymenoptera from Japan and other foreign countries have also been written by him and published in various scientific journals and transactions.

Besides his local connections, Mr. Cameron was a member of the Entomological Society of London, the Société Entomologique de France, the Deutsche Entomologische Gesellschaft, and many other learned societies, as well as in constant correspondence with the foremost entomologists throughout Europe.

On his removal to Manchester about twenty-five years ago, he was elected a Corresponding Member of our society. For a considerable time, however, the impaired state of his health has gradually led to the abandonment of his more active pursuits.

His death took place on 1st December, at New Mills, Derbyshire, where, for some years he had been living in retirement.

The Flora of the Culbin Sands.

By PETER EWING, F.L.S.

[Read 28th May, 1912.]

No doubt to many the mythology of the Culbin Sands would be much more interesting than its flora; but although that is not the side which appeals to me, there are certain matters connected more or less remotely therewith which require to be touched upon in any paper bearing on the subject.

Tradition sets forth that this enormous mass of sand was laid down on very fine arable land by two fierce hurricanes, one in the forenoon and the other in the afternoon of an autumn day in the year 1694, and so rapidly did the sand accumulate that the workers in the fields had to fly for their lives. It is further asserted that in quite recent times the mansion-house of Culbin, farming implements, and even the skeletons of human beings who were overtaken by the storm, have been laid bare by the shifting sands.

The house of Culbin was connected in far-away times with the great houses of Sutherland, Atholl, and, through the marriage of one of its scions, with "the old keep of Bothwell by the Clyde." For about two hundred years, or until the year 1400, the lands of Culbin were in the possession of Richard de Moravia (otherwise Moray); but upon the failure of the male line, they passed, by the marriage of Egidia de Moravia with Thomas Kinnaird of Kinnaird, into the possession of the Kinnaird family, with whom they remained until the end of the seventeenth century. It has

been said that the estate was for generations known as the "Garden and Granary of Moray." The soil has been described as a "deep loam mixed with a fine silt, brought down by the Findhorn for generations." There were, it is stated, included in the factor's inventory, sixteen good-sized farms as well as numerous crofts and cottars' houses. The annual rental was about £6,000 sterling, including crops, value of salmon fishing, etc. In the centre of this estate was the mansion-house of Culbin, and gathered around were the quarters of the Baron's retainers, the church dedicated to St. Ninian, and a meal-mill at a part of the estate known as Dalpottie. This is the picture presented by tradition of Culbin in the year 1694, when, it is asserted, a hurricane broke upon the doomed domain, rendering a tract of three thousand six hundred acres of arable land permanently useless. The laird and tenantry were compelled to flee for their lives; and on their return a few days later, when the worst of the storm was over, they found, instead of the stately mansion-house, trim cottages, and bein farms they had left, this waste of driving and driven sand. Such is the legendary lore of the district!

In support of this account, we find, embodied in the archives of the country, records to the effect that in 1695 an appeal was made by the holder of the estate to the Scottish Parliament, pleading for the remission of certain taxes, his plea being that "by an inevitable fatality which had no parallel in Scotland, the best three parts of my estate, with the manor-house, yards, orchard, and mains, are quite destroyed by vast heaps of sand which have over-blown the same, so that not a vestige is now to be seen of that which within the past twenty years were as considerable as many in the county of Moray. In witness whereof this certificate produced under the hands of thirty of the most worthy gentlemen of the shires of Moray, Nairn, and Inverness." Not only was this petition granted, but as a direct result an act of parliament was passed prohibiting, under severe penalties, "the pulling or cutting of bent, juniper or broom at Culbin, or elsewhere along any sandy sea-shore round the country."

That some such devastating calamity did occur at the time referred to may probably be true, but that this desert was formed as the result of one day's storm is quite beyond reasonable belief. That loose sand may be lying on ground that might be cultivated

is possible, but that all the ground now covered was formerly cultivated is just as absurd a belief as that Culbin house was exposed to view after having been buried. In the museums at Nairn and Forres, and also in the Antiquarian Museum in Edinburgh, there are many relics of the stone age which were found among these sands. These clearly point to a time when the extensive flat patches of ground among the surrounding dunes formed sites for the huts of the ancient Britons whose means of subsistence was confined to hunting and fishing. No more desirable situation than this could be found for such tribes. Here they would be hid from their enemies and sheltered from the winds; salt and fresh-water fish would be abundant and within easy reach; and as the immediately surrounding country was flat and well watered, game would likewise occur in plenty. "Middens" have also been discovered, lending support to this view.

The sands are of irregular shape, their greatest length being about three miles by about one mile and-a-quarter broad, although the land area rendered incapable of cultivation through the action of the drifting sand may be said to extend to about eight square miles. According to the Ordnance Survey Map, the highest sand-hill, which is at the western extremity, attains an altitude of 99 feet above sea-level; and at the north-east corner another reaches 62 feet above sea-level; but changes are continually taking place, and some lately measured were found to be about 120 feet.

When we stand on one of the Culbin heights near the shore, and try to form some idea regarding their formation, we see clearly that the sand has been brought in from the sea, not in one day, but during the course of countless years; and that in the shallow water in front there is as much sand left close to the shore as would afford material for making the dunes many times over; also that it has all been laid down or piled up here by the action of north-westerly gales. It is likewise quite apparent that these winds are carrying it into the River Findhorn and Findhorn Bay, from whence it is carried out to sea, just to be brought back again to the shore by the action of the winds and tides, and there to be dried and again blown over the dunes—and so on *ad infinitum*. Its nutritive value when dry must be low; but when moist, a considerable quantity of decaying matter, also

blown about by the wind, is superimposed or mixed with it and so a humus is formed on which some plants grow well. It might have been comparatively easy to account for the formation of heights where vegetation, however sparse, existed, as that is supposed to stop the drift of the sand and cause it to pile up. The reverse, however, seems to be the case here. The mounds entirely destitute of vegetation are those which rise to the greatest heights, whereas, where there is any vegetation, the wind seems to create the greatest destruction, because whenever the surface is broken the wind hollows out the sand. To judge by the statements of some experts, this is not usually the case. Here the height of the white dunes seems to be entirely due to the cliff or barachan formation. Anything may cause a beginning, but this being accomplished, the dunes go on accumulating so long as the sea-shore supplies sand to the wind; therefore if the sea is receding the sand dunes must be rising, and this, according to history, is what is taking place.

The Maviston Sand Hills—two large heaps of sand situated about two miles distant—show the effect of wind action in covering up more clearly than can be observed at Culbin. They are exposed to winds from a westerly direction, but are to a great extent sheltered from easterly winds by planted trees, so that the sands are moving eastward and covering up the trees.

If, while standing on Culbin heights, we turn our back towards the sea and look landward, we can easily persuade ourselves that an enormous tract of land in our vicinity has quite recently (geologically speaking) been reclaimed from the sea by blown sand forming dunes along the shore. This sand, drifting landward over the old salt-marshes, has formed, along with much land suitable for cultivation, small fresh-water lakes, marshes, boggy land, and sand-heath covered with planted pines. The heather, heath, and gorse, in great stretches by the sea-shore, suggest a resemblance to an English chalk-down. All the vegetation is psammophilous for many miles around, as appears from *Juncus balticus* being found ten miles inland. Even among the Culbin Sands proper we find the same mixed conditions prevailing—pools of fresh water, patches of peaty-looking soil, and gravel beds, surrounded by enormous masses of blown sand mostly devoid of vegetation. There are no rocks or hills near enough to account

for the air-currents piling up the sand, but that there are currents and counter-currents is quite apparent. We spent three days among the sands, and during that time the westerly wind was so strong on the heights that it was impossible to set up a camera.

We were kept in a constant state of wonder at the marvellous phenomena observable as the results of the drifting sand, although we did not see it rise in the air as some say it does. Its movement, as we saw it, is more like that of water running over an uneven surface 1-2 inches deep; its speed does not appear fast, unless where you get a clear stretch of 50-100 yards, and drop upon it a piece of paper rolled into a hard ball, or some such object, by which means you see that its speed is that of the wind. Large patches may be quite smooth, but it is never flat, and ripple markings are abundant. The formation of cliffs is very interesting. These might be called "free-coup" formations. We could not discover how they originated, but we saw some of a considerable height, and one we sat and gazed at must have been at least 15 feet high. The sand-river comes rushing along from a higher elevation, and stops abruptly as if the wind were blowing up the face of the mass; but as the sand gathers height and weight it slips, just as ordinary soil slips, though maintaining a very high angle. This is probably how the mounds are formed in many cases. The wind does not level the sand, as one would expect to be the case. The flow makes its way up the one side of a mound and down the other, without any perceptible difference, unless some obstacle should be in the way. Another extraordinary circumstance was the fact that our foot-prints were quite visible after the sand had blown over them for three days.

The great difference between the sand-current and a current of water is at once observable when any obstacle, such as a bush or stone, is placed in the way. The sand does not flow over it, but forms a bank in front, a little distance back from it, like a miniature barachan, with the bush or stone well clear of the banked sand, as if by the wind striking the bush or stone a counter current or eddy was caused which retarded the flow before it had reached the obstacle. In the case of large bushes, these formations are very interesting, and lead one to believe that the high mounds may have been formed by some such means.

Sand streamers are only seen where glumaceous plants occur on

the flats among the dunes. Those of the kind usually observed elsewhere on the sandy sea-shore are not visible here, owing doubtless to the absence of plants capable of forming them. An attempt may be seen in the case of *Carex arenaria*, or better perhaps in the case of a plant of *Juncus balticus*. These only half stop the sand, and the streamers formed are never of any great height. We should expect such plants as *Atriplex*, *Suaeda*, *Salsola*, *Potentilla Anserina*, and *Convolvulus arvensis*, to be plentiful in these places, but they are entirely absent. The want of salt may account for the absence of the three first mentioned, which are halophytic in habit, but not for the last two, seeing that *Convolvulus arvensis* especially is a common east-country plant and often found covering railway-banks.

The sand travels across a gravel-bed at the same speed as over the stationary sand, only the stones seem to make it rise higher. When the sand-stream comes into contact with water or solid vegetation it appears to stop or change its course, thus creating a confused impression which makes us feel that we would require to cover the whole surface of the sand with small flags to make sure that it was not moving round in a circle. The body of sand seen in violent motion is so great, that one is apt to conclude that a few days and nights of continuous westerly wind, aided by the action of the River Findhorn, would suffice to put the whole mass into the sea.

Much is said about rich loam forming the agricultural land under and around the sands, but of this there is little appearance. What one does see in many places, however, is the evidence of former boggy land produced by fresh-water plants being decomposed and blended with sand. Many acres of the same class of soil, undergoing similar transition, are observable now.

A great amount of pine has been planted in the district surrounding the sands, but what effect these trees have had on the shifting sands it is difficult to determine. At Maviston the sand has drifted up on the trees and killed them; while at Culbin rather the reverse process seems to have taken place—the wind blowing away the sand and causing the trees to fall. Among the trees which are at all sheltered, even at the edge of the sand, the heather is 20 inches high, and often more. It is worthy of note that wire-netting screens about ten feet high are used to prevent sand-drifting and seem to be effective.

Among the dunes themselves there are patches of fresh water, some of which at times must be comparatively large, and, as will be seen from the list of plants given, this water must be pretty constant. Great stretches of flat sands with carices and junci scattered over them also occur. One fairly large patch of sandy peat has the appearance of having been cultivated at one time, at least it has the apparent "lazy bed" markings quite distinct; but as will be seen from the list of plants found there, it must formerly have stood not less than one foot higher than its present position in relation to the surrounding sand.

In the centre of the white dunes is an enormous gravel-bed that must have been thrown up by the action of the sea, as the size and variety of the stones and the height of the bed are too considerable for the mass to have been deposited by the River Findhorn.

From an ecological point of view these dunes are intensely interesting. They are so near the sea that a halophilous or saline flora might be expected to predominate; but although the orders of plants belonging to that formation are represented, the species usual to such situations are rare. The shores of the Findhorn yield a few; but the sea-shore all along the north side for miles is entirely barren, and consists of pure sand, the tide coming right up to the base of the white dunes.

Where so much dry sand is drifting about, one would expect a marked xerophytic or dry-soil flora, yet the sands are poor in plants that may be said to belong to that formation, as is apparent from the list submitted, but they are rich in mesophytic plants, *i.e.*, plants whose requirements are intermediate in character as to soil and water.

On the apparently stationary or grey dunes, as well as among and around the white dunes, and on the dune heath, dry sand fields, dune bush-land and dune plantations, we find hydrophytes, helophytes, halophytes, psammophytes, and mesophytes, but not the species we might expect to meet with when the usual edaphic factors are considered. The plants actually found, however, are more interesting, as the law of adaptation is manifest on so large a scale. Under the shelter of the pines, the halophytic influences of the sea, combined with the dry nature of the climate, have resulted in *Calluna vulgaris* and *Erica cinerea* growing profusely;

but the majority of the plants are protected from rapid transpiration by a dense covering of pubescence which sometimes makes them appear quite lanate. All plants which are slightly hairy under ordinary conditions become densely hairy here. This is well seen in *Veronica officinalis*, which assumes what is no doubt the state described by Hopkirk, in his "Flora Glottiana," (page 9) as *V. hirsuta* from Ayr. On the outskirts of the dunes the normal is the prevalent form, but the nearer the plant approaches to the white dunes the more hirsute does it become. Plants with large leaves are also common, markedly in the case of *Viola Riviniana*. *Sedum acre* was the only succulent-leaved plant noted; it was very vigorous with stems about six inches high. The absence of the common sea-side plants from the Culbin list shows that something more than sand and sea-breezes is required for their existence and maintenance. The entire want of fragments of sea-weed and shells may account for this to some extent; but there can be little doubt that the comparative freedom from saline properties in the drifting sand from the shore (as evidenced by the presence of fungi among the grey dunes) is not the least important factor we have to consider in endeavouring to account for the absence of such plants. I append a list of species seen between Culbin and Nairn to show that halophytes are common in the neighbourhood.

The white dunes proper are great masses of dry sand, the surface of which seems to be constantly on the move. Any vegetation that does exist on them appears to be entirely dependent on the rains and dews for its moisture, and consequently it forms a growth of so limited a nature that the colour of the sand can be seen through it. The dominant plant is *Ammophila arenaria* Link, the closely-rolled leaves and hard cuticle of which apparently enable it to withstand the effects of the wind; while the softer and broader leaves of *Agropyrum junceum* Beauv. and *Elymus arenarius* L. are neither able to resist the force of the wind nor withstand the action of the sand-grains impelled by it, and so are prevented from gaining a foothold, with the result that they are confined to the more sheltered places which have been hollowed out by the wind. In the deeper hollows, *Viola Curtisii* Forst., *Cerastium semidecandrum* L., *Senecio Jacobaea* L., *Filago minima* Fr., *Sambucus nigra* L., *Betula tomentosa* Reith., and *Carex*

arenaria L., complete the flora of these dunes. Certain plants are looked upon as dune-builders, and the sea-marram may possibly assist in the process by preventing the lighter breezes from moving the sand about, but this is not very obvious. One thing, however, is certain: if the wind is supplied with dry sand, it is quite capable of building dunes without the help of plants.

As the land becomes more sheltered by the increased size and number of the white dunes along the shore, general vegetation begins to develop. First come *Ammophila*, *Elymus*, or *Agropyrum* all attenuated in habit and sparse in numbers, but gradually becoming stronger and denser; then mosses, such as *Tortula*, *Polytrichum*, and *Ceratodon*, seem to fill up the bare spaces among the grasses; and finally the flowering-plants creep in, till at last, by the law of the survival of the fittest (the original grasses having been choked out by the weaker-looking but more adaptable festucas and other plants), the ground is carpeted by a varied vegetation and a grey dune is formed.

Between the village of Findhorn and the town of Nairn—a distance of about eleven miles—we have one of the best tracts of land I know of in Scotland for the study of a psammophyte formation. Grey sand-dune, Sand-fields, Dune-heath, Dune bush land, and Dune-forest are all to be found here on a very extensive scale, and to a large extent under natural conditions. It is not my intention at the present time to discuss this formation: the subject is far too comprehensive, however interesting it may be. I have touched on it merely in a general way, so as in some measure to find a reason for the very extensive flora existing among the Culbin Sands. I made a catalogue of the plants forming the grey-dune flora which creeps up on the white dunes; but I refrain from giving it, as I feel that it would be misleading, and does not form a necessary adjunct to the subject which has occupied my attention more particularly. The following list of plants, as I have already stated, is compiled entirely from sand-fields completely surrounded by the white sand dunes.

<i>Ranunculus acris</i> L.	<i>Cerastium vulgatum</i> L.
<i>R. Flammula</i> L.	<i>C. semidecandrum</i> L.
<i>Viola Riviniana</i> Reichb.	<i>C. tetrandrum</i> Curt.
<i>V. palustris</i> L.	<i>Arenaria peploides</i> L.
<i>Polygala vulgaris</i> L.	<i>Sagina subulata</i> Presl.

- S. procumbens* L.
Radiola linoides Roth.
Ulex europæus L.
Cytisus scoparius Link.
Trifolium repens L.
Lotus corniculatus L.
Vicia angustifolia L.
Potentilla erecta Hampe.
Rosa canina L.
Sedum acre L.
Drosera rotundifolia L.
Peplis Portula L.
Epilobium obscurum Schreber.
E. palustre L.
Hydrocotyle vulgaris L.
Galium hercynicum Weig.
G. palustre L.
G. verum L.
Bellis perennis L.
Filago minima Fr.
Gnaphalium sylvaticum L.
Senecio Jacobea L.
Cirsium lanceolatum Scop.
C. arvense Scop.
Crepis mollis Aschers.
C. paludosa Moench.
C. capillaris Wallr.
Leontodon hispidus L.
Calluna vulgaris Hull.
Myosotis cæspitosa Schultz.
Veronica scutellata L.
V. Chamædrys L.
V. officinalis L.
- Prunella vulgaris* L.
Plantago Coronopus L.
Littorella uniflora Asch.
Rumex Acetosella L.
Betula tomentosa Reith.
Salix aurita L.
S. repens L.
Orchis latifolia L.
O. maculata L.
Juncus conglomeratus L.
J. effusus L.
J. balticus Willd.
J. articulatus L.
J. bulbosus L.
J. bufonius L.
J. squarrosus L.
Eleocharis palustris Br.
Scirpus cæspitosus L.
S. setaceus L.
S. filiformis Savi.
Eriophorum angustifolium
 Roth.
Carex inflata Huds.
C. Goodenowii Gay.
C. leporina L.
C. arenaria L.
Agrostis alba L.
A. tenuis Sibth.
Aira præcox L.
Holcus mollis L.
H. lanatus L.
Poa annua L.
Festuca rubra L.

The following halophytic plants were noted on the shore between Culbin and Nairn, in addition to those included in the foregoing list.

- Cakile maritima* Scop.
Silene maritima With.
- Arenaria peploides* L.
Rosa spinosissima L.

<i>Matricaria maritima</i> L.	<i>Atriplex hastata</i> L.
<i>Statice maritima</i> Mill.	<i>A. Babingtonii</i> Woods.
<i>Glaux maritima</i> L.	<i>Salsola Kali</i> L.
<i>Pneumaria maritima</i> Hill.	<i>Triglochin maritimum</i> L.
<i>Chenopodium rubrum</i> L.	<i>Scirpus rufus</i> Schrad.

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Dytiscus lapponicus, Gyll., in Arran.

By ANDERSON FERGUSSON.

[Read 26th November, 1912.]

Dytiscus lapponicus, one of our large carnivorous water-beetles, has been recorded in the British Isles from Inverness E. (Strathglass), Inverness W. (Ben Nevis), North Ebudes (Rum, Skye, and Eigg), Mid Ebudes (Mull), the Clyde faunal area, and Donegal. The Clyde record is contained in Dr. Sharp's Coleoptera of Scotland,* but in conversation with him regarding the occurrence of the beetle in Clyde, he informed me that he had certainly not taken it in the area himself, nor could he remember from whom he had received the note of its capture. Owing to the indefinite nature of the Clyde record, I have always been particularly anxious to turn up the insect in the area, and having arranged to spend some time in Arran and Kintyre during September of this year, an opportunity occurred of trying for it on ground which seemed likely to suit it. As there are several

* *The Scottish Naturalist*, II. p. 96.

interesting features in connection with the habits of *lapponicus* which have been dealt with by most of the writers who have noted its occurrence in Britain it seems desirable for purposes of comparison, to put on record the circumstances under which it occurred in Arran, where after considerable work I was ultimately successful in finding it.

During the few days I spent in Kintyre, in the beginning of September, the weather was so unfavourable that only one potential *Dytiscus* loch was visited and I failed to find the insect in it.

In Arran I visited six lochs altogether. Of these I found that two were practically dried up and the beetle did not occur in other three. It was only on my last available collecting day on the island, that I visited the sixth and last loch in which I found *lapponicus*. This loch is situated at an elevation of about 800 feet, on the top of a ridge, and the ground dips abruptly on either side of it. It is only about 100 yards in length, with an extreme breadth of about 60 yards, and I do not think that anywhere it will exceed $2\frac{1}{2}$ feet in depth. No stream flows into or out of it, a point characteristic of all the lochs in which the insect has been taken in Britain. The bottom is a hard one composed of fine granite sand with stones of various sizes scattered all over it. The only vegetation I could detect in it was a hepatic clinging to the stones on the bottom, which Mr. J. R. Lee has kindly identified for me as a form of *Alicularia compressa* Nees; but round the margins clumps of sphagnum descended here and there into the water from the adjoining ground. In almost all particulars the loch seems identical with Lochan-na-Beinn Buidhe in Eigg, in which Mr. Balfour-Browne* took the beetle in September, 1910, and in regard to which he remarked that from his previous experience it was a most unlikely place in which to find the species. All the other recorded stations for the beetle are deep lochs, which perhaps become shallow towards one end.

The usual and most successful method of taking the beetle is to turn over the large stones lying on the bottom, under which the creatures apparently lie, and secure them as they swim away.

* The Aquatic Coleoptera of the North Ebrudes. *Ann. Scot. Nat. Hist.*, 1911, p. 149.

This, of course, requires calm weather, as the slightest disturbance of the surface renders the beetles invisible. On the day I visited the loch the weather was not at all favourable for this sort of collecting, for, although it was bright, a strong north-east wind was blowing, and when I arrived at the loch I found that, owing to its exposed position, the wind had raised a miniature sea on its surface. At the west end, which I came upon first, the waves were dashing against the bank, and the spray had caused little pools of water to form. Before I had time to prepare my net for work I caught sight of a *Dytiscus* struggling in one of these little pools half smothered in foam, and to my great satisfaction it turned out to be a male *lapponicus*, very much the worse of being blown out of the water. As it was obviously impossible to find the beetle by wading, I started to work the little patches of sphagnum round the edges, and by this method I was able to take another male and six females, making eight specimens altogether. I did not see any newts or fresh-water crustacea, upon which the *Dytiscus* is supposed to prey.

There were certainly no fish in the loch; but the absence of fish, although it may be one, is not the only determining factor in the insect's selection of a loch. In Arran I examined another shallow, but larger loch, which had also a granite sand bottom with plenty of stones scattered over it, and almost as little vegetation as the first. The chief point of difference between the two lochs was that the second had a little trickie of water running into it and a good stream flowing out of it. The outflow, however, was so rapid that no fish could make their way up it, and, consequently, there were none in the loch. For all practical purposes the two lochs were identical, but in spite of this no *lapponicus* were to be found in the second, although I worked it carefully on two occasions, and under much better weather conditions than when I visited the first loch.

The other beetles which occurred along with *lapponicus* were:—

<i>Deronectes griseo-striatus</i> (8).	<i>Agabus arcticus</i> (abundant).
<i>Hydroporus morio</i> (1).	<i>Gyrinus natator</i> (v. common).
<i>H. melanarius</i> (1).	<i>Anacaena globulus</i> (5).
<i>H. pubescens</i> (common).	

The commonest beetle in the loch was *Agabus arcticus*, which swarmed in the net after every sweep.

With regard to the proportion of males to females in *lapponicus*, it is, perhaps, hardly right to take my result, working with the net alone, as accurate, but so far as it goes it agrees with Mr. Balfour-Browne's experience in Skye and Eigg in September, 1910, when he found in two cases that the females were more common than the males.* Prior to that the collectors of the insect in Scotland and Ireland had for the most part noted the fact that the males were more plentiful than the females. In a paper read before this Society, the Rev. J. E. Somerville † stated that his experience of the insect in Mull and Donegal was that the males were commoner than the females in the proportion of rather more than five males to every female; and he suggested as a possible explanation that this might be due to the close resemblance of the male while in the water to the leaf of Potamogeton when in a half-withered condition. He pointed out that the females were not so favoured as the males in this respect, and probably would be more liable to attack from their natural enemies and consequent depletion of their numbers. One would expect that the most successful operation of this protective resemblance in favour of the males would occur in lochs in which Potamogeton grew, and Mr. Somerville noted that the plant was present in the Donegal loch. No Potamogeton occurred in the Arran loch, and it also appears to have been absent from Lochan-na-Beinn Buidhe in Eigg, where Mr. Balfour-Browne found the females more frequent than the males; but, on the other hand, in the loch in Skye, where the same sex predominated, he notes that Potamogeton did occur!

Mr. Balfour-Browne's suggestion, if it be right, that the female is shortlived, while the male survives more than a season, is likely to explain why collectors in the early summer months should find the males predominating. My experience in Arran would appear to bear this out, as the only beetle

* The Aquatic Coleoptera of the North Eubides.—*Ann. Scot. Nat. Hist.*, 1911, p. 149.

† Notes on *Dytiscus lapponicus* collected in Ireland during the present autumn.—*Proc. Nat. Hist. Soc. of Glasgow*, I., p. 231.

which was fully mature was one of the males. All the females and the male which I found upon the bank were distinctly immature. The fact seems clearly established that the imagines hatch out in the autumn, and the time of year that the male was found to be more common was just in each case before the emergence of the new brood, because it was usually noted that full-grown larvæ were numerous. In Eigg Mr. Balfour-Browne only noted one larva which was full-grown, and in Arran there were no larvæ to be seen.

A point which still seems to be without adequate explanation is that females should preponderate in some lochs in Skye and Eigg in 1910, and in Arran in 1912; but that this might possibly have been abnormal is indicated by the fact that, in September of this year, Professor Hudson Beare and Mr. Black found the sexes practically equal and all quite immature in Lochan-na-Beinn Buidhe in Eigg.

Notes on Yew Trees (*Taxus baccata*, L.) in the Clyde Area.

By JOHN RENWICK.

[Read 25th June, 1912; revised November, 1912.]

RENFREWSHIRE YEWS.

THE largest yew tree in the Clyde Area, and probably in Scotland, is one at Craighends Castle, Renfrewshire, on the side of the river Gryfe. The trunk is very short. It begins to divide at about 3 feet up, into 13 or 14 great limbs, one of the largest of which is 8 feet 4 inches in girth at the base. At 10 feet from the ground there are about 30 stems. It is not possible to take the tape straight round the trunk, but at the narrowest part the girth is 22 feet 8 inches on an irregular line at an average of 2 feet up. The diameter of the spread of

the branches is 91 feet, on a line parallel to the river, and 82 feet at right angles thereto. The foliage thus extends in nearly a circle, and covers an area of about 7,400 square feet, or over an eighth of an acre. The height of the tree is 44 feet. The girth has increased $17\frac{1}{4}$ inches since 1889, or at an average rate of $\cdot75$ of an inch annually. This is large for a yew, but is likely to be accounted for by the swelling under the divisions of the trunk and by the swelling of the roots. The tree is evidently very healthy and vigorous, and in 1896 we were told that it always produced plenty of pollen.

At the mansion-house of Duchal there is a large yew. It begins to divide at the base, the branches going off almost horizontally, and lying on the ground. It is thus impossible to measure it straight round, but at the narrowest point it is not less than 16 feet 6 inches in girth, height 42 feet.

There are two very interesting yews at Craighet, a small estate which at one time formed part of the lands of Duchal. They are said to have been planted to commemorate a marriage in the Porterfield family, about 1620. If so, they are now 290 years old. On 1st January, 1912, they measured, respectively, at 2 feet up—male tree, girth 8 feet $1\frac{1}{2}$ inches, height 40 feet, spread 59 feet, bole 13 feet; female tree, girth 7 feet 1 inch, height 43 feet, spread 61 feet, bole $7\frac{1}{2}$ feet. The male tree is thus a good bit greater in girth. Taking the age as 290 years, the annual average increase in girth has been, in the male tree, $\cdot33$ inch, and in the female $\cdot29$. But during the last twelve years the female tree has grown at a much higher rate than the male, and than the average for the supposed life, namely, $\cdot48$ inch yearly, while the male tree has grown much slower, say, $\cdot17$ inch. The slow rate in the latter is probably owing to an iron band round its trunk. The trees may, however, not be so old as 1620. The estate at that time does not seem to have been in the possession of the Porterfield family. In Murray's *Kilmacalm, a Parish History* (1907), it is stated that in 1681 John Porterfield of Duchal purchased the lands of Craighet and Carsemeadow from the Sinclairs of Craighet. He died in 1690, and was succeeded by his grandson, Alexander, who in 1694 married Catherine Boyd, daughter of the Earl of Kilmarnock, and

granddaughter of the ninth Earl of Glencairn. Such a splendid marriage for an impoverished laird may well have been commemorated by "marriage trees," as these are called. If 1694 be the correct date, the average annual girth increase has been—male tree, '45 inch; female, '39 inch; rates which correspond with that of the former ('44 inch) during the last 12 years.

At Finlaystone House, which formerly belonged to the Earls of Glencairn, one of whom was a friend of John Knox, there is what remains of an old yew under which the Reformer is said to have preached in 1556. When the house was enlarged by the late Mr. George J. Kidston, this tree was carefully moved about 100 yards rather than have it cut down. It is not in very good condition. The house stands on the top of the old sea-cliff which forms so conspicuous a feature all round the Firth of Clyde. Lower down on the 25-foot raised beach is a group of three fine yews, about 40 feet high, and girthing respectively in 1907 9 feet 7½ inches, 9 feet 5½ inches, and 8 feet 5 inches, with boles of only 4 feet. The largest and the smallest are male trees. The largest has grown during the preceding fourteen years at a much greater rate than the others, '64 inch annually; smallest, '36; female, '33. They may, however, be of the same age. Comparing the smallest of the three with the smaller Craighet one, and assuming that 1620 was the actual date of planting of the latter, the age would come out as 345 years in 1907, and comparing the largest with the larger Craighet tree, it would be 344 years. As 351 years had elapsed since 1556, one might imagine that if the custom had prevailed then, the Reformer might have commemorated his visit by planting these trees. But as the place where they grow is called "Paradise," it would be a more likely guess that they were planted by some ecclesiastical predecessors of Knox. If 1694 be the date of planting the Craighet trees, and if these at Finlayston have grown at a similar rate, they would not be more than 260 years old.

A tree which has obtained some notice recently is the "Wallace Yew," at the farmhouse of Elderslie, which, according to John O. Mitchell, in *The Two Elderslies* (1884),

occupies the site of the old tower and manor-place, an "old decayed house" early in the 18th century. He says:—"A venerable yew grows in the garden, singularly thriving, with solid trunk, and thick and shapely head." In April of this year it had a spread of 50 feet, and a girth of 11 feet at 4 feet and at 1 foot up, an increase at the former height of $8\frac{1}{2}$ inches since 1891, or at the rate of '40 inch yearly. It is popularly supposed to be at least 600 years old, but if it has grown all its life at the same rate as in the last 21 years it is only 330 years of age. As the yew grows faster when young, it may be only about 300 years, and thus instead of having been planted by, or of commemorating the execution of, the Protector of Scotland in London, in 1305, it may date from the time, about three centuries later, when the King of Scotland entered the same city as monarch of the whole island. Ramsay, in *Views in Renfrewshire* (1839), p. 124, says—"The name of 'Wallace's Yew' has been assigned to it probably for no other reason than because it stands at a spot hallowed by his name."

Glasgow, in its public park at the Rouken Glen, possesses a number of examples of the ordinary form of yew, and about fifty of the Irish or fastigiata (var. *fastigiata*). Many of these this year produced fruit in great abundance.

A once famous yew grew at Crookston Castle, under whose shade Queen Mary and Darnley were popularly, but evidently erroneously, supposed to have spent part of their courtship or honeymoon. W. Semple, in 1782, writes—"The trunk, for about seven feet high, is about ten feet in circumference." It was also said to be a very high and wide-spreading tree, visible a long way off. Mr. Robert Guy, in his history of *Crookston* (1909), gives two views of it, one as in 1764, the other as it appeared just before it was cut down in May, 1816, and states—"There was planted in the garden at Pollok House a descendant of the ancient yew, reared from a cutting." A tree from a cutting taken in 1789 was sent to the old Botanic Gardens in Glasgow in 1817, and removed to the present Gardens in 1822. When the railway was formed under the Gardens, in 1896, it had to be transplanted, and unfortunately died. The one at Pollok House is still alive,

but has recently been growing rather more slowly than a young tree ought to grow. In 1904 it had a girth of 3 feet 11 inches at 1 foot up, an increase during the six preceding years of one inch, an average of $\cdot 17$ inch annually. If it dates from 1816 its average rate to 1899 has been $\cdot 55$ inch yearly, if from 1789 it has been $\cdot 42$ inch.

Another yew at Pollok House seems to show a similar slackening of growth in recent years. It is supposed to have been planted about 1746, had a girth of 6 feet $1\frac{1}{2}$ inches in 1892, 6 feet $2\frac{1}{4}$ inches in 1899, and the same in 1904. If 1746 is the correct date, its average rate for 146 years to 1892 was exactly half-an-inch a year, but for the next seven years only $\cdot 14$ inch, and thereafter the growth seems to have stopped. No doubt the recent slow rates are owing to the increasing amount of smoke in the air, as the city and the neighbouring towns, Paisley and Barrhead, expand. Mr. Whitton, Superintendent of Parks, Glasgow, informs me that the yews in the various parks in the city are failing. They are very impatient of a smoky atmosphere.

LANARKSHIRE YEWES.

The largest yew tree that I know of in the County of Lanark is at Dalsert House. In May this year it measured 14 feet 11 inches in girth at the narrowest part of the trunk at about 1 foot up. It divides into five or six stems at about 2 feet from the ground, and cannot be measured straight round. It has a height of 38 feet, and a spread of $66\frac{1}{2}$ feet. In the Glen at Dalzell House are many yews much longer in the trunk (at least 20 to 25 feet) than trees which grow in the open. There are a number of yews at Craignethan Castle. Doubtless Sir Walter Scott noted them when he visited the place, hence it came that Goose Gibbie was smuggled out of Tillietudlem Castle from a certain window belonging to a certain pantry and communicating with a certain yew tree, and that Cuddie Headrigg got up into the yew tree and was treated to a pot of hot kail-brose about his lugs (*Old Mortality.*)

AYRSHIRE YEWES.

The late Dr. D. Landsborough, in his *Contributions to Local History* (Kilmarnock), states that the most famous yew tree in the entire district, and in this case it may be said to include all Ayrshire, is the old yew tree of Loudoun (Plate I.), and quotes the (new) Statistical Account, which says it "is of unknown antiquity. It is said that one of the family charters was signed under it in the time of William the Lion (1165-1214). One of the Articles of the Union with England, it is also said, was subscribed by Lord Hugh, under its deep shade. When Lord James went into voluntary banishment to Holland (during the times of persecution), he addressed his letters (being afraid of detection) for his lady 'To the Gudewife at the Auldton [a few houses half-a-mile distant] at the old yew tree of Loudoun, Scotland,' and they always reached their intended destination in safety." In 1911 it had a girth of 13 feet 9½ inches at the narrowest part of the trunk, 2 feet up, and in 1899 a height of 45 feet and a spread of 78 feet, which, according to Mr. John Gloag, had increased to 81 feet in 1911. The first large branch goes off at 6 feet, but the trunk may be said to be 20 feet high. The average annual increase of girth for 22 years—1890-1911—was .36 inch. If it had steadily grown at this rate its age would now be 460 years. Dr. D. Christison, in the *Transactions of the Botanical Society of Edinburgh*, March, 1895 (Sess. LIX., p. 389), writes—"Measurements taken by Mr. Landsborough in 1864 and 1894 show that the tree, during that period, was still increasing in girth at the annual rate of a third of an inch. Now, even if no greater rate had been maintained for its whole life, the age would only be 510 years. But it is well ascertained that the rate of yews, like that of other trees, is much greater in early life than subsequently." He concludes "four centuries may be assumed as a very probable age for the Loudoun Castle Yew." It may thus date from between 1450 and 1490, and the historical associations with the "killing times" of the Covenanters (*ante* 1688), and the Union of the two Kingdoms (1707) are likely quite reliable.

A smaller tree beside it had a girth in 1908 of 8 feet 9½ inches, an increase of 6½ inches since 1890, an average rate of .34 inch, nearly the same as the larger tree. Mr. John Gloag, who has long been employed on the Loudoun estate, writes—“To the north of the Castle there is a row of yew trees (23), and to the south there are two rows and some outside the rows, in all 40. Measurements of four of these, taken in 1911, by Mr. Robertson, the gardener, and himself, were—

Girth, 10 ft. 7½ ins. ;	height, about 50 ft. ;	bole, 18 ft.
„ 12 ft. 2½ ins. ;	„ 55 ft. ;	„ 16 ft.
„ 11 ft. 0 ins. ;	„ 50 ft. ;	„ 13 ft.
„ 9 ft. 5 ins. ;	„ 38 ft. ;	„ 13 ft.

So far as Mr. Gloag can learn, there is no record as to when these yews were planted, but Lord Loudoun informs him they are supposed to have been planted by John, Earl of Loudoun (1705-1782). He succeeded to the estate in 1731, and is said to have planted upwards of a million of trees.

Loudon, in his *Arboretum et Fruticetum Britannicum* (1838), p. 2067, describing the upright or Florence Court Yew (the Irish Yew) (var. *fastigiata*), writes—“There are two trees of this variety at Nether Place, near Mauchline, Ayrshire, respecting which the following information has been transmitted to us by Mr. John Davidson, gardener, at Nether Place:—‘In compliance with your request, I have again measured the Irish yews in Mr. Campbell’s garden. . . . I cannot ascertain the age of the trees, but I am informed by Miss Campbell that, about 40 or 50 years ago, they failed at their tops, and were then cut over, which, indeed, appears evident on examining the trunks. There are now 66 upright branches from the one trunk, and 56 branches from the other, each measuring from 6 inches to 2 feet in circumference. In appearance the two trees are exactly alike. The larger is 22 feet 6 inches, the smaller 20 feet 8 inches in height. The circumference of the larger trunk is 9 feet, and of the smaller 8 feet, and the trunk of each tree rises about 2 feet from the soil before it begins to throw out branches.’” They now (1912) appear to begin to divide at the base, the soil

having evidently been raised 2 feet. They are about 33 feet high. The eastern tree has a girth of 11 feet 8 inches at the ground, and a diameter of spread of 42 feet; the western tree a girth of 11 feet $4\frac{1}{2}$ inches and a spread of 45 feet. But these girths would be less if the trunk below the swell of the branches could be reached. Therefore the apparent girth-increase cannot be used for the purposes of comparison. Loudon (*l.c.*, p. 2066) says—"All the plants of this variety in cultivation are of the female sex." Dr. A. Henry, in *Trees of Great Britain and Ireland*, Vol. I., p. 110 (Elwes and Henry) writes—"As the original tree was a female, and the variety is propagated by cuttings, all Irish Yews are of the same sex. . . . No true male Irish Yew has ever been met with." As both of these yews are male trees, I sent to Dr. Henry specimens, and, later, photographs, and referred to the description in Loudon, p. 2067. He points out that the leaves are arranged in pectinate fashion in one plane, as in the ordinary form of yew, whereas in the Irish yew the leaves spread radially in all directions round the vertical branchlets. They are common yews, with more ascending branches than usual, owing to the fact that they were pollarded. They were erroneously called "Irish," because being pollarded they shot out a great number of stems that grew more or less vertically or ascending, and assumed a peculiar habit in consequence. A fastigate tree is one which has all the branches vertical naturally, and is a sport; leaves, fruit, &c., are all affected, in fact, the whole plant is abnormal. These yews are interesting culturally, but are not a variety. Dr. D. Landsborough (*Contributions to Local History*) gives the girth of Irish yew at Netherplace in 1879 as 9 feet $5\frac{1}{2}$ inches at base. Referring to the fact that the Irish yew was discovered in 1780 he says—"The Netherplace yew is so large that it cannot have sprung from the 'Irish yew.' This Scottish 'Irish yew' must have been before the Irish 'Irish yew.'" There can be no doubt that yews which were 8 feet and 9 feet in girth in 1837 or 1838 are much older than 1780. The proprietor of Netherplace, Col. W. K. Hamilton-Campbell, writes me—"I expect they would be planted in the garden subsequent to

the old house being built, which dates back to 1620." A girth-increase of half an inch a year in the larger tree would bring it to about 1622, and in the smaller to 1646. Opposite the entrance to the old house is a fine wide-spreading typical tree. It was much damaged by the severe storm on 5th November, 1911, and had to be relieved of three big limbs on the south side, half way up, which were broken at the trunk. In August this year it had a height of 38 feet, a diameter of spread of foliage of over 65 feet, and a girth of 8 feet 8 inches at 5 feet up, an increase of 4 inches since 1900, or an average of $\cdot 32$ inch annually. A steady growth all its life at this rate would make it 325 years old, but allowing for faster growth when young, we may surmise that its age is about 250 years, or perhaps a little more, and that probably all three trees are about the same age.

There are a number of fine yews at Kelburne Castle, the ancient seat of the Earls of Glasgow. The largest are, this year—

Girth,	12 ft. $7\frac{1}{2}$ in.;	height,	42 ft.;	spread,	55 ft.
„	12 ft. $4\frac{1}{2}$ in.;	„	44 ft.;	„	$62\frac{1}{2}$ ft.

They show an exceptionally high rate of girth-increase during the last 3 years, namely, one inch per annum.

Other large yews in Ayrshire are—Thornton House, 13 feet 3 inches, and 10 feet 5 inches; Rowallan Castle, 12 feet; Kennox 10 feet 5 inches by 48 feet high and 57 feet spread.

Near the ruins of the ivy-mantled Castle of Dalquharran, bearing date 1679, in the Girvan Valley, are two groups of yews, three trees in each. The larger trees in the finer group measured, in 1900, 8 feet 3 inches and 7 feet $1\frac{1}{2}$ inches by 48 feet high. The Rev. R. Lawson, writing in 1896, stated that there was a yew on the lawn opposite the entrance to Blairquhan Castle, believed to be the largest in Ayrshire, but as he gave no figures, there are no means of comparison. He also stated that there is an avenue of yews on the church walk, evidently very old. This refers, I presume, to Straiton church.

DUMBARTONSHIRE YEW.

Professor John Walker, in his *Essays on Natural History*, published 1812, but written before 1803, records a yew at Bonhill, Dumbartonshire. "It stands between the house and the river Leven, was about 30 feet high in September, 1784, and measured 9 feet 4 inches at 4 feet. In March, 1900, it measured 11 feet $0\frac{1}{4}$ inches at 4 feet, an increase of $20\frac{1}{4}$ inches in 115 years, an average rate of $\cdot 17$ inch annually. In June, 1911, it was 37 feet high and 11 feet 3 inches in girth, an increase of $2\frac{3}{4}$ inches in a little over 11 years, a rate of $\cdot 24$ inch. It is therefore growing faster now than it has done in the previous century of its life. Mr. Turnbull, whose family lived in Bonhill Place for many years, informed us in 1900 that the tree was decaying about 1784, that in 1806 it seemed to be dying, when about 6 feet was cut off the top, and thereafter it slowly recovered.

Dr. Walker (*loc. cit.*) writes—"A yew in the island of Inch Lonach, in Loch Lomond, measured, 3rd August, 1770, 10 feet 7 inches, about 40 feet high, but another tree which was the largest on the island, though not so tall, measured 13 feet in girth. On the island," he says, "there is an extensive natural wood of yew, which consists entirely of old trees, as the herd of deer which has long been kept on it prevents any young trees from getting up. Many of these yews, when they have begun to decay, have sent up shoots from the root, close to the old trunk. A number of these coalesce, and form at last a compleat (*sic*) new trunk, at the side of which the old tree continues to decay. In this way the tree comes to be regenerated from the root." He quotes from the Statistical Account a yew at the house of Rosssdoe, in Dumbartonshire, 1795, at $2\frac{1}{2}$ feet above ground, 12 feet 6 inches.

The Rev. David Ure, in *Agriculture of Dumbartonshire* (1794), p. 85, writes—"Amongst the natural wood in the county is the yew and the holly. They are mostly confined to the woods of Luss and Arroquhar. Inch Lonachan, an island in Loch Lomond, contains several thousand large yews: a plantation of that kind of wood unequalled, perhaps, in Europe. It is not known whether they are natural or planted,

but most probably the latter, and were intended for making bows before the invention of gunpowder. . . . The largest yew is at Rossdoc. It measures twelve and a-quarter feet in circumference, and is very high.”

White and Macfarlane, in a book on *Agriculture of the County of Dumbarton* (1811), write—“Yew trees are not unfrequent in the woods on the banks of Loch Lomond. On the island of Inch Lonaig there are said to be several thousands of them, all of considerable size. A yew at Rossdoc measures upwards of 12 feet in circumference, and is very high. A still more extraordinary tree of the same kind grows at Stuckentibbert, in the parish of Arroquhar. The trunk, though very short, is no less than 28 feet in circumference, and the top spreading in proportion, but the whole is in a state of rapid and hopeless decay.”

Joseph Irving, in *The Book of Dumbartonshire*, 1879, states—“Inch Lonaig is thought to be identical with the island granted about 1225 by Maldowen, Earl of Lennox, to Gilmychel of Bandry. To furnish the Lennox men with trusty bows, this island was planted with yew trees on the advice of King Robert Bruce.” What foundation there is for this statement I do not know. Sir Thomas Dick Lauder, in his edition of Gilpin’s *Forest Scenery* (1834), writes—“The Yew Tree Island in Loch Lomond, furnished 300 yews for the axe at one cutting some 15 or 20 years ago, and there are still a number of fine specimens of this tree on it.” Mr. John Paterson (*Annals of the Andersonian Naturalists’ Society*, 1893) says—“The collection suffered from fire, but the western end of the island, which was bare of trees, was partially replanted by the late Sir James Colquhoun.” When this Society visited Inch Lonaig in 1909, the best yews which I saw measured 12 feet 3 inches, 11 feet 2½ inches, and 10 feet 1 inch in girth. There are not now “several thousands” on the island, but enough remain to give a special tone to the scenery. In few places outside the chalk downs, I should imagine, do yews form such a distinctive feature in the aspect of the country as on Inch Lonaig.

The yew tree at the old chapel near Rossdhu House, which was erected about the 12th century, and is now used as the

burying-place of the Colquhoun family, girthed 13 feet $2\frac{1}{2}$ inches at 5 feet in 1905, an increase of 3 inches since 1890, an average of .20 inch yearly. Unfortunately, our measurements were not taken at the same height as the one in 1795, otherwise an interesting comparison could have been made.

The eponym of the "Yew-tree Lodge," in Glen Finlas, had, in 1905, a height of 38 feet and a girth of 13 feet $6\frac{1}{2}$ inches at 2 feet 8 inches from the top of a mound surrounding it, or 7 feet 8 inches from the ground, an increase of $4\frac{1}{2}$ inches since 1893, or at the annual rate of .39 inch, nearly double the one at the old chapel. It was, until last June, the largest yew known to us in the County of Dumbarton, but I was then informed by Mr. John Moffat, forester on the Luss estate, that there was still a yew at Stuckentibbert, on the banks of Loch Lomond, about two and a-half miles south of Tarbet. It grows on a knoll at the north end of a cairn-like heap of stones on the edge of a low cliff. The roots clasp huge blocks of schist, while smaller stones lie on the ground to the south. It divides into five stems about 2 feet from the highest part of the surrounding "cairn." At the narrowest part of the trunk, between the swell of the roots and the offshoot of the stems, the girth is fully 19 feet. It is not high, under 30 feet. There does not seem to be any improbability in supposing that this 19 foot tree is part of the old 28 foot tree which was in a state of decay a century ago, regenerated in the manner described by Prof. Walker.* The name of the place is spelt in the Ordnance Survey Map "Stuc an t'ìobairt," and has been translated as meaning the place, or cliff, where sacrifice was made. "That human sacrifices were commonly offered by the ancestors of the civilized races of Northern Europe, Celts, Teutons, and Slavs, is certain," writes Prof. J. G. Frazer (*The Golden Bough*.) The yew is indigenous in Britain, and has been found in England in pre-glacial and in Scotland in Neolithic deposits (Clement Reid). Thus it was known to the Neolithic people and to

*The immense yew at Fortingall, 52 feet in girth in 1769, is perpetuated by a growth of branches 12 to 15 feet high when I saw them 20 years ago, but I do not think there is any coalescence with part of the old stem.

the Celts. The latter have named many places after it in England, Scotland, and especially Ireland. Glenure, in Argyllshire, is the yew glen, and I have been informed that there are still native yews in it. Loch Iubhair, the lower part of Loch Dochart, in Perthshire, is the yew loch, and I understand that there are yews on the island in Loch Dochart. Craignure, in Mull, is the rock of the yew; Palnure, in Galloway, the pool or pond of the yew; Dunure, in Ayrshire, the yew fort; and "Tomnahurich, at Inverness (Gaelic Tom na h-Iubhraich) knoll of the yew wood" (W. J. Watson, LL.D., *in lit.*).

The yew was a sacred tree among the Celts. Walter Johnson, in *By-ways in British Archæology* (1912) writes (p. 406):—"The yew appears to have been held in superstitious respect during the bronze age, and, it is possible, in the preceding neolithic period." The combination of the yew on the cliff, the ideas connected with the tree, and the supposed cliff of sacrifice, suggested that this might have been a place of human sacrifice. I wrote to Dr. W. J. Watson, author of a work on the place-names of Ross-shire, asking whether the name would likely come from Gaelic *Iobart*, a sacrifice, or from an old Gaelic word *tiobart*, a well. He kindly replied—"Stucken-tibbert certainly means the height of the well. *Iobart*, a sacrifice, does occur in some place-names, but it would be impossible to account for the 't' of *tibbert* on the supposition that the name comes from *iobart*." Thus, unless the well was a holy one, of which there does not seem to be any evidence, the name does not carry us back to prehistoric times. There is, however, a legend which takes us to the dark days in Scottish history when Robert Bruce, crowned King at Scone, in March, 1306, and disastrously defeated near Methven, 19th June, was a wanderer with only about 200 followers. On their way to Cantire they came, in the beginning of winter, to the eastern shores of Loch Lomond, and bivouacked for the night in the caves of Craigrostan. After long search next day, says Barbour, "James of Douglas at the last Fand ane litill sonkin bot. Bot it sa litill was that it Micht our the watir bot threesum flit." In this way, by two at a time (one rowing and two passengers in the boat) and some

swimming, the company crossed the loch in a night and a day. During this tedious ferry, the King, who, with Douglas, had crossed first, merrily "Red to them that war him by Romanis of worthy Ferambras." According to the legend, the King slept under this yew tree. It is not at all unlikely that the bivouac on the western shore, and the romance reading, took place at this locality, and under the old yew tree. A yew 28 feet in circumference, and decaying in 1811, must have stopped growing for some time, and is quite likely to have been of a fair size in 1306. Mr. Johnson, to whom I wrote on the subject, replies—"There is nothing wildly improbable in the story that Bruce (say 600 years ago roughly) slept under the tree—though it may not have been very old. These traditions are not always without a slight basis of reality, but I suspect that Bruce may have other such trees dotted here and there."

The celebrated triple avenue at the Clachan House, Rosneath, contains 23 yews, the highest rising from 45 to about 55 feet, and the largest girthing 11 feet 11½ inches and 12 feet 4 inches at the narrowest. The latter, which has a trunk of 10 feet before giving off branches, shows an increase of 12 inches during the last 21 years, or an average of 56 inch annually, rather larger than usual in boles of this size, and suggesting that these may have been fast growers and consequently not so old as their girth would seem to indicate. The house is said to have been built and the trees planted by the Hon. John Campbell of Mamore, second son of the 9th Earl of Argyll. If so, they are about 200 years old. There is a tradition that a monastery once existed on the spot, and therefore it is not improbable that they may be even older, and that they may form part of a succession that dates back to pagan times. Dr. W. J. Watson informs me that Rosneath means "the wood or point of the Nemeton." Mr. W. C. Maughan, in *Rosneath Past and Present*, states—"The park near which the new school-house stands is 'Tom a mhoid,' the field of justice." The "Nemeton," or consecrated place, the knoll or field of judgment near the yew tree avenue, may indicate that here the ancient Celts and their Neolithic predecessors had one of their sacred places in the

dark groves of a yew wood. The attempts of the Christian Church to suppress the older worship often resulted in a compromise. The place, or the well, was dedicated to the Virgin or to a Saint. Thus, it is asserted, there was a church in the district, reared in memory of the Virgin, while the parish church was dedicated to St. Modan (Irving, *Book of Dumbartonshire*).

Other large yews in Dumbartonshire are at Dougalston House, girth 12 feet 3 inches in 1908, an increase of 7 inches since 1893, an annual rate of $\cdot44$ inch; and at the farmhouse of Murroch, girth 12 feet $5\frac{1}{2}$ inches in 1911, showing no increase during the previous five years.

STIRLINGSHIRE YEWS.

In Stirlingshire there is a yew at the farmhouse of Cashell, on the eastern bank of Loch Lomond, opposite Inch Lonaig. It has this year a height of 38 feet, a spread of 60 feet, and a girth of 12 feet 9 inches at 4 feet up, an increase of 7 inches since 1899, or an average rate of $\cdot53$ inch yearly. One at Buchanan Castle (Duke of Montrose) had in 1900 a girth of 11 feet $9\frac{1}{4}$ inches, and a spread of 59 feet. The increase since 1889 was only $1\frac{3}{4}$ inches, or the very low average of $\cdot17$ inch annually. At Ballagan House, one had in 1911 a height of 42 feet, a spread of 50 feet, and a girth of 9 feet $9\frac{1}{2}$ inches, an increase of only $\frac{1}{2}$ inch since 1904, or the still lower average of $\cdot07$ inch annually. Outside the Clyde Area in this county, there is at Arngomery a very fine yew which had, in 1890, a girth of 10 feet 7 inches at 4 feet, and a spread of 72 feet. In the appended table is given a selection from measurements made by Mr. Richard M'Kay and myself of yews in the Clyde Area, showing girth, height, spread, amount and average annual rate of girth increase.

Loudoun Castle, -	-	1/1890	13	1½	2	0	9/1911	13	9½	8	22	.36	7	45(a)	81(b)	1899(a)	M.
Do., -	-	1/1890	8	3	1	6	7/1908	8	9½	6.5	18.8	.34	...	...	...	1911(b)	F.
Netherplace, Mauchline,	{ 8/1892 +10 10/1892 5/1900 }	base	2	2	base	8/1912	11	8	18	20	.90	...	...	33	42	1912	M.
Do., -		base	9	10	base	8/1912	11	4½	18.5	20	.92	...	...	33	45	1912	M.
Do., -		ground	8	4	5	0	8/1912	8	8	4	12.4	.32	10	38	65	1912	F.
Rowallan Castle, -	-	9/1909	12	0	2	6	...	...	...	...	...	...	3	...	...	...	M.
Thornton House, -	-	1/1904	13	3	1	6	...	...	...	...	...	...	1½	...	...	...	...
Do., -	-	1/1904	10	5	1	0	...	...	...	...	...	...	3	...	...	...	...

† Fide Mr. John Paterson.

DUMBARTONSHIRE.

Bonhill Place, -	-	1784*	9	4	4	0	...	...	...	20.25	115	.17	...	30	...	1784	...
Do., -	-	3/1900	11	0½	4	0	6/1911	11	3	2.75	11.4	.24	11	37	...	1911	...
Boturich Castle, -	-	9/1900	6	11	5	0	...	...	...	...	...	...	8	29	52	1900	F.
Cochno, -	-	4/1895	7	1	4	6	4/1903	7	5½	4.75	8	.59	12	41	...	...	F.
Dougalston, -	-	3/1893	11	8	ground	8/1908	12	3	7	15.7	.44	...	...	...	...	...	F.

* Prof. John Walker, D.D., *Essays in Nat History*.

TABLE OF MEASUREMENTS OF YEW TREES IN CLYDE DRAINAGE AREA—Continued.

DUMBATONSHIRE—Continued.

LOCALITY.	Date (a).	Girth.		At	Date (c).	Girth.		Increase in Girth.		Bole.	Height.		Date of Height and Spread.	Male or Female.
		Ft. In.	Ft. In.			In.	Years.	In.	(c).		Ft.	Ft.		
Inch Lonaig,	-	6/1909	12 3	2 9	...	...	...	...	...	3	...	...	...	..
Do.,	-	6/1909	11 2½	3 7	...	...	...	...	...	4	...	...	...	..
Murroch,	-	5/1906	12 5½	3 0	1/1911	12 5½	...	...	...	8	28	...	1911	..
Rosneath,	-	9/1890	11 4	2 6	6/1912	12 4	12	21.4	.56	10	46	...	1912	F.
Do.,	-	6/1912	11 11½	5 0	...	...	...	...	...	8	55	...	1912	..
Rosdhu,	-	9/1893	13 2	7 8	6/1905	13 6½	4.50	11.5	.39	11	38	...	1905	F.
Do.,	-	8/1890	12 11½	5 0	6/1905	13 2½	3	14.6	.20	10	...	...	...	M.
Stuckentibbert,	-	6/1912	19 0	2 0	...	...	...	...	...	2	...	...	...	..

LANARKSHIRE.

Dalserf House,	5/1899	14 0	1 0	5/1912	14 11	11	13	84	2	38	66	1912	F.
Dalziel House,	5/1893	7 9½	5 6	8/1907	8 2½	5	14.4	34	25	...	...	...	...

RENFREWSHIRE.

Craigbet,	11/1899	7 11½	2 0	1/1912	8 1½	2	12	17	13	40	59	1912	M.
Do.,	11/1899	6 7¼	2 0	1/1912	7 1	5.75	12	48	7½	43	61	1912	F.
Craigends Castle,	11/1889	21 2¾	2 0	10/1912	22 8	17.25	23	75	3	44	91	1912	M.
Duchall House,	5/1907	16 0	3 0	1/1912	16 6	6	5	1.12	3	42	...	1912	F.
Elderslie ("Wallacetree"),	3/1891	10 3½	4 0	4/1912	11 0	8.5	21	40	5	...	50	1912	M.
Finlayston,	10/1893	9 1	1 6	8/1907	9 5½	4.5	13.7	33	4	38	...	1899	F.
Do.,	10/1893	8 10¾	2 0	8/1907	9 7½	8.75	13.7	64	4	...	...	...	M.
Do.,	10/1893	8 0	1 9	8/1907	8 5	5	13.7	36	4	...	...	...	M.

STIRLINGSHIRE.

Ballagan,	6/1904	9 9	4 2	4/1911	9 9½	5.0	6.8	07	10	42	50	1911	...
Buchanan Castle,	5/1889	11 7½	2 9	9/1900	11 9¼	1.75	10.5	17	7½	...	59	1900	F.
Cashell,	7/1899	12 2	4 0	8/1912	12 9	7	13.2	53	11	38	60	1912	F.

Proceedings of the Society.

THE first meeting of the sixty-second session took place in the Society's Rooms, on 20th September, 1912, Mr. W. R. Baxter, vice-president, in the chair.

Reports of the Society's excursions to Abington, Mauchline, Balmaha, and Glen Massan were read. Mr. D. A. Boyd reported that at the Abington excursion, while in Glengonnar policies, he collected some 24 species of micro-fungi, 12 of which were new to Lanarkshire—the most notable being *Septoria chrysanthemella*, Sacc., new to Scotland and only once previously recorded for England. At the Glen Massan excursion an interesting capture was made by Mr. J. J. F. X. King, F.E.S., a number of specimens of *Psylla buxi*, Lin., being taken from some box shrubs growing near the entrance to Benmore Estate. In the British Association Handbook on the Fauna, &c., of Clyde, this insect is noted as got from various garden plants, but certainly not from box.

Mr. Thos. Anderson exhibited a four-year-old branch of the Black Wattle Tree (*Acacia pycnantha*, Benth.), bearing a large excrescence weighing about 1 lb. 13 ozs. The specimen was from Natal, where the tree is extensively grown for its bark. Mr. Anderson also exhibited the mud nest of a Natal hornet.

Mr. Jas. Whitton sent a note on an abnormality in a Kitten (see Vol. IV., pp. 136-137).

Mr. John Paterson read a paper by Messrs. Matthew Barr & John Craig, on "The Birds of the Parish of Beith, &c." (see Vol. IV., pp. 97-114).

The sixty-first Annual General Meeting took place on 29th October, 1912, Mr. John R. Lee, president, in the chair. The president, before beginning the business of the evening, drew attention to the death of Mr. Adrian Kidston, who had been a member since 1895.

The Report of the Council which was read showed that during the year two Life and ten Ordinary Members were added to the Society's Roll. The obituary for the year contained the names of Sir Joseph Dalton Hooker, who was an Honorary Member, and five Ordinary Members—Sir James King, Bart., Miss C.

Henderson, Dr. Thos. B. Henderson (see Vol. IV., p. 131), Colonel Harington Stuart, and Colonel Mure of Caldwell. The membership at the end of Session 1911-1912 was as follows:—

Honorary Members,	-	-	-	-	14
Corresponding Members,	-	-	-	-	33
Life Members,	-	-	-	-	20
Ordinary Members,	-	-	-	-	183
					<hr/>
Total,	-	-	-	-	250
					<hr/> <hr/>

There were 4 Associates.

The Hon. Treasurer's Report was adopted. A statement of accounts appears on page .

The following office-bearers were elected:—Mr. John Robertson, as Vice-President; and Messrs. J. R. Thomson, T. Thornton Mackeith, J. G. Robertson, and Professor L. A. L. King, M.A., as Members of Council.

Mr. Wm. Mure, Hall of Caldwell, Renfrewshire, was elected as an Ordinary Member.

Mr. John Renwick reported on an excursion to Crianlarich and Ardlui.

Mr. R. S. Wishart, M.A., exhibited the following plants:—*Sisyrinchium anceps*, Bab., found near Garkirk by Mr. Hugh A. Aitken, Chryston; *Apera Spica-venti*, Beauv., found by a Glasgow High School pupil at Scotstoun; *Impatiens Nolintangere*, L., *Cerastium arvense*, L., and the variety *Andrewsii*, Syme, of that species, all from Montrose.

Mr. Peter Ewing, F.L.S., exhibited an interesting series of plants, including *Erophila vulgaris*, D.C., var. *glabrescens*, Jord., from Craig-an-Lochain; *Gnaphalium sylvaticum*, L., var. *alpestre*, Druce, from Cairnwell; *Rhinanthus monticola* (Stern.) Druce, from Beinn Laoigh; *R. stenophyllus* (Stern.) Druce, from Canlochan; and the following, all from Ardrishaig:—*Scutellaria galericulata*, L., a form; *Plantago maritima*, L., var. *pumila* (Kjellm.); *Orchis maculata* L., var. *ericetorum* (Linton); *Habenaria bifolia*, Br.; *Carex Hornschuchiana*, Hoppe; *C. Hornschuchiana* × *lepidocarpa*; *C. flava* × *Hornschuchiana*; and *C. remota*, L. He also showed *Potamogeton pusillus*, L., var.

Sturrockii (Groves) L. E. Salmon, from Loch Schechernich, N.E. Perthshire. Along with these were submitted specimens of allied forms for comparison.

Mr. John Main, F.G.S., showed some lantern slides of general natural history subjects.

The third meeting of the sixty-second session took place on 26th November, 1912, Mr. John R. Lee, president, in the chair.

Before the business commenced, Mr. D. A. Boyd made appropriate reference to the loss the Society had sustained in the death of the Rev. Dr. David Landsborough (see pp. 1-2). A report on fungus-forays to Caldwell House and Craigton Woods in the present autumn under Mr. R. B. Johnstone's leadership was submitted. The larger fungi, it appeared from the report, were very scarce, the most notable species obtained being *Grandinia crustosa*, Fr., which covered the porous side of a small cluster of *Polystictus versicolor* found at Caldwell.

Mr. R. S. Wishart, M.A., showed from Stepps cauliflower roots attacked by "finger-and-toe" disease—due to a parasitic fungus, *Plasmodiophora brassicæ*, Wor.

Specimens of the Grey Squirrel were exhibited by Mr. Chas. Kirk (from Cardross) and Mr. John Renwick (from Luss). Reference may be made to the record of the first appearance or introduction of this species to Clyde (Vol. IV., p. 136). From Mr. Kirk's records it appears that the first that reached him from this district were one from Arrochar and another from Taret, both in 1903. The next came from Luss (Rossdhu Deer Park), in 1904, which is earlier than the date of its first supposed appearance there as indicated in our last number (*loc. cit.*). Others that have reached him came from the Muirland School, Luss, in 1904, Inverbeg, 1906, Garelochhead, 1907, Arnburn at Luss, 1908, Alexandria (Tullichewan), two in October and November respectively, 1912, Cardross, November, 1912, and Camiseskan, between Cardross and Helensburgh also in November, 1912. It may further be stated that according to Miss Wadsworth, Ardenconnel, Row, it was first seen there in the present autumn, three having been seen together, and Mr. Dalgarno, the gardener, tells her that five have been killed in the neighbourhood of Row. Altogether fifteen

have reached Mr. Kirk for preservation in the past year. It has apparently taken possession of a strip of country twenty miles long by five broad, roughly speaking, and of course it may have gone a bit further north and west at any rate than our present knowledge of its distribution indicates.

Mr. Peter Ewing, F.L.S., read his report as delegate to the Conference of Corresponding Societies of the British Association.

Mr. Wm. Rennie read a paper on the "Birds of Possil Marsh," which will appear in our next number.

Mr. Anderson Fergusson read a paper on "*Dytiscus lapponicus*, Gyll., in Arran" (pp. 15-19).

Notes.

Cricket-bat Willow (*Salix alba* var. *caerulea*).—This profitable tree, whose most favourable habitat is considered to be the dry climate of eastern England (Norfolk and elsewhere) is also reported to be doing well in cultivation in the Clyde Area at Arduaine, Lochgilphead, where in 1903-4 Mr. J. Arthur Campbell planted about 150 trees. Experimental cuttings have recently been made, and the wood pronounced satisfactory by cricket-bat manufacturers. For further particulars see *Kew Bulletin*, 1912, No. 4, page 205.—H. B. Watt.

Notes from the Report for 1911 of the Botanical Exchange Club of the British Isles.—*Cerastium alpinum* × *vulgatum* = *C. Smyei*, Druce.—Ben Lawers.

Sagina scotica, Druce.—Ben Lawers.

Alchemilla vulgaris, L., var. *acutidens* (Buser).—Ben Lawers.

Cirsium palustre, Scopoli, var. *ferox*, Druce.—Ben Lawers.

Hieracium orithales, Linton.—Glen Lochay, Mid Perth.

Calluna vulgaris, Hull, var. *Erikae*, Ascherson.

Polygonum alpinum, All.—Between Innellan and Dumoon.

Carex Grahami × *saxatilis* = × *C. Ewingii*.—E. S. Marshall.
—Mid Perth.

New Records from the same source.—*Polygala serpyllacea*, Weihe, var. *vincoides*, Chodat.—Ben Lawers.

Statice (*Armeria*) *linearifolia*, Lat.—Ben Lawers.

Botanical Notes from current Literature.—*Plantago alpina*, L., on Ben Voirlich, Dumbarton.—R. M. Cardew, F.L.S. and E. G. Baker, F.L.S., in *Journal of Botany*, February, 1912, page 59, where reference is made to F. B. White's record.

Carex helvola, Blytt, on Ben Lawers.—A. Bennett, A.L.S., in *The Scottish Botanical Review*, January, 1912, page 41.

Scottish Forms of *Sparganium*.—A. Bennett, A.L.S., in *The Scottish Botanical Review*, April, 1912, page 94.

Philonotis rigida, Brid., at Aberfoyle.—R. H. Meldrum in *The Scottish Botanical Review*, April, 1912, page 117.

Records from the Report for 1912 of the Moss Exchange Club.—*Trichostomum tenuirostre* var. *Holtii*, Braithw.—Arran.

Bryum erythrocarpum, Schwæg.—Brodieck.

Eurhynchium rusciforme var. *atlanticum*, Brid.—Arran.

Hypnum cupressiforme var. *tectorum*, Brid.—Blackwaterfoot, Arran.—P. Ewing.

The American Grey Squirrel (*Sciurus cinereus*).—This is the species now at large in the Regent's Park, London, and elsewhere in England, and probably the specimens from Dumbar-tonshire reported and being shown to the Natural History Society of Glasgow are the same. It would be interesting to learn if it occurs wild elsewhere in Scotland. In a recent and well-informed article on "Squirrels in Scotland" (Harwood Brierly, *Glasgow Weekly Herald*, 24th February, 1912) only the common or brown species (*S. vulgaris*) is mentioned.

The familiarity of the grey squirrels in the Regent's Park perhaps gives a false impression as to their abundance in the London district. Their introduction is due to the propinquity of the Zoological Gardens, where a number were purposely set at liberty some six years ago, with a request from the Zoological Society that visitors should not molest them. The plea was not

in vain, and the little animals now frequent the most crowded part of the Park (the Broad Walk), and have become such pets with children and others as to come and take food at their hands. I do not know that the species occurs in other London Parks; squirrels which I have seen in St. James's Park and Kew Gardens were the common kind. In Bushey Park five grey squirrels were turned out so far back as 1890, but nothing seems to have come of this, although it is conjectured that one seen in 1909 on the other side of the Thames near there, may have been their descendant (*The Field*—16th January, 1909). At Hampstead this summer, I found a solitary grey squirrel living in an old garden, and in another garden walnuts were being destroyed by squirrels, which from the gardener's description seemed to be the grey kind. Beyond the London district, this species is established in the woods of Woburn Abbey (Bedfordshire), whence the Regent's Park stock came and at Leonardslee (Sussex), but altogether its distribution seems to be so circumscribed as not to justify any apprehensions—at present anyway.—Hugh Boyd Watt, 24th November, 1912.

Greenland Wheatear (*Saxicola œnanthe leucorrhoa*) in **Ayrshire**.—On 30th September, 1912, I observed a conspicuously large Wheatear on the shore at Hunterston, Fairlie, and on shooting the bird I found it to be, as expected, an example of the Greenland Wheatear. It is an adult male, just changing to the buff plumage of autumn, and is a very large bird even for a "Greenland," measuring 165 mm., with a wing of 109 mm. This large form of Wheatear has not hitherto been recorded for Ayrshire. In Lanarkshire one was procured at Carmunnock by my friend Mr. H. Duncan (*Ann. of Scot. Nat. Hist.*, 1911, p. 116.), and Mr. Nicol Hopkins, of Darvel, believes he saw two at Drumclog on 24th October, 1908 (*Kilmarnock Glenfield Ramblers' Annals*, part 6, p. 68, where this record is erroneously given as pertaining to Ayrshire).—Robert W. S. Wilson.

Black Guillemot (*Uria grylle*), **Storm-Petrel** (*Procellaria pelagica*), and **Manx Shearwater** (*Puffinus anglorum*), **off the Ayrshire Coast**.—One of our members, Mr. John M. Crindle,

Dunure, sends an interesting letter, dated 21st November, 1912, to the *Evening Times*, from which we make the following extracts:—Would you allow me to draw the attention of your readers to the presence in the Clyde area of certain birds that are supposed to be rather uncommon. Among these, in point of numbers, I should place the Black Guillemot first. According to the authorities these birds are reported to be very rare, though the late Charles Berry, of Lendal, claimed it as a breeding species on the Ayrshire coast south of Ballantrae. I may say, however, I know the coast line fairly well, and have no knowledge of it breeding there. During the spring of this year, with strong breezes of north-east wind, the bird was very numerous from off the Heads of Ayr, through Ayr Bay, past Lady Isle, and into Irvine Bay. I saw at least 50 birds in one day. During the month of April, while passing Ailsa Craig, a pair rose at the foot of the cliffs at the Loups. Since the bird is becoming very numerous, it might breed there at some future date. The birds are beginning to appear for the winter and spring, and by comparison of their pretty pepper-and-salt plumage of winter, look rather dingy with their sooty-black colour, with the conspicuous white wing bar of the breeding season. I have heard the bird called "Drink-a Penny" locally. . . .

The Stormy Petrel, of more interest to your readers because of its name, may now be said to be fairly common. During the whole of the past summer this bird could be seen flitting about, while one day we saw about twenty sitting on the water. It is a fascinating study to watch these seemingly tireless birds flit hither and thither in search of food, and the minute particles of fatty matter from the herring pumped from the boats seem to afford an appreciated banquet. They are generally more numerous in the immediate locality of herring, and, for the first time to my knowledge, it was a common custom of the fishermen to watch for the Herring Bird as an indication of herring. . . .

Another bird credited with being rare, but now better known, is the Manx Shearwater. This bird is seldom seen during the winter, but is very numerous during the spring and early summer. . . .

Great Skua (*Megalestris catarrhactes*) in Bute.—On 13th November, 1912, I received for preservation a Great Skua which had been secured in the neighbourhood of Rothesay, and is destined for the museum of that town. This occurrence is of interest, as I understand only one has been secured previously in "Clyde" (at Inveraray), and several have been seen off the coast of Ayrshire.—Chas. Kirk.

Reviews.

The Home Life of the Terns or Sea Swallows.—By W. BICKERTON, F.Z.S., M.B.O.U., Witherby & Co., London (6s. net).—This new number of the Home-Life Series published by Messrs. Witherby is quite up to the standard set in previous volumes. Apart from its claims in that way, however, it can stand on its merits, which are considerable. In some 88 pages of printed matter an engrossing narrative is given of the author's experiences in a series of brief holidays in the haunts of the Sandwich, Common, Lesser, Roseate, and Arctic Terns. Students will find set down here exactly those full particulars for which in some cases they look in vain. The author's fountain pen must have been busy in the intervals that his photographic work allowed him. Following the letterpress are 32 plates, which for interest and beauty leave nothing to be desired. Terns, by virtue of the elegance of their lines and the purity of the masses of white in their plumage, are very specially adapted for giving attractive pictures to the photographer. To this extent the author's choice of subject matter has given him an advantage. Praise of some of the pictures to be adequate would seem extravagant. Those of our readers who are interested should make a point of seeing them for themselves. All concerned in the production of this volume are to be congratulated.

Bulletin of the British Ornithologists' Club. Vol. XXX. (Witherby & Co., London, 6s.). This volume contains the report on the immigrations of summer residents in the spring of 1911, also notes on the migratory movements and records received from lighthouses and light vessels during the autumn of 1910. It is by a committee appointed by the British Ornithologists' Club, and Mr. W. R. Ogilvie Grant continues as editor. The report is on lines familiar from our experience of previous volumes. It grows visibly in size from year to year, "in spite of the efforts which have been made to condense the matter." Not all the data collected will admit of correlation, but one may hope that when a digest comes to be made even the chaff will be found to contain some wheat. Attention is again drawn "to the extreme scarcity of the Land-Rail in the south-east of England. A few years ago it was comparatively common in many of the eastern counties, where it is now no longer recorded or only noted as a passing straggler." As the Land-Rail is one of the three species of summer residents (its companions being the Ring-ouzel and Pied Flycatcher) arriving *solely* on the western half of the south coast, we may hope that in south-west Scotland we may long escape the experience of the people of south-east England. The Land-Rail's near relative, the Water-Rail, seems to have met with bad fortune in the spring of 1911. Thus at Bardsey Light (Carnarvon) three were killed on 27/28th March, sixty seen and thirty killed 29/30th, fifty seen and thirty killed 30/31st, thirty seen and twelve killed 1/2nd April. Though well distributed, we do not recognise the Water-Rail as a common bird, and we are led to think that if the Bardsey Light experiences were repeated in other years in the same or other localities, the effect on its numbers in this country would be serious. There are, of course, throughout the Report, many such pathetic details in the case of other species. The information from Scotland in this Report is meagre, and the conclusions based on it misleading. For instance, we find it stated regarding the swallow that "first arrivals were noted from Scotland on the 18th and 19th" [April]. Readers of this journal know that in 1911 it appeared at Possil on the 7th, Dalmuir 14th, and in nine

other localities between the 17th and 22nd (Vol. III., p. 93). The main body of the common Sandpiper did not begin to arrive in England, according to the Report, until the 17th April, but in our district it was seen on the 18th at Dalmuir, Possil, and Carmyle, and on the 19th at Beith and on the Endrick and Clyde, being common by that date on the streams mentioned (*loc. cit.*, pp. 93, 94). Such cases could be multiplied. Scotland might be better left out of the picture altogether than come in to the Report as it does. We notice the Pied Flycatcher entered as appearing in Argyll on the 16th April. This is the first we have heard of that species in Argyll, and the fact, if such it be, would be interesting could we feel it to be reliable.

ABSTRACT STATEMENT OF ACCOUNTS—SESSION 1911-1912.

<p>1911—Sept. 1. To Balance—Life Members' Fund— In Bank, - - - - - £162 15 0 Ordinary Fund— In Bank, - - - - - 81 7 0½</p> <hr/> <p>£244 2 0½</p> <p>1912—Aug. 31. To 2 Life Members' Subscriptions, @ £5 5s., - - - - - £10 10 0 " 152 Ordinary Members' Subscriptions, @ 7s. 6d., - - - - - 57 0 0 " 19 Members' Arrears, - - - - - 10 2 6 " 3 Associates' Subscriptions, @ 5s., - - - - - 0 15 0 " 3 Associates' Arrears, - - - - - 1 5 0 " Interest, - - - - - 6 6 0 " <i>Transactions</i> and <i>Glasgow Naturalist</i> sold, - - - - - 2 5 3½ " Donations—Illustration Fund, - - - - - 2 13 6</p> <hr/> <p>£90 17 3½</p>	<p>1912—Aug. 31. By Rent and Attendance, - - - - - £7 12 0 " Postage, Stationery, &c., - - - - - 10 9 10 " Printing Circulars, - - - - - 7 9 0 " Printing <i>Transactions</i>, Vol. VIII., Part 2, - - - - - 66 11 2 " Illustrations for <i>Glasgow Naturalist</i>, Vols. III. and IV., - - - - - 4 2 0 " Carriage on <i>The Glasgow Naturalist</i> and <i>Transactions</i>, - - - - - 2 19 7 " Lantern Expenses, - - - - - 0 15 0 " Library—New Books and Magazines, - - - - - £5 13 0 Insurance, - - - - - 0 12 0 Binding, - - - - - 5 0 0 Postage, Stationery, &c., 0 11 0</p> <hr/> <p>11 16 0</p> <p>" Marine Biological Association, - - - - - 1 1 0 " Balance—Life Members' Fund in Bank, - - - - - £173 5 0 " Balance, Ordinary Fund in Bank and on hand, - - - - - 48 18 9</p> <hr/> <p>222 3 9</p> <hr/> <p>£334 19 4</p>
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From the Balance falls to be deducted cost of *Glasgow Naturalist* for Two Sessions.

GLASGOW, 18th October, 1912.—We have examined the Accounts, compared them with the relative Vouchers and Securities, and found them correct. Cash in Treasurer's hands, Nineteen shillings and seven pence.

(Signed) JAMES JACK, } Auditors.
 JOSEPH SOMMERVILLE, }



Photo.

J. W. Reoch

POSSIL MARSH.



Photo.

W. R. Baxter.

SEDGE-WARBLER'S HAUNT—POSSIL MARSH.

The Glasgow Naturalist

The Journal of the NATURAL HISTORY SOCIETY
OF GLASGOW

(Including the *Transactions and Proceedings* of the Society, Third Series).

Vol. V., No. 2.]

[February, 1913.

The Birds of Possil Marsh.

By WILLIAM RENNIE.

[Read 26th November, 1912.]

On 30th May, 1871, Mr. James S. Dixon read a paper to this Society on the birds frequenting Possil Marsh, dealing chiefly with the rarer and nesting species.¹ "The Marsh," which is, it must be remembered, within three miles of the Royal Exchange, Glasgow, has certainly been much encroached upon, but many and varied though the changes have been since Dixon's time, still the bird life seems to have remained pretty much the same.

The limited area, to which for the present purpose I have confined myself, is bounded on the south by the Canal, and on the other cardinal points by Balmore Road and the face of the field of Lochfaulds. Here one has something more precise to work on than "Possil," a term which covers a much larger area. In concluding his remarks "On the Birds of Glasgow and its Vicinity," Robert Gray, in 1876², referred to the great changes that were coming over the bird nurseries around the City, and expressed the fear that in another thirty years all would be gone. Alas, it is only too true with regard to some of them, but fortunately for the naturalists of to-day, Possil Marsh (Plate II.) still remains their happy hunting ground as of yore, although it has been encroached upon from time to time from the Canal side.

¹ Proc. Nat. Hist. Soc. Glasgow, II., p. 160.

² Fauna and Flora of West of Scot., 1876.

"The Marsh" and the surrounding district as an observation station for migrants, well repays the observer. Many early records of arrivals of our summer-migrants in "Clyde" have come from the Marsh and district. A perusal of Mr. John Paterson's annual lists in this journal will confirm this statement. When once the migrants begin to arrive there is a continuous distribution of species around the district, some of them being very partial to certain places. Again when the southward journey commences, many interesting congregations may be met with, some indeed lingering on till the middle of October. Nor does the interest cease with the departure of the Swallow, for the autumn migrants then begin to arrive. Although these may be said to be somewhat late in becoming common about the district, their association is retained till well on in spring, when we may meet with both summer and winter migrants in the course of a day's observations. I look upon the Marsh as coming under one of the flight-lines of the migrants. For some years, it has been my good fortune time and again, under favourable climatic conditions, to observe not only fairly large flocks, but continuous treks of small birds, going southwards, high up, their presence only being revealed by the aid of a binocular or telescope. On other occasions autumn movements have been quite visible to the naked eye. The wanton destruction among birds' nests which is wrought by children and grown-ups is increasing yearly. This year (1912) the depredations during the nesting season were scandalous. The result has been that at a time when numbers of young should have been populating the place, hardly any were to be found. This is no new state of affairs, for I find that as far back as 1874, this society was moved to do something for the protection of the Marsh¹, but in the interval since, their labour has been lost. Drastic steps must be taken if we want to retain the association of the birds and plants of this classic place. I have often thought that the Fathers of the City, seeing that they are endeavouring to cater for the recreations of all classes, should be asked to secure the preservation of the Marsh for naturalists.

The following are the results of several years' observations. I take this opportunity of thanking all those who have helped me.

¹ Proc. Nat. Hist. Soc., Glasgow, II., p. 253.

Of the five species of thrushes formerly recorded, all are still to be found frequenting the Marsh. The SONG-THRUSH and BLACKBIRD are often seen and heard, whilst I have on several occasions found nests of both, but it is very questionable if any of the broods get clear away, for if the eggs are not taken, the nest is earmarked for a future day. The MISTLE-THRUSH has ceased to breed here; the Marsh now-a-days is perhaps not to its liking, but it still nests in the vicinity, and is occasionally seen in the autumn. During the early spring it is sometimes seen along with the REDWINGS and FIELDFARES which visit us regularly. It is usually the Fieldfare that is first noted on arrival here in autumn. This may at first seem a little strange, as the Redwing arrives about a fortnight or three weeks before the Fieldfare, but so long as the weather remains mild, the Redwings continue amongst the stubble fields. Seldom have I found them coming into the Marsh to roost before the middle of November. Both have been noted here at the end of April, whilst they are occasionally seen in the district as late as the middle of May. Being gregarious, they are usually found in greater or less numbers foraging in the fields or amongst the willows. During their stay here, one is almost sure to find them returning to the willows just after sunset, or leaving again at daybreak. I have noticed within recent years that they are deserting the Marsh as a roosting place. Hundreds pass the night within Cadder Wilderness.

The WHEATEAR is still a regular visitor, and is usually amongst the first of the summer-migrants seen. This bird, which arrives about the first week in April, frequents the cultivated field alongside the Marsh for a few days, and is usually not seen again until the return southwards in the autumn, unless a pair should take up their abode near the Marsh. In the second week of August this year, I observed a flock of at least thirty Wheatears scattered over the fields at Lochfauld's from the Marsh to Cadder Wilderness. I never before witnessed as many at once in this district. I have seen the Wheatear here in the second week of October. Such late Wheatears would likely be GREENLAND WHEATEARS. Some years the WHEATEAR is seen frequently in the district nesting in the dry-stone dykes and old bings. The WHINCHAT is occasionally seen during its season, as it nests in the district.

Family groups are not uncommon at times in the autumn, but it is usually about its time of arrival and departure, that is, about the first week of May and again about the end of September, that we see most of it; an odd one has been seen in October. The STONECHAT has never come under my notice yet, although it has been recorded from the district. Much should I like to see this lovely bird again frequenting the Marsh.

Many years ago the REDSTART was a regular nesting species, but like some others it has deserted us here. It is still to be found nesting in the district, where it arrives about the beginning of May. The only Redstarts I have seen on the Marsh were two on the 11th of August this year. They were evidently from a small flock which I noticed at three different places on Lochfaulds, there being about a dozen altogether. The ROBIN is frequently seen from autumn to spring, but rarely in summer. The WHITETHROAT is a regular nesting visitor. The number of birds varies greatly each year. They are to be found from the middle of May till the end of August. I only once saw a GOLDCREST (on the 20th November, 1911), amongst the Willows. The weather at that time was very severe. The CHIFFCHAFF seems to have completely deserted the place. Like the Wood-wren it is inserted in the list appended on the strength of what Dixon says (*loc. cit.*). The district is ill-suited for either. The WILLOW-WREN is very common from the beginning of April till the end of August, being amongst the first of the migrants to come and almost the last to go. Very little of its song is heard after the beginning of July till near the closing days of its stay. Several nests are seen each season. I have never found the WOOD-WREN at the Marsh, but it is still found in the Cadder district. The SEDGE-WARBLER is common, its numbers fluctuating greatly each season, but one could scarcely visit the Marsh (Plate II.) during its stay here, without at least hearing it. The Sedge-Warbler usually arrives about the beginning of May. It begins to get scarce by the end of July, but an occasional one may be met with into the opening days of September. I saw two on the 15th September this year. I have already given fuller details of this species for this district, which need not be repeated here¹.

¹ Vol. II., pp. 1-6.

HEDGE-SPARROWS are not uncommon from autumn to spring. Seldom is one seen during summer. They do not nest here now. The Marsh is certainly not the most likely place to look for the DIPPER, but I saw one here on the 20th November, 1911, during severe weather.

The TITMOUSES form an interesting group of birds at all seasons, but it is chiefly from autumn to spring that they frequent the Marsh. I have not yet met the Long-tailed Tit, but small groups have been seen frequently in the district, so perhaps at a future date it may be recorded again from the Marsh. The COAL-TIT is somewhat rare, although fairly common at Cadder, where it is known to nest. The GREAT TITMOUSE at times is fairly plentiful. Mr. Samuel M'Culloch informs me that many years ago the MARSH-TIT, no doubt the WILLOW-TITMOUSE, used to be fairly common as a nesting species. The BLUE TITMOUSE is very common in winter. If the weather is at all severe, one is almost sure to find Blue Titmouses amongst the willows or reeds, especially on the flower heads of Typha. The WREN is not uncommon. I have found several unlined nests, but never any with eggs. Many years ago the TREE-CREEPER used to be found nesting in the strip of trees which formerly grew alongside the Balmore Road, on our boundary line. The TREE-CREEPER is still seen occasionally in the near neighbourhood.

The PIED WAGTAIL is often seen, as it nests in the vicinity, but it is during the winter and spring months that one sees it almost daily. Numbers of them are usually seen passing during the spring migration. The WHITE WAGTAIL is occasionally seen in the spring whilst passing northwards to its summer quarters, and again in the autumn. Only since Mr. John Paterson drew attention to it in 1895, has it been distinguished in the district. The GREY WAGTAIL being a bird of the running brook is but seldom seen at the Marsh, although common enough in the district. The YELLOW WAGTAIL is still a regular visitor. From early in May, it is frequently found in varying numbers, at and around the Marsh. The largest number I have yet seen was fourteen on the 25th May this year. For several years a pair has nested in the adjoining field, and have always been successful in bringing off their brood, which adds interest to observation at a time when bird liveliness here is somewhat at a discount.

In the autumn they again congregate in the district before their departure.

I have never found the TREE-PIBIT at the Marsh, although it is not uncommon further east. The MEADOW-PIBIT is plentiful except during winter. An occasional one is to be found all the year round. On the drier part several nests are found each year, but they seem always to be destroyed.

SWALLOWS are very common at times during the season, especially in the fore part of the day or in the evening, when they are to be seen gracefully skimming over the surface of the Marsh, uttering that twitter which expresses their own delight, and is so delightful to those that hear it. If haymaking is going on, then, naturally, few will be seen till the evening. They are to be found nesting at all the farms around the district. The Swallows usually arrive about the middle of April, although an occasional early bird may be seen at the beginning of the month, but it is not until the beginning of June that they become common. They begin to congregate during the early days of August. Sometimes fair numbers are seen, but many small lots are often observed migrating southwards, from the middle of August till about the middle of September. After this only a very few will be seen about the Marsh, although I have seen birds in the second week of October. I have seen many Swallows here at dusk in the autumn, but never the sights that have been witnessed by others, years ago, of hundreds clinging to the reeds, &c., to roost over the night, before taking their departure southwards.

The HOUSE-MARTIN is the scarcest of the Swallows visiting the Marsh, which, however, in the matter of House-Martins, compares very favourably with other places in the district. Seldom does one find it at the Marsh before the beginning of May, although it may be seen in the district for some days previously. Very few are to be seen during some seasons. Owing to the uncertainty of its visits to the Marsh, its departure is not noticeable, but it may be met with here and there in the district till the beginning of September. The SAND-MARTIN is common, although not so plentiful as one would expect to find it, seeing that there are several breeding places not so very far away, and that it nests in fair numbers. It seems to prefer the Canal and Kelvin to the

Marsh. I find that the Sand-Martin, which arrives about the same time as the Swallows, leaves this district much earlier than its relatives. Seldom have I found it here after the middle of August.

At all times of the year one is almost sure to meet with some member of the Finch tribe. The GREENFINCH is very common in the autumn and small parties are met with till the spring, after which it is only seen occasionally. I have never known it to nest amongst the willows, where it used to in bygone days, but it nests quite commonly in the district. The GOLDFINCH still occasionally puts in an appearance in winter, although rarely. It has been seen several times in the surrounding district. Mr. M. Galloway informs me that he saw a pair at Bardowie on 16th April, 1911. The SISKIN may indeed be looked upon as an extremely rare visitant in this district. An adult male was captured on 30th October, 1910¹, and one has been seen within recent years at Bardowie², which lies a short distance to the north of the Marsh. One never fails to see the HOUSE-SPARROW. About sixteen years ago a pure white one frequented the Marsh and district. The CHAFFINCH is common towards the close and beginning of the year, whilst occasional ones are seen during the year. Since the winter of 1906-07, BRAMBLINGS have appeared regularly in greater or less numbers at the Marsh, according to the severity of the weather, but they are chiefly found mixing with Chaffinches amongst the Beeches to the east and in the stubble-fields. LINNETS in small groups occasionally visit the Marsh in winter, but their stay is never long. The Marsh evidently received a share of the MEALY REDPOLLS which visited this country in fairly large numbers in the autumn of 1910. Mr. Robert Wilson was informed that a dozen had been taken on 30th October, 1910³, whilst I was told about several single birds having been captured about the same time. They were also seen in the district by others. This is not their first appearance, as single birds were taken several years ago. The LESSER REDPOLL is a regular visitor from the middle of October till about the end of April in varying numbers (I saw a flock of about twenty on the 6th of October last), and are to be found

¹ Vol. III., p. 34.

² Vol. II., p. 48.

³ Vol. III., p. 34.

feeding on the seeds of the Knapweed (*Centaurea nigra*). The TWITE is another of our occasional visitors during winter. There are several records from places around the district, whilst an odd one has been taken at the Marsh. During the cold spell at the beginning of this year, I came on a flock of between seventy and eighty Twites on 3rd February in a field near the Marsh. I have never met the BULLFINCH here, although some years ago I saw a fine male captive that had been taken at the Marsh. It has also been seen by others in the district.

Small flocks of CORN-BUNTINGS are to be met with during autumn and spring, and sometimes an odd bird during winter. A flock of anything from fifty to a hundred, was seen at the beginning of this year by Messrs. R. W. Baxter and Hill. Being common in the district, they are often seen during summer. The Corn-Bunting was successful in bringing off broods both last year and this. The YELLOW-BUNTING is fairly common at times and occasionally nests. The REED-BUNTING as its name implies, is a frequenter of marshy ground, and is here the commonest of the buntings. It is to be met with all the year round. During winter several are to be found coming and going between the Marsh and Lochfaulds farm. In the breeding season several nests are to be found built amongst the reeds and coarse grasses. Over ten years ago, two SNOW-BUNTINGS, were killed from a small flock. At the beginning of this year, they were noted at different places around Glasgow. In a note which I received from Mr. John Paterson at the beginning of the year, he says—"A small flock of Snow-Buntings, with their characteristic silver-bell tinkle, passed overhead on Sunday (4th February), just as we had left Lambhill bridge, going north. The birds were passing over the field across the road from Possil, but high up. They were in sunshine."—This is just outside the limit of the Marsh.

STARLINGS are common; small flocks are often seen passing in the early evening. Over forty years ago they used to roost here in hundreds, but they do not do so now.

The MAGPIE nests in Cadder and I have seen it a few times within recent years at the Marsh. JACKDAWS are very scarce, but at occasional times odd ones are found congregating with the Rooks in the field. They are more plentiful a little further east. The fresh carcass of a CARRION-CROW was picked up on 17th

April, 1910. This bird doubtless had met its fate through being driven into unwelcome quarters, during the severe wintry weather that prevailed at the time. This species is not common in the district. Rooks are common, and many are to be seen during the nesting period, passing to and fro. The nearest rookery is at Kenmuir House which is near by. On the 23rd March this year, before the nesting season was at its height, I counted 135 nests there.

SKYLARKS are common all the year round, and small flocks are often seen from autumn to spring. In winter they are to be found in numbers on the fields of Lochfaulds and district. The SWIFTS are not very plentiful on their arrival here about the middle of May, which is usually a few days later than in other districts, but during their short stay, they become very common, more especially towards their departure at the end of August. Family groups have always been an interesting sight towards sunset, when their labours seem to begin in earnest. I have counted over fifty flying about on the eve of their departure. During the winter of 1864, the KINGFISHER was seen several times by Mr. Dixon. I have never seen nor heard of it at the Marsh since then, but one may be fortunate at times to get a glimpse of it farther eastwards, where it is still able to hold its own. Although I have never seen the CUCKOO here, its well known notes are often heard after its arrival in the district, about the beginning of May.

Many years ago the BARN-OWL used to be very common, but it is now rarely seen in the district. The LONG-EARED OWL has been seen a few times, but apparently not within recent years. I have only heard of one bird having been shot. A SHORT-EARED OWL was shot by Mr. F. Burnett Dick about seventeen years ago.¹ The TAWNY OWL, which nests in Cadder, has been seen several times, although not by myself. Mr. Aitkenhead of Lochfaulds tells me it is often heard about the farm. The SPARROW-HAWK is not uncommon, although the KESTREL is the species we see most of, especially during the early summer, and again in the autumn, when the harvest-fields are ripe. During the cold snap in the spring of 1908, I saw a pair of PEREGRINE FALCONS on the

¹ Vol. II., page 51.

29th April. The MERLIN was seen occasionally by Mr. Dixon. I have not heard of this species being seen at the Marsh since then. The CORMORANT was seen in 1894 by Mr. F. Burnett Dick,¹ The HERON, although very erratic in its visits, is often seen throughout the year, usually in the early part of the morning, as they arrive after sunset. Sometimes they remain during the whole day. I have noticed that there is one part of the Marsh they seem very partial to. It is usually solitary birds that grace the margin, but as many as four have been seen at one time. Dr. Dewar exhibited to this Society, on January 26th, 1864, a BITTERN that had been shot at the Marsh,² whilst Gray in his *Birds of the West of Scotland*, mentions that it had been seen once or twice of late years.

I am indebted to Mr. Paterson's Glasgow List³ for a notice of GREY GEESE, a gaggle of 75 passing northwards at a low elevation over the Marsh on 3rd May, 1895, whilst they have been seen by others about Possil. I am further indebted to the same list for mention of BEWICK'S SWAN, also to Mr. Hugh Wilson for information regarding four which he observed at the Marsh on 12th September, 1911. We are never without a pair of MUTE SWANS. During the winter months the numbers of this species are augmented by birds from other districts. A few winters ago as many as twenty frequented the place for weeks. The non-resident birds always depart on the approach of spring. For some years two pairs used to nest, but latterly this has been reduced to one pair, which occasionally is successful in bringing off a brood, which varies in number. This year they brought forth five cygnets. During the nesting season the Swan is the most pugnacious bird on the Marsh. Should any of its own species attempt a landing, there is a battle royal immediately, and the intruder is forced to take wing again. The number of ducks frequenting the Marsh of late years seems to be greatly reduced. In winter they seldom arrive until after sunset, and are away again by daybreak. If the weather be open, a few remain during the day, lurking amongst the reeds, well beyond range, for there are always gunners about to give them a warm reception. In the

¹ Vol. II., p. 52.

² Proc. Nat. Hist. Soc. Glasgow, I., page 82.

³ Vol. II., page 52.

spring they become more conspicuous on the water. There is always a coming and going amongst them so that there is great uncertainty of seeing them. A SHELD-DUCK was shot here about thirty years ago by a Mr. Cross. The MALLARD may be said to be the only resident duck, although sometimes it may not be seen for weeks on end. One or two pairs occasionally nest. I have seen late broods the ducklings on the first of August being only a few days old, disappear under the cloak of sport! The SHOVELER in some years is seen pretty frequently during the summer months, often a pair. They are occasionally shot in the winter, and are known to the gunners as spoon-bills, from the formation of the mandibles. As it is now known to be a breeding species at Bishop Loch, we may yet find it nesting at the Marsh. The TEAL, perhaps from its nature to keep under cover, is seldom seen on the open water, but it is common enough for all that, and in the spring, flocks of twenty and upwards occasionally come into the Marsh after sunset. Seldom have I seen the Teal during the summer months, nor have I yet found it nesting. WIGEON and POCHARD appear in small groups towards the end of winter. A few hang on until the spring is well advanced before going northwards. I have seen a pair of Pochard at the end of May. At the time of Mr. Dixon's paper the TUFTED DUCK seems to have been a rare visitor, as his authority was Mr. Gray, who informed him that a Tufted Duck had been shot there within a few years. I find from Mr. Harvie Brown's paper on the Tufted Duck in Scotland¹, that the first hint of its nesting at Possil Marsh was obtained by Mr. John Paterson, who had seen a pair on the Marsh, on the 16th May, 1895, and suspected they would be breeding. This was practically confirmed by Mr. Robert Wilson who visited the Marsh on 20th July, and saw a female with six young. The Tufted Duck seems to have remained, in small numbers, a regular visitor from autumn till spring, an occasional pair staying to nest, until a few years ago, when they dwindled away. On the evening of 4th May, this year, I saw four Tufted Ducks (3 ♂—1 ♀). They were gone the following morning. This is the first I have seen or heard of it since 29th April, 1909.

¹ Annals Scot. Nat. Hist., vol. V., page 7.

A GOLDENEYE was shot about fifteen years ago by Mr. Cameron, and the bird has also been seen by Mr. Samuel M'Culloch.

RING-DOVES are occasionally seen frequenting the stubble fields, sometimes close down to the Marsh, and on the wing.

The PHEASANT has only come under my notice once. A fine male was seen early one morning in autumn, a few years ago, feeding in the stubble field. One of the greatest changes in the vegetation of the Marsh is to be seen at the north-east corner. Years ago this used to be covered with heather. Only a very few plants of heather now remain, bents and cotton grasses having gradually ousted the rest. Here the PARTRIDGE used to nest regularly. It is still to be found to-day frequenting the same part of the Marsh for feeding. Sometimes one flushes it during the day and it is often heard at dusk. I have twice flushed a covey of six from this same corner, whilst I have flushed them in the field, where they are still found nesting, Mr. Aitkenhead informs me. I have only found the CORN-CRAKE once at the Marsh, although it is often enough heard from the surrounding fields, from the beginning of May until about the end of August. A flock of about thirty Corncrakes was seen one back-end many years ago by Mr. Cross. The following rather interesting incident took place four years ago:—I was standing at sunset amongst the coarse grasses that grow between the Marsh and the canal, when a Corncrake landed a few feet from me, and commenced to crake. I stepped forward with the intention of lifting the bird, but it took to the wing and crossed to the field on the other side of the canal. I stood for a few minutes, when the bird again returned to where I was standing, and it was not until it had repeated the coming and going four times that I lost trace of it in the darkness. The SPOTTED CRAKE appeared at Possil in September, 1889.¹ Messrs. Robert and Hugh Wilson believe they saw one here in a recent year. Mr. Dixon, in his notes, says, "The WATER-RAIL bred here to my knowledge in the summer of 1863, and I believe is to be found regularly every season." At a meeting of this Society on 27th April, 1872, Mr. Gray exhibited two eggs of the Water-Rail taken from a nest of seven

¹ The Scot. Jour. of Nat. Hist., I., p. 133; The Zoologist, 3rd Ser., Vol. XIII., Oct., 1889.

found the previous month,¹ and Dr. Dewar exhibited eggs of the Water-Rail from Possil Marsh at the meeting on 28th April, 1874. It seems to have remained a breeding species for a number of years following, as I find from the *Annals of Scottish Natural History* that eggs and birds were obtained in 1889 and 1897. The Water-Rail is now the rarest of the resident birds. A few years ago, in conversation with one of the gunners, I was told that it had often been shot during winter. However, it was not until the 17th May, 1908, that I first became acquainted with the Water-Rail here. From this time onwards I have often seen it, at various times of the year, either singly or a pair, usually in the quiet of the early morning. I have never yet found young birds.

The MOORHEN and COOT are common in the spring, especially the latter. I have seen as many as a dozen Moorhens during summer. Dixon records as many as twenty nests in a day. What a contrast with the present time, as very few nest now. In winter there is always an occasional one to be found lurking amongst the reeds. The Coot are all but absent during winter, but return again gradually from the beginning of March. The numbers fluctuate greatly each year. There are usually about a score in the spring, although in 1909 I saw about fifty. After the pairing the numbers gradually decrease, and by July lots of young Moorhens and Coots are to be seen, but with the arrival of August, the Coot becomes almost a thing of the past. Both birds suffer greatly during the breeding period, as several of their nests are destroyed. The Marsh is not the most suitable place for waders, as it lacks at all seasons the mudflats sometimes seen at other inland waters around the city, yet it is never without waders of some description, although no rarity has turned up for some years. The DOTTEREL was observed during Dixon's time, whilst Gray, in *Birds of the West of Scotland* (page 257), says—“Mr. Struthers, of Larkhall, has mentioned to me that two specimens were shot some years ago by Mr. Graham, on the farm of High Possil.” This, again, is just on the other side of our boundary line. From autumn till early spring small flocks of GOLDEN PLOVER are often seen on the wing, passing, sometimes

¹ Prov. Nat. Hist. Soc., Glasgow, II., p. 186.

along with Lapwings. It is not often they rest here, but they are found plentifully in the fields beyond. I noted a very early flock on the 16th July this year, when twenty-one passed over in a southerly direction before 4 a.m. Both the nesting and winter notes were heard, as it was by their notes that my attention was attracted to them. The LAPWING is fairly common although not numerous, from the early spring until they begin to flock about June, when fair numbers are sometimes seen, for example on 15th and 20th July this year flocks of as many as 150 to 170 were noted. Their usual line of flight is over High Possil. They are seen frequently during autumn and winter. The Lapwing has nested several times at the Marsh. They seem to be very partial to certain spots for feeding and for preening themselves. The BLACK-WINGED STILT was observed by Mr. Robert Gray in 1867. It is doubtless this bird he refers to in his *Birds of the West of Scotland* (page 304)—“A Black-winged Stilt was seen at Possil Marsh, it frequented the place for three or four days and was distinctly observed by different persons. Notwithstanding repeated attempts on its life the bird luckily escaped.” The COMMON SNIPE is often met with throughout the year, but never in anything like its former numbers. From early spring and during the nesting period it is often heard drumming. I have known four pairs bring off their broods in one season, but now I think there is not more than one nest. The JACK SNIPE used to be very plentiful during autumn and winter over forty years ago. There seems to have been a regular dwindling away from about this time for a number of years following, until it has become a thing of the past. So far as I can learn none has been seen or killed since 1887. The COMMON SANDPIPER used to be regularly seen during the summer and has nested, but within recent years I have only found it occasionally on its arrival here about the third week of April, seldom during its stay, and it appears again about the beginning of August when it is returning southwards. Until recently one could scarcely visit the Marsh without either seeing or hearing the REDSHANK. It cannot be called common, although I have seen up to about a dozen in the spring of the year. Usually at least one nest is brought off, although I have known of three broods being brought off in one season. No flocks of Redshanks are seen here in winter

nowadays. Dixon records the GREENSHANK in winter plumage, as having been shot. A pair was seen 15 years ago by Mr. Samuel McCulloch. The CURLEW is by no means a common bird. Usually only stray birds put in an appearance, and this generally towards sunset, although often from spring to autumn solitary birds pass over high up. This is very noticeable about August, and would pass unobserved were it not for their plaintive calls.

On 31st October, 1876, Mr. James Lumsden exhibited to this society a specimen of the BLACK TERN, which had been obtained in Possil Marsh in the beginning of October, and remarked that it was an immature specimen, being evidently a bird of the year.¹ The occurrence of the COMMON TERN at the Marsh seems to be far from common. I have only four records, three of them by myself. Eight on 29th April, 1908, one seen by Mr. Robert Henderson, 9th May, 1908, five 31st July, 1910, and again one on the evening of 17th August, this year. One would expect to find them more frequent than this indicates.

The BLACK-HEADED GULLS are the commonest of the Gulls that frequent the Marsh. Their numbers vary greatly according to season and weather. They become very common towards the spring, when they leave for their nesting haunts. During the summer months, occasional non-nesting birds are seen, and latterly birds of the year. I have only witnessed one attempt at nest building on the Marsh, evidently by a late pair. On 5th May, 1909, a pair built a nest between two Coots' nests which were only four feet apart. The nest, so far as I know, was never occupied. The COMMON GULL is but seldom seen at the Marsh, although it is by no means uncommon at times in the district. The HERRING GULL is very common, and being a later nester than the Black-heads does not dwindle off till several weeks later. The LESSER BLACK-BACKED GULL is the scarcest of the Gulls, as only an occasional one or perhaps a pair at a time is seen during their stay here, which is usually from the end of March. Seldom are they seen after the beginning of August. Two GREAT BLACK-BACKED GULLS were seen at the end of April this year by Mr. D. MacDonald.

¹ Proc. Nat. Hist. Soc., Glasgow, III., p. 104.

Mr. M'Culloch informs me that the PUFFIN has been shot here within the last forty years. The RED THROATED DIVER has been recorded by Dixon. The GREAT CRESTED GREBE has been seen within recent years, but never by myself. I have long watched for it, and it has often been seen on the waters not far from here. The SLAVONIAN GREBE was seen here in 1874, by Mr. Samuel M'Culloch. The LITTLE GREBE is still a resident, being oftener heard than seen. In the spring of 1909 seven birds were seen at once. Although a regular nester, I have never known of more than two pairs nesting in the same season. Things are a bit changed now from Mr. Dixon's time, when he was able to find about a dozen nests in one day. The following, from Gray's *Birds of the West of Scotland* (page 410), is of more than passing interest:—"In the neighbourhood of Glasgow the Little Grebe is found nesting in Possil Marsh, and also at Hogganfield Loch. Sixteen nests were found in the first-mentioned locality in the breeding season of 1868, many of them by my friends Messrs. W. Lorrain and J. S. Dixon, whose persevering skill has been the means of revealing the comparative number of birds breeding in that now rapidly-decreasing marsh." The Spotted Flycatcher, Woodcock, Great Snipe, and Smew are said to have occurred, but upon no sure authority. Probably the sand trippers, "with black legs," reported to me were Dunlins, but I have not been fortunate enough to see this species.

LIST OF THE BIRDS OF POSSIL MARSH.

Mistle-Thrush (<i>Turdus viscivorus</i>).	Willow-Wren (<i>P. trochilus</i>).
Song-Thrush (<i>T. musicus</i>).	Wood-Wren (<i>P. sibilatrix</i>).
Redwing (<i>T. iliacus</i>).	Sedge-warbler (<i>Acrocephalus phrag-</i> <i>mitis</i>).
Fieldfare (<i>T. pilaris</i>).	Hedge-Sparrow (<i>Accentor modu-</i> <i>laris</i>).
Blackbird (<i>T. merula</i>).	Dipper (<i>Cinclus aquaticus</i>).
Wheatear (<i>Saxicola ænanthe</i>).	Long-Tailed Titmouse (<i>Acredula</i> <i>caudata</i>).
Greenland Wheatear (<i>S. ænanthe</i> <i>leucorrhœa</i>).	Great Titmouse (<i>Parus major</i>).
Whinchat (<i>Pratincola rubetra</i>).	Coal-Titmouse (<i>P. ater</i>).
Stonechat (<i>P. rubicola</i>).	Willow-Titmouse (<i>P. artricapillus</i> <i>kleinschmidti</i>).
Redstart (<i>Ruticilla phœnicurus</i>).	Blue-Titmouse (<i>P. cæruleus</i>).
Redbreast (<i>Erithacus rubecula</i>).	Wren (<i>Troglodytes parvulus</i>).
Whitethroat (<i>Sylvia cinerea</i>).	
Goldcrest (<i>Regulus cristatus</i>).	
Chiffchaff (<i>Phylloscopus rufus</i>).	

- Tree-Creeper (*Certhia familiaris*).
 Pied Wagtail (*Motacilla lugubris*).
 White Wagtail (*M. alba*).
 Grey Wagtail (*M. melanope*).
 Yellow Wagtail (*M. raii*).
 Tree-Pipit (*Anthus trivialis*).
 Meadow-Pipit (*A. pratensis*).
 Swallow (*Hirundo rustica*).
 House-Martin (*Chelidon urbica*).
 Sand-Martin (*Cotile riparia*).
 Greenfinch (*Ligurinus chloris*).
 Goldfinch (*Carduelis elegans*).
 Siskin (*C. spinus*).
 House-Sparrow (*Passer domesticus*).
 Chaffinch (*Fringilla cœlebs*).
 Brambling (*F. montifringilla*).
 Linnet (*Linota cannabina*).
 Mealy Redpoll (*L. linaria*).
 Lesser Redpoll (*L. rufescens*).
 Twite (*L. flavirostris*).
 Bullfinch (*Pyrrhula europæa*).
 Corn-Bunting (*Emberiza miliaria*).
 Yellow-Bunting (*E. citrinella*).
 Reed-Bunting (*E. schœniclus*).
 Snow-Bunting (*Plectrophenax
nivalis*).
 Starling (*Sturnus vulgaris*).
 Magpie (*Pica rustica*).
 Jackdaw (*Corvus monœcula*).
 Carrion-Crow (*C. corone*).
 Rook (*C. frugilegus*).
 Skylark (*Alauda arvensis*).
 Swift (*Cypselus apus*).
 Kingfisher (*Alcedo ispida*).
 Cuckoo (*Cuculus canorus*).
 Barn-Owl (*Strix flammea*).
 Long-eared Owl (*Asio otus*).
 Short-eared Owl (*A. accipitrinus*).
 Tawny Owl (*Syrnium aluco*).
 Sparrow-hawk (*Accipiter nisus*).
 Peregrine Falcon (*Falco peregrinus*).
 Merlin (*F. œsalon*).
 Kestrel (*F. tinnunculus*).
 Cormorant (*Phalacrocorax carbo*).
 Heron (*Ardea cinerea*).
 Bittern (*Botaurus stellaris*).
 Grey Geese (ssp. ?)
- Bewick's Swan (*Cygnus bewicki*).
 Mute Swan (*C. olor*).
 Common Sheld-Duck (*Tadorna cor-
nuta*).
 Mallard (*Anas boscas*).
 Shoveler (*Spatula clypeata*).
 Teal (*Nettion crecca*).
 Wigeon (*Mareca penelope*).
 Pochard (*Fuligula ferina*).
 Tufted Duck (*F. cristata*).
 Goldeneye (*Clangula glaucion*).
 Ring-Dove (*Columba palumbus*).
 Pheasant (*Phasianus colchicus*).
 Partridge (*Perdix cinerea*).
 Corn-Crake (*Crex pratensis*).
 Spotted Crake (*Porzana maruetta*).
 Water-Rail (*Rallus aquaticus*).
 Moor-Hen (*Gallinula chloropus*).
 Coot (*Fulica atra*).
 Dotterel (*Eudromias morinellus*).
 Golden Plover (*Charadrius pluvialis*).
 Lapwing (*Vanellus vulgaris*).
 Black-winged Stilt (*Himantopus
candidus*).
 Common Snipe (*Gallinago celestis*).
 Jack Snipe (*G. gallinula*).
 Common Sandpiper (*Totanus hypo-
leucus*).
 Common Redshank (*T. calidris*).
 Greenshank (*T. canescens*).
 Curlew (*Numenius arquata*).
 Black Tern (*Hydrochelidon nigra*).
 Common Tern (*Sterna fluviatilis*).
 Black-headed Gull (*Larus ridi-
bundus*).
 Common Gull (*L. canus*).
 Herring-Gull (*L. argentatus*).
 Lesser Black-backed Gull (*L. fuscus*).
 Greater Black-backed Gull (*L.
marinus*).
 Puffin (*Fratercula arctica*).
 Red-throated Diver (*Colymbus sep-
tentrionalis*).
 Great-crested Grebe (*Podiceps
cristatus*).
 Slavonian Grebe (*P. auritus*).
 Little Grebe (*P. fluviatilis*).

Basking Shark—*Cetorhinus maximus* (Gunn)

Stranded on the Little Cumbrae.

By RICHARD ELMHIRST, F.L.S.

[Read 28th January, 1913.]

Basking Sharks do not often visit the Clyde area, if we may judge by the existing records. The *Clyde Fauna and Flora*, 1901, records one 8-ft. specimen from near Turnberry. But the numerous records of "sail-fish" received from yachtsmen and others probably refer to this species. The present specimen is a large female whose tail has been cut off; the part stranded on the Little Cumbrae was about 20 feet long, and I estimate the total length to have been 28 feet. I have been unable to ascertain definitely how this fish lost its tail. Its colour was almost black, dorsally shading down to a slatey grey below, with an irregular mid-ventral white streak.

The following measurements were made:—

	Ft.	In.
Girth, - - - - -	13	0
Nose to posterior gill aperture, - - .	5	5
„ anterior origin of I. dorsal fin, - -	8	6
„ posterior „ I. „ - -	11	0
„ anterior „ II. „ - -	16	6
„ „ „ pectoral fin, - -	5	10
„ posterior „ „ - -	7	6
Anterior border of pectoral to anterior border of ventral, - - - - -	10	1
Anterior border of pectoral to posterior border of ventral, - - - - -	11	8
Anterior border of pectoral to anterior border of anal, - - - - -	13	6
The five gill-slits measured—3 ft. 3 in., 3 ft. 6 in., 4 ft. 3 in., 4 ft. 5½ in., and 4 ft. 10 in.		
Tip of nose to mouth, 1 ft. 1 in.		
Length of lower jaw, 2 ft.		

Day, in his *Fishes of Great Britain and Ireland*, records a specimen, 28 ft. 10 in., from the Isle of Wight. Our fin measurements compare thus—

	Isle of Wight.		Little Cumbrae.	
	Ft.	In.	Ft.	In.
Pectoral fin, - - -	5	6	3	10
Ventral „ - - -	2	9	2	2
Anal „ - - -	1	3	0	11
I. dorsal „ - - -	4	0	3	3
II. „ „ - - -	1	4	0	11

These marked differences are due to the Little Cumbrae specimen being much frayed, about quarter of the length of the fins being worn off.

Mosses from Vice-County 101.

By JAMES M'ANDREW, Edinburgh.

[Read 27th December, 1912.]

In addition to the Mosses from v.c. 101 (Cantire south of the Crinan Canal) recorded in the Census Catalogue of British Mosses published in 1907, during a holiday at Lochgilphead in 1911 I gathered the following, all immediately South of Ardrishaig and the Crinan Canal:—*Polytrichum alpinum* L.; *Dicranoweisia cirrata* Lindb.; *Campylopus pyriformis* Brid.; *Grimmia apocarpa* Hedw., var. *rivularis* W. and M.; *Racomitrium canescens* Brid., var. *ericoides* B. and S.; *Pottia truncatula* Lindb.; *Tortula lævipila* Schwæg.; *Barbula tophacea* Mitt.; *Barbula rigidula* Lindb.; *Barbula cylindrica* Schp.; *Barbula revoluta* Brid.; *Barbula convoluta* Hedw.; *Weisia viridula* Hedw.; *Orthotrichum leiocarpum* B. and S.; *Orth. stramineum* Hornsch.; *Orth. tenellum* Bruch; *Funaria ericetorum* Dixon; *Bryum bimum* Schreb.; *Mnium subglobosum* B. and S.; *Fontinalis antipyretica* L.; *Neckera complanata* Hübn.; *Neckera crispa* Hedw.; *Pterygophyllum lucens* Brid.; *Heterocladium heteropterum* B. and S.; *Brachythecium rivulare* B. and S.; *Brachythecium populeum* B. and S.; *Brachythecium purum* Dixon; *Eurhynchium striatum* B. and S.; *Eurhynchium confertum* Milde

Plagiothecium denticulatum B. and S.; *Amblystegium serpens* B. and S.; *Hypnum stellatum* Schreb., var. *protensum* Röhl; *Hyp. revolvens* Swartz; *H. intermedium* Lindb.; *H. cupressiforme* L., var. *ericetorum* B. and S.; *H. giganteum* Schp.; *H. sarmentosum* Wahl.; *H. brevirostre* B. and S.

In addition to the above, I gathered the following from the neighbourhood of Tarbert, Loch Fyne, also in v.c. 101:—*Sphagnum rigidum* Schp., vars. *compactum* Schp. and *squarrosum* Russ.; *S. subsecundum* Nees, var. *contortum* Schp.; *S. acutifolium* Ehrh., var. *rubellum* Russ.; *S. Girgensohnii* Russ., var. *xerophyllum* Russ.; *Campylopus brevipilus* B. and S.; *Racomitrium sudeticum* B. and S.; *Barbula recurvifolia* Schp.; *Barbula vinealis* Brid.; *Weisia microstoma* C. M.; *Trichostomum tenuirostre* Lindb.; *Orthotrichum Lyellii* Hook. and Tayl.; *Splachnum ampullaceum* L.; *Funaria Templetoni* Sm.; *Bryum atropurpureum* W. and M.; *Antitrichia curtispindula* Brid.; *Thuidium recognitum* Lindb.; *Brachythecium albicans* B. and S.; *Eurhynchium crassinervium* B. and S.; *Eurhynchium Swartzii* Hobk.; *Hypnum callichroum* Brid.

Though none of the above Mosses are rare, yet they may be of interest as new records for Vice-County 101. I am sure that Mr. P. Ewing could add a number more to the above list.

Proceedings of the Society.

The fourth meeting of the sixty-second session took place in the Society's Rooms, Bath Street, on 27th December, 1912—Mr. John R. Lee, president, in the chair.

Mr. J. R. Jack, M.I.N.A., gave a lantern exhibit of photographs in colour, chiefly alpine and lowland plants and landscapes. Mr. Robert M. Fortune also showed some slides. The exhibition was greatly admired. Mr. James M'Andrew contributed a paper entitled "Mosses from Vice-County, 101," containing a list of new records for that district.

The fifth meeting took place on 28th January, 1913—Mr. John R. Lee, president, in the chair.

Mr. Nicol Hopkins, 4 Campbell Street, Darvel, was elected an ordinary member.

Mr. Robert W. S. Wilson exhibited a Greater Wheatear (*Saxicola oenanthe leucorrhoa*) from Fairlie (p. 43).

Mr. Peter Ewing, F.L.S., exhibited the following hepatics, which are all new records for the Vice-Counties to which they refer:—*Riccia bifurca* Hoffm., Clova (v.c. 90); *Marsupella Sullivantii* (De Not.) Evans, Canlochan (v.c. 90); *Lophozia longifolia* (Nees) Schiffn., Clova (v.c. 90). Regarding the last species, Mr. S. M. Macvicar, in his handbook on Hepatics issued last year, refers to this plant as not yet found in Britain, but likely to occur on some of our mountains. It was discovered in a wood near Killin in April, 1911, and Mr. Ewing picked it up on the side of a burn in Clova, in September, 1912. Other species exhibited were *Plagiochila punctata* Tayl., var. *minuta* Bréb., Ben Voirlich (v.c. 99); *Bazzania tricrenata* (Wahl.) Pears., var. *triangularis* Schl., Ben Voirlich (v.c. 99); *Lepidozia setacea* (Web.) Mitt., var. *sertularioides* (Hübén.) Cooke, Loch-nan-nane (v.c. 89); *Scapania subalpina* (Nees) Dum. var. *undulifolia* Nees, Ben Voirlich (v.c. 99); *S. obliqua* (Arnell) Schiffn., Canlochan (v.c. 90).

Mr. Wm. M. Pettigrew exhibited some beautiful autochrome slides of landscapes and plant studies.

Mr. Robt. Brown, M.D., F.L.S., read a paper entitled "Mont Cenis and its Alpine Flora," which was illustrated by many plants collected in July, 1912.

Mr. Richard Elmhirst, F.L.S., gave an account of a Basking Shark (*Cetorhinus maximus*), which was found stranded on the Little Cumbrae (pp. 66-67). Mr. Elmhirst also showed specimens of *Gromia dujardinii* (Schaudinn), one of the foramenifera, which he had found fairly abundant on rocks near the Biological Station, Millport.

The sixth meeting of the session, 1912-1913, took place on 25th February, 1913—Mr. John R. Lee, president, in the chair. Before the formal business, appropriate reference was made by Mr. A. Hill to the loss to the Society through the death of ex-Deacon-Convener James Goldie, who had been a member since 1895.

Mr. Chas. A. Allan, Brockeridge, Irvine Road, Kilmarnock, and Mr. Thos. W. Wilson, 31 Rannoch Street, Langside, were elected ordinary members.

Mr. J. J. F. X. King, F.E.S., exhibited a collection of British Chrysididae. On behalf of Mr. Chas. Kirk, Mr. John Paterson exhibited a Bar-tailed Godwit (*Limosa lapponica*), a male in full summer plumage, which Mr. Kirk had received in December from Girvan (Ayr) for preservation.

Mr. T. Thornton Mackeith exhibited a series of beautiful slides of natural history subjects, chiefly ornithological.

Mr. Geo. Herriot showed some lantern slides illustrating the recent serious land-slide at Glencroe.

The President, Mr. Lee, made some remarks on the moss-genus *Thuidium*, Schp., and exhibited examples of the Scottish species of that genus.

Mr. Richard Elmhirst, F.L.S., sent the following note on *Tetrabothrium cylindraceum*, Rudolphi:—"In October, 1912, Mr. Wm. Rennie sent me some worms from a young Black-headed Gull (*Larus ridibundus*) from Possil Marsh. The bird was 'gorged with potatoes, a this year's bird.' The worms proved to be *T. cylindraceum* (vide Diesing, *Systema Helminthum*, vol. I. p. 600, 1850), which species is known as a parasite of the above and several other species of gulls. The specimens in question were ripe, the eggs being extremely large, 0.3 mm." This worm has not previously been recorded for the Clyde Area.

Excursions.

RAWYARDS HOUSE AND ROSEMOUNT, 1st July, 1911—Conductor, Mr. A. B. Motherwell.—Detraining at Airdrie, the small party representing the Society on this occasion, walked to Gartlea Hill, from which a great stretch of country was visible, the points of interest in the landscape being pointed out by Mr. Motherwell. At Rawyards House (John Motherwell, Esq.) *Escallonia macrantha* was seen growing luxuriantly on the house front. The plant was upwards of five feet in height and in full flower. Long regarded by some of those present as a plant partial to the neighbourhood of the sea, it came as a surprise to see it so healthy so far inland, at about 600 feet above sea-level. At Mr. A. B. Motherwell's own residence, Rosemount, very many indigenous phanerogams and many exotics, arranged according to their Natural Orders, form a

Botanic Garden of extraordinary interest for a private collection. An extensive collection of herbaceous flowers commanded admiration, and it was interesting, at an elevation of 570 feet inland, to see here and there in the garden, growing luxuriantly, such shrubs as *Choisya ternata*, *Skimmia japonica*, *Buddleia globosa*, *Laurus nobilis*, *Garrya elliptica*, and species of *Philadelphus*, *Cotoneaster*, and *Weigela*. After a leisurely examination of the gardens at Rosemount, those present were hospitably entertained by Mrs. and Mr. Motherwell.

BLANTYRE PRIORY, 2nd September, 1911.—Conductor, Mr. Thomas Wise, Hamilton.—This was a joint-excursion with the Hamilton Natural History Society. The weather was favourable, and there was a good attendance. "The Priory" has long been a happy hunting-ground for the botanists of Lanarkshire, and the little that is known of its history was communicated to those present by Mr. Wise. Quite a novelty at our excursions was the sight of a pair of Otters (*Lutra vulgaris*) gambolling in the Clyde at the Priory.

LOUDOUN CASTLE POLICIES, 25th September, 1911.—Conductor, Mr. John Gloag.—A small party turned up to this excursion. They detrained at Galston. Mr. Gloag's extensive information regarding the history of the district, which he freely communicated, added to the natural attractions of the locality, made the excursion very enjoyable; but the rain that came on heavily in the afternoon did not help matters. Mr. John Renwick made some notes on the remarkable trees seen. The celebrated "Boss Tree," identified by Dr. A. Henry, Cambridge, as *Ulmus montana* Sm., was found to be decaying more than ever. On the side of the Glasgow Road to the north of the River Irvine are eleven Elms apparently all about the same age. That nearest the river has a girth of 8 feet $6\frac{3}{4}$ inches at 5 feet, with a bole of 17 feet. It is probably *Ulmus major* Sm., but a poor specimen. In the Barr Wood is an Elm (clasped by Ivy) with a girth of trunk of 13 ft. 9 inches, allowing 4 inches for the Ivy. It is probably an English Elm, the *Ulmus campestris* of British but not of continental botanists. Ivy with stems girdling up to 3 feet 7 inches was seen. A very large Elm in the Gowfield has a girth of 15 feet $6\frac{3}{4}$ inches at 5 feet, bole 15 feet, height 112 feet.

Upon specimens of this tree being submitted to Dr. Henry, he pronounced them undoubtedly *Ulmus glabra* Miller. Another large Elm, of apparently the same species, stood in the Stonycousey Park but was blown down in the winter of 1909-10. Measured in 1908, it had a girth of 16 feet 4 inches at 6 feet, bole 20 feet, height 105 feet. Details regarding the celebrated Yew Tree at Loudoun Castle will be found in Mr. Renwick's article on the Yew Trees of the Clyde Area (see page 24). A Poplar (*Populus serotina*), near the gate to the castle on the Glasgow Road, has a girth of 9 feet 5¼ inches at 5 feet. A Beech at Waterside Farm, which was measured at the Society's excursion on 20th May and found to have a circumference of trunk of 16 feet 1½ inches at 5 feet, with a much fluted and partially decayed trunk, has since then been blown down. It was the largest beech on the Loudoun Estate. A Scots Fir at the old Kirk of Loudoun had a girth of 11 feet 1 inch at 5 feet, bole 40 feet.

SWINLEES GLEN, DALRY, 20th April, 1912.—Conductor, Mr. Archd. Shanks. The route taken on this occasion was by Tofts and Ryesholm, crossing over the Rye Water. Drums of boulder clay are conspicuous in the landscape here, the town of Dalry being built on the largest one, which is at least eighty feet thick. Near Hagsthorn the main road was left and the bed of the Pitcon Burn taken. This stream divides the parishes of Dalry and Kilbirnie, and is stated by the writer of the New Statistical Account of the latter parish to intersect a vein of graphite or blacklead, but the place where this is said to occur is still unknown to those interested in mineralogy. The Glen has been mostly formed out of sandstone and the blaes associated with ironstone. Blackband ironstone was at one time worked here, and the spot is still kept in memory by the flow of water highly charged with iron. The Clayband ironstone, which has been so extensively mined in the district, is very well exposed, and measures about thirteen inches, which was the full thickness of the bed. This section may probably have helped to attract ironmasters to the locality. It is believed that the blackband ironstone was discovered in boring for the clayband which occurs below it. Few flowers were observed, but *Chrysoplenium alternifolium* was quite common and *Senecio*

sarracenicus was seen in two places. Though a rare species in Britain the latter is common in the Garnock valley. The only moss noticed worthy of mention was *Orthotrichum rivulare*. Of a total of twenty-seven species of birds seen, perhaps most interest attached to the newly-arrived summer visitors, which included nine Willow-Wrens (*Phylloscopus trochilus*), two Common Sandpipers (*Totanus hypoleucus*), and the Swallow (*Hirundo rustica*).

Swinlees Glen was much admired. Prominent, a short distance from the road, is Caerwinning Hill, once strongly fortified, where copper mining was carried on about the year 1846. At Blairrock Hill, a few hundred yards farther north, the trap rock is quarried for repairing the roads. The mineral Pectolite occurs in the form of amygdules several pounds in weight.

LUGTON TO BEITH, 4th May, 1912.—Conductor, Mr. D. A. Boyd.—Although not often visited at excursions of the Society, the district around Beith presents features sufficiently attractive and interesting to merit more frequent attention. Radiating outwards from the town are many roads, bypaths, and rights of way, which intersect the neighbouring country, and stretch towards Dalry, Kilwinning, Dunlop, Neilston, Lochwinnoch, and other adjacent parishes. Some of these roads pass along breezy uplands, and command extensive views over many miles of country, to where the line of vision is bounded by ranges of blue hills in the far distance. Looked at from a botanist's standpoint, the roadsides around Beith are by no means destitute of interest. The walls are often formed of limestone, on which grow in unusual abundance various species of *Orthotrichum* and other mosses that occur less frequently in neighbouring parishes where the prevailing rocks are sandstone and trap. Another characteristic feature of the Beith district is the unusual number of alien plants which grow on the roadsides. In the course of a six or seven-mile walk from Lugton to Beith, by way of Rigfoot and the Lochlands Road, one may observe patches of Orpine, Solomon's Seal, Masterwort, Tansy, Leopard's Bane, Heart-leaved Valerian, and Yellow Moneywort or Creeping Jenny. It was mainly with the view of exploring part of the eastern portion of the parish, that an excursion from Beith to Lugton was arranged for the afternoon of Saturday, 4th May. After leaving the Lugton Station, the Beith Road was followed, which skirted for

a short distance the Caldwell Woods, where the bright tints of the young foliage formed a picture at once pleasant and refreshing to the eye. At this point attention was directed to patches of Orpine and Solomon's Seal, which grew on a roadside bank, while, in an adjoining meadow, thousands of cups of the Marsh Marigold spread their golden sepals to the sunshine. In a small wayside copse were obtained the conspicuous white racemes of the Hagberry or Bird Cherry. At Blaelochhead the leaves of the Earthwort were much affected with *Puccinia bunii*, a parasitic fungus belonging to the Uredineæ or rusts. Just beyond the farm, a view was obtained of the Blae Loch, a small sheet of water situated a few hundred yards from the roadside. According to Timothy Pont, who wrote in the beginning of the 17th century, Blae Loch is so named "because when the firmament is most serene and clear, then it is pallid and dead-coloured, contrair to all other uncorrupt and sweet waters." The dull-hued waters of the little lake, however, are relieved by a graceful fringe of tall growing reeds, while the spotless blossoms of white water-lilies glisten on its calm surface. The wet margin of the loch is carpeted with a luxuriant growth of mosses, abundant in quantity, and possibly sufficiently varied in quality to be worthy of examination by our esteemed President.

About half-a-mile beyond Blaelochhead, the party turned into a byway which led to the picturesquely situated Mill of Hessilhead. On the way thither, the abundance and variety at the wild-flowers attracted notice. Pink blossoms of Wood Sorrel, red bells of Blaeberry, blue flowers of Wood-Violet and Wild Hyacinth, and white stars of Wood-Anemone, occurred in rich profusion. On the banks of the stream at the Mill, tall plants of Sweet Cicely luxuriated in the prevailing moisture. On rising ground near by, surrounded with old trees, stands the ruined mansion of Hessilhead, long the residence of a branch of the Montgomerie family, and the home in the latter part of the 16th century of the poet Alexander Montgomerie, author of "The Cherrie and the Slae." From this point onward, particularly in the neighbourhood of the entrances to the modern mansions of Trearne and Hessilhead, the road was pleasantly wooded, and its margins were covered with a grassy carpet of soft green. Having rejoined the main road, the party passed

through the little village of Gateside, and reached Beith. Although unproductive of any important results, the excursion was nevertheless enjoyable on account of the fresh beauty of the young foliage and early flowers, and the rural attractions of the district passed through in the course of the afternoon's walk.

ORCHARD COUNTRY, LANARK, 18th May, 1912.—Conductor, Mr. W. M. Pettigrew. From Dalserf, the route followed was towards the Clyde, when Garrion Bridge was crossed and the path through the orchards was taken. The Clyde was reached again near Milton Lockhart and the right bank followed till Crossford was reached. In an ordinary year, the orchard trees in Clydesdale would have been in full blossom about this date, but on this occasion the glory had departed. Some compensation was found, however, in the wealth of blossom on the Hawthorn and in the beauty of the Wild Hyacinths. The most interesting plants noted were the Bird's-Nest Orchis (*Neottia Nidus-avis*), observed in Jock's Gill and again nearer the Clyde; the White Meadow-Saxifrage (*Saxifraga granulata*) and the Hairy Rock-Cress (*Arabis hirsuta*), on the bank near Crossford; and the Broad-leaved Groundsel (*Senecio sarracenicus*) and House-Leek (*Sempervivum tectorum*), which were got on the journey from Crossford to Braidwood. Among other plants seen were *Galium boreale*, *Fedia olitoria*, *Doronicum Pardalianches*, *Epipactis latifolia* and *Listera ovata*. Among the flies captured were *Dicranomyia chorea*, Mg., *D. dumetorum*, Mg., *Rhipidia maculata*, Mg., *Antocha opalizans*, O-Sack, *Molophilus bifidus*, Verr., *Erioptera trivialis*, Mg., *Tipula varipennis*, Mg., *T. vernalis*, Mg., *Bibio marci*, L., *Platicherus discimanus*, Liv., *P. abimanius*, F., *Melanostomum mellinum*, L., *Syrphus ribesii*, L. and *S. corollæ*, F. Some 34 species of birds were noted, including the Blackcap (*Sylvia atricapilla*) heard once, the Garden Warbler (*S. hortensis*) and Wood Wren (*Phylloscopus sibilatrix*), both frequent, and the Yellow Wagtail (*Motacilla raii*). A blackbird's nest built on a plant of the Purple Comfrey was regarded as a curiosity. No Gull was seen during the day, which is very unusual in any part of "Clyde."

TARBET AND LUSS, 23rd May, 1912.—Conductor, Mr. John R. Lee. A party of about 30 travelled by train from the Central Low Level Station, at 9.20 a.m., to Balloch Pier, thence by steamer to Tarbet, arriving shortly after mid-day. The weather conditions were excellent, and, as at this season of the year the "Queen of the Scottish Lochs" is perhaps at its best, the beauty of the scenery was keenly enjoyed by the members of the party. After leaving Balloch, and before passing into the channel to the south of Inchmurrin, a grand view of the lake is obtained from the steamer by looking directly northward. The grouping of the hills around the upper end of the loch is especially fine as seen from this point. On the eastern side the imposing mass of Ben Lomond is seen to great advantage, the great shoulders of the mountain, formed by the Ptarmigan on the west and Ben Urid to the south-east, combining to lend a sense of sublimity to the scene. The western side of the loch is flanked by the picturesque group of the Glen Luss Hills, from which a lofty ridge, with well-wooded sides, runs northwards to the Tarbet valley, where the low hill of Cruach-Tarbet fills up the middle distance. Immediately behind this the lofty ridges of Ben Vorlich form an appropriate background to what is perhaps one of the best views obtainable of this magnificent loch. The weather being very clear, the view from this point also included the graceful cone of Ben Oss filling up the gap in the centre behind Glen Falloch. After passing the Island of Inchmurrin, a view was also obtained of the peak of Ben Laoigh, appearing over the eastern shoulder of Ben Vorlich, and patches of snow were observed on the sides of both these more distant mountains.

On arriving at Tarbet, a fine view of the rugged peaks of Ben Narnain and Ben Arthur was obtained, the deep corries near their summits being very distinctly visible in the clear atmosphere.

The party next proceeded by road towards Luss, the route lying along the western shore of the loch a distance of some $8\frac{1}{2}$ miles. For about a mile below Tarbet the road lies through a deeply wooded tract, emerging upon the edge of the lake below the mansion house of Stuckgown. In front of the latter the attention of the party was attracted by two magnificent azalea bushes in full bloom.

The house is beautifully situated at the foot of a deep glen, the lower portion of which is thickly planted with a variety of coniferous trees, and from its sheltered position affords favourable conditions for a luxuriant growth of exotic shrubs. The wall in front of Stuckgown is covered by a large quantity of the Black Spleenwort fern (*Asplenium Trichomanes*), and on the wall top were found growing a number of stray plants of *Saxifraga Geum*. The dominant tree in the woods along the side of the loch is the Oak, but many other species are mixed with it, the principal being Birch, Alder, Hazel, Ash, Rowan, and Holly. The Wild Hyacinth (*Scilla nutans*) was seen to perfection in the woods all along Loch Lomond side, the glorious blue of this much-loved member of our flora being particularly well developed just at the date of our visit.

From a point about four miles below Tarbet a detour was made to visit the Fairies' Lake, a small pool in a hollow on the mountain side, about three-quarters of a mile above the road, at an altitude of 600 feet above sea level. The spot is a very beautiful secluded hollow, densely shaded with trees, and the lake itself is rich in aquatic flowering plants and mosses. It is very deep in the middle, various estimates of its depth being put forward by members of the party, some of whom thought twelve feet an exaggeration, whilst others were not satisfied with twice that estimate. The water is remarkably clear, and an extraordinary colouration appears in its deepest part, patches of the bottom having a curious blue-green appearance, which also extends to objects such as sticks, &c., lying in the water. Legend attributes this curious phenomenon to the action of a race of beneficent fairies who formerly inhabited the spot; but science, whilst declining to accept the old-time explanation, has not yet found another. On leaving the Fairies' Lake the road was continued to Inverbeg, at the foot of Glen Douglas, where a halt was made for tea, after which the remaining three miles to Luss were leisurely traversed.

During the day thirty-two species of birds were noted, including half-a-dozen Tufted Ducks (*Fuligula cristata*), a pair of Red-breasted Mergansers (*Mergus serrator*), two Guillemots (*Uria troile*), and a Red-throated Diver (*Colymbus septentrionalis*).

GLEN DOUGLAS to WHISTLEFIELD, 15th June, 1912.—Conductor, Mr. John R. Lee. A party, numbering nine members, left by train from Queen Street for Glen Douglas, where by special arrangement, the train was stopped at the passing-place. From that point the road was followed down to Gortan on Long Long, where it joins the main road from Arrochar to Helensburgh, which latter was then followed to Whistlefield.

The weather was at first somewhat unsettled; but with the exception of a smart shower lasting about ten minutes, the afternoon proved fine, and the walk was keenly enjoyed. Fine views of the mountains of Arrochar and Ardgool were obtained, and the beauty of the roadway itself was sufficient to make the outing an exceedingly pleasant one. Near the railway bank at the head of Glen Douglas a remarkable hepatic drew the attention of the botanists present. The plant was growing in several dense tufts, of a light glaucous green colour, with thick but rather brittle stems, and curious undulated and deeply-lobed leaves. The species proved on examination to be *Lophozia incisa* Dum. (= *Jungermannia incisa* Schrad.)

The moors and banks above Loch Long are very rich in mosses and hepatics, and some time was spent here by the members interested in these plants. Among the principal species noted were *Weisia verticillata* Brid., *Leptodontium flexifolium* Hampe, *Webera annotina* Schwg., and *Neckera pumila* Hedw. A remarkably slender form of the common *Amblystegium filicinum*, De Not. was observed and specimens were also gathered of *Hypnum callichroum* Brid., a species formerly thought to be rather uncommon, but now known to be fairly frequent in this part of the district. Near Finnart House a large quantity of the beautiful *Mnium undulatum* L. was observed growing at the foot of the wall by the roadside, and a closer search revealed the sporogonia in fine condition, an unusual occurrence in Clydesdale.

The freshwater algæ were of a varied and interesting nature. Several members of the Conjugatae, Spirogyras and Zygnemas, were got, but none showing zygospores. *Tetraspora gelatinosa* was fairly abundant and often associated with it was *Draparnaldia glomerata*. A fine mass of *Botrydina vulgaris* Bréb. was got. This is noted for area G. in the *Brit. Assoc. Handbook* (1901) List of Fresh-water Algæ, but is really a very simple lichen with

a predominance of the alga. A species of *Cladophora* (*glomerata* probably) was fairly abundant. *Nostoc microscopicum*, *N. macrosporum*, *Stigonema turfaceum* and *Chroococcus turgidus* were found in quantity.

ABINGTON, LANARKSHIRE, 29th June, 1912.—Conductor, Mr. D. A. Boyd. On the east bank of the Clyde above Abington, vegetation flourished luxuriantly, and one could soon have gathered a showy bouquet of wild flowers. Parasitic rusts, moulds, and other microfungi were also well represented, and about twenty species were soon noted. The most notable fungi observed here were *Synchytrium taraxaci* De Bary and Wor., on *Taraxacum officinale*; *Puccinia glomerata* Grev., on *Senecio Jacobæa*; *Melampsora cerastii* (Pers.) Wint., as *Uredo* on *Cerastium triviale*; *Pseudopeziza repanda* (Fr.) Karst., on *Galium saxatile*; *Gorgoniceps Guernisaci* (Crouan) Karst., on dead branches of willow submerged in the river; *Septoria tormentillæ* Desm. and Rob., on *Potentilla erecta*; *Ramularia geranii* Fekl., on *Geranium pratense*; and *R. centaureæ* Lindr., on *Centaurea nigra*.

Having crossed the river by a private foot-bridge, those present passed into the parish of Crawfordjohn and policies of Glengonnar. On the west bank of the Clyde, near the mouth of the Glengonnar Water, *Lepidium Smithii* Hook., occurred in some abundance; *Cnicus heterophyllus* Willd. was also observed in the course of the walk along the banks of the latter stream; and occasional patches were seen of *Equisetum hyemale* Linn. — a rare plant in lower Clydesdale. Microfungi were abundant, and the gatherings yielded some 24 species, 12 of which had not previously been recorded for Lanarkshire. Amongst these, the most notable was *Septoria chrysanthemella* Sacc., new to Scotland, and only once previously recorded for England. It formed conspicuous brown spots on leaves of *Chrysanthemum Leucanthemum*, and was locally abundant at one part of the glen.

(Continued.)

Notes.

Bewick's Swan (*Cynus bewicki*) in Ayrshire.—On 26th December, 1912, shortly after mid-day, when with Mr. R. Garry,

I saw three Swans crossing Fairlie Roads, coming from the south end of the Little Cumbrae and flying in the teeth of a strong north-easterly breeze. They crossed Little Brigaid Point within eighty yards of where I was concealed, and thus gave me a perfect view of the coloration of their bills and I had no difficulty in making them out to be Bewick's Swans. They continued on their way up the shore line towards Fairlie, evidently making for one of the sheltered bays below that village, but we failed to find them there later on in the day. Wild Swans are very infrequent visitors to this part of the coast, and during the last twelve years I only know of one instance, namely, on 1st January, 1907, when three Swans were seen by others as well as myself, but not identified (*Trans. Nat. Hist. Soc., Glas., Vol. VIII., new series, page 178*) and none of the local fowlers whom I have consulted on the subject knows of any other occurrence. Previous to 1869 when Gray and Anderson's paper on the *Birds of Ayrshire and Wigtownshire* was published, Bewick's Swan was known as an occasional visitor, in severe weather, to lochs and ponds in these counties (*Proceedings Nat. Hist. Soc., Glas., Vol. I., page 310*). Since then it has not been recorded as having actually been seen in Ayrshire, although on 31st December, 1906, Mr. T. Thornton M'Keith observed in Renfrewshire, twelve miles south of Glasgow, thirteen birds of this species flying south-west into Ayrshire (*Ann. Scot. Nat. Hist., 1907, page 197*).—Robert W. S. Wilson, Cathcart.

White-headed Chaffinch (*Fringilla caelebs*).—On Christmas Day, 1912, at Williamwood (E. Renfrew), I saw a cock Chaffinch with a pure white head and neck—a handsome bird.—John Paterson.

A prolific Blackbird (*Turdus merula*).—In 1912 I saw a Blackbird's nest with young ones which were successfully reared. The hen then laid a clutch of eggs in an old nest which was robbed. She then went back to the first nest, and laid another clutch of eggs, and successfully reared the young ones. She then laid a third clutch in the same nest, and again successfully reared the young. That was four clutches of eggs the bird laid, and three of these were hatched and the young ones successfully reared.—John Craig, Beith.

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The Return of Summer-Birds to the Clyde Area in 1913.

By JOHN PATERSON.

DURING the spring of 1912 we were favoured with continuous fine weather, and it was pointed out in the report on the return of our summer-visitors for that year, that to that fact was probably to be attributed the early appearances then recorded. If there has been cause for complaint about the weather during the same season in 1913, it has not been so bad as to act as a deterrent to the birds, and in consequence the first arrivals, on the whole, in this year's list, will be found to be rather earlier than in 1912. The present year, indeed, to judge by the returns, had the advantage of a better start. The annual immigration of WHEATEARS was very widely observed in Arran, Renfrew, and Lanark on the 29th of March, while among hirundines SAND-MARTINS and SWALLOWS were well in advance of their usual time of appearance, being seen in many localities in the first and second weeks of April. The most striking event, however, at any rate that one most easily observed, is the appearance of the WILLOW-WREN, as it comes in vast numbers, and makes the air vocal with its song for a few days wherever there are trees. In 1913 the main body of this species appeared a few days later than in the previous year.

LIST OF ARRIVALS OF SUMMER-BIRDS IN THE ORDER OF THEIR APPEARANCE IN 1913.

LESSER BLACK-BACKED GULL (*Larus fuscus*)—three, Dalmuir (W. Rennie), also Erskine Ferry (T. Malloch), 19th March; Broomielaw (W. R. Baxter), 22nd; Pollok Castle (D. M. Donald);

23rd; Greenock, many (Malloch), 24th; Erskine, eleven (Malloch), 28th; flocks on ploughed fields between Old Kilpatrick and Dalmuir (Rennie), 28th.

WHITE WAGTAIL (*Motacilla alba*)—Cadder, one (A. Ross), 21st March; Stepps Moss, one ♂ (Ross), 28th; Caldercuilt on Kelvin, one (M'Donald), 27th; Giffnock, one (J. Robertson), 30th; Summerston, three (Rennie), 6th April; Possil, three (Rennie), 14th.

WHEATEAR (*Saxicola œnanthe*)—Kildonan, two (Dr. Fullarton), 24th March; Kilmacolm, three (T. Thornton M'Keith), Moniemore, Lamash, numerous (Fullarton), Possil to Cadder, fourteen (Rennie), Mearns, one (J. Robertson), Foxbar (C. S. Bine Renshaw), Johnstone to Greenock, seven (Malloch)—all on 29th. Mr. Rennie makes the observation that on the ground which yielded him fourteen on 29th he could see but two on 30th.

SAND-MARTIN (*Cotile riparia*)—Kelvin, two (M'Donald), 27th March; same locality, eight (M'Donald), 1st April; Summerston, half-a-dozen (Rennie and Wilsons), 6th; Rouken Glen, two (Robertson), 6th; Summerston, thirty (M'Donald), 13th; Beith (J. Craig), 17th; Gryfe, five (Malloch), 19th.

RING-OUZEL (*Turdus torquatus*)—Mistylaw, one ♂ (Malloch), 29th March; Cart at Clarkston, one (H. W. and R. W. S. Wilson), 13th April.

SWALLOW (*Hirundo rustica*)—Rouken Glen, three, evidently ♂ (Robertson), 6th April, and Cadder, three (Rennie), same date; Darnley Glen (T. W. Wilson), 12th; Possil, two (Rennie), 13th, and Summerston, two (M'Donald), with forty Sand-Martins, same date; Whiting Bay, numerous (Fullarton), Endrick Water, (W. L. Chadwick), and Rouken, three (Robertson)—all on 19th; Darvel (Hopkins), 20th; Craighends, three (Malloch), 22nd; Netherlee, one (Wilson), 23rd; Possil Marsh, 250/300 arrived sunset 25th. Mr. Rennie writes regarding this movement as follows:—"About sunset my attention was attracted to what appeared a wriggling mass high in the clouds. On fixing the glass on them I saw they were small birds. They gradually began to descend, when I saw they were swallows. When they had descended to a height at which they could be distinguished individually with the naked eye, their antics were very interesting.

First, they seemed to gather themselves into one bunch, then open out into a wide crescent, gradually lowering themselves, and then coming together would pass like a flash and rise up into a mass again. I watched them for about twenty minutes, when I lost them in the darkness. They seemed to me to be all females, with the exception of a few males. So prominent were they in the sky, and their behaviour so extraordinary, that the men at 'the Rows' opposite the Marsh seemed to become thoroughly engrossed in following them." On the 3rd of April, in the evening, Mr. Rennie saw, again at Possil, a flock of over two hundred which appeared suddenly, and after flying around and over the surface of the Marsh, went off in a northerly direction.

WILLOW-WREN (*Phylloscopus trochilus*)—Lagg, several (Fullarton), 7th April; Elderslie, one (Malloch), 15th April, but not again noticed there till 24th; Rouken Glen (T. W. Wilson), 16th; Beith, one ♂ (Craig), 17th; Williamwood, one, Muirend, one (Robertson), 20th; Kilmacolm (M·Keith), Darvel (Hopkins), Garscadden (Baxter)—all on 20th; Possil (Rennie), satisfied not more than two; Possil (Rennie), several, 21st. and Cadder, common, 22nd April—the first appearance of numbers; Cadder Bridge and Wilderness, four (M·Donald), 23rd; full numbers, evening of 25th, at Merrylee Wood, according to Mr. J. Robertson, who found a nest of this species with seven eggs there on 20th May.

COMMON SANDPIPER (*Totanus hypoleucus*)—Summerston, one (M·Donald), 8th April; Kelvin, one (Rennie), 13th; Muirend, one heard on 15th at 11.15 p.m. while half a gale was blowing from S.W. accompanied by very heavy rain (Robertson); Johnstone, two (Malloch), 16th; Beith (Craig), and Kilmacolm, one (M·Keith), 17th; Endrick Water (Chadwick), 19th; Darvel (Hopkins), 20th; Giffnock, between 9 p.m. and 10.30 p.m., heard passing three times, 22nd (Robertson); Foxbar (Bine Renshaw), 24th.

CHIFFCHAFF (*Phylloscopus rufus*)—Whiting Bay and Lamdash (Fullarton), 9th, 17th, and 22nd April; Rouken Glen (T. W. Wilson), 16th; Beith (Craig), one ♂, 19th; Darvel (Hopkins), 25th.

TREE-PIBIT (*Anthus trivialis*)—Observed and heard by Nicol

Hopkins at Darvel on 13th April, the day on which it was heard at Craighends last year by Mr. Malloch; Garscadden (Baxter), 20th; Milliken (Malloch), 22nd; Williamwood, one (Robertson), 27th; very common at all usual haunts in Cadder on 3rd May, and widely reported throughout Ayr, Renfrew, Lanark, and Dumbarton on 4th and 5th.

HOUSE-MARTIN (*Chelidon urbica*)—Possil (Rennie), two, 17th April; Endrick (Chadwick), 19th; Garscadden (Baxter), 20th; Craighends, two (Malloch), 22nd; Beith (Craig), one ♂, 27th; Kilmacolm (M'Keith), 30th; Darvel (Hopkins), 4th May.

YELLOW WAGTAIL (*Motacilla raii*)—Beith (Craig), two, 20th April; Summerston, six (M'Donald), 23rd; Milliken, one (Malloch), 23rd; Possil, about six passed over (Rennie), 25th; Muirend (Robertson), one, same date; Kirkton Dam, Neilston (Wilsons and Robertson), 26th; Darvel (Hopkins), 27th. At Possil Marsh, on 1st May, Mr. Rennie observed thirty-two (♂ and ♀), and immediately after, he writes, "a flock of anything from forty to sixty were to be seen flying about for a few minutes, but they suddenly disappeared, and I was unable to see more than half-a-dozen in the reeds." At Kilmacolm on 3rd May, Mr. M'Keith observed three. Yellow Wagtails have been pretty much "in the picture" during this year's spring migration, and I was gratified to see a dozen on haughs on the right bank of the Clyde between Milton Lockhart and Waygateshaw, on the 17th of May. I have no recollection of seeing this species further up the river than Crossford, which is just a mile above the place here referred to.

CUCKOO (*Cuculus canorus*)—Dullatur (M'Keith), 20th April; Lagg, seen and calling (Fullarton), 22nd; Beith, one ♂ (Craig), 22nd; Whistlefield, Gareloch (M'Keith), 23rd; Darvel (Hopkins), 28th; Howwood, one (Malloch), 30th; Inchtavannach, two (Wilsons), 4th May.

CORNCRAKE (*Orex pratensis*)—Muirend (Robertson), 23rd April; Lochfaulds, Possil (Rennie), 25th; Beith, one ♂ (Craig), 28th; Darvel (Hopkins), 29th; Muirend (Wilsons), 30th; Craighends, one (Malloch), 1st May; in East Renfrew, from Cathcart to Darnley, quite up to average numbers of recent years by 4th May (Robertson).

WHINCHAT (*Pratincola rubetra*)—Bardowie, one (Macdonald), 25th April; Linwood, two (Malloch), 30th; on 3rd May, at Beith (Craig), Possil and Cadder, two pairs and two single birds (Rennie, Galloway, and Cumming), and Darvel (Hopkins); on 4th May, on Mearns Moor, three (Wilson's), and Muirend and Giffnock, several (Robertson).

REDSTART (*Ruticilla phæniceus*)—Craigends (Malloch), one ♂, 25th April; Cadder (Rennie), 27th; Garscadden (Baxter), 27th; Inchtavannach (Wilson's), a pair, 3rd May; Cochno, one (M'Donald), 5th.

SWIFT (*Cypselus apus*)—Beith (Craig), one, 27th April; Kilmaccolm, three (M'Keith), 3rd May; Giffnock (Robertson), 10th; Possil, two (Rennie), and Rouken Glen, three (Robertson), 11th; Kilmaccolm, eight (Malloch), 12th; Johnstone (Malloch), none seen till 21st; Darvel (Hopkins), 23rd, "very late."

SEDGE-WARBLER (*Acrocephalus phragmitis*)—Gryfe Water, one, (Malloch), 30th April; Possil, one (Rennie), same date; Possil again (Rennie), on 1st May, five; Beith (Craig), one ♂, 2nd; on same date not less than ten at Possil, "lots of song" (Rennie); again on same date at Caldercuilt-on-Kelvin, two (M'Donald); Darvel (Hopkins), 3rd; Newton Mearns (M'Donald), Rouken Glen, one, and Darnley Glen, one (Robertson)—all on 4th.

COMMON WHITETHROAT (*Sylvia cinerea*)—First observed at Clippens on 30th April, by Mr. Malloch, it was widely observed between 3rd and 5th May, as the following will make plain:—Cathcart, one (Robertson), 3rd; Giffnock, three (Robertson), Darvel (Hopkins), Beith (Craig), on 4th; Cochno (Macdonald), Inchtavannach, one (Wilson's), on 5th, being heard before sunrise in latter case and not being traceable in the island the previous day. Mr. Matthew Barr, formerly of Beith, used to declare that this species began building immediately upon arrival, as he could usually find the beginnings of a nest as soon as he saw the bird. In the present year Mr. John Robertson found, at Merrylee Wood, a nest with four eggs on 20th May, which illustrates the haste with which the Common Whitethroat plunges into domestic business upon its arrival.

WOOD-WREN (*Phylloscopus sibilatrix*)—Inchtavannach, three ♂ (Wilson's), 3rd May; Rouken Glen, one (Robertson), 4th; Garelochhead (A. Douglas M'Call), 4th; Darvel (Hopkins), 6th.

GARDEN-WARBLER (*Sylvia hortensis*)—Rouken Glen, two (Robertson), 4th May; Darvel (Hopkins) 12th.

SPOTTED FLYCATCHER (*Muscicapa grisola*)—Old Mearns, one (Wilson), 11th May; Darvel (Hopkins), 12th; Rouken Glen, three (Robertson), 20th.

COMMON TERN (*Sterna fluviatilis*)—Possil, one (Rennie), 11th May.

Mr. John Robertson writes that "on 4th May, between Muirend and Rouken Glen, I noted fifteen species of summer birds. I think I have never had as big a number on one day at a similar date before, showing that the species were well represented though they were not all in force."

From what precedes, it will be seen that the compiler of this report has received very cordial support from many observers, to all of whom he gives hearty thanks.

This journal now contains detailed reports on the appearance of our summer bird-visitors for the years 1908-1913 inclusive, and I have prepared a Table, based on the information contained therein, which is appended. In addition to the dates of earliest appearance, I have added, in another column, the average date, in the case of all species widely distributed and regularly observed and reported on at the vernal migration. For the usual March arrivals the average dates are based on the six years' observations, but it may be remembered that migration was almost at a standstill during April, 1908, and the unprecedentedly late dates in that month that year are consequently excluded for the Swallow and following species.

To test the accuracy of the average dates, I have gone over a like period anterior to 1908-1913, for which I have data in my possession, and have found that, speaking roughly, in the case of half the species the average dates have come out exactly the same; for the third quarter of the species one day either earlier or later; and the exceptions worth drawing attention to are the Willow-Wren, which came out two to three days earlier, Whinchat six days later, Swift a week later. Leaving untouched those average dates which have been completely confirmed and those showing a negligible variation as a result of extending the comparison to an earlier period, and splitting the differences emerging in the cases of the Willow-Wren, Whinchat, and Swift,

the following list represents, as nearly as we can get at it at present, the approximate dates of appearance of the species included therein. It is perhaps only necessary to add that the precedence which the Swallow takes of the Sand-Martin, is probably attributable to its being more generally distributed and more numerous, and consequently more easily observed. The Wheatear, also, was regularly seen by the late Charles Berry in South Ayrshire a week earlier than the date in the following list, and an earlier date than that in the Table would, I have no doubt, be required to meet the case of this species were its position on the list determined by its appearance on the coasts of South Ayrshire, Bute, Arran, and Argyll, whence I receive no communication for the Report except Dr. Fullarton's from Lamash. While compiling the List and Table appended, I was led to compare the results with those for the whole of Scotland, as they are revealed in the annual reports on Scottish Ornithology hitherto published in *The Annals of Scottish Natural History* (the last issue appearing, however, as a separate publication). In the report for the last year issued, which was the first I examined, I found that of sixteen common species, the first records of nine of them came from "Clyde," leaving seven species for all the other Scottish drainage areas and the Isles. This line of inquiry I abandoned as unprofitable. The explanation of the pre-eminence of "Clyde" in this matter, is not its superior geographical position (although a very few species are known to come first and chiefly by a westerley route, and these we might expect early), but rather the number and enthusiasm of the observers associated with the inquiry there.

COMMON SUMMER BIRD-VISITORS IN THE ORDER OF THEIR
APPEARANCE IN THE CLYDE AREA.

Lesser Black-backed Gull (<i>Larus fuscus</i>),	-	-	-	17th/18th	March
Wheatear (<i>Saxicola œnanthe</i>),	-	-	-	25th	„
White Wagtail (<i>Motacilla alba</i>),	-	-	-	27th	„
Swallow (<i>Hirundo rustica</i>),	-	-	-	7th	April
Sand-Martin (<i>Cotile riparia</i>),	-	-	-	8th	„
Willow-Wren (<i>Phylloscopus trochilus</i>),	-	-	-	10th/11th	„
Common Sandpiper (<i>Totanus hypoleucus</i>),	-	-	-	13th	„
House-Martin (<i>Chelidon urbica</i>),	-	-	-	13th	„

Yellow Wagtail (<i>Motacilla raii</i>),	-	-	-	18th/19th	April
Tree-Pipit (<i>Anthus trivialis</i>),	-	-	-	20th	,,
Cuckoo (<i>Cuculus canorus</i>),	-	-	-	20th	,,
Corncrake (<i>Crex pratensis</i>),	-	-	-	21st	,,
Whinchat (<i>Pratincola rubetra</i>),	-	-	-	27th	,,
Sedge-Warbler (<i>Acrocephalus phragmitis</i>),	-	-	-	1st	May
Swift (<i>Cypselus apus</i>),	-	-	-	1st	,,
Whitethroat (<i>Sylvia cinerea</i>),	-	-	-	1st	,,
Spotted Flycatcher (<i>Muscicapa grisola</i>),	-	-	-	8th/9th	,,
Garden Warbler (<i>Sylvia hortensis</i>),	-	-	-	10th	,,

TABLE OF FIRST APPEARANCES OF SUMMER-BIRDS IN THE CLYDE AREA, 1908-1913.

	1908	1909	1910	1911	1912	1913	1908-13 Average
Lesser Black-backed Gull,	18/3	13/3	18/3	21/3	16/3	19/3	17/3 18/3
White Wagtail, - -	22/3	21/3	31/3	2/4	5/4	21/3	27/3
Wheatear, - - -	28/3	18/3	27/3	23/3	1/4	24/3	25/3
Sand-Martin, - - -	31/3	16/4	14/4	19/4	5/4	27/3	8/4
Ring-Ouzel, - - -	27/4	11/4	16/4	...	...	29/3	...
Chiffchaff, - - -	20/4	3/4	28/3	8/4	14/4	9/4	...
							1909-13 Average
Swallow, - - -	12/4 ¹	8/4	3/4	7/4	12/4	6/4	7/4
Common Sandpiper, -	19/4	14/4	14/4	18/4	11/4	8/4	13/4
Willow-Wren, - -	15/4 ²	6/4 ³	19/4 ⁴	12/4 ⁵	15/4 ⁶	7/4 ⁷	12/4 ⁸
House-Martin, - - -	30/4	10/4	11/4	8/4	19/4	17/4	13/4
Tree-Pipit, - - -	26/4	19/4	1/5	23/4	13/4	13/4	20/4
Yellow Wagtail, - -	1/5	14/4	20/3* 19/4	20/4	19/4	20/4	18-19/4
Cuckoo, - - -	27/4	21/4	17/4	22/4	18/4	20/4	20/4
Corncrake, - - -	1/5	18/4	22/4	25/4	19/4	23/4	21/4
Redstart, - - -	3/5	19/4	...	4/5	2/5	25/4	...
Whinchat, - - -	9/5	23/4	...	23/4	26/4	25/4	24/4 ⁹
Swift, - - -	29/4	25/4	...	26/4	28/4	27/4	26-27/4 ¹⁰
Sedge-Warbler, - -	3/5 ¹¹	29/4	10/5	26/4 ¹²	1/5 ¹³	30/4	31/4
Whitethroat, - -	10/5	2/5	7/5	5/5	24/4 ¹⁴	30/4	1-2/5
Grasshopper-Warbler, -	10/5	8/5	...	...	3/5	...	...
Wood-Wren, - - -	20/4	...	...	11/5	28/4	3/5	...
Blackcap, - - -	10/5	...	...	...	5/5	...	...

¹ Main body end of month. ² Main body first days of May. ³ Nowhere common till 21st. ⁴ Common 4/5 days later. ⁵ Not common till 26th. ⁶ Abundant, 20th. ⁷ Main body, 24th/25th. ⁸ Average date of main body, 23rd/24th April. ⁹ For four years. ¹⁰ For four years. ¹¹ 14th May before several appeared. ¹² Common, 12th/14th May. ¹³ Increased steadily for twelve days. ¹⁴ Not in force till 10th May. * An exceptional appearance excluded in calculating average.

	1908	1909	1910	1911	1912	1913	1908-13 Average
Garden-Warbler, - -	10/5	10/5	...	13/5	12/5	4/5	{ Five years 10/5
Nightjar, - - -	4/5	...	...	...	6/5	...	...
Spotted Flycatcher, -	9/5	5/5	...	6/5	12/5	11/5	{ Five years 8-9/5
Common Tern, - -	29/4	...	...	19/4	1/2	11/5	..

In the above table it has not been thought of any interest to work out the averages in the case of species which are not common, or which are not so distributed as to be easily observed by those upon whose work the figures in the table are based.

Notes towards a Knowledge of the Clyde Myriapoda.

By RICHARD S. BAGNALL, F.L.S., F.E.S.

(Hope Department of Zoology, University Museum, Oxford).

[READ 25th March, 1913.]

I HAVE never made any systematic attempt to collect the Myriapods in the Clyde area, but as only thirteen species are recorded in the British Association Handbook of the Fauna of that Area, I think my few records should be published, and perhaps others will take up the special study of these creatures.

Most of my material was taken during a short holiday at Rothesay, including a day at Ormidale and another at Brodick, and in the spring of 1912, a week-end at Ardlui added some interesting species, notably *Lithobius borealis* Mein., and a recently described species of *Scotopendrella*. That much work remains to be done in the Myriapods of this country is beyond doubt. In little more than a season's collecting in the Northumberland and Durham district, I brought to light over sixty species, including more than twenty additions to the British fauna. These results were largely due to a special study of the two obscure groups, the Pauropoda and the Symphyla, but at the same time, notable captures amongst the larger forms were also made, such as *Brachychaetuma bagnalli* Verhoeff, the type of a

new family, *Titanosoma jurassicum* Verh., in numbers; *Craspedosoma simile* Verh.; *Isobates varicornis* C.L.K.; *Polydesmus coriaceus* Porat, &c., &c. I have received much help in the identification of the Chilopoda and Diplopoda proper (groups that I cannot pretend to have studied closely), from Mr. Ed. Ellingsen, of Kragerö, and Professor Verhoeff, of Munich.

Thirty-four forms are noted below. Those marked with an asterisk are not recorded in Mr. Boyd's Clyde list, whilst his list includes *Julus pusillus* Leach, *Craspedosoma rawlinsii* Leach, *Atractosoma polydesmoides* Leach (perhaps the *Polymicrodon* recorded below,) and *Stigmatogaster subterraneus* Leach, not recorded by me.

Order Chilopoda.

LITHOBIIDÆ.

Lithobius forficatus, L.—Ormidale, one young; Rothesay, common; Lochgoilhead, Ardlui, &c.

Lithobius variegatus, Leach.—One ♂ and one ♀, Rothesay.

**Lithobius glabratus*, C.L.K. (*L. melanops* Newp.)—Under loose bark of fir stumps, Ormidale and Lochgoilhead.

**Lithobius crassipes*, C.L.K.—Common, two ♂s, one ♀, one young, Rothesay; four ♂s, two ♀s, one young, Ardlui; Lochgoilhead.

**Lithobius borealis*, Meinert.—One ♀ near summit of Ben Vorlich.

**Henicops fulvicornis*, Meinert.—One young, Rothesay.

SCOLOPENDRIDÆ.

**Cryptops hortensis*, Leach.—In the Botanic Gardens, Glasgow.

GEOPHILIDÆ.

Geophilus longicornis, Leach. (*G. flavus* De. G.)—No doubt common, Rothesay and Ardlui.

**Geophilus proximus*, C.L.K.—Near Ormidale, a few examples.

**Geophilus carpophagus*, Leach.—Several examples from

Ormidale; one ♂ (47 p.l.) two ♂s (49 p.l.) and three ♀s (51 p.l.) from the slopes of Ben Vorlich.

**Geophilus truncorum*, Bergs. & Mein.—A small but not uncommon species, one specimen. Ormidale; two ♀s and one young from the foot of Ben Vorlich.

**Schendyla nemorensis*, C.L.K.—Two ♂s (39 p.l.) and one ♀ (41 p.l.), from the slopes of Ben Vorlich.

**Scolioplans maritima*, Leach. — Probably widely spread throughout the area. I have seen and taken it in some numbers at Ormidale, Colintrave, and Lochgoilhead.

**Mecistcephalus carniolensis*, C.L.K.—In the Botanic Gardens, Glasgow.

Order Pauropoda.

PAUROPODIDÆ.

**Allopauropus gracilis*, Hansen.—One example, Ardlui. Other species will be found if special attention is given to this interesting group. I have taken six species in the County of Durham.

Order Symphyla.

SCOLOPENDRELLIDÆ.

**Scutigerebella immaculata*, Newp.—With *Symphylella vulgaris* in a field near Rothesay.

**Scutigerebella biscutata*, Bagnall.—On the Clyde near Bishopton, one example.

**Hanseniella caldaria*, Hansen.—In hothouses, Botanic Gardens, Glasgow.

**Scolopendrellopsis subnuda*, Hansen.—One specimen from under a stone near Brodick, Arran. Unfavourable weather prevented further search.

**Symphylella delicatula*, Bagnall.—A single specimen from under a stone on the shore of Loch Lomond near Ardlui.

**Symphylella vulgaris*, Hansen.—One specimen, Bishopton, on the Clyde, and several from under stones in a field near Rothesay.

Order Diplopoda.

GLOMERIDÆ.

Glomeris marginata, Vill.—I have noticed this species in many Clyde localities.

**Glomeris marginata* var. *perplexa*.—One example, Ormidale. This distinct little form, recently recorded by myself from Durham, is referred by Verhoeff to the var. *perplexa* of *G. marginata*, whilst another authority refers it to *G. connexa* C.L.K. It agrees very well in colour pattern with *connexa*, but is only about one-third the size of examples in my collection. It is also very much smaller than typical *marginata*.

POLYDESMIDÆ.

Polydesmus complanatus, L.—Not uncommon. Though I have only bottled a few specimens (2 ♂s from Rothesay), I have seen the species in many localities.

**Polydesmus denticulatus*, C.L.K. — Two ♂s and young, Rothesay; one ♂, one ♀, and young, Ben Vorlich.

**Orthomorpha gracilis*, C.L.K.—In hothouses very common, Glasgow.

**Brachydesmus superus*, Latzel.—Ardlui, several examples under holly bark; two ♂s, two ♀s, and young, Rothesay.

CHORDEUMIDÆ.

**Polymicrodon latzei*, Verh.—One example from Rothesay.

JULIDÆ.

Julus sabulosus, L.—Near Ayr, Rothesay, Ardlui, &c.

Julus albipes, C.L.K.—Common.

Julus punctatus, Leach (*J. silvarum* Mein.)—Also common.

**Julus fallax*, Meinert.—One ♀, Rothesay.

Blanajulus guttulatus, (Bosc.)—Common, Shandon, Rothesay, Glasgow, Ayr, &c.

**Blanajulus fuscus*, Am. Stein.—Seven ♀s, Ardlui.

**Blanajulus pulchellus*, Koch.—Several specimens from the Botanic Gardens, Glasgow, are almost certainly referable to this form.

Some Additional Records of Microfungi for the Clyde Area.

By D. A. BOYD.

[Read 25th March, 1913.]

DURING the summer and autumn of 1912, the amount of sunshine experienced in the West of Scotland was considerably below the average, and for many weeks the temperature remained abnormally low for that period of the year. As a result of the unfavourable weather, the larger fungi were reported in most localities to be very scarce, even in places where in autumn they are usually to be found in abundance. The minute forms, however, are in general much less readily affected by varying degrees of warmth and moisture, and it can scarcely be said that in the Clyde Area any corresponding diminution in their numbers was perceptible. Since 25th June, 1912, when my last report was submitted,* 56 species have been added to the list for that region. Of that number, 27 are known to have already occurred in other parts of Britain; while other 22 species have not been previously reported for Britain, and 7 others are believed to be new to science. As a description of the various species new to science or to Britain will appear in the forthcoming part of the *Transactions of the British Mycological Society* for 1912, further reference to them may be postponed until a later period in the session.

The following 27 British species have been added to the list for the Clyde Area during the period mentioned, and have all come under my own notice. The sign “†” is prefixed to names of localities where records were obtained at excursions of the Andersonian Naturalists’ Society; and thanks are due to Mr. R. B. Johnstone, Hon. Secretary of that Society, for permission to include these records in this report. I have also to express my grateful thanks to Miss A. Lorrain Smith, F.L.S., and Mr. J. Ramsbottom, B.A., for kind aid in the identification of many of the above-mentioned species. The sign “#” is prefixed to names of localities where specimens certified by them were obtained.

* *Glasgow Naturalist*, iv., 124.

Protomyces menyanthis De Bary.—Forming small, scattered, slightly convex patches of a reddish colour, on living leaves of *Menyanthes trifoliata*; Ashgrove Loch, near Stevenston, and at Blae Loch, parish of Beith (Ayrshire).

Entorrhiza Aschersoniana De Toni.—Forming white gall-like growths attached to living roots of *Juncus bufonius*; locally abundant on shores of †Loch Fad (Kirk Dam), Rothesay.

Mollisia epithallina Phil. & Plow.—On thallus of *Peltigera canina*; Kilwinning.

Dasycephala hyalina (Pers.) Mass.—Common on damp fir-wood, inner surface of loose bark, &c.; Stevenston, West Kilbride, &c.

Hercospora tilie (Fr.) Tul.—On dead bark of *Tilia*; Beith (Ayrshire), and near Abington (Lanarkshire).

Eutypa lata (Pers.) Tul.—Forming a thin black crust, often many inches in extent, on dead branches of *Acer*, &c.; West Kilbride, Kilbirnie, &c.

Leptospora spermoides (Hoffm.) Fekl.—Common on rotten stumps, where the crowded perithecia often form a broad crust; West Kilbride, Dalry, &c.

Didymella superflua (Fekl.) Sacc.—On dead stems of *Campanula latifolia*; †Dalry.

Phyllosticta ulmi West.—On living leaves of *Ulmus*; West Kilbride, Dalry, †Beith, Lochwinnoch.

Ph. destructiva Desm.—In withered spots on living leaves of *Menyanthes trifoliata*; West Kilbride, and near †Beith.

Ph. scrophulariæ Sacc.—On fading leaves of *Scrophularia nodosa*; near †Stevenston.

Ascochyta armoraciæ Fekl.—On living leaves of *Cochlearia Armoracia*; West Kilbride.

Septoria menyanthis Desm.—On living leaves of *Menyanthes trifoliata*; West Kilbride, Stevenston, †Beith (Ayrshire), and at †Johnstone Loch, Gartcosh (Lanarkshire.)

S. cercosporoides Trail.—On living leaves of *Chrysanthemum maximum*; †Hunterston, near West Kilbride.

S. calystegiæ West.—On fading leaves of *Calystegia sepium*; †Dalry.

Dinemasporium graminum Lév.—On dead grasses; Stevenston, and near Beith.

Marssonina Delustrei (De Lacr.) Sacc.—Apparently common on fading leaves of *Lychnis dioica*, † West Kilbride, † Lochwinnoch, &c. On *Lychnis Flos-cuculi*; † Beith.

Ocularia decipiens Sacc.—On living leaves of *Ranunculus repens*; † West Kilbride.

Ramularia armoracia Fekl.—On living leaves of *Cochlearia Armoracia*; † West Kilbride.

R. lychnicola Cke.—On living leaves of *Lychnis dioica*: † West Kilbride, † Dalry, † Lochwinnoch.

R. lamiicola Massal.—On fading leaf of *Lamium album*; † Portincross (Ayrshire).

Bispora moniliformis Corda.—On sawn surface of beech-stumps; † Beith, West Kilbride, Kilwinning (Ayrshire), and near Neilston (Renfrewshire.)

Scolzotrichum sticticum (B. & Br.) Sacc.—On living leaves of *Glyceria fluitans*; † Kilwinning.

Cladosporium epiphyllum Mart.—On living leaves of *Populus*; † Beith.

Alternaria brassicae Sacc.—On dead leaves of carnation; † Saltcoats.

Fusarium equisetorum Desm.—On dead *Equisetum limosum*; † Stevenston and † Rothesay.

Epicoccum equiseti Berk.—On dead stem of *Equisetum*; † Ardrossan.

Excursions.

ABINGTON (continued from page 79).

While the excursion was probably to be ranked among the smallest of the season, so far as attendance was concerned, it was by no means correspondingly unprofitable. The locality is well worthy of a visit from the Society; and there can be little doubt that if another excursion were arranged to upper Clydesdale, and

attended by a party fairly representative of our most active workers, it would enable much information to be obtained regarding a part of our district which has as yet been only very imperfectly investigated.

GLEN MASSON, 14th September, 1912.—Conductor, Mr. Alexander Ross.—The weather, which began badly, was still unfavourable as the steamer sailed up the Holy Loch. The hills around were clad in a mantle of mist, which was apparently rolling downward and making the outlook rather gloomy. However, even under these conditions the beauty of the scenery could not be hidden, and occasional gleams of sunshine brought out a play of colour that only our Highland glens can show. By the time the party arrived at the Glen Masson road all fear of a drenching had passed, and during the remainder of the day the conditions gradually grew better, till blue sky and bright sunshine prevailed.

Landing at Ardanadam the party proceeded along the shore of the Holy Loch, turned into the Glen Masson road, and followed this as far as the falls. On the homeward journey the road past the Cot House was taken, the bridge over the Echaig crossed, and the shores of the Holy Loch traversed to Kilmun, where the steamer was caught for home.

The ground covered is familiar to most members of the society, and the physical features of the district are well known and already recorded in our transactions, so that there is no need for any description here.

The entomologists were fairly successful for the time of the year, and among the captures were the following Tipulidæ:—

Dixa maculata, Mg., 1 ♂; *Limnobia nebeculosa*, Mg., a few; *Dicranomyia modesta*, Mg., several; *D. stigmatica*, Mg., 1 ♂; *Rhipidia maculata*, Mg., ♂ and ♀; *Goniomyia* sp., dark variety, 1 ♂; *Molophilus appendiculatus*, Staeg., several; *Rhypholophus lineatus*, Mg., several; *R. varius*, Mg., in clouds; *Erioptera tenionota*, Mg., several; *E. trivialis*, Mg., several; *Limnophila ferruginea*, Mg., 1 ♀; *L. nemoralis*, Mg., several; *Trichocera annulata*, Mg., 1 ♀; *T. hiemalis*, Mg., several; *T. regelationis*, L., 2 ♂ ♂; *Amalopsis immaculata*, Mg., 3 ♂ ♂ and 2 ♀ ♀; and *Tipula confusa*, V. de Wulp., ♂ and ♀.

Hovering flies were scarce, only a female *Platychirus discimanus*, Fab., and a male and female *Syrphus balteatus*, Deg., being taken.

Mr. King collected a fine series of *Philonus spumarius*, Linn., showing almost endless variations. In the *British Association Handbook*, 1901, this species is recorded as "abundant in many parts of Renfrew." It can be taken abundantly almost anywhere in the Clyde area.

An interesting capture in *Psylla fusci*, Linn., was made near the entrance to Benmore Estate, where the insect was taken from some shrubs of box. In the *British Association Handbook*, it is noted as being got from "various garden plants, but certainly not box, 6/94."

The ground passed over has on former occasions yielded quite a number of Tipulidæ which have rarely been captured elsewhere in the Clyde area, but during this excursion none of these were seen.

Among the plants noted were the gipsy wort, *Lycopus europæus*, L., and the great yellow loosestrife, *Lysimachia vulgaris*, L. Both of these were growing in a swampy bottom off the Glen Masson road, about half-a-mile from the shore of the Holy Loch.

Mr. J. G. Robertson reports that the district should be a good one for mosses and other cryptogamic plants, but that time was too limited to make a thorough search in the Glen, where by far the best ground is. The list, therefore, is not really a representative one. Perhaps the best species noted are *Orthotrichum diaphanum*, Schrad., at Sandbank on old walls, and *Hyocomium flagellare*, B. & S., in Glen Masson.

The following is the list:—*Polytrichum aloides*, Hedw., *P. piliferum*, Schreb., *Ditrichum homomallum*, Hampe, *Dicranella varia*, Schp., *D. squarrosa*, Schp., *Dicranum majus*, Turn., *Racomitrium protensum*, Braun, *R. aciculare*, Brid., *R. lanuginosum*, Brid., *Grimmia apocarpa*, Hedw., var. *virularis*, W. & M., *G. pulvinata*, Sm., *Orthotrichum Loellii*, H. & T., *O. diaphanum*, Schrad., *O. leiocarpum*, B. & S., *Ulotia crispa*, Brid., *U. phyllantha*, Brid., *Encalypta streptocarpa*, Hedw., *Weberia elongata*, Schwgr., *W. nutans*, Hedw., *Bryum alpinum*, Huds., *Mnium hornum*, L., *M. punctatum*, L., *Hyocomium flagellare*, B. & S., *Neckera complanata*, Hübn., *Pterogophyllum lucens*, Brid., *Brachythecium*

plumosum, B. & S., *B. rivulare*, B. & S., *B. rutabulum*, B. & S., *Eurynchium myosuroides*, Schp., *E. prelongum*, B. & S., *E. Swartzii*, Hob., *Amblystegium filicinum*, De Not., *Hypnum stellatum*, Schreb., *H. revolvens*, Sw., *H. Schreberi*, Willd., *Hylocomium squarrosum*, B. & S., *H. loreum*, B. & S., *H. splendens*, B. & S., *H. brevirostre*, B. & S., *Thuidium tamariscinum*, B. & S., *T. recognitum*, Lindb.

BALMAHA, 24th August, 1912.—Conductor, Mr. J. R. Jack, M.I.N.A.—In the narrow road from the pier to the Pass of Balmaha, where the way had been blocked by the trees blown down in the great gale of November last, one of the oak-trunks showed a fine crop of *Bulgaria polymorpha* (Æd.) Wett. The commoner fungi, such as *Russula cyanoxantha* (Schæff.) Fr., *Paxillus involutus* (Batsch) Fr., &c., were fairly numerous, and one specimen was observed of *Ithyphallus impudicus* (Linn.) Fisch. It was remarked that on the oak trees the younger leaves were badly attacked by mildew. In the Pass itself, a plentiful crop of seasonable wild flowers was noticed, but none of special rarity. Few mosses were seen; and no trace could be found of the beautiful *Bryum roseum* (Schreb.), although its former station was thoroughly searched. A fine mass of *Corydalis claviculata* DC. attracted attention, its delicate flowers and foliage contrasting gracefully with the brambles over which it ran. Having followed the road towards Rowardennan, the party reached Cashell, where measurements of a large yew-tree were taken. The tree, which is well situated in an open field, girthed over 12 feet at a height of 5 feet from the ground. The only noteworthy plant observed on the way back was the Greater Loosestrife (*Lysimachia vulgaris* Linn.), found on the shore of Loch Lomond.

GLEN FALLOCH, 30th September, 1912.—Conductor, Mr. John Renwick.—The village of Crianlarich is in Strath Fillan, in the Tay Area; but in less than a mile the valley of the River Falloch is reached, which runs into the head of Loch Lomond, and is consequently in "Clyde." The head waters of the Falloch come from a fine glen surrounded by hills, rising in Cruach Ardran to 3,429 feet, in Ben-a'-Chroin to 3,101, and to 3,265 in An Caisteal three-quarters of a mile north-west of the latter

hill. The stream at first runs north-west, but at 563 feet above sea level it turns to the south-west. In other four miles, at about fifty feet above the sea level, its course changes to south, that being the direction of the Loch Lomond valley as far as Tarbet. Very probably the abrupt change from the north-west to the south-west may have been caused by the swift-flowing lower stream cutting its way back and tapping the upper stream which formerly flowed into the Tay valley. At present, the Fillan at Crianlarich is about 518 feet above the sea. The lowest point between its valley and that of the Falloch is about 615 feet, and the ground for some distance is nearly level. When the Falloch gets fairly started on its way to Loch Lomond, it soon begins to show that it can do work in the way of excavating a deep valley. As has been indicated, it falls from 563 feet to 50 feet in four miles. The only level places in this part of its course are two little haughs which have been laid down in former lakes caused by rocky obstructions, now partially cut through by the river, and still forming picturesque falls. The hill-slopes to the south-east of the valley, rising up to the Sron Garbh ("the rough nose") are finely dotted over with clumps and single trees of Scots Fir, the relics of an ancient forest. That the Oak formed a more prominent feature in olden times than now seems indicated by the name of a deserted croft: Derrydarach, "the oak grove." In testimony thereof, the first oak which was observed at the excursion was growing at that spot. Birch, Alder, and Rowan were seen on the slopes and along the banks of the river. A Willow—apparently *Salix caprea* Linn.—grew plentifully along the roadside. On the railway embankment, *Senecio viscosus* Linn. was abundant, probably brought thither in ballast from waste-heaps in the coal country. The old hotel at Inverarnan is finely draped with Traveler's-joy (*Clematis Vitalba* Linn.), in great profusion and well-flowered. Near it is a good Ash-tree girthing 15 feet 1½ inches at 3 feet 10 inches, which shows an increase of 3½ inches since June 1900, or an average of .28 inches annually. The lower portion of Gienfalloch is fairly wooded, but might be more largely afforested. The largest Oak observed, had a good bole of 23 feet, with a girth of 10 feet 11½ inches, at 5 feet. At Ardlui Hotel are two or three good specimens of the Black Poplar (*Populus scrotina*), the

largest having a girth of 11 feet 6 inches at 5 feet 3 inches, a height of 88 feet, and a bole of 40 feet.

At Inverarnan the stream has almost reached the level of Loch Lomond, and instead of deepening its channel is now filling it up. It has brought down material that has cut off a small sheet of water known as the Geal or White Loch. All along the valley from Inverarnan to Ardlui are great heaps of sand, gravel, and boulders large and small, the terminal moraines of the glacier that once filled Glenfalloch, laid down on its gradual retreat as the climate moderated.

A stream comes in on the west, about a mile above Ardlui. The ascent to its upper valley is at first very steep, up the side of the main glen among moraine mounds, till a height of about 800 feet is reached. Thereafter, for nearly two miles, the valley—a comparatively broad one, as is indicated by the name of *Strath* (Strath Dubhuisge, “the strath of the Black water”)—rises in a south-westerly direction, very gently to a little over 1,000 feet. The tributaries on the southern side, come from the northern slopes of Ben Voirlich. The main stream comes from Ben Damhain on the north, through Loch Garabal, draining part of a locality well known to geologists as the site of a varied display of plutonic rocks. One of these—a granite with large flesh-coloured crystals—is easily recognisable. Boulders of it have been found as far away as Glasgow and Bridge-of-Weir, carried thither by the ice during the period of its great extension. Looking from the hillside below Loch Garabal, within $\frac{1}{4}$ mile of the head of Strath Dubhuisge, one cannot definitely distinguish where the ground begins to fall into the Inveruglas or Loch Sloy valley, so nearly level is it. But one knows that after this plateau is left, and the valley has begun to curve to the south-east round the base of Ben Voirlich, it is of a different character, being narrower and much more fully worn down. The ideas suggested are that the Inveruglas (or Douglas) water was at one time part of an east-flowing drainage, which continued by Glen Arklet and Loch Katrine to the Forth Valley; and that it was captured by the south-flowing stream whose course is indicated by the Falloch, Loch Lomond, the Vale of Leven, the Lochwinnoch valley, and the Garnock, to the Firth of Clyde, where it was joined by other aggressive rivers from Loch Long and

Loch Fyne, and continued away southwards by St. George's Channel, or perhaps westwards to the North of Ireland. The level of the land while these changes were in progress was very different from what it is now—probably from 800 to 1,000 feet higher, and perhaps more.

CALDWELL HOUSE, 12th October, 1912; and CRAIGTON WOOD, 19th October, 1912.—Conductor, Mr. R. B. Johnstone.—Of these two fungus forays, arranged jointly with the Andersonian Naturalists' Society, there is nothing special to be reported, except that fungi were very scarce; and it is surprising to recall the amount of labour that was entailed in getting together even the short list of fifty-four species. Probably the coldness of the ground, owing to the somewhat sunless season, may have had a large share in retarding the growth. But although better weather conditions have prevailed during the previous four or five years, the quantity of fungi then seen was not much larger. This may perhaps be explained by the suggestion that the mycelium germinates in cycles of fat and lean years, and that we are at present passing through the latter series. The rarest species on the list is *Grandinia crustosa* Fr., which covered with its small granular papillæ the porous side of a small cluster of *Polystictus versicolor* in the Caldwell woods. Among the other species found at Caldwell were *Tricholoma resplendens* Fr., *Mycena rubro-marginata* Fr., *Pleurotus serotinus* Schrad., *Hypoholoma dispersum* Ro. Br., *Panaeolus campanulatus* (Linn.) Fr., *Russula rubra* (DC.) Fr., *R. alutacea* (Pers.) Fr., *Phlebia vaga* Fr., and *Ph. merismoides* Fr.; and at Craigton, *Clitocybe brumalis* Fr., *Mycena capillaris* Schum., *Claudopus variabilis* (Pers.) W. G. Sm., *Inocybe mutabilis* Schæff., *Hebeloma glutinosum* (Lindg.) Fr., &c.

DUNURE TO AYR, 24th March, 1913.—Conductor, Mr. William Rennie.—This excursion was made jointly with the Andersonian Naturalists' Society, was attended by a party of eighteen, and took place during very favourable weather. On arrival at Dunure the party were met by Mr. John M'Crindle, who accompanied them for some distance along the shore and pointed out many of the most interesting historical and physical features of the district. On one of the cliffs a pair of Ravens had taken up their abode and both parent birds were seen leaving the

nest, while they uttered their characteristic croak, and awaited the withdrawal of the unwelcome intruders. Owing to the backwardness of the season, and the comparatively early date of the visit, only a few flowering plants were seen in bloom, and these included the moschatel and primrose. The beautiful blossoms of the latter, however, were very scarce even in the more sheltered spots where they are usually abundant at this period of the year. During the early part of the walk few shore birds were noted, and the species seen included the Oyster-catcher, Turnstone, a Red-breasted Merganser, and a pair of Stonechats. By the time Greenan Castle had been reached, however, the ebbing tide had laid bare the flats at the mouth of the River Doon, and bird life appeared to be fairly plentiful. The species observed consisted chiefly of Gulls, with several Oyster-catchers, a few Ring Plovers, and some Dunlins and Redshanks, all busily feeding on the shore, while over a score of Mallards were disporting themselves in the water further out. Throughout the day thirty-seven species of birds were noted, but the number included none of our summer migrants. Some attention was devoted by Mr. George Lunam to the fresh water Algæ seen in the course of the walk. He has reported that several filamentous Conjugatæ were collected, but none showing zygospores, while only one small species of *Edogonium* was obtained. In a dark moist opening in the rocks, a large bed of *Chautransia* showing monospore formation was found. In the following record of species, those marked with an asterisk are not included in the 1901 list:—*Vaucheria sessilis* (Vauch.) DC., in fruit; * *V. geminata* (Vauch.) DC., in fruit; *Closterium acerosum* (Schrank) Ehrenb., *Cosmarium pachydermum* Lund., *Pediastrum Boryanum* Turp., *Scenedesmus quadricauda* Cooke, *Oocystis solitaria* Wittr., *Tribonema bombycinum* forma *minor* (Wille) W. & G. S. W., * *Dichothrix orsiniana* (Kütz.) Born. et Flah.

GARELOCH, 10th May, 1913.—Conductor, Mr. W. R. Baxter.—The party left the steamer at Rahane Ferry, and visited Aikenshaw, where they were received by Mr. Turnbull and conducted over the grounds. They afterwards visited the house, and were kindly afforded an opportunity of inspecting Mr. Turnbull's extensive collection of antiquities, curiosities, &c. Among the many interesting objects shown was a cinerary urn—one of a

group of three found at Millburn, Renton, whereof the other two are preserved in the Kelvingrove Museum; also a series of flint and other arrow-heads from America; a skin of a sloth; portraits of Maori and North-American warriors; weapons, pipes, old fire-arms, swords, &c. There was also shown a portrait of Captain Archibald Paton, a relative of Mr. Turnbull, and a Glasgow citizen of some prominence in his day, whose appearance and manners are enshrined in the well-known "Lament" written by John Gibson Lockhart, which first appeared in *Blackwood's Magazine* in 1819. At Aikenshaw an Ash-tree was measured by Mr. Renwick, and found to girth 12 feet 0½ inches at 5 feet up, with a bole of 13 feet. Of several larches planted in 1902, the finest is now 36 feet high, with a girth of 3 feet 1½ inches at barely 2 feet up. The party then proceeded along the west shore of the loch to Garelochhead, exploring the woods and rough ground on both sides of the road. At Mambeg a very fine Ash-tree was measured: girth, 16 feet 4 inches at 4 feet 9 inches; height, 80 feet; spread of branches, 87½ feet. It has increased 1½ inches since September, 1910 = .75 inches per year. In the previous 17¾ years it increased at the average rate of 1.04 inches annually, and is therefore growing more slowly now. In the course of the walk, bird life was found to be abundant, but no very notable species was seen. Among the thirty-four species recorded were the following summer migrants:—Whitethroat, Willow-Wren, Wood-Wren, Tree-Pipit, Swallow, House-Martin, Swift, Cuckoo, and Common Sandpiper. On the journey to Rahane a party of Common Terns was noticed on the marshes below Bowling, and about half-a-dozen Cormorants (*Phalacrocorax carbo*) on the buoys in Rosneath Bay. Of the flowering-plants noted, the most important was *Arum maculatum* Linn. Some specimens of *Claytonia alsinoides* Sims were also found; but they grew amongst a heap of garden rubbish, and were probably outcasts. The pale-blue flowers of the Marsh Violet (*Viola palustris* Linn.) were very noticeable and occurred in great profusion on the marshy and rough ground bordering the shore. Mr. John R. Lee has reported that among the mosses collected were *Polytrichum formosum* Hedw., *Orthotrichum tenellum* Hedw., *Barbula convoluta* Hedw., *Zygodon viridissimus* R.Br., *Orthotrichum tenellum* Br., *Thuidium tamariscinum* B. & S. (fertile), *Hyl-*

comium loreum B. & S., and *H. squarrosus* B. & S. (fertile). As regards the fungi noted at the excursion, Mr. D. A. Boyd has reported that the only Hymenomycete recorded was *Polyporus brumalis* (Pers.) Fr., of which several specimens were obtained on a fallen trunk of Ash at Mambeg. Among the Discomycetes observed was *Mitruia phalloides* (Bull.) Sacc., the beautiful yellow clubs of which occurred in hundreds on decaying vegetation in roadside ditches near Mambeg. In the same locality some fine specimens of *Vibrissea truncorum* Fr., attached to fallen twigs, were obtained in the moist woods between the road and the loch. A considerable amount of other material was obtained, but has not yet been examined microscopically.

GALSTON, 20th May, 1913.—Conductor, Mr. John Gloag.—This excursion was arranged jointly with the Andersonian Naturalists' Society, and took place during rather broken weather. On arrival at Galston, a visit was paid to the "Boss Tree," a venerable Elm, which, according to tradition, once gave shelter to Wallace when pursued by his enemies. On the way to Polbaith Glen, the small hamlet of Loudoun Kirk, with its old graveyard in which stand the ruins of the original Kirk of Loudoun (founded 1451), was passed; after which the path lay through grassy meadows, with successive views of beds of boulder clay, an upthrow of limestone, and the site of a supposed British fort. In the Glen itself, the walk proved somewhat trying; but the rich woodland scenery, profusion of wild-flowers, and music of feathered songsters, made ample amends for any discomfort suffered. In the shelving rocks which form the bed of the stream near the head of the glen are many remarkable pot-holes. On reaching the Glasgow Road, the course was directed to Alton, where the site of a prehistoric fort was examined, and afterwards to Loudoun Castle and its policies. Attention was given to the old and historic Yew-tree growing on the south side of the Castle. The age of this tree has been supposed to be from 800 to 1,000 years; but Mr. John Renwick, judging from its average growth for a period of 22 years, has computed it to be only 460 years old.* Thirty-eight species of birds were noted, including eleven migrants, viz., the Whitethroat, Willow-Wren, Wood-Wren,

* *Glasgow Naturalist*, v., 24.

Sedge-Warbler, Tree-Pipit, Swallow, Sand-Martin, Swift, House-Martin, Cuckoo, and Corncrake. Owing to the want of sunshine and prevalence of moisture, no important entomological captures were reported. A notable feature during the excursion was the profusion of bloom on the Marsh Marigold (*Caltha palustris* Linn.) and Primrose (*Primula vulgaris*, Huds.). Among the other Flowering-plants observed, the most important were *Aconitum Napellus* Linn., *Chrysosplenium alternifolium* Linn., *Arum maculatum* Linn., *Habenaria bijolia* Br., and *Polygonatum multiflorum* All.

THE ORCHARD COUNTRY, 24th May, 1913.—Conductor, Mr. W. M. Pettigrew.—This excursion was attended by a company of sixteen, including four members of the Airdrie Natural History Society. Having detrained at Tillietudlem, the party took the path leading to Craignethan Castle, where the botanists spent some time searching for the numerous floral treasures for which the locality has long been famous. On the ruined walls of the Castle, the bright flowers of *Cheiranthus cheiri* Linn. made a brilliant display; while *Chelidonium majus* Linn., *Origanum vulgare* Linn., *Verbascum thapsus* Linn., and *Arum maculatum* Linn., were found to be still growing in their old sites. An unsuccessful search, however, was made for *Parietaria officinalis* Linn., formerly known to grow on these ruins. The largest of the three Yew-trees at the Castle was measured by Mr. Renwick and found to girth 10 feet $6\frac{3}{4}$ inches at 5 feet, with a bole of 7 feet. From the Castle, the path along the River Nethan was followed to Crossford. Our visit to the district was rather late in the season to enable the blossom in the Orchards to be seen at its best, but the apple and plum trees were still in bloom. A Poplar tree at Crossford was measured, which girthed 7 feet $7\frac{1}{2}$ inches at a height of about 5 feet. After crossing the Clyde at Crossford, the party divided. The ornithologists chose the main road through Cosy Glen, in the hope of hearing the notes of the Black-cap (*Sylvia atricapilla*), and were rewarded by listening to its song in the woods at Gills Burn. The remainder of the party took the path through the Orchards along the right bank of the Clyde, where the great profusion of *Sisymbrium Alliaria* Scop. excited comment. Beside this path grows three

Poplars (*Populus nigra*), of which the following measurements were made:—

- (1) Bole, 35 feet; girth, 9 feet at 5 feet on side next river, being an increase of 2 inches in three years.
- (2) Bole, 45 feet; girth, 11 feet 2 inches at 4 feet 3 inches on side down river, say 5 feet on side next river, being an increase of $2\frac{1}{2}$ inches in three years.
- (3) Bole, 45 feet; girth, 13 feet $9\frac{1}{2}$ inches at 5 feet on side next field, being an increase of 3 inches in three years.

Mr. Renwick remarks that "these trees had their leaves much more fully developed on 7th May, 1910, than they were on 24th May, 1913. They have all lost branches during the last three years, and in this respect there are other Poplars along the river-side that are even in a worse state. In May, 1910, there was a fine Lombardy Poplar further up the road to Cosy Glen, on Orchard estate, with a height of 93 feet, and a girth of 10 feet 6 inches at 5 feet; but it was blown down in the severe storm of November, 1911—the same storm which blew down the large Oriental Plane at Garrion Tower, and damaged the large Grey Poplars at Mauldslic Castle." Both sections of the party having again met at Gills, east of Waygateshaw House, the main road was followed to Carluke Railway Station.

With reference to the ornithology of the locality, Mr. John Paterson reports that the district is a good one for sylvan birds. Several Garden-Warblers were heard in song, and the Blackcap only once, as before stated. No Gulls were seen during the day, which is rather an unusual experience in any part of "Clyde." In addition to the Flowering-plants already noticed, reference may be made to *Berberis vulgaris* Linn., *Cardamine amara* Linn., *Drabis hirsuta* Br., and *Lathyrus macrorrhizus* Wimm., as also observed during the course of the day.

Notes.

Death of a well-known Taxidermist.—On 23rd January, 1913, the death occurred, at the age of sixty-four, of Henry M'Culloch, the proprietor for about forty years of the business of M'Culloch & Son, Sauchiehall Street, Glasgow. Mr. M'Culloch

joined the Natural History Society of Glasgow in 1888, and for many years he sent for exhibition to the Society's meetings interesting examples of birds and mammals which happened to be passing through his hands. When a young man he came much in contact with a former generation of Glasgow ornithologists, among whom were Robert Gray and Dr. Dewar. No doubt this acquaintance was to his advantage and caused him to take a keener interest in birds than he might otherwise have done, for, apart from the Warblers, of which he admitted his ignorance, few Scottish birds reached him which he could not identify almost immediately.—J. R.

Larch Canker.—Mr. Alexander Ross has handed me some specimens of *Dasyscypha calycina* (Schum.) Fckl., one of the Discomycetes, which he states to be infesting young Larch-trees at Loudoun Castle. At the Society's Excursion to Galston on 20th May, the conductor (Mr. Gloag), pointed out a great number of trees where "bleeding" had apparently followed some injury to the bark. It was seen that the spots where the injury was noticeable were covered with aphides, which were suspected to be the prime cause of the trouble. Further examination, however, showed that every one of the affected spots was also infested with the fungus named. The specimens are interesting as illustrating the operation of what is known as a "wound-parasite." *Dasyscypha calycina* is common all over the country, and is usually saprophytic in its habits, occurring on dead bark of Scots Fir and Larch. It cannot of itself penetrate the bark of a living tree; but if one of the spores should happen to adhere to a moist spot where the bark has already been broken, or the spreading mycelium reach such a spot, an entrance is effected, and the mycelium develops rapidly and soon gives rise to the destructive disease known as canker. As is evident from the Loudoun Castle specimens, even the minute punctures made on the tender bark of young Larches by the proboscides of the Larch Aphis (*Chermes laricis* Hartig) are sufficient to expose the trees to infection by this destructive fungus-parasite. It is stated, as a general rule, that when trees under ten years of age are attacked by canker, they are either killed outright or become so deformed as to be afterwards of very little value for timber; and that when a young tree is once attacked, it very rarely recovers,

as the mycelium spreads in the tissues, and starts new wounds at some distance from the original points of infection. Owing to the greater thickness and toughness of their bark, older trees are not so liable to infection as are young ones.* For information regarding the best methods of prevention and cure, reference may be made to the two sources cited. It may suffice to say that every care should be taken to avoid injury to the bark either of larch seedlings or of older trees; that the plantation where the young trees grow should as far as possible be kept free from rank-growing weeds which tend to keep the bark in a state of moisture; that during winter the trees should be sprayed with paraffin emulsion, so as to destroy the aphides when in their resting state; and that trees badly diseased should be removed and destroyed. It may further be observed that *Dasyscypha calycina* has been known to attack not only Larch, but Scots Fir, Silver Fir, and Japanese Larch. The fungus is a very pretty one, producing little orange or yellow-centered caps, which externally are pure white and minutely downy, and vary in size from 2 to 5 mm. Besides this species, there are several others which are scarcely to be distinguished from it by external characteristics. These are respectively *D. resinaria* parasitic on Spruce, Larch, and Bhotan Pine, with very minute subglobose spores measuring $\cdot 003 \times \cdot 002 - \cdot 0025$ mm.; *D. subtilissima* parasitic on Silver Fir and Larch, with spores measuring $\cdot 008 - \cdot 010 \times \cdot 002$ mm.; and *D. abietis* parasitic on bark of Spruce, with spores measuring $\cdot 012 - \cdot 014 \times 003$ mm. The spores of *D. calycina* measure $\cdot 018 - \cdot 025 \times \cdot 005 - \cdot 006$ mm.; and those of Mr. Ross's specimens which I examined averaged about $\cdot 023$ mm. in length.—D. A. Boyd.

Phæangella empetri (Phil.) Boud.—In the summer of 1908 I gathered on fading leaves of Crowberry (*Empetrum nigrum*), on the hills above Kilbirnie, Ayrshire, some specimens of a minute Discomycete unknown to me. After various transmissions, the specimens were finally submitted to M. Emile Boudier, the eminent French mycologist, who pronounced the species apparently new to science, and described it under the name of

* See Leaflet No. 155 issued by the Board of Agriculture and Fisheries; also Masee's *Diseases of Cultivated Plants and Trees* (1910), pp. 280-284.

Pseudophacidium Smithianum.* The fungus was afterwards reported from many other localities throughout Scotland, ranging from Dumfriesshire, Lanarkshire, and Midlothian, to West Ross-shire. From additional specimens subsequently sent to him by Mr. Crossland, in which the fully-matured spores were seen to be coloured blackish-olive and distinctly uniseptate, M. Boudier found it necessary to transfer the species from *Pseudophacidium* to the genus *Phaenogla* of Saccardo.† It has now been pointed out, however, that the original description of the fungus corresponds very closely to the diagnosis of a Discomycete which was found by Professor Trail in Orkney in 1888, and was described by the late Mr. William Phillips, F.L.S., under the name of "*Cenangium empetri* n. sp."‡ As has been remarked by Miss A. Lorrain Smith, F.L.S., the specimens on which Phillips based his determination seem to have been immature, as he placed the species in a genus with colourless and simple spores. An examination of the original specimens, however, as preserved in Phillips's herbarium in the British Museum, has revealed the existence amongst them of examples with the brown septate spores characteristic of *Phaenogla*; and these facts having been brought under M. Boudier's notice, he has authorised the alteration of the name of the species to *Phaenogla empetri*,§ under which local records will in future be reported.—D. A. Boyd.

Review.

A Dictionary of English and Folk-Names of British Birds.—H. KIRKE SWANN, Witherby & Co., London (10/- net).—This compilation must have involved much labour, and students of bird-life will examine its contents with avidity. A dictionary may not appeal to a big public as a means of entertainment, but the ornithologist will find few dull pages in this one. The identification of species with popular names is often beset with difficulties, which are not likely, in all cases, at any time, to be completely overcome, but they have been wrestled with in this

* *Transactions of the British Mycological Society*, vol. iii., p. 81, pl. 4.

† *Op. cit.*, p. 324.

‡ *Scottish Naturalist*, April 1891, p. 91.

§ *Transactions of the British Mycological Society*, vol. iv., p. 74.

work with great success. Such a compilation is in a sense a history of ornithology. Progress could not be made without names, and these have sprung up in detached areas in the country, at a time when inter-communication was very difficult. The colours, forms, actions, songs, call-notes, or whatever else seemed to mark out one bird from another, have been used at different times and places to enable birds to be distinguished from each other and to be recognised. In some cases one feature has been fixed upon with surprising uniformity, while in others quite a puzzling variety of features has been the basis of popular selection. Mistakes have been made in fastening upon an aspect supposed to be particular to a bird, which a wider acquaintance shows to be shared by others, and it is part of the business of the compiler of such a publication as this to disentangle the confusion which has arisen.

A valuable feature of this work is that it includes the "English *book*-names from past authors, giving the history and first usage of the accepted names of species." Many book-names have achieved deserved popularity, but they have not all been successful, as, for example, M'Gillivray's "Green-headed Quake-tail," for Ray's Wagtail, which I have heard an Ayrshire game-keeper call the "yellow shepherdess." This work is, by the way, by no means confined to English names despite its title, as very many Welsh, Gaelic and lowland Scottish names are included. Some of the Welsh and Gaelic names are just as attractive as one would expect from the imaginative peoples using those idioms. For example, one learns on page 2 (to go no farther) that in Welsh the Lapwing is "the horned creature of the rushes," the Linnet "the hemp-bird," the Bittern "the boom bird," and the Nightjar "the spinning-wheel bird."

In the matter of popular names current, or that have been in use in Scotland, the author, perforce, has had to be content with the material he has found ready to hand in the literature of the subject, and is not to blame if he has not been able to extend the range of the use of names beyond the areas for which he has found authority in books. One result of this lack of personal knowledge is that the Scottish Borders, and

E. Lothian, and even Perthshire, get credit for using words which are in no sense peculiar to those regions, but which are well-known in most localities south of the Highland line. Among such may be mentioned the cooshie-doo, the cran, the goldie, and the jay-pie. Some others like the Brown-Swallow for the Swift, quoted for Renfrew, are probably local names which have dropped out of local knowledge and are preserved in books. There are no doubt many such among the English folk-names. The Black Starling and Grey Starling, given as E. Lothian names, have been familiar to the writer as long as he remembers from his father's talk about them, and the latter's acquaintance with the bird was made in Ayrshire which he left about 1840. There is a curious *non sequitur* in the article Bittern. The compiler quotes Willughby (1678) thus:—"The common people are of opinion that it thrusts its bill into a reed, by the help whereof it makes that lowing or drumming noise. Others say that it thrusts its bill into the water or mud or earth." Thomson's "Spring" is then quite aptly quoted for an expression of this idea, but the quotation from Burns,

"Ye Bitterns till the quagmire reels
Rair for his sake!"

which the author of the Dictionary says "expresses the same belief," manifestly does nothing of the kind. The marsh shakes with the Bittern's roaring, but there is no suggestion of the method by which this is done, as in Thomson's "with bill ingulpht." Under "Grey Plover" we read:—"The name has also been applied in Ireland to the Golden Plover, and in Scotland to the Knot." "Grey Plover" for "Golden Plover" was not confined to Ireland, as Burns's occasional references, for instance in a letter to Mrs. Dunlop where he speaks of hearing "the wild cadence of a troop of Gray Plover in an autumnal morning" will prove (see *The Glasgow Naturalist*, I., pp. 43, 44). The Golden Plover would be a regular visitor in flocks to the fields at Moss-giel, where the Knot would be quite unknown. "Wet-my-feet" as a name for the Quail should be "Weet-my-feet," and anyone hearing the bird will know why. "Gleg-Hawk" is given as a Renfrewshire name for the Sparrow-Hawk which is news, and the

explanation is added that "gleg" signifies "quick-eyed." This is correct as far as it goes, but it should be borne in mind that "gleg" applies to all the senses and even a blind person may be "gey gleg in the uptak," which being rendered in English is "very apt in taking matters up." The name "wheetie-why-bird" which was well known in Ayrshire for the Whitethroat, is, according to the work under notice, the "Wheety Wheybeard" because "its light-coloured head and neck feathers stand out so thickly." This is set down as a matter of course, but smells to us of the lamp. We always understood the "wheetie-why-bird" to be the bird that in querulous and scolding fashion goes on saying "wheetie-why."

Having said so much about matters of Scottish interest, we will conclude with a suggestion relating to a common English bird-name. We have consulted many English dictionaries besides this one and Newton's *Dictionary of Birds*, without having seen a meaning for the word *thrush*. We suggest that "thrush" is an onomatopoeic word, derived from the call of the large and noisy Mistle-Thrush. Surely those who know this bird in the field will admit that it says "thrush" (A.S. *thrysee*), as plainly as a Pipit says "pipit," or a Curlew says "curlew." That the larger species with this call-note should impose its name on its lesser relative, is not a matter for surprise. The writer drew attention to this in an article entitled "Why Thrush?" published in the *Evening Times*, Glasgow, on 27th January, 1912, and did not then know that Turner (1544) gives "Thrushe" as the particular name of the Mistle-Thrush, and Turner's work "may be said to contain the earliest series of English names of British birds"!

The work is remarkably free from errors, but "*Beccafico* of the Italians" (p. 87) will not pass muster for *beccafico*.

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Peter Ewing.

THE death of Mr. Peter Ewing, which took place on 3rd August, removes from our midst one of the best known figures amongst Scottish botanists, and one whose loss will be felt throughout the country. Amongst his many friends and associates in our Society he was held in high esteem, not only for his extensive knowledge and large experience as a field botanist, but more especially because of his readiness at all times to impart the results of that experience to others, and of the valuable contributions which he made to the Society's work.

Born at Kinross in 1849, of humble parentage, and accustomed to hard work from an early age, Mr. Ewing had few advantages with which to embark upon the career of a scientific botanist; but his passionate love for his subject, and his determination to overcome obstacles—at all times a characteristic of the man—enabled him to rise to an eminence attained by few amateur workers in modern science. He left school at the age of nine, and was at that early period accustomed to walk regularly to Rumbling Bridge—a distance of sixteen miles—to sell photographs for his father, who carried on a stationery business in Kinross. Later on, a branch business was opened in Callander, where young Peter got his first sight, as he himself phrased it, of a “real mountain.” From that time onwards to the end of his life, his passion for the hills never abated, and it is perhaps in connection with his intimate knowledge of the Scottish Alpine

Flora that he will best be remembered. The whole range of the Breadalbane Mountains was familiar ground to him, and he was fond of referring to the remote habitats of some of the rarer plants of that favoured locality, as places which had become as well-known to him as his own home.

It was during his first visit to Callander that the accidental finding of a collection of ferns, apparently dropped by some person from a passing coach, led him to take up the study of that attractive group, and by this means his life-long interest in plants was begun.

In his eighteenth year he was apprenticed to the joiner trade, and it was while engaged in making himself proficient in his calling by attendance at evening classes in Glasgow, that he took up the study of botany as a relaxation. A chance meeting with a party of naturalists in Inverkip Glen, while engaged in searching for ferns, led to the beginning of his connection with the Glasgow Field Naturalists' Society, which was afterwards incorporated with this Society. At a later date he entered the fire insurance profession, becoming a surveyor of the Phoenix Fire Assurance Company, of which he was afterwards appointed the local secretary, a position he held until a few months before his death. During his whole business career, his not too extensive leisure was devoted to the study of botany, all classes of plants—with the exception of the fungi—occupying his attention. He possessed, in an eminent degree, the critical faculty which enables a scientific observer to detect differences of importance, and to distinguish these from mere superficial divergences, and hence was able to attack with success many of the more difficult groups—such as the willows, grasses, and sedges. His work in these, and other branches, brought him into close touch with many of the best known authorities, both in Britain and on the Continent. The subject of topographical botany, too, was one in which he took a great interest, and his knowledge of plant distribution—especially as regards the alpine forms—was both comprehensive and wonderfully intimate. He was greatly interested in the new science of *œcology*, his accurate knowledge of plant habitats enabling him to see and appreciate the difficulties of the subject, as well as the importance of finding a solution of those difficulties.

Although his attainments as a naturalist led him into a wider field as one of the recognised authorities in the country, he remained to the last a loyal and enthusiastic member and supporter of our Society, and his contributions to our Transactions were numerous and varied. He was elected President of the Society in 1902, and, in accepting office on that occasion, expressed the great pleasure he felt in being thus honoured by a Society which had exerted so large an influence upon his work. For a number of years he acted as our representative to the meetings of the British Association, and his reports of those meetings showed not only the careful and close attention with which he followed every item of importance in the programme, but also his anxiety that everything of interest to local workers should be made available for their use. One of his most solid contributions to field botany was the compilation of the "Glasgow Catalogue of Native and Established Plants," a useful list of species, showing their ascertained distribution throughout the West of Scotland, according to the Watsonian system of vice-counties.

Mr. Ewing, who was a Fellow of the Linnean Society, was twice married, and is survived by his wife and a family of three sons and four daughters.

LIST OF MORE IMPORTANT PAPERS BY PETER EWING.

1. Flora of Ben Laoigh.—*Hardwicke's Science Gossip*, No. 223.
2. A Week at Glen Shee.—*Proc. and Trans. Nat. Hist. Soc. of Glasgow*, I. (New Series), 1884-5, pp. 157-162.
3. Notes on some Alpine Plants from Forfarshire and Aberdeenshire.—*Ibid*, pp. 286-289.
4. On *Carex spiralis*, a Species new to Science.—*Op. cit.*, II. (New Series), 1886-7, p. 110.
5. On some Scandinavian Forms of Scottish Alpine Plants.—*Ibid*, pp. 111-114.

6. A Contribution to the Topographical Botany of the West of Scotland.—*Ibid*, pp. 309-321.
7. Second and third Contributions to the Topographical Botany of the West of Scotland.—*Op. cit.*, III., 1889-90, pp. 159-165.
8. On *Juncus tenuis*, Willdenow, as a Scottish Plant.—*Ibid*, pp. 166-169.
9. *Alchemilla vulgaris*, Linn., and Allied Forms.—*Op. cit.*, IV., 1892-94, pp. 40-43.
10. On some Forms of *Ranunculus Flammula*, Linn.—*Annals of Scot. Nat. Hist.*, 1894, p. 235.
11. Contribution to the Topographical Botany of the West of Scotland.—*Trans. Nat. Hist. Soc. of Glasgow*, IV. (New Series), 1894-95, pp. 199-214.
12. Remarks on "The London Catalogue of British Plants," Ninth Edition, 1895.—*Ibid*, pp. 324-330.
13. Report on the State of the Alpine Flora in Breadalbane during the last week of July, 1892.—*Op. cit.*, VI. (New Series), 1901-2, pp. 330-332.
14. *Sagina nivalis* (Lindbl.) Fr.—*Annals of Scot. Nat. Hist.*, 1902, p. 29.
15. Hepaticæ of the Breadalbane Range.—*Op. cit.*, 1903, p. 235, and 1904, p. 181.
16. Remarks on a list of Hepatics of the Clyde Area.—*Trans. Nat. Hist. Soc. of Glasgow*, VII. (New Series), 1902-3, pp. 52-58.
17. An Ecological Problem.—*Ibid*, 1904-5, pp. 225-235.
18. On two new forms of *Carex*.—*Op. cit.*, VIII. (New Series), 1906-8, pp. 237-238.
19. On some Scottish Alpine forms of *Carex*.—*Annals of Scot. Nat. Hist.*, 1910, p. 174.
20. The Summit Flora of the Breadalbane Range.—*The Glasgow Naturalist*, IV., 1911-12, pp. 48-62.
21. The Flora of the Culbin Sands.—*Op. cit.*, V., 1912-13, pp. 5-15.

Observations on two Tame Ravens and other Birds.

By JOHNSTONE MACFIE, M.D.

[Read 27th May, 1913.]

Since my boyhood I have been specially interested in birds, and tame specimens have been my pets at different times. A pair of Bantams were my first love, but although having more character, and being, therefore, more interesting than the ordinary barndoor fowl, still when compared with other birds they seem to lack what we might call the intelligence that is quite observable in ducks and geese. Indeed, if we exclude the dog, geese have the most character and smartness of the living creatures around a farm. The alertness of geese has of course been proverbial, at least since the early Roman days; and it was long ago drawn attention to by C. St. John (in his *Wild Sports of the Highlands*) that one might drive over a dog, a cat, or an old woman, but he defies anyone to drive over a goose. It seems strange and worthy of remark that man, in his unwisdom, has picked out the donkey and the goose as typical examples of stupidity and foolishness, while in reality, if well treated, these and the dog are the most intelligent of domestic creatures.

With regard to the Goldfinch, when a boy in the Highlands where the "goldie" was formerly quite a common bird, I took a very young nestling and placed it in a nest of young Canaries, with the remarkable result that the Goldfinch, in all probability being a day or so older than the rightful occupants, acted very much as the young Cuckoo does in similar circumstances. Very soon the young Canaries without exception were crowded out of the nest and found dead or dying on the outside, the interloper securing the full and devoted attention of the old birds. The young Goldfinch reared in this way became a very handsome bird; and, curiously enough, turned out to be what the bird-catchers call a "Chuffler," and prize very highly.

The "Chuffler" is distinguished from an ordinary cock Goldfinch by having a pure white band passing downward just below the lower mandible. The men say that these "Chufflers" are usually good singers; but that was not the case with the one the Canaries

reared. He never became a fine singer, probably because he had not an older bird to teach him.

Perhaps of the many birds kept the two Ravens have been the most interesting, firstly, because of their cleverness and powers of speech; secondly, because from the difficulty of getting a young bird and their thieving propensities they are seldom tamed and seen about a house. They are easily fed, eating almost any scraps in the way of food, and, if pinioned or one wing clipped to keep them from wandering, are easily tamed and taught like a parrot to say all kinds of short phrases. They, however, are superior to the parrot in this way, that while you can generally tell from the tone that a parrot is speaking, the Raven gets the exact tone of voice of the person that has taught him the phrase. Thus these Ravens not only barked like a dog, but so exactly was the bark reproduced, that you could name the dog he was imitating. In this way he has deceived the gamekeeper and others many times. The first Raven I had, died when about two years old, and in looking back I am inclined to think we gave him too little flesh-meat. He was called "Jock," and was just as good at talking as his successor "Corax." Their own names, and the names of the dogs about the house, and such phrases as "Poor boy!" "Come away!" were in constant use. In this connection it is of interest to note that the larynx is, as might be expected, a very specialized organ, and has a distinct affinity to that of the Nightingale. The gular pouch is large, and is constantly made use of in carrying food, as well as all sorts of odds and ends that take the fancy of the bird. As with the other crows—the Jackdaw for instance—the Raven is attracted by bright objects, and will carry about and play for hours with a glass bead or even a white or peculiarly coloured stone. If he has several of those at one time, he will often arrange them in rows and talk, using such phrases as "Hey! Hey! Come away, come away." I have known "Corax" hide a blue glass bead for months, and then bring it forth and lay it on the doorstep, as if to show you that he had it still.

In a recent article in *The Glasgow Herald* on Rooks, the writer seemed to have some doubt as to the peculiar misshapen appearance of a Rook's head at this season of the year. Really that appearance is caused by the bulging of the throat below the

lower mandible, due to the gular pouch being distended with food carried by the bird for his nestlings. They carry grain and grubs, &c., in this way. The young birds get the husk taken off the grain for them; but whether this is done when the seeds are picked up or at the nest remains, I think, to be determined.

The Raven certainly, and probably the other crows, put up pellets of the indigestible portions of the food they have swallowed. These are of a longish oval shape, about the size of a pigeon's egg, generally cast up during the night, and, as might be expected, composed of the fur, feathers, and bones of what has constituted their food during the day.

The chief moult in the Raven takes place about this time of year, the feathers being cast in a regular order, even to the bristle-like feathers on the upper mandible. It is interesting to notice how the flight-feathers are shed, so that the new are quite ready to bear up the bird before the last of the old feathers fall out. To the Raven this is an essential condition, for, in the wild state—unlike birds of the duck family—he is quite unable to search for and secure food unless he has the power of flying.

Starlings are in many respects just miniature crows. They are easily tamed and learn to say short phrases. One that we had for six months or more about the garden, where he had full liberty, would come to call, and if you held out your hand, would perch on your fingers and seemed quite pleased to be carried about.

In a walled garden a pinioned Owl is a valuable and interesting pet, repaying the care given to him by disposing of the mice, and often knowing his name and becoming very tame. For that purpose the Tawny Owl seems the most suitable in this country. He is stronger and hardier than the Barn-Owl, and more easily fed, the latter living almost exclusively on mice.

The Long-Eared Owl, with its bright yellow eyes and beautifully variegated plumage, makes an interesting pet; but the only one I have had died within the year. St. John remarks on the difficulty of rearing them, even when only partially confined, as in a walled garden.

Ubi aves ibi angeli—with an application of this old "tag," dating from the days of the monks, many of whom loved the birds dearly, I would close these rather irregular observations.

Some Recent Additions to the British Fungus-Flora.

By D. A. BOYD.

[Read 24th June, 1913.]

IN supplement of a paper read at a meeting of the Society on 25th March last,* I have now to submit the following list of 29 species of Microfungi which have occurred in various localities within the Clyde Area, as after mentioned. Prior to the time of occurrence within our bounds, none of these species had been reported from any other part of Britain. The specimens on which the first records are based were all submitted to Miss A. Lorrain Smith, F.L.S., and Mr. J. Ramsbottom, B.A., British Museum (Natural History), London, who identified them, and have recently published a description of each species in a paper entitled "New or Rare Microfungi."† My warmest thanks are due to Miss Smith and Mr. Ramsbottom for their kind aid, which has enabled me to submit to the Society the information embodied in the present communication.

NEW TO SCIENCE.

Orbilia Boydii A.L.Sm. & Ramsb.—On dead twigs of *Vaccinium Myrtillus*; near Beith, Ayrshire; July, 1912. This species has also occurred in Glen Falloch, and in Birkhead Glen, near Dalry.

Phyllosticta acetosellæ A.L.Sm. & Ramsb.—In spots on fading leaves of *Rumex Acetosella*; Glengonnar, near Abington, Lanarkshire, at an Excursion of the Natural History Society of Glasgow; June, 1912.

Ascochyta aricola A.L.Sm. & Ramsb.—In fading leaves of *Arum maculatum*; near Glenfoot, West Kilbride, Ayrshire; June, 1912.

A. denticiæ A.L.Sm. & Ramsb.—In fallen leaves of *Deutzia gracilis*; Saltcoats, Ayrshire; November, 1910.

A. valerianæ A.L.Sm. & Ramsb.—In withered spots on living leaves of *Valeriana pyrenaica*; near Beith; July, 1912.

* *Glasgow Naturalist*, v., 93.

† *Transactions of the British Mycological Society*, iv., 165-185.

Marssonia agopodii A.L.Sm. & Ramsb.—In withered spots on fading leaves of *Egopodium Podagraria*; Burnside, near Largs, Ayrshire; July, 1911. Also near Rothesay, Bute, at an Excursion of the Andersonian Naturalists' Society; July, 1912.

M. lappæ A.L.Sm. & Ramsb.—In spots on the upper surface of living leaves of *Arctium minus*; near Carradale, Cantyre; July, 1911.

NEW TO BRITAIN.

Doassansia Martianoffiana Schroet.—On living leaves of *Potamogeton*, in a shallow ditch on peaty soil; Knockewart Hill, near Ardrossan, Ayrshire; August, 1911.

Gnomonia lugubris Karst.—On dead leaves of *Potentilla palustris*; in marshy ground at Loch Libo, parish of Neilston, Renfrewshire; August, 1912.—This species was originally described by Karsten *Mycologia Fennica*, ii, 121) as having simple spores, and was, therefore, transferred by Saccardo (*Sylloge Fungorum*, i. 415) to the new genus *Gnomoniella*, founded by him for the reception of species in which the spores are undivided. This arrangement was afterwards accepted by Karsten (*Revisio Monographica atque Synopsis*, 73). In my specimens, however, the spores are very distinctly uniseptate; but Miss Smith and Mr. Ramsbottom regard it as "evidently the same as that described by Karsten, which may have been immature at the time of collecting." They have, accordingly, withdrawn the species from *Gnomoniella*, and restored it to the genus *Gnomonia*, as having uniseptate spores.

Phyllosticta agopodii Allesch.—In spots on living leaves of *Egopodium Podagraria*; in a wood on the banks of the Rowbank Burn, in the parish of Lochwinnoch, Renfrewshire; July, 1912.

Ph. carpathica Allesch. & Syd.—In spots on living leaves of *Campanula persicifolia*; Saltcoats; August, 1911.

Ph. eupatorii Allesch.—In spots on living leaves of *Eupatorium Cannabinum*; Gourrockburn Glen, near West Kilbride; August, 1911.

Ph. eximia Bubak.—In dark spots on fading leaves of *Crepis paludosa*; parish of Neilston; July, 1912. I also found this species on the same host-plant in Gourrockburn Glen, West Kilbride, in August.

Ph. umbilici Brunaud.—On faded leaves and stalks of *Cotyledon Umbilicus*; near Largs; July, 1910.

Ascochyta doronici Allesch.—In spots on fading leaves of *Doronicum*; Perceton, Ayrshire; June, 1912.

Septoria acetosæ Oudem.—In spots on fading leaves of *Rumex Acetosæ*; Loch Fad (Kirk Dam), near Rothesay, at an Excursion of the Andersonian Naturalists' Society; July, 1912.

S. asperulæ Baumler.—In fading leaves of *Asperula odorata*; Gourockburn Glen, West Kilbride; September, 1911. I have also gathered this species in Hyndog Glen, near Dalry; and at Excursions of the Andersonian Naturalists' Society to Campsie Glen and Lanark.

S. bromi Sacc. var. *brachypodii* Sacc.—In elongated whitish spots on leaves of *Agrostis alba*; near Corsenkell, Stevenston, Ayrshire; August, 1911.

S. crepidis Vestergren.—In brown spots on fading leaves of *Crepis paludosa*; Blae Loch, near Beith; August, 1912.

S. pæoniæ Westend. var. *berolinensis* Allesch.—In yellowish spots on living leaves of *Pæonia*; Burnside, Largs; July, 1911.

S. quevillensis. Sacc.—In small blackish-red spots on living leaves of *Spiræa Ulmaria*; near West Kilbride; August, 1912.

Stagonospora trifolii Fautrey.—In dry whitish spots on living leaves of *Trifolium repens*; Gourockburn Glen, West Kilbride; summer, 1911.

Glæosporium curvatum Oudem.—On living leaves of *Ribes nigrum*; Hunterston, near West Kilbride; July, 1912.—When examined under the microscope, this species is readily distinguishable from *G. ribis* Lib. by the longer spores ($0.14-0.20 \times 0.005-0.007$ mm.), which are bent or curved, and are blunt at the ends. Owing, however, to the superficial resemblance between the pustules produced by the two species, it is probable that some of the existing records of *G. ribis* should have been referred to *G. curvatum*.

G. pruinoseum Bäumler.—On fading leaves of *Veronica Beccabunga*; near North Biggart, Beith; May, 1912. This has also occurred on the same host-plant in Gourockburn Glen, West Kilbride. A remarkable species, notable for the thick pustules, resembling small brownish-grey warts, which are produced on the the lower surface of the leaf. These have a somewhat pruinose appearance, owing to the spores emerging in masses.

Marssonia betulae Sacc.—On the under side of a fallen leaf of *Betula alba*; near West Kilbride; August, 1912.

Septomyxa negundinis Allesch.—Forming dark brownish-red pustules on recently dead branches of *Acer Pseudo-platanus*; near West Kilbride; April, 1912.

Coryneum Kunzei Corda var. *castaneae* Sacc. & Roum.—On dead bark of *Castanea sativa*; near West Kilbride; April, 1912.

Libertella ulmi-suberosae Oudem.—Pustules immersed in the outer bark of a fallen trunk of *Ulmus*; Gourrockburn Glen, West Kilbride; August, 1912.

Macrosporium ignobile Karst.—On fading leaves of *Arum maculatum*; near Glenfoot, West Kilbride; June, 1912.

Proceedings of the Society.

The seventh meeting of the sixty-second session took place on 25th March, 1913, Mr. John R. Lee, President, in the chair.

Mr. J. J. F. X. King, F.E.S., exhibited *Strongylocoris leucocephalus* L, a hemipteron new to the Clyde Area, from Gailes, Ayrshire.

Mr. T. Thornton M'Keith showed an egg of the Sandwich Tern (*Sterna cantiaca*) which had been obtained in the Clyde Area in 1912. It is believed to be about thirty years since this species was known to nest in "Clyde," and then on Inch Moan, Loch Lomond.

Mr. D. A. Boyd read a paper entitled "Some additional records of Microfungi for the Clyde Area" (see pp. 93-95).

Mr. W. R. Baxter exhibited a number of colour-photographs of birds' nests and eggs, &c.

Mr. Richd. S. Bagnall, F.L.S., sent a communication entitled "Notes towards a Knowledge of the Clyde Myriapoda," which was read by Mr. A. Ross, Hon. Secretary (see pp. 89-92).

The eighth meeting of the session was held on the evening of the 29th of April, 1913, Mr. John R. Lee, President, in the chair.

Mr. Wm. Rennie read a report on an excursion to Dunure (see pp. 101-2).

Mr. Alex. Ross exhibited a fly, *Merodon equestris* Fab., which he had captured in the Botanic Gardens, Glasgow, in June, 1912. The fly belongs to the group of hovering flies, and has not been taken before in the West of Scotland. Mr. Ross traced the history of this fly from the time it was first captured in the south of England in 1869, when it is said to have been introduced from the Continent of Europe with some Dutch bulbs. At various periods the larvæ have caused great destruction in gardens where the Narcissus and allied plants were being cultivated.

Mr. J. J. F. X. King, F.E.S., exhibited a series of lantern slides by Mr. A. H. Hamm, Hope Museum, Oxford, showing various Lepidoptera at rest. Mr. King also read a paper, entitled "A Review of the Orders of Insects," which was illustrated by many diagrams of high technical and artistic merit. The diagrams had been prepared by Mr. King himself.

The ninth meeting of the sixty-second session took place on 27th May, 1913, Mr. John R. Lee, President, in the chair.

Mr. Wm. B. Hamilton, 25 Highburgh Road, Dowanhill, was elected as an Ordinary Member.

Reports on excursions made by the Society to the Gareloch, Galston, and the Orchard Country of Lanark were communicated by Messrs. W. R. Baxter, John Gloag, and W. M. Pettigrew respectively (see pp. 102-106).

Mr. James Stirton, M.D., exhibited a number of rare European mosses. The Scottish specimens included *Leucobryum albidum* Brid., from the Orkneys and from Plockton, Ross-shire; *L. pumilum* Mich., from Gairloch, Ross-shire; *Bryum atlanticum* Solms., from Plockton; and *Amblystegium juratzkanum* Sch., from the Botanic Gardens, Glasgow.

Mr. D. A. Boyd exhibited specimens of *Dasyscypha calycina* (Schum.) Fekl., which was found infesting Larches at Loudoun Castle (see pp. 107-108). Mr. Boyd also showed specimens of root-swelling on Alders from near Callander, and gave an account of recent investigations of such root-nodules.

Mr. Laurence Watt sent for exhibition specimens of *Scrophularia vernalis* L., from near Kilmacolm; and Mr. Alex.

Gilchrist sent specimens of a *Polyanthus* with markedly foliaceous calyx from a garden at Newmilns.

Mr. T. Thornton M'Keith exhibited a number of fine lantern-slides, chiefly of birds' nests and eggs, including a particularly fine series of the Capercaillie.

Mr. Johnstone Macfie, M.D., read some observations on two tame ravens and other birds (see pp. 117-19).

Mr. John Paterson read a paper on "The Return of Summer-birds to the Clyde Area in 1913" (see pp. 81-89).

The tenth meeting of the sixty-second session took place on 24th June, 1913, Mr. John R. Lee, President, in the chair. Mr. D. A. Boyd read a report on the Society's visit to Douglas, Lanarkshire (see p. 130).

Mr Thomas Anderson showed some West Indian fruits and seeds.

Mr. George Lunam exhibited specimens of the very rare British fresh water-alga *Desmonema Wrangelii* (Ag.) Bor. et Flah., which had been found growing on the rocks near Rowardennan, on the occasion of the Society's visit to that part of Loch Lomond.

Mr. D. A. Boyd read a paper entitled "Some Recent Additions to the British Fungus-Flora" (see pp. 120-23).

Dr. Jas. F. Gemmill gave some "Further Laboratory-Aquarium Notes," dealing chiefly with the metamorphoses of ova of *Solaster papposus* Fab., and *Asterias Müllerii* Sars. and with attempts at rearing larvæ of *Porania pulvillus* O.L.M.

Mr. Ronald J. Grant read a paper on the brachiopod *Crania anomala* (Müll).

Mr. James Whitton's paper, entitled "Meteorological Notes and Remarks upon the Weather during 1912, with its general effects upon Vegetation," was held as read. Comparing the rainfall for the year with that of previous years, 1912 had a "full average," amounting to 38.98 inches. The wettest month was December, with the abnormally heavy rainfall of 7.03 inches. June followed with 4.64 inches, and August, November, March, and October were next in order in a descending series from 3.88 inches in the first named to 3.47 in October. The driest months were April and May, with 1.58 and 1.14 inches respectively.

Atmospheric pressure was somewhat low and narrow in range. The highest reading of the barometer was 30·40 inches, this occurring on 23rd April and 4th October. The lowest reading was 28·60 inches on 26th November. The easterly group of winds prevailed on 132 days, and the westerly group on 230 days. With regard to temperature while there were no prolonged periods of severe frost, there were no long periods of bright sunshine, and the averages were somewhat low each month. The highest temperature in the shade registered during the year was 74°, which was on 14th, 15th, and 16th July. Consequent on the well-ripened condition of the growth on trees and shrubs, vegetation suffering no check developed rapidly, and growth was fully ten days earlier than usual by the middle of May. The development of growth and flower afterwards was very satisfactory. The blossom on most of the ordinary hardy plants was above the average, Plums, Cherries, Pears, Apples, Laburnums, Lilaes, Hawthorns, Flowering Currants, Rhododendrons, &c., being specially fine, though somewhat short-lived on account of the dryness of the atmosphere during the period of bloom.

EXCURSION.

DOUGLAS, 14th June, 1913.—Conductor, Mr. John Cairns.—This excursion, which was arranged jointly with the Edinburgh Field Naturalists' and Microscopical Society, was attended by a party numbering thirty-four, and took place during very fine weather. On arrival at Douglas railway station, the party proceeded to the Castle policies, access to which had been kindly granted by the Earl of Home. There they were met by the gardener, who conducted them through the grounds, gardens, and plant-houses, and pointed out the various objects of interest. It was observed that several bushes of *Rhododendron hirsutum* Linn., in the grounds, had their leaves infected with *Chrysomyxa rhododendri* (DC.) De Bary, a rare parasitic fungus which was not known to occur in this country when Plowright published his *Monograph of the British Uredineae and Ustilagineae* in 1889, and does not appear to have since been recorded for Britain.

In its æcidial condition, it is said to be parasitic on leaves and young shoots of Spruce Fir (*Abies excelsa* Link).

Some of the largest trees observed in the course of the walk through the grounds were measured, and of these Mr. Cairns has furnished the following details :—

A Sycamore (*Acer Pseudo-platanus* Linn.), sometimes called “the Duke’s Tree,” situated at Jockey’s Brae; girth, 14 feet 7 $\frac{1}{4}$ inches at 5 feet, on north side; bole, 9 feet.

A White Beam (*Pyrus Aria* Linn.), situated in the neighbourhood of the avenue near the Castle, in the direction of Douglas village; girth, 8 feet 2 $\frac{1}{2}$ inches at 1 $\frac{1}{2}$ feet, on side next castle.

A Turkey Oak (*Quercus Cerris* Linn.), also near the avenue; girth, 6 feet 7 inches at 5 feet, on side next loch; bole, 25 feet.

An Ash (*Fraxinus excelsior* Linn.) near laundry; girth, 9 feet 11 inches at 5 feet; bole, 36 feet. The age of this tree is estimated by Mr. M’Lean, forester, to be from 230 to 250 years; and he states that he has counted the annual rings on several other trees, which have evidently been planted about the same time as this one.

An Oak (*Quercus Robur* Linn.), also near laundry; girth, 9 feet 9 $\frac{3}{4}$ inches at 5 feet; bole, about 45 feet.

Two Yews (*Taxus baccata* Linn.), the largest of a group of ten in this vicinity, measured respectively: (1) 6 feet 8 inches in girth at 5 feet; bole, 30 feet; and (2) 6 feet 10 inches in girth at 2 feet 6 inches; bole, 4 $\frac{1}{2}$ feet.

A number of coniferous ornamental trees have been planted in the vicinity of the Castle, but many are not in a thriving condition. Mr. M’Lean states that *Abies Douglasi* is of no value as a timber tree in the district, but that Spruce and Scots Fir do well.

Some attention was devoted to an examination of the remains of the old Castle of Douglas, of which only a small fragment now exists. This ancient fortress is especially interesting for its close association with the great family of Douglas, who for centuries occupied a leading place as statesmen and warriors. Of this noble house, one of the most renowned members was “the good Sir James,” who flourished during the period of the Scottish War of Independence, and was the trusted friend of Robert the Bruce. The stirring incidents connected with his

recovery of the Castle from the hands of the English have been immortalised in history. Near the site of the old stronghold is the modern Castle of Douglas, erected in the year 1762.

After leaving the castle and passing along the edge of a small lake, the party reached the village of Douglas. In the churchyard they inspected the remains of the ancient kirk of St. Bride, founded in the thirteenth century. The building is now represented by a small spire and by the choir, which latter was always till 1761 the burial-place of the Douglas family. After having long remained in a neglected condition, it underwent extensive restoration about thirty-five years ago. Among the changes then made were the removal and enlargement of the vault below the High Altar, and the removal of the old coffins. In the new vault are interred the remains of the late Earl and Countess. The former is commemorated by a window of stained glass on the east side of the building, and his countess by a beautiful white marble and alabaster monument which occupies the centre of the floor of the choir. The main interest of the building, however, lies in the ancient monuments, which represent recumbent figures of knights carved in relief, and mark the last resting-places of the eminent members of the noble house of Douglas, to whose memory they were raised. The sculptured memorial of the good Sir James, a portion of which has unfortunately been broken away, represents him as having his legs crossed. Sir Walter Scott has remarked that this monument, in its original state, must have been "in no way inferior to the best of the same period in Westminster Abbey." The story of Sir James's mission to the Holy Sepulchre with the heart of Bruce; his death when fighting against the Saracens in Spain; and the bringing to Scotland of his body, along with the casket containing the heart of his revered monarch, is too well known to need repetition here. The partial demolition of the monuments has been variously ascribed to the misguided zeal of sixteenth century reformers; the wanton desecration of the church and its contents by a troop of Cromwell's soldiers, who are said to have used the building as a stable for their horses; and thoughtless mischief perpetrated by school-boys more than a century ago, when the school was situated at the churchyard, and the choir of the old kirk was unprotected by a door.

Additional reports have been submitted by Messrs. Alexander Ross and D. A. Boyd, who visited the district by an early train. Mr. Ross states that the following thirty-seven species of birds (including seven summer migrants) were observed during the course of the day, viz., Mistle Thrush, Song-Thrush, Blackbird, Redbreast, Willow-Wren, Wood-Wren, Hedge-Sparrow, Great Tit, Blue Tit, Wren. Pied Wagtail, Grey Wagtail, Tree-Pipit, Meadow-Pipit, Spotted Flycatcher, Swallow, House-Martin, Greenfinch, House-Sparrow, Chaffinch, Starling, Jackdaw, Rook, Skylark, Sparrow-Hawk, Common Heron, Mallard, Tufted Duck, Pheasant, Moorhen, Lapwing, Common Snipe, Common Sandpiper, Redshank, Curlew, Black-headed Gull, Herring-Gull, and Little Grebe. The Heronry on an island in one of the small sheets of water on the estate was visited. According to the gardener, the nests are fewer this season than usual, but at least half-a-dozen were noticed. The Mallard and Tufted Duck were seen on one of the lochs followed by young broods. In a patch of planted heather in the garden in front of the castle, a pheasant's nest with eggs was pointed out. Notable omissions from the list are the Goldcrest, Whitethroat, and Yellow Bunting, which, however, must certainly occur about the estate.

As regards insect life, Mr. Ross remarks that the district worked over during the excursion should prove entomologically interesting when thoroughly investigated. The following is a list of the Diptera taken, so far as identified:—*Dilophus femoratus* Mg., *Limnobia nebeculosa* Mg., *L. flavipes* F., *L. tripunctata* F., *Dicranomyia modesta* Mg., *D. morio* F., *Rhipidia maculata* Mg., *Empeda nubila* Schum., *Goniomyia tenella* Mg., *Molophilus propinquus* Egg., *M. biflatus* Verr., *Rhypholophus nodulosus* Mcq., *Erioptera trivialis* Mg., *Limnophila lineolella* Verr., *L. nemoralis* Mg., *Ula pilosa* Schum., *Amalopsis immaculata* Mg., *Tipula hortulana* Mg., *T. lateralis* Mg., *T. montium* Egg., *Beris chalybeata* Forst., *Leptis scolopacea* Linn., *Rhamphomyia sulcata* Fln., *Empis stercorea* Linn., *E. trigramma* Mg., *E. bilineata* Lw., *E. borealis* Linn., *Hilara maura* F., *Pipunculus* sp.? *Platychirus manicatus* Mg., *P. peltatus* Mg., *P. albimannus* F., *P. scambus* Staeg., *P. clypeatus* Mg., *Melanostoma mellinum* Linn., *M. scalare* F., *Borborus niger* Mg., *B. geniculatus* Mcq.

As regards the botany of the district, Mr. Boyd reports that no Flowering-plants of any importance were observed. The Germander Speedwell (*Veronica chamaedrys* Linn.), however, was remarkable for the uncommonly large size and brilliant colour of its blossoms, which were produced in great abundance. Among the Mosses collected were *Orthotrichum rupestre* Schl., *O. anomalum* Hedw. var. *saxatile* Milde, *O. Lyellii* H. & T., *O. affine* Schrad., *Bryum inclinatum* Bland., *Neckera pumila* Hedw., and *Eurhynchium murale* Milde, specimens of all which have been identified by Mr. John R. Lee. Besides *Chrysomyxa rhododendri*, already referred to, the most interesting Microfungi obtained were *Peronospora rumicis* Corda, on *Rumex Acetosa*; *Puccinia aegopodii* (Schum.) Mart., on *Aegopodium Podagraria*, *Synchytrium taraxaci* De Bary & Wor., *Protomyces pachydermus* Thüm., and *Ramularia taraxaci* Karst., all on *Taraxacum officinale*; *Exoascus pruni* Fckl., on young fruit of *Prunus Padus*; and *Ramularia heraclei* Sacc., on *Heracleum Sphondylium*.

Notes.

The Turtle-Dove (*Turtur communis*) in Renfrewshire.— On three occasions between the 5th and 18th June, 1913, I saw a Turtle-Dove at Williamwood, but I did not obtain any evidence of its nesting, although the time of the year and the length of its stay would suggest such a possibility. This species has once before been recorded for the county, a bird having been shot at Foxbar in June, 1911 (*Glasgow Naturalist*, Vol. III, page 97).— R. W. S. Wilson, Cathcart.

Wood-Sandpiper (*Totanus glareola*) in East Renfrew.— On 7th September, 1913, I saw a Wood-Sandpiper at Balgray Dam, and on 14th September I saw it again at Waulkmill Glen Dam. On 31st August, Mr. Hugh Wilson had seen what was probably the same bird at Balgray. It was a bird of the year, and, in the fine light in which I observed it on 7th September, it appeared quite light on the upper parts, owing to the size and number of

the spots—much lighter than any of the few Green Sandpipers I have ever seen in nature. This is just the reverse of what one would expect from the woodcuts of the two species in Howard Saunders's manual. I am not familiar with any description of the habits of the Wood-Sandpiper in this country; but I had an impression that it resembled the Green Sandpiper in its ways, and in my experience the latter is one of the shyest of our waders. Not so the Wood-Sandpiper at Balgray. With a little care I could approach within twelve yards of it. On one occasion there were two or three Lapwings and a Common Sandpiper beside it. As I approached, first the Lapwings and then the Common Sandpiper flew off, but the Wood-Sandpiper remained. In its actions it was like a small Redshank, but what impressed me, at the first glance, was its proportionally long legs. Its call-note was not like the shrill high-pitched note of the Green Sandpiper. I cannot imitate it on paper, but it was usually trisyllabic, and it was softer than that of the Greenshank, which once called repeatedly at the same time as the rarer bird.

The Wood-Sandpiper is an addition to the East Renfrewshire list. There are four previous records from the Clyde Area.—John Robertson.

Spotted Redshank (*Totanus fuscus*) in East Renfrew.—The Spotted Redshank has again appeared in East Renfrewshire in the present autumn (1913).

On 7th September I saw one bird at Waulkmill Glen Dam and another at Balgray Dam. These I am satisfied were different birds and not the same individual seen twice. On 14th September there was one at Waulkmill Glen Dam, but on that date the weather was very dull and gloomy, and all the birds, and there were large numbers, were extremely restless, flying off without giving one an opportunity for close observation, so that I may have overlooked the other bird, either here or at Balgray.

The former occurrences of the Spotted Redshank in East Renfrewshire were in the autumns of 1898, 1899, 1909, and 1910, and once in midsummer (1910).

It is curious that we should get more Spotted Redshanks in East Renfrew than in all the rest of Scotland, judging from the published records, and there can be little doubt that our birds reach us from the east, too!—John Robertson.

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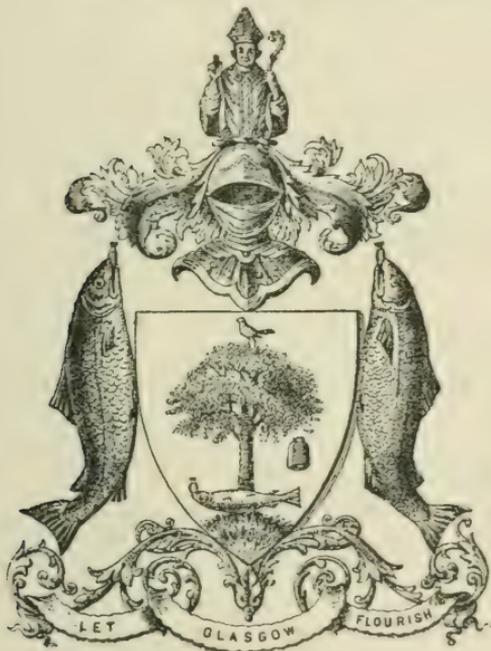
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The Glasgow Naturalist

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[November, 1913.

Autumn Notes on the Birds of the Gareloch.

By W. PERCIVAL WESTELL, F.L.S., M.B.O.U.

I spent the month of August, 1913, on the Gareloch and I devoted almost the whole of my attention to the bird life of the district. I was staying with my friend the Rev. Charles A. Hall, F.R.M.S., at Clynder, on the west side of the Loch, and fortunately he had among his papers a copy of this Journal for May, 1910, in which Mr. W. R. Baxter contributed some Summer Notes for 1908 and 1909 on the birds of Garelochhead. This excellent list was of considerable interest to an entire stranger such as myself and formed the basis of my work.

I cannot do better than follow Mr. Baxter's list and will point out later those species seen by him which did not come under my own observation.

The following is my complete list:—

1. MISTLE THRUSH (*Turdus viscivorus*).—I did not see this bird until towards the end of the month when several little parties attracted attention, but it was not at all common.

2. SONG THRUSH (*T. musicus*).—Common but not nearly so abundant as at home in Hertfordshire.

3. BLACKBIRD (*T. merula*).—Common but not nearly so abundant as at home in Hertfordshire.

4. WHEATEAR (*Saxicola oenanthe*).—Several solitary specimens were seen along the shore, particularly at Rosneath.

5. WHINCHAT (*Pratincola rubetra*).—I saw one or two examples in Campsail Bay, between the Head and Shandon, on the east side, and in Glen Fruin this species was hardly out of sight the whole length of the Glen.

REDSTART (*Ruticilla phoenicurus*).—Unfortunately I did not see this bird actually on the Gareloch but I observed both it and the DIPPER further north between Arrochar and Ardlui. I do not append a number as it was not recorded by me for the Gareloch.

6. ROBIN (*Erithacus rubecula*).—Common, and young birds exceptionally tame.

7. GREATER WHITETHROAT (*Sylvia cinerea*).—Several pairs were observed, particularly among the bushes, along the shore near Rahane.

8. LESSER WHITETHROAT (*S. curruca*).—I saw one specimen of this species in Mr. Hall's garden at "Woodburn" and watched it for some little time. At home it is one of our commonest summer migrants, and I am very conversant with it both by sight and sound. This species is unrecorded in Baxter's list.

9. GOLDCREST (*Regulus cristatus*).—In view of the increase of this charming little bird all over the country I was prepared for its abundance on the Gareloch in those parts which are wooded. It was very common at Clynder and Rosneath.

10. CHIFFCHAFF (*Phylloscopus rufus*).—I tried hard to see this species but failed. Hall tells me it is common in Spring and he heard it on 20th September, 1913.

11. WILLOW-WARBLER (*P. trochilus*).—Exceedingly abundant and what struck me also was the extremely bright plumage of so many specimens.

12. WOOD-WARBLER (*P. sibilatrix*).—I can confirm Mr. Baxter's remarks as to this species being almost, if not quite, as common as the last.

13. SEDGE-WARBLER (*Acrocephalus phragmitis*).—I saw one solitary example of this mimic near the shore at Rahane. I had a close view of it. This species is unrecorded in Baxter's list.

14. HEDGE-ACCENTOR (*Accentor modularis*).—Not nearly so plentiful as I expected.

15. LONG-TAILED TITMOUSE (*Acredula caudata*).—I saw several nice little troops of these birds in the trees along the shore north of Rahane Ferry and all along to Mambeg.

16. GREAT TITMOUSE (*Parus major*).—Fairly common.

17. COLE TITMOUSE (*P. ater*).—I only saw a few examples of this Tit.

18. BLUE TITMOUSE (*P. cæruleus*).—Common.

19. WREN (*Troglodytes parvulus*).—Fairly common.

20. TREE-CREEPER (*Certhia familiaris*).—In spite of the specific name, I only saw two examples of this interesting species in a copse at the back of Rosneath Church.

21. PIED WAGTAIL (*Motacilla lugubris*); and

22. GREY WAGTAIL (*M. melanope*).—The Pied Wagtail was the commoner of the two species. The Grey, I only saw at and near Campsail Bay.

23. TREE-PIPIT (*Anthus trivialis*).—I only saw one example of this favourite songster. Its scarcity somewhat surprised me.

24. MEADOW-PIPIT (*A. pratensis*).—Very common, more especially on the moors above Clynder and Barreman.

25. ROCK-PIPIT (*A. obscurus*).—Common along the western shore.

26. SPOTTED FLYCATCHER (*Muscicapa grisola*).—Probably the commonest bird of the district during August. The number amazed me.

27. SWALLOW (*Hirundo rustica*).—Fairly common.

28. HOUSE-MARTIN (*Chelidon urbica*).—Fairly common.

SAND-MARTIN (*Cotile riparia*).—Curiously enough I only saw this species in Glen Fruin which Mr. Baxter states is the only nesting place near to the Gareloch. Hence it is not entitled to a place in my list.

29. GREENFINCH (*Ligurinus chloris*).—Common.

30. HOUSE SPARROW (*Passer domesticus*).—Very common.

31. CHAFFINCH (*Fringilla cælebs*).—Common.

32. LINNET (*Linota cannabina*).—Uncommon.

33. TWITE (*L. flavirostris*).—I had a good sight of two of these birds on the moors above Clynder near a small pool beloved by Dragon Flies. This species is unrecorded in Baxter's list.

34. LESSER REDPOLL (*L. rufescens*).—Exceedingly common. They could be heard singing on the wing all day long, but about the middle of August they became less conspicuous.

35. BULLFINCH (*Pyrrhula europæa*).—Some bird catchers had two or three freshly caught specimens at Rosneath. I also heard the bird there.

36. YELLOW-BUNTING (*Emberiza citrinella*).—Fairly common.

37. STARLING (*Sturnus vulgaris*).—Common.

38. CARRION-CROW (*Corvus corone*).—I saw two or three of these birds.

39. ROOK (*C. frugilegus*).—Common, and associates with Gulls and Lapwings on open fields. I was very surprised at the absence of the Jackdaw.

40. SKYLARK (*Alauda arvensis*).—I only observed comparatively few Skylarks and although August is an inconspicuous month for this favourite songster, I was hardly prepared for it being so uncommon.

41. CUCKOO (*Cuculus canorus*).—Very prominent in Spring according to Hall and on his authority it is included here.

42. SWIFT (*Cypselus apus*).—Not very common.

43. KESTREL (*Falco tinnunculus*).—I only saw one specimen of this species putting it up from the old slate quarry above Stroul. It was the only bird of prey observed.

44. HERON (*Ardea cinerea*).—Very common of an evening in Campsail Bay, near Rosneath Castle Grounds, where I understand there is a heronry. I also saw a fine specimen hanging on the telegraph wires by the railway line between Shandon and Row, evidently recently killed.

45. RING-DOVE (*Columba palumbus*).—Common, especially in the woods at Rosneath.

46. BLACK GROUSE.—I saw a few of these handsome Grouse on the moors between Rahane and Loch Long, but it was not nearly so plentiful as the next species. I also saw a covey on the moors above Campsail Bay.

47. RED GROUSE (*Lagopus scoticus*).—Very abundant, covey after covey being put up when tramping over the moors on the west side of the Gareloch. At the time of my visit, Lord Inverclyde and nine other guns shot 270 brace of grouse in three days over the moors near Clynder.

48. PHEASANT (*Phasianus colchicus*).—I picked up a few stray feathers of this species, saw one or two birds, and heard others. It was strange to me, coming from a Partridge country, to find this last-named bird entirely absent.

49.—RINGED PLOVER (*Egialitis hiaticula*).—Rare. This surprised me.

50. LAPWING (*Vanellus vulgaris*).—Common, and regularly frequents the turnip field near the new sawmills at Rosneath.

51. OYSTER CATCHER.—(*Hæmatopus ostralegus*).—I saw one solitary bird in Campsail Bay.

52. COMMON SANDPIPER (*Totanus hypoleucus*).—Common along the shore early in August, but became rare later.

53. REDSHANK (*T. calidris*).—Quite common, especially at low tide.

54. CURLEW (*Numenius arquata*).—Common, but one must be careful as one of the Gulls imitates its well-known cry to a nicety.

55. COMMON TERN (*Sterna fluviatilis*).—Hall reports seeing this species on the Gareloch in spring, and again on September 19th, after I had left.

56. BLACK-HEADED GULL (*Larus ridibundus*).—Common.

57. COMMON GULL (*L. canus*).—Common.

58. HERRING GULL (*L. argentatus*).—Common, Hall tells me that *L. ridibundus* and *L. canus* nest on a Loch above Kilcreggan.

59. LESSER BLACK-BACKED GULL (*L. fuscus*).—Fairly common.

60. GREAT BLACK-BACKED GULL (*L. marinus*).—I saw several examples of this fine species.

61. FORK-TAILED PETREL (*Procellaria leucorrhoa*).—One day when Hall and I were eating our lunch near the Shepherd's hut on the moors above the road to Cove, a bird shot past us at a tremendous rate, coming from due north. At first I thought it was a large Swallow, which, attracted by the insect-haunted pool in front of us, was about to swoop over the water. But as it got past I at once saw the very prominent white patch on the rump, the forked-tail and sickle-shaped wings. There is little doubt that the bird in question belonged to this species, though what such an oceanic wanderer was doing over the moors in August is difficult to determine. It was lovely weather, and had been settled for some considerable time.

62. GUILLEMOT (*Uria troile*).—Towards the end of August I saw on two or three occasions a little party of these birds swimming about the Gareloch, particularly between Rahane and Shandon.

The result of these notes is that whereas Mr. Baxter's list consisted of 78 species, my list, as set out, totals 65 species. From these must be deducted the Sand-Martin (Glen Fruin), Dipper and Redstart (near Ardlui), giving a net total of 62 species for the Gareloch. The species seen by me and unrecorded by Mr. Baxter include:—Sedge-Warbler, Lesser Whitethroat, Twite, Great Black-Backed Gull, Ringed Plover, and Fork-Tailed Petrel. In considering these notes it should be borne in mind that August is not a good month for bird recording, most species being silent.

I may add that when staying at Langcraigs, Paisley, during the first few days of September, I saw Wheatears up to the 8th of the month, and on the 4th I put up two full-grown young Cuckoos, which were evidently feeding on oats.

Birds of Islay.

By ALEXANDER ROSS.

[Read 30th September, 1913.]

A.S.N.H. = Annals of Scottish Natural History. *Proc. R. Ph. S. Ed.* = Proceedings, Royal Physical Society of Edinburgh. *N.H. of I.* = Natural History of Ireland.

ISLAY—"green grassy Islay" of the bard—is the most southerly island of the group of the Inner Hebrides. Its eastern coastline lies less than an average distance of sixteen miles west of Cantyre, and for fourteen miles the northern part of this is separated from the island of Jura by the Sound of Jura. Its greatest length, from Rudh'a Mhail Point to the Mull of Oa, is about 26 miles, while its greatest breadth, from M'Arthur's Head to Coul Point, is about 18 miles. It is almost cut in two by the inlets of Lochindaal in the south, and Loch Gruinart in the north, a narrow isthmus of about three miles separating these bays.

Its highest hills lie to the east, where Beinn Bhiogair attains a height of 1,609 feet. Fully half of the surface, however, is below the 250-foot level, and the fertile low-lying ground is as well cultivated as any part of Scotland. Bordering on the seashore and in some of the narrow glens, marshy land is plentiful. Scattered throughout the island are numerous small fresh-water lochs, the waters of a few of which are carried to the sea by fair-sized streams.

Woodland districts are not wanting, though much might be done in the way of planting. The most noteworthy timbered parts are those of Kildalton and Bridgend, where fair-sized well-grown trees are to be found. Small woods occur at various parts, while over the island in the glens are little stretches with natural hazel, birch, &c.

A goodly portion of the coast is rockbound, and rugged and precipitous cliffs are met with at Sanaig in the west, and surrounding the peninsula of Oa in the south. Beautiful sandy beaches—the most notable, the “Big Strand” at Laggan Bay, stretches for seven miles—occur here and there round the island.

With a surface as diversified as this, and a climate mild enough to prevent snow from lying during most winters, Islay ought to be, and is, sufficiently attractive to birds of all orders.

The list which follows is the result of several years' observations, mainly in Kildalton and Oa, with sporadic visits to other parts of the island, during the months of July and August, and two visits at Christmas and New Year in 1907-8 and 1909-10. During a part of the summer visits I had the pleasure of the company of Mr. John Paterson and Mr. Angus MacLeod, while in winter Mr. William Rennie accompanied me. To each of these gentlemen my thanks are due.

I am also indebted to Mr. John M'Donald, gamekeeper on Kildalton estate, for much information, especially regarding the distribution of owls, hawks, and game-birds to be found on the Kildalton estates.

I have used the records in Thompson's "Natural History of Ireland," the papers by Mr. Scot-Skirving in the "Proceedings of the Royal Physical Society of Edinburgh," "A Fauna of Argyll and the Inner Hebrides," and notes in the volumes of "The Annals of Scottish Natural History."

MISTLE THRUSH (*Turdus viscivorus*).—Frequent. Late in summer small flocks gather in preparation for migration. On 24th July, 1907, I saw between thirty and forty together, south of Port Ellen lighthouse. In the winter months it is usually seen in ones or twos, though on 26th December, 1907, a large flock was feeding in the fields behind Port Ellen.

SONG-THRUSH (*T. musicus*).—Common. In the winter months observed mainly along the shore, and there in numbers.

REDWING (*T. iliacus*).—A winter visitor, and never seen in great numbers. The largest flock observed was on 29th December, when over forty were in the Ard, Port Ellen.

FIELDFARE (*T. pilaris*).—A winter visitor, which was only seen at Grianan, Leorin, and Cornabus, six birds being the greatest number observed. Mr. Scot-Skirving (Proc. R. Ph. S., Ed., Vol. IV., p. 72) says:—"Every variety of the thrush was found in extraordinary numbers, with the single exception of the Ring-Ousel (*T. torquatus*), which was totally absent." This may point to the fact that Redwing and Fieldfare vary in number in different years. Mr. Rennie and I searched closely the parish of Kildalton and Oa for these birds during our two winter visits, and the birds were as scarce as I have mentioned.

BLACKBIRD (*T. merula*).—Abundant both in summer and winter.

RING-OUSEL (*T. torquatus*).—One bird, a female, was seen at Strimnish on 22nd July, 1907, by Mr. MacLeod and myself.

WHEATEAR (*Saxicola œnanthe*).—Common on both the hilly and low ground near the shore. Young birds are plentiful on the rocky coast near Port Ellen, and on the sandy dunes along the Laggan Bay during the summer months.

WHINCHAT (*Pratincola rubetra*).—Generally distributed and abundant in certain localities during summer. After the nesting season parties of old and young may be seen daily on the fences and dykes on the roads to Kildalton, the Oa, Bridgend, and Portnahaven.

STONECHAT (*P. rubicola*).—Observed both in summer and winter. A few pairs nest in Borraichill, and on the hills extending towards Ardbeg. Young broods are met with on the Oa and on the moorland between Port Ellen and Bridgend.

REDBREAST (*Erithacus rubecula*).—Common in the wooded districts summer and winter.

WHITETHROAT (*Sylvia cinerea*).—Frequent in the woods at Kildalton, Carnmore, Torra, and Bridgend, and in many of the glens where it can find shelter. I have seen it near Kilnaughton Cemetery, where for cover it has only a few stunted bushes and a bracken-clad hillside.

GOLDEN-CRESTED WREN (*Regulus cristatus*).—Common in the wooden regions, especially where firs are grown. Mr. M'Donald informs me that in winter he has seen hundreds of them collected about his house in Kildalton.

WILLOW-WREN (*Phylloscopus trochilus*).—An abundant summer visitor over the island wherever cover can be obtained.

WOOD-WREN (*P. sibilatrix*).—On two occasions only can I be sure I have seen this species. Mr. MacLeod and I saw several in a plantation near the Lily Loch, Kildalton, on 25th July, and again near Lagavulin, on 3rd August, 1907. Mr. MacLeod saw several in the wood near Loch Knock, on 15th July of the same year. I have a doubtful record near Callumkill in July this year.

SEDGE-WARBLER (*Acrocephalus phragmitis*).—Not common. I have seen it at the following stations:—(1) Frequenting a ditch on the roadside near Laphroag, along the banks of which a few dwarf willows grow. The bird has nested here, to my knowledge, since 1906. (2) At the side of a burn near

Kildalton Cemetery, where I saw it on 20th July, 1906. (3) Among some low bushes near Farkins, where it was singing on 6th July, 1907. (4) At a small wood, chiefly alder trees, on the side of the distillery pond, Port Ellen, where it was heard on 11th July and after this year. (5) Among the bushes by the side of Callumkill Burn, where it was singing riotously on the 15th and 17th July this year. (6) On the side of a burn flowing into Claggain Bay, where I heard it on 1st August.

HEDGE-SPARROW (*Accentor modularis*).—Common, both summer and winter.

DIPPER (*Cinclus aquaticus*).—I have only observed this species on the Callumkill Burn, on the river flowing from Loch Kinnabus, on the River Laggan, and at the junction of a tributary with the River Sorn. Many of the other streams I have searched seemed to present conditions as favourable as these, but I failed to note it on any of them.

GREAT TIT (*Parus major*).—It is rather strange that there should be almost a blank as far as this species is concerned. I have a note of two seen at a low wind-swept plantation on a hillside near Lagavulin, on 18th July, 1906, and the doubtful one of a single bird on the 7th July this year, in Kildalton policies. I went carefully through the woods, but saw no trace of any other bird of this species.

COAL TIT (*P. ater*).—Frequent, and, like the golden-crested wren, common where there is a growth of firs.

BLUE TIT (*P. cæruleus*).—Common wherever there are trees.

WREN (*Troglodytes parvulus*).—Common everywhere in summer and winter.

TREE-CREEPER (*Certhia familiaris*).—Rare. Noted only in Kildalton policies and Bridgend woods. In the latter a party of them was seen. Mr. M'Donald last year, at Kildalton, saw one which was about half the usual size.

PIED WAGTAIL (*Motacilla lugubris*).—Common summer and winter. Many young birds are seen everywhere about the shores after the nesting season.

GREY WAGTAIL (*M. melanope*).—One observed on 23rd August this year in Kilnaughton Burn.

TREE-PIPIT (*Anthus trivialis*).—Not a common species. Seen twice in 1906, at Kildalton policies and at Carnmore. Since then it was neither seen nor heard till 14th, 15th, and 17th July of this year, when it was in full song near Lagavulin. The birds haunted a meadow in which were a few scattered tree-clumps, and to the east of which there was a rising ridge, clad mainly with hazel.

MEADOW-PIPIT (*A. pratensis*).—Abundant in summer from the hilly moorlands to the low-lying shores. In winter not so common, though it was seen on almost every day of our visit.

ROCK-PIPIT (*A. obscurus*).—Common summer and winter on the rocky coasts.

GREAT GREY SHRIKE (*Lanius excubitor*).—One was shot at Kildalton, in October, 1909, and was identified by Mr. M'Donald.

SPOTTED FLY-CATCHER (*Muscicapa grisola*).—Seen only in the wooded parts of Kildalton, Ardmore, Carnmore, and Bridgend during summer, and then sparingly.

SWALLOW (*Hirundo rustica*).—Nests in many of the farmsteadings about the island, and in some of the small townships. I have seen a flock of over thirty on the telegraph wires at Laphroag—the greatest number seen together.

HOUSE-MARTIN (*Chelidon urbica*).—A scarce summer visitor, nesting only, as far as I have seen, at Newton, near Bridgend, Laphroag, and Lagavulin.

SAND-MARTIN (*Cotile riparia*).—I know three nesting-places of this summer migrant. A few pairs inhabit the banks of the Machrie River, near the entrance of the stream to Laggan

Bay. Two considerable colonies nest on the banks of the Duich River—one near Duich Farm, and the other in the sandy banks at the warren nearer the sea.

GREENFINCH (*Ligurinus chloris*).—Common in suitable localities.

HOUSE-SPARROW (*Passer domesticus*).—Abundant. A cream-coloured bird flew about the hotel grounds at Machrie during the summer of 1907. On the 27th December of the same year I saw this bird, in company with a hedge-sparrow and a reed-bunting, feeding at a trough in the hotel yard.

CHAFFINCH (*Fringilla cælebs*).—Common in suitable localities. On 5th January, 1910, Mr. Rennie and I watched, flying eastwards through a small glen stretching from Callumkill Burn towards Ardbeg, a mixed flock of chaffinches and greenfinches—chiefly the former—which took fully ten minutes to pass.

BRAMBLING (*F. montifringilla*).—A scarce winter visitor. Near Brahunisary two males and two females were observed on 31st December, 1909; on 5th January, 1910, at least half-a-dozen were noted among Chaffinches at Callumkill; and on 7th January six were seen in a field below Farkins. There was no trace of them in the winter preceding.

LINNET (*Linota cannabina*).—Nests in the rough ground between Kildalton and Ardbeg, near Lagavulin, and along the whin-covered hillside on the road by Cornabus to Kintra. Fair numbers may be seen at all these places. On our winter visits small flocks were frequent at various places from Kildalton to Oa.

LESSER REDPOLL (*L. rufescens*).—This species is common both summer and winter from Lagavulin to Claggain Bay, and at Bridgend. Outside of these districts it has not been observed by me.

TWITE (*L. flavirostris*).—A distinctive feature of the Ard, Port Ellen, where it is by far the commonest species, its shrill and cheery notes being heard among the rocks all day long.

It is abundant throughout the Oa, and is common in many parts of the parish of Kildalton. In the winter months flocks of thirty to forty were of frequent occurrence, and near Cragabus a flock of over a hundred was observed on 31st December, 1907.

BULLFINCH (*Pyrrhula europæa*).—Has been noted at Bridgend and Kildalton policies, and in the latter is common. On 22nd December, 1907, a few were seen in the Ard.

CORN-BUNTING (*Emberiza miliaria*).—A common resident species in the cultivated portions of the parishes of Kildalton and Oa, and Kilarow and Kilmeny. Its unmelodious song, if one can call it a song, is heard daily in these districts during the summer. Flocks numbering up to twenty were observed in winter resting in the trees at Cragabus farm-steading, and a flock of twenty-five on 28th December at Leorin Farm.

YELLOW BUNTING (*E. citrinella*).—Generally distributed over suitable localities. In winter it was seen in parties, some of them numbering about fifty.

REED-BUNTING (*E. schæniclus*).—A resident species not uncommon in particular localities. When seen on the moors it is usually not far from a small stream. It has been observed at Kildalton, Ardbeg, Brahunisary, Farkins, Cornabus, Cragabus, and Machrie. In winter it is generally in company with Chaffinches, Yellow and Corn-Buntings.

SNOW-BUNTING (*Plectrophenax nivalis*).—Mr. M'Donald informs me that this is a regular visitor at Ardmore and Ardtalla. I have not seen it.

STARLING (*Sturnus vulgaris*).—Abundant everywhere on the low-lying grounds. In winter great flocks feed at the shore. Thompson ("N.H. of I.," II., p. 11) speaks of the great bodies of Starlings he saw in the stubble fields in January, 1849.

CHOUGH (*Pyrrhocorax graculus*).—This interesting species, which has disappeared from nearly all its old haunts on the mainland of Scotland, still maintains its position as a nesting species in Islay. In "A Fauna of Argyll and the Inner

Hebrides," the authors write that "a gamekeeper long resident in Islay says: 'still found all round the coasts of Islay,' but 'getting much fewer, and their places are being taken up by Jackdaws' (1888)." If this refers to the nesting-places they must have decreased since then. I know of only two nesting-sites now, though there may be others on the west coasts. These are at the great cliffs of the Mull of Oa, and at Ardmore. At the latter the birds are not many, but there are still a goodly number nesting at the former. On the 22nd July, 1907, Mr. MacLeod and I accompanied Dr. Gilmour to Strimnish on our cycles, and near Ballychatrigan we came on a flock, which we did not count. Near Strimnish another flock numbered twenty-six, and on our way back we saw one more, numbering thirty-four. Some of the former birds may have been among these latter. These parties were all mixed, young and old, and were feeding on pasture land. The birds were very restless, and kept running here and there, digging their bills into the earth, evidently after worms. It was quite amusing to see how the young birds jostled one another in their endeavours to get the tit-bits from their parent's bill. They were exceedingly wary, as, after we had watched them for some time, a slight movement sent them flying off.

At our first visit, during which we were taken charge of by Dr. Gilmour, Mr. John Paterson discovered a nest in a crevice of a natural arch in a huge solitary stack. It was in an inaccessible position, but with our glasses we could see that it was a massive affair built of large twigs, some evidently heather, and with lots of wool and a few feathers at the edges. Six birds came flying out of the arch.

While fishing off the Oa this season I have watched the birds flying into holes and crevices in the cliffs, and I have no doubt but these were nesting-places.

When the young birds are able to feed for themselves the flocks break up, and they may be seen all along the coast in small parties, but mainly in pairs. In the winter months they are to be seen even in Port Ellen. Probably the gamekeeper refers to this spreading when he says they are still found all round the coasts, and not to their nesting-places.

It is gratifying to know that the proprietor of this part of the island—Mr. Ian Ramsay—takes an interest in the birds, and has given instructions for their strict preservation.

JACKDAW (*Corvus monedula*).—Nests in the cliffs and inland hills, and is very abundant. During the time I have been taking an interest in the birds of Islay it has increased in the Kildalton district, and seems to be spreading into the Oa, where I had not originally observed it.

CARRION-CROW (*C. corone*).—An exceedingly rare species. I have seen single birds on the shore near the distillery, Port Ellen, on 14th July, 1906; at the Ard, on 9th August, 1907; on the shore below Farkins, on 29th December, 1907; near Kintra, on 4th January, 1910. On 2nd January, 1908, we picked up a dead bird at the White Pool, below Farkins. In 1875 a Carrion Crow was shot off her nest, which contained eggs, at Foreland (A.S.N.H., Vol. IV., p. 53).

RAVEN (*C. corax*).—"Common in many of the isles, Islay, Jura, and Mull," say the authors of "A Fauna of Argyll, &c." (p. 92). I prefer the word frequent as far as Islay is concerned. Although there are numerous birds spread over the island it is by no means common there. It nests on the cliffs round the coast, and on Texa.

On 6th January, 1910, I disturbed a pair on the island of Texa. They flew off over Tarrskeir, and then made straight for the Mull of Cantyre. I watched them till they were mere specks and got lost in the dark background of the Mull.

HOODED CROW (*C. cornix*).—Nests on the sea cliffs, and is more numerous than the Raven, in spite of being kept down by the gamekeepers. My notes show that it was observed on almost every day of our winter visits. A few pairs nested this season on the cliffs at the Oa, and got off safely.

ROOK (*C. frugilegus*).—Common. The great rookery at Kinnabus, I regret to say, I have not visited, so I am unable to say whether it is still as populous as it was at the end of last century (*vide* "A Fauna of Argyll, &c.," p. 91).

SKYLARK (*Alauda arvensis*).—Common. Large flocks were seen during the winter visits.

NIGHTJAR (*Caprimulgus europæus*).—Frequent on the hillsides on Kildalton policies, and known at Bridgend. On the 15th July, 1907, I heard it "reeling" faintly not far from Kildalton, about 8 p.m.

GREAT SPOTTED WOODPECKER (*Dendrocopus major*).—Mrs. Ramsay, of Kildalton, wrote to the authors of "A Fauna of Argyll, &c." p. 94, a letter, bearing the date 25th November, 1891, asking if they were aware that we got "a Great Spotted Woodpecker here (Islay) a few years ago."

KINGFISHER (*Alcedo ispida*).—A stuffed specimen of this bird, said to be from Laggan River, is at Kildalton House. Mr. James Lumsden, in "A.S.N.H." (Vol. XII., p. 245), records the species as on the Sorn River in 1901; on a burn at Dunlossit, in November, 1902; and on Loch Allan, Dunlossit, on 20th July, 1903. It is said to be seen frequently on the Laggan River.

CUCKOO (*Cuculus canorus*).—A summer visitor. The young may be seen during late July and August being fed by the foster-parents, who are generally Meadow Pipits. On the 11th July, 1907, Mr. Paterson discovered, near Loch An-t-Sailein, a nest which he took to be a Reed Bunting's, with a young Cuckoo. The site was visited a week after, and the nest was found to be destroyed.

BARN-OWL (*Strix flammea*).—Nests at Kildalton. I saw one near the distillery, Port Ellen, on 11th August, 1907. Mr. Scot Skirving in "A.S.N.H.," Vol. IX., p. 184, says that he has only seen one Barn-Owl in Islay, and that an albino. Mr. John Paterson received one from Dr. Gilmour, Port Ellen, about fifteen years ago.

LONG-EARED OWL (*Asio otus*).—Nests at Kildalton. Young birds, of this species probably, were heard mewling like cats in Carnmore Wood on several evenings during July, 1907. Dr. Gilmour records one found in a trap at Duich Lots, on

14th October, 1899 ("A.S.N.H.," Vol. IX., p. 49). In the same volume, page 184, Mr. Scot Skirving remarks that "they are of almost daily occurrence in the forest of Kilchoman."

SHORT-EARED OWL (*A. accipitrinus*).—"The Short-eared Owl arrives about the end of October very regularly and in considerable numbers" ("A.S.N.H.," Vol. IX., p. 184). In the "Proc. R.Ph.S.Ed.," Vol. V., p. 40, Mr. Scot Skirving writes: "In former years both Long- and Short-eared Owls were occasionally met with. This season I have seen neither."

TAWNY OWL (*Syrnium aluco*).—I believe I heard this species hooting near Lagavulin in August of this year. As in the case of the Barn Owl, Mr. Scot Skirving, who had a home in Islay for twenty-three years (1900), only saw one Brown Owl during all that period.

SNOWY OWL (*Nyctea scandiaca*).—In "A Fauna of Argyll, &c." (p. 100), mention is made of one trapped on the top of Sanaig rocks in April, 1870. Probably this is accountable for placing this species "among the birds which occasionally occur" ("Proc. R. Ph. S., Ed.," Vol. IV., p. 72).

HEN-HARRIER (*Circus cyaneus*).—It "came in considerable numbers in August as a migrant—the males appearing in August, and the females September" (1875) ("Proc. R. Ph. S., Ed.," Vol. IV., p. 72).

GOLDEN EAGLE (*Aquila chrysaëtus*).—The Golden Eagle nests in Islay, and is seen occasionally in different parts of the island. In Glen Leor, not more than ten or eleven miles from Port Ellen, a pair nested last year. In "A.S.N.H.," Vol. IV., p. 54, there is a record of one caught alive in a trap some weeks previous to January, 1895.

WHITE-TAILED EAGLE (*Haliaëtus albicilla*).—Mr. Scot Skirving writes: "During nineteen summers in Islay I have only seen three Sea Eagles (*H. albicilla*), and these were not residents" ("A.S.N.H.," Vol. IV., p. 54).

SPARROW-HAWK (*Accipiter nisus*).—Not an uncommon nesting species in Islay. Some years ago, on the island of Texa, I saw captured three young birds which had just left the nest.

GREENLAND FALCON (*Falco candicans*).—Gray mentions ('Birds of West of Scotland,' p. 21) that "a very fine male was shot by Peter Mackenzie, gamekeeper to Mr. Ramsay, of Kildalton, in the summer of 1862, which is now in Kildalton House." Another is recorded as occurring in Islay in 1866, on the authority of Captain Elwes ("A Fauna of Argyll, &c.," p. 109).

ICELAND FALCON (*F. islandus*).—Three records of this species are given in "A Fauna of Argyll, &c.," p. 110. One was shot in April 1876, which passed into the possession of E. Crayshaw, Esq., of Gateshead-on-Tyne. Another appears to have been trapped in Kilchoman Glen, in March, 1867, and one was fired at in 1888.

PEREGRINE FALCON (*F. peregrinus*).—This species, I am told, nests on the cliffs at the Mull of Oa and Ardmore, and on the island of Texa. During all my visits I have watched for it closely, but I have never been fortunate enough to see it. Mr. John Paterson got a young bird of this species (which had been found in the sea at Islay) from Dr. Gilmour, about fifteen years since.

MERLIN (*F. aesalon*).—Nests in the mountain and moorland regions, and is well known about Kildalton. It is mentioned by Mr. Scot-Skirving as being a most common migrant.

KESTREL (*F. tinnunculus*).—The most abundant of the nesting species of Hawk. It nests on the sea cliffs round the coast. Few days pass without one or more being seen. Most of the keepers now acknowledge that it is comparatively harmless.

OSPREY (*Pandion haliaëtus*).—Mr. Scot-Skirving places this amongst Islay birds which occasionally occur ("Proc. R. Ph. S., Ed.," Vol. IV., p. 72). A fine female specimen was shot

in ignorance on 23rd May, 1899, at Loch Knock, Kildalton, and was set up by M'Culloch & Sons, Sauchiehall Street. It measured 24 inches from beak to tail, and 67 inches from tip to tip of outstretched wings. Its weight was 3 lbs. 7 oz.

CORMORANT (*Phalacrocorax carbo*).—Thompson ("N.H. of I.," III., p. 241) says it breeds at the Mull of Oa. It is an abundant bird about the rocky coasts. A nesting colony occupies the cliffs in the vicinity of Slochd Mhaol-Doraidh, Mull of Oa. Many of the small rocky islets lying off the shore form "resting rocks," and from two to thirty and forty Cormorants may be seen at all times squatting on them.

SHAG (*P. graculus*).—Abundant as a nesting species at the Mull of Oa, and seldom seen far from this during the breeding season. In winter they are to be met with all round the coast.

GANNET (*Sula bassana*).—A frequent visitor along the coasts in summer and winter.

COMMON HERON (*Ardea cinerea*).—Frequently seen fishing along the shore and by the side of inland streams. Three small heronries are established on the Kildalton policies. Thompson ("N.H. of I.," II., pp. 146, 147) visited a heronry three miles from Ardimersy, in 1849. The nests were on the ground, but he does not say how many birds might be nesting. He says this was the only heronry in the east side of the island. He visited another heronry at Islay house, where there were perhaps a dozen nests on larch, ash, &c., the trees about twenty feet high, the nests twelve to fourteen feet above the ground.

BITTERN (*Botaurus stellaris*).—Mr. Scot-Skirving speaks of this species as being among the birds which occasionally occur in Islay ("Proc. R. Ph. S., Ed.," Vol. IV., p. 72).

GLOSSY IBIS (*Plegadis falcinellus*).—An immature female was shot in a field near Port Ellen on 30th October, 1903, and is now in the collection at Kildalton House ("A.S.N.H.," Vol. XII., p. 50).

GREY LAG-GOOSE (*Anser cinereus*).—This Goose is stated to have bred in one loch in Islay, and there is a record of the actual date of the last taken nest, in 1825, at another locality not far removed from this one (“A Fauna of Argyll, &c.,” p. 120).

WHITE-FRONTED GOOSE (*A. albifrons*).—This is the only Grey Goose of which I have any personal knowledge. In winter it feeds over the low-lying ground to the west of the road between Port Ellen and Bridgend, and seems to be confined to the stretch from Laggan River to about Ballyvicar Farm. Over this area numerous flocks of from ten to seventy were observed. The birds were exceedingly wary, and it was difficult to approach within two hundred yards of them, and to do this advantage had to be taken of any roughness in the ground. When disturbed they rose in a disorderly fashion, but soon arranged themselves in a V-shaped wedge, and flew strongly out of what they evidently considered dangerous quarters. Hundreds of them frequent this district in winter.

BEAN-GOOSE (*A. segetum*).—“The Bean-Goose was the only one known to the gamekeeper at Ardinersy, Islay, in January, 1849, as frequenting that island, which it does regularly in winter. It does not breed there.”—Thompson, “N.H. of I.,” III., p. 41.

BARNACLE-GOOSE (*Bernicla leucopsis*).—Large flocks frequent Lochindaal during the winter. In the neighbourhood of Port Ellen I have only seen them on three occasions, few in number on each, though I am told they are plentiful there. Mr. Scot-Skirving remarks on a large flock which appropriates “a small island to the north of Islay, close to the shore,” and says: “It is only when the season is advanced that it ventures to take up its abode on the adjacent coast of Islay itself” (“Proc. R. Ph. S., Ed.,” Vol. IV., p. 41). See also account of next species.

BRENT GOOSE (*B. brenta*).—Thompson (“N.H. of I.,” III., p. 50) says that, when visiting Islay in January, 1849, “A flock of about two hundred Brent Geese was seen standing by the edge of the retiring tide. I was gratified to learn from Mr.

Murray, formerly gamekeeper at Islay House, that the loch is frequented by both species. The *A. Leucopsis* is called there, 'land barnacle'; it has been becoming scarcer of late years." Mr. Scot-Skirving classes it with the White-fronted and Barnacle Goose as very common ("Proc. R. Ph. S., Ed.," Vol. IV., p. 41). On the other hand, in Islay it appears to be of sufficient rarity to be included in a case of a few rare species shot at Kildalton, as there is a specimen in the house collection there ("A Fauna of Argyll, &c.," p. 121).

BEWICK'S SWAN (*Cygnus bewicki*).—Mentioned in "A Fauna of Argyll, &c." (p. 125), as occurring in Islay. I have seen a note on the appearance of this species in great numbers on Ardnave Loch in winter.

WHOOPEE (*Cygnus musicus*).—Thompson ("N.H. of I.," III., pp. 11-12) says it comes to Islay every winter. On Loch-indaal a flock of fifteen wild Swans appeared early in the winter of 1848-49. Mr. Scot-Skirving refers to flocks of seven to seventy as having been seen during the winter of 1875. ("Proc. R. Ph. S., Ed.," Vol. IV., p. 72).

MUTE SWAN (*Cygnus olor*).—A few pairs, sometimes with cygnets, may be seen off the shore between Port Ellen and Kildalton.

COMMON SHELD-DUCK (*Tadorna cornuta*).—Nests on Texa, and probably on other parts of the island, as I have seen parent birds, followed by young, at Lochindaal, Laggan Bay, Kilnaughton Bay, and several places towards Loch Knock. "I was told in Islay (January, 1849) that the Shelldrake is common and breeds there, but leaves the island (or part known to my informant) in autumn, and returns again about the last week of December."—Thompson, "N.H. of I.," III., p. 71.

MALLARD (*Anas boscas*).—Common on suitable lochs as a nesting species. In winter large flocks frequent the fresh-water lochs in Kildalton, and Oa parish, especially the low-lying district east of Laggan Bay.

TEAL (*Nettion crecca*).—As common as the Mallard, and frequents similar places.

WIGEON (*Marca penelope*).—Observed in winter in numbers at Loch-nan-Gobhar, and Loch Eighinn, and at the upper end of the bay of Loch an-t-Sailein. Small parties occur on the coast from Kildalton southward, and at Knockangle in Laggan Bay. “The last place of this kind in which Wigeon came under my notice was in retired and most picturesque little bays in the island of Islay, where no human eye but my own was upon them at the time. Being afloat, they would commence their repast when the tide had sufficiently fallen to admit of their reaching the *Zostera*, and at low water they were left, like grallatorial birds, to regale upon the banks. Here they remained until the advancing sea raised them on its surface, and then continued to feed so long as the water was shallow enough for the purpose. When it deepened too much, they floated on its bosom, and resigned themselves to rest or sleep, ‘high-water’ being the time of their repose.”—Thompson, “N.H. of I.,” III., pp. 101-2.

POCHARD (*Fuligula ferina*).—Two were seen at Loch Kinnabus, on 31st December, 1907, and about thirty at Loch Muckairt, on 29th December, 1909.

TUFTED DUCK (*F. cristata*).—The only note I have regarding this species is one by Mr. Rennie. He saw a few in the Ard at dawn, on 29th December, 1907. Thompson (“N.H. of I.,” III., p. 146) saw a few, including some adult males, on two small lakes on the moor above Ardimersy.

GOLDENEYE (*Clangula glaucion*).—A fairly frequent species in winter on various fresh-water lochs. Small parties were seen at Loch an-t-Sailein and at Knockangle. Over twenty—the greatest number seen together—were resting on Loch Eighinn, with Wigeon, Mallard, and Teal, on 4th January, 1910.

EIDER DUCK (*Somateria mollissima*).—This species is abundant from the Sound of Islay to Laggan Bay. It is known to breed on the shores of the sound and on the island

of Texa. After the nesting season three or four flocks of females and young, numbering from fifty to one hundred and fifty, are usually to be seen in Laggan Bay, while smaller parties are met with round the shore as far as Claggain Bay. This season, however, Eider Ducks were scarce, a few parties of females—not over a dozen in each—being all that I saw at any time I visited Laggan Bay. Occasionally a few males may be seen off Texa, but they evidently gather together further north. The only males I saw this year were in flocks off Gigha, where parties of thirty, seventy, and over one hundred were passed.

KING EIDER (*S. spectabilis*).—On the 25th July, 1906, I had the good fortune to see one of these birds from the cliffs near Kintra, to the south of Laggan Bay.

RED-BREASTED MERGANSER (*Mergus serrator*).—A common species round the coast, where it may be seen followed by young broods after the middle of July. Pennant mentions having seen them and their young in “The Isle of Ilay” (“British Zoology,” II., p. 215, Ed. 1812).

RINGDOVE (*Columba palumbus*).—Common in the wooded districts. Thompson (“N.H. of I.,” II., p. 8) saw not less than a hundred together in January, 1849, near Islay House. Those that he shot in the wilder part of the island had their crops filled with the perfect and full-sized nuts of the hazel.

ROCK-DOVE (*C. livia*).—A common nesting species in the caves round the rocky coasts. Thompson (*ibid.*, II., p. 11) writes of the great numbers of Rock-Doves that came under his notice in Islay in January, 1849. He speaks of flocks—seventy or eighty together—occurring in winter many miles from the Mull of Oa, where they breed in great numbers. Pennant writes:—“I have seen in Ilay the bottoms of the great chasms covered with their dung for many feet in thickness, which is drawn up in buckets and successfully used as a manure” (“British Zoology,” I., p. 384, Ed. 1812).

BLACK GROUSE (*Tetrao tetrix*).—Common on the Kildalton estates. Thompson (*ibid*, II., p. 246) speaks of great numbers of black-game being seen, when he was woodcock shooting in 1849.

RED GROUSE (*Lagopus scoticus*).—Common throughout the island.

PTARMIGAN (*L. mutus*).—Frequent in the hilly regions above Kildalton. Occasionally it comes down towards the shore, and one was caught recently which had flown into a house in Port Ellen.

PHEASANT (*Phasianus colchicus*).—Common, and reared by the shooting proprietors. Thompson ("N.H. of I.," II., pp. 22-23, who resided at Ardimersy in January, 1849, says Pheasants were abundant there, the ring-necked variety, too, being common. He says the birds in the outer or wilder covers feed almost wholly on hazel-nuts. The first bird remarked to contain them had twenty-four, all of full size and perfect—in addition were many large insect larvæ.

PARTRIDGE (*Perdix cinerea*).—Said to be common, but not observed by me so frequently as the Pheasant or Red Grouse.

QUAIL (*Coturnix communis*).—"When in the island of Islay, in January, 1849, I learned that quails are very scarce there; the keeper at Ardimersy had seen but three during nine years; all in the autumn. Another person, who had been keeper at Islay House, and has since had a farm, met with only three of these birds during a much longer period, and of these, two were seen together in the month of January or February" (Thompson, *ibid*, II., pp. 67, 68).

CORNCRAKE (*Crex pratensis*).—Common in the cultivated districts. It was heard up to the night of the 9th August, 1907, when it was particularly noisy at Port Ellen. This season I did not hear it after 5th August. Thompson (*ibid*, II., p. 313) says he was told this species was "numerous there every summer."

SPOTTED CRAKE (*Porzana maruetta*).—One was shot at Foreland, on 29th September, 1896. Mr. Scot-Skirving believes

the bird nests in a marsh close to Foreland, but as Water-Rails are abundant in the marsh, he doubts not that the Crakes have, in consequence, escaped observation ("A.S.N.H.," Vol. VI., p. 45).

WATER-RAIL (*Rallus aquaticus*).—Is said to be frequent in the marshy ground about Kildalton, where Mr. M'Donald has shot it. I have not seen it in Islay.

MOORHEN (*Gallinula chloropus*).—Frequent in the ditches and small streams in Kildalton and Oa, and on the River Sorn.

COOT (*Fulica atra*).—Rare in all the parts of Islay I have visited. A pair nested this year at the distillery pond, Port Ellen, and brought off a brood of four. One was seen at Loch an-t-Sailein, on 29th December, 1907; one on Lagavulin Dam, on 5th January, 1910; and one was shot in August this year near Machrie.

RINGED PLOVER (*Ægialitis hiaticola*).—This is a fairly common species on all the sandy beaches, such as are met with at Kilnaughton, Laggan Bay, and Lochindaal. It also nests in some of the creeks in the Ard. Two or three pairs are regularly seen in Port Ellen Bay. "They breed commonly in the island" ("N.H. of I.," II., p. 99).

GOLDEN PLOVER (*Charadrius plumbealis*).—Flocks are to be met with in winter about the flat ground near Laggan Bay. A living bird was brought to me in July, 1907, which had completely smashed its bill by flying against a wall.

LAPWING (*Vanellus vulgaris*).—Common. After the nesting season great flocks gather near the shore. On 18th July, 1907, Mr. MacLeod and I saw a flock numbering between 400 and 500 in a field about a mile and a-half south of Bridgend.

TURNSTONE (*Strepstilas interpres*).—An autumn visitor which in some seasons arrives very early in Islay. On 1st August, 1907, six birds, in fine summer plumage, were seen at Knock-angle, a rocky promontory which interrupts the long sandy bay of Laggan, near the centre. This year a flock of over

twenty were resting on Tarrskeir on 23rd July. On a visit shortly after I found they had gone. On the 28th July six were on the rocks at Knockangle, and on 3rd August thirteen were feeding south of Knockangle. During winter they appear on the lists on all days but two.

OYSTER-CATCHER (*Hematopus ostralegus*).—This bird is one of the characteristic features of the shores of Islay. It is to be met with everywhere round the coasts, never being in great number, but being always there summer and winter, and making its presence known by its shrill piercing cries on being disturbed. "I did not see any of these birds about the island of Islay during the month of January, 1849, and was told that they always leave it and the neighbouring islets in autumn" (Thompson, "N.H. of I.," II., p. 126).

GREY PHALAROPE (*Phalaropus fulicarius*).—Mr. Scot-Skirving mentions having seen six in a small pool of shallow water on the northern shores of Lochindaal, where they remained for three days. A continued storm of wind from the south-west had evidently arrested the birds on migration on 13th October, 1892.

WOODCOCK (*Scolopax rusticula*).—An abundant species at Kildalton, where immigrants arrive in number during the winter. In 1906 Mr. M'Donald discovered twenty nests in that district. An interesting account of the Woodcock in Islay in winter is given by Thompson (*ibid*, II., pp. 243-246). In an exceptional year (1846-47) a thousand birds have been killed in the season at Ardimersy and Islay House together.

[GREAT SNIPE (*Gallinago major*).—In "A Fauna of Argyll, &c.," p. 175, a bracketed note records one Great Snipe at the Rhinns of Islay on 27th November, with the remark: "the Great Snipe is rarely seen here."]

COMMON SNIPE (*G. cælestis*).—An abundant species that may be flushed at any time in suitable ground.

JACK SNIPE (*G. gallinula*).—A winter visitor. Mr. M'Donald says they are frequent about Kildalton. We never saw any during our winter visits.

DUNLIN (*Tringa alpina*).—Small flocks are to be found in the summer months on Laggan sands, at Ardmore and Lochindaal, and one or two pairs at various parts of the shore. The greatest number I have seen together was between fifty and sixty. They are not so frequent in the winter, as we only came across one small flock at the distillery, Port Ellen, on 4th January, 1910.

PURPLE SANDPIPER (*T. striata*).—This winter visitor we have only seen on two occasions. One was shot in the Ard, on 3rd January, 1910, and a few were seen on the rocks at the distillery, Port Ellen, on the 4th.

SANDERLING (*Calidris arenaria*).—This species came under my notice for the first time this year. On the 4th August there were seven on the Laggan sands, and on the 26th thirteen were feeding among the turned-up sea-weed.

COMMON SANDPIPER (*Totanus hypoleucus*).—A common summer visitor. It may be seen all along the shore, and by the side of burns where they approach the sea. Its piping call is heard up to the middle of August in the Ard, Port Ellen.

COMMON REDSHANK (*T. calidris*).—Very abundant after the breeding season and in winter all along the shores. "Numbers, annually, form their nests on the gravel, like the Ring-Plover, along the shores of Islay and the neighbouring islets, as I have been assured by those who have gathered their eggs" (Thompson, "N.H. of I.," II., p. 208).

GREENSHANK (*T. canescens*).—"As may be expected, it visits the island of Islay. I have seen specimens which were shot there" (Thompson, *ibid*, II., p. 220).

COMMON CURLEW (*Numenius arquata*).—Abundant on the shores and marshy glens near the shore after the breeding season.

WHIMBREL (*N. phaeopus*).—"In the island of Islay, Scotland, the Whimbrel is annually seen on its spring passage northward; but has not been observed at any other season by my informant."—Thompson, *ibid*, II., p. 198.

COMMON TERN (*Sterna fluviatilis*).—This species nests on many small islets, from Ardmore round the coast to Lochindaal. On Tarrskeir, a small rocky islet to the south of Texa, and about two miles from Port Ellen, a colony numbering from 400 to 500 birds nested in 1906 and 1907. I first visited the rock on 7th July, 1906, and found that every available spot was a nesting-place. A few young birds were about on this occasion, but on a visit shortly after there were many. Since 1907 this colony has gradually shrunk in size till, during this season, not a bird has nested on the rock. I attribute this to the ruthless manner in which the eggs were lifted for foodstuff. The ternery was large and easy of access, and the quantity of eggs gained with little trouble would better repay a visit than would be the case in travelling among the smaller terneries. These depredations are, it would seem, an old story, as Thompson ("N.H. of I.," III., p. 355) says that in 1849, in two days, eight hundred and fifty eggs of the Common Gull and Common Tern were collected on Kinrevock and a neighbouring islet. By far the greater number were those of the gull, as it was early in the season.

In "A Fauna of Argyll, &c.," p. 186, the authors write: "In Islay, Terns have taken principally to the fresh-water lochs, having deserted the shore-line greatly, owing to persecution, as we are credibly informed." At present it is hardly as bad as this, as there are numerous small nesting colonies on the smaller rocks.

ARCTIC TERN (*S. macrura*).—It is practically impossible to distinguish this species from the foregoing while they are on the wing, but I have frequently seen the Arctic Tern at rest on the rocks. I have never observed more than seven together, and this number were resting at Knockangle, on 26th August this year. They are not anything like so numerous as the Common Tern in Islay. I have not managed to locate any of their nesting-places.

BLACK-HEADED GULL (*Larus ridibundus*).—Common. Thompson ("N.H. of I.," III., p. 334) remarked large flocks of them about Loch-in-daal in January, 1849. It breeds sparingly in Loch Gorm.

COMMON GULL (*L. canus*).—This is the most numerous Gull in Islay. Hundreds of them gather together in July, August, and the winter months. They nest on several of the islets on the coast, and probably by the side of some fresh-water lochs, where I have seen very young birds. Thompson (*ibid.*, p. 354) says he visited what is “apparently one of their finest breeding haunts on the British coast.” This was on Kinrevock, mentioned under Common Tern above.

HERRING GULL (*L. argentatus*).—Common and generally distributed. It nests on the cliffs to the south of the Oa.

LESSER BLACK-BACKED GULL (*L. fuscus*).—Not so numerous as the foregoing, but met with all round the island. It nested, and probably still nests, in Loch Gorm. I have seen very young birds on Leorin Lochs, by the side of which I believe the parents must nest. During this season the Lesser Black-backs were less numerous than usual.

GREATER BLACK-BACKED GULL (*L. marinus*).—Nests on the stacks at the Oa. It is by no means a numerous species, but is fairly well distributed over the coast.

KITTIWAKE (*Rissa tridactyla*).—A distinctly scarce species in Islay. One or two occasionally follow the steamer into Port Ellen. The only other occurrences I have noted are of one seen at Kintra, on 12th July, 1907, and another seen at Slochd Mhaol-Doraidh, on 8th July this year.

IVORY GULL (*Pagophila eburnea*).—Gray records one obtained in Islay in February, 1867.

RICHARDSON'S SKUA (*Stercorarius crepidatus*).—I had the pleasure of seeing this species for the first time in company with Mr. J. Paterson, near Knockangle, on 11th July this year. It was a dark-coloured bird. On the 28th of the month I saw another bird south of Knockangle. This one had the cheek, neck, and underparts dingy white. On inquiring at Port Ellen, I found the bird was known to the fishermen, who have a Gaelic name for it, the nearest rendering of which, in English, is “the squeezer.” From the description, I believe the bird they are acquainted with is this species.

RAZORBILL (*Alca torda*).—Thompson (“N.H. of I.,” III., p. 236) mentions the breeding haunt of this species in Islay. It nests on the cliffs at the Oa, where the birds are fairly numerous. After the nesting season they are to be seen in the waters round the island.

COMMON GUILLEMOT (*Uria troile*).—Thompson (*ibid*, III., p. 110) mentions “the headland of Oe. in Islay” as a nesting place. It nested on the cliffs at the Oa, where in former seasons it was fairly numerous. During three visits this season I failed to see a single bird there; indeed, the only one I did see this season was on the 12th August, near Port Ellen Lighthouse. They are usually to be seen at the end of summer everywhere around the island, though not in number. Its disappearance from the Mull of Oa is probably to be attributed to the cause—whatever it may be—which has led to its simultaneous disappearance from Ailsa and Rathlin.

BLACK GUILLEMOT (*U. grylle*).—Thompson (*ibid*, p. 217) says: “At Islay I saw some of these birds, which were shot there at the end of December, 1848.” It nests at the Oa, and is more numerous than the Common Guillemot. It is regularly seen in the waters off Port Ellen.

LITTLE AUK (*Mergulus alle*).—A bird of this species was got at Kildalton, in 1906.

PUFFIN (*Fratercula arctica*).—Thompson (*ibid*, p. 222) says the Oa is annually visited by Puffins. Nests on the cliffs at the Oa, and is numerous in summer. This season I saw quite a number of dead birds among the rocks at the east side of the peninsula of the Oa.

GREAT NORTHERN DIVER (*Colymbus glacialis*).—Thompson (*ibid*, p. 200) says:—“I ascertained, when at Islay, in January, 1849, that the Great Northern, as well as the Red-throated Diver, are regular winter visitants: I saw some of the latter species.” I have never seen this species off the shores of Islay, but I am told one was shot near Ardbeg early this year.

RED-THROATED DIVER (*C. septentrionalis*).—Nests in a number of fresh-water lochs in Kildalton. Mr. MacLeod and I watched one for some time in Leorin Loch. When it rose from the loch it uttered a harsh “kara-kara.” It flew up in a spiral, calling all the time, and when at a sufficient height made straight in the direction of Laggan Bay. It is frequently seen in the waters off Kildalton and the Oa during winter, and six were observed in Port Ellen Bay on 2nd January, 1908.

LITTLE GREBE (*Podiceps fluviatilis*).—Said to be a common breeding species, but I have only seen it on three occasions—one at Loch an-t-Sailein, on 31st December, 1909; a pair on the same loch, on 5th January, 1910; a pair on Claggain Bay, on 2nd August this year.

STORM PETREL (*Procellaria pelagica*).—During a severe storm, with the wind from the south-east, one was driven on the sands at Kilnaughton Bay, and brought to me alive. In the same storm that delayed the Grey Phalaropes, many Storm Petrels sought shelter in Lochindaal (“A.S.N.H.,” Vol. I., p. 72).

Note.

Greenland Wheatear (*Saxicola œnanthe leucorrhoa*) **on St. Andrew's Day at Possil.**—Mr William Rennie writes that on 30th November, 1913, he saw a Greenland Wheatear at Possil Marsh. This is a doubly interesting event—this large form just beginning to get the notice it deserves locally, and the date being quite notably late even for that race. We see in the British Ornithologists' Union's Report, noticed above, the latest occurrences in 1911 were on three dates in November, the latest on the 18th. In the Report on Ornithology in Scotland, in 1912 again, the latest date is 14th October, at Fair Isle.

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[February, 1914.

On some Mosses from the West Highlands, &c.

By JAMES STIRTON, M.D.

[Read 27th January, 1914.]

SINCE recording in the "Scottish Botanical Review" for April, 1912, the finding of *Leucobryum pumilum* near Gairloch, I have succeeded in finding, amongst my rather bulky collections of this moss, some specimens of *L. albidum* (Brid.), from Orkney, near Loch Harray. I am gratified at this discovery, more especially as all the three species hitherto reckoned likely to be found in Europe are natives of the British Islands.

In this collection, extending over many years, were also found two tufts, on a larger scale than usual, where the stems varied in length from $1\frac{1}{2}$ to 3 inches. The more interesting of the two was from Loch Tay, near Killin. Notes of an examination of this, taken a short time after gathering it, have reminded me of a peculiarity such as I had never previously observed in any species of this curious and interesting genus. After making thin cross-sections of the leaves, I happened to have pressed the microscope down inadvertently on the cover; thereafter I saw, issuing through the pores of the larger quadrate cells of the so-called broad nerve, numerous globular, hyaline cells not much less in diameter than the pores themselves, which extend nearly continuously throughout the larger or middle quadrate cells. Such cells varied in size

from .016 to .025 mm. across, and had perfectly homogeneous, non-granular contents. These contents were very probably gelatinoid, from the appearances presented in two instances where the rather thick hyaline cell-wall had been ruptured. Eleven years thereafter thin sections of the leaves of the same stem were again made, when no such cells were detected, but merely irregularly shaped, almost shrivelled-up bodies, containing numerous very minute cells, each showing a bright lustrous point. As is well known, such minute cells generally constitute the first part of germination of spores, &c. Is it possible that such hyaline cells act the part of spores, or rather of propagula? If so, the first act of germination had been clearly arrested from want of moisture, &c., in the herbarium. This moss is nearly related to *L. albidum*, if not identical with it. I shall certainly make another attempt to arrive at a definite conclusion concerning its identity. As is well known, *L. glaucum* is nearly as common as any moss on our hills and vallies, and yet it very seldom produces fruit. I have only met with it fertile in one instance, viz., on Ben Lawers.

As it is not likely that I shall make further researches in the direction indicated above, I have thought it right to state honestly and without reserve what I saw, more especially as such a mode of propagation (if it be so) amongst the many and varied kinds presented by mosses has not hitherto come under my observation.

The Rev. John Fergusson on one occasion wrote to me with reference to his discrimination of two mosses found by himself, viz., *Andreaea obovata* (Thed.) and *Grimmia robusta* (Ferg.). His determination had been challenged by others; and the first of the mosses in question had been referred to *Andreaea alpina*, as merely a stunted form; while the second had been referred to *Grimmia Schultzii*, as merely a variety. This decision happened to tell rather heavily on him, until he was reminded of the fate attending Wilson's later determinations, viz., that 5 out of 12 mosses had shared the same or a worse fate than his.

Before discussing these two mosses, it might not be reckoned amiss were I to give a sketch of the circumstances attending the occasion of my first meeting with Fergusson.

In July of 1863 I paid a second visit to the Clova mountains, mainly at the solicitation of Mr. W. Wilson, author of the "Bryologia Britannica," for the purpose of ascertaining whether the beautiful little moss, *Bartramidula Wilsoni* (Sch.), still held its place in Glen Dole. I alighted upon a few barren stems, while only two such showed arche-gonia surrounded by antheridia. Following up the stream called the White Water, I rested near its source, at the base of a mountain known to the inhabitants of the district as "The Little Culrannoch," or *Tom Buidhe*, as it is termed on the map. There I partook of some refreshment, but had scarcely finished when a party of four hove in sight, and came slowly and, as I thought, wearily towards me. One of these turned out to be Fergusson, who acted as guide to an English clergyman named McAll and his two daughters. After the usual salutations, Fergusson asked me if I could direct his party to the Little Culrannoch. I told him that if he stepped across the streamlet at his feet he would then be at its base. After taking a look upwards, he expressed a doubt of my accuracy, and said, besides, that he was aware that the mountain was more than 3,000 feet above sea-level, and that this appeared little more than a largish mole-hill. I reminded him that he and his party had been tramping for nearly an hour over a table land not much less than 3,000 feet above sea-level. I accompanied his party to the summit, and they secured what they had come for, viz., *Lychnis alpina*. Having got several other "floral treasures," as the ladies called them, we agreed to make for another mountain quite near us, called "Tolmount." From the summit of this second hill we obtained a glorious view of a part of Glen Callater. Fergusson seemed fascinated with this deep, dark glen, and especially with the loch of the same name near its centre. He burst out: "I shall be there not many days hence!" This he could readily do, as he then held the living of Glen

Prosen, not many miles distant from where we were. From this time commenced a long intercourse with him, which extended to within a few years of his death. A more courageous and enthusiastic botanist I have never met, nor a more trustworthy friend.

As Fergusson there and then expressed a wish to commence the study of mosses, I soon put into his hands, in such a region, more than 30 species. From Glen Callater he sent me from time to time several rare and valuable species; and amongst them was one collected there in 1868, bearing, on the bit of newspaper which enclosed it, the name *Andreaea obovata* (Thed.). It is on this moss, and another collected by myself near the summit of Ben Nevis in 1864, that I wish to make some remarks; and at this stage I am again tempted to tell the curious circumstances attending the finding of the second of these *Andreaeæ*, viz., *A. alpina* var. *compacta* (Hook.).

My chief object in visiting Ben Nevis was to secure *A. nivalis* (Hook.). Having got this in considerable abundance, I turned and renewed my search for other mosses, but was soon interrupted by the approach of a party, who were evidently under the guidance of an old man. The party settled not far from me, but the guide soon detached himself from his charge, and walked slowly and hesitatingly in my direction. I continued my researches, while he still watched me; and on my plumping down to examine another *Andreaea*, he approached and said, "Aye, you have got it, I see." "Got what?" I asked. "Oh! the wee plantie got there by Mr. Hooker and Mr. Bore, saxty years back, when I was with them—the plantie they were so prood o'." "A Mr. Bore," I said; "was not his name Borrer?" "Na, na! just Bore," he hadna sic a tail to his name as that." I did not controvert him, but gave him a dram and left. On my return to the hotel I was told that he was nearly 80 years old, and that he came from Glen Isla, where no Gaelic had been spoken for centuries. I have no doubt the gentleman in question was Mr. Borrer, the lichenologist, and that the other was

Sir William Hooker, then or afterwards Professor of Botany in the University of Glasgow.

Besides *A. alpina* var. *compacta* (Hook.), from Ben Nevis, I possess two specimens of *A. obovata* (Thed.), from Sneehattan, in Norway—the one from the base, and the other from a considerable height up the mountain. Now, these two bear a close resemblance to the specimen from Ben Nevis, as well as to Fergusson's plant. Those from Prof. Zetterstedt are identical in appearance with the Scottish plant, more especially in the curious rope-like aspect of the stems, closely clasped by the minute, hollow leaves. Again, so far as I have ascertained, one half of the stems in Fergusson's moss have leaves with either no serratures on the lower margin (just as in *A. obovata*), or so faint as merely to show as very slight undulations; while in such cases the upper margin is nearly straight, although slightly shorter, as a rule, than in the Norwegian moss. Lastly, the upper cells of the leaf are certainly variable throughout the three mosses, and the outlines of these cells are also irregular throughout; but Fergusson's moss, with entire margins below, has the upper cells also with irregularly outlined walls, almost of the same length, although somewhat thinner than in the Norwegian plant.

I infer from all these circumstances that Fergusson's *Andreaea* from Glen Callater has closer affinities to *A. obovata* than to *A. alpina*, and is very probably merging gradually into the latter.

Grimmia robusta (Ferg.) has by some been referred to *G. Schultzei* (Sch.) as a mere variety, but differs in the cells of the leaves in the upper third, or even in the upper half, of the stem, being interruptedly bistratose throughout their entire extent, even to the point of attachment to the stem; while in *G. Schultzei* only one or, occasionally, two couples of marginal cells in the same region are bistratose. It also differs in the areolation throughout the leaf being only slightly sinuose just above the basal elongated cells, in many instances scarcely any sinuosities being seen at all; while,

in the other, the cells in part of the lower and whole of the middle third of the leaf are more or less sinuose, and this sinuosity is not infrequently to be seen far up towards the apex. A third point of difference consists in the hair at apex being only very slightly spinulose, with the spines mostly attached; while the corresponding hair in *G. Schultzii* is much longer, as well as stronger, with the spines closely arranged and nearly all free. The yellow colour of the leaf in lowest fourth in *G. robusta* is also characteristic, even although in a small proportion of instances it is scarcely perceptible.

Accordingly, I consider *Gr. robusta* (Ferg.) to be a well-defined species. This moss is plentiful in the more western parts of Scotland, as well as in the Western Islands.

In rather close association with *Bryum elegantulum*, described in the number of the "Scottish Botanical Review" for April, 1912, I have detected in my gatherings at Gairloch a tuft of another minute *Bryum*, perhaps the most minute of all. These minute mosses are now five in number, and constitute a well-defined group, secured at various times and in as varied localities. They are as follows:—

1st. *Bryum Stirtoni* (Sch.)=*Br. barbatum* (Wils.). This is first in size as well as in priority of gathering, having been obtained 50 years ago.

2nd. *B. leptaleum* (Strn.); Annals of Scot. Nat. Hist., 1903.

3rd. *B. tenerrimum* (Strn.); Annals of Scot. Nat. Hist., 1907.

4th. *B. elegantulum* (Strn.); Scot. Bot. Review, 1912.

5th. *B. perpusillum* (Strn.); Scot. Bot. Review, 1912.

As I may have another opportunity of tracing more closely the relationships of these minute species of *Bryum* to one another, I shall content myself meanwhile by describing the most delicate of the group.

BRYUM PERPUSILLUM.—In dense, nearly flat tufts, of a dark or dirty bluish colour above, brown below; stems slender, fragile (about .15 mm. thick), simple or divided in upper third, from half-an-inch to one inch long; leaves very minute, about .8 mm. in length, laxly disposed in lower part of stem,

rather abruptly congested into a longish oblong cluster at and near apex (where they are so closely imbricated, both in a wet and dry state, as to be nearly impervious to light), very concave, broadly elliptical and rounded at their apices, with a short bluntly-triangular apiculus, slightly everted when dry, nearly upright when wet; nerve slender, narrowing upwards and vanishing considerably below apex, reddish in lower part, pale above; margin plane, entire, composed of one or often of two rows of oblong attached cells, $\cdot 025 - \cdot 04$ by $\cdot 018$ mm., the other cells of pagina of various shapes, oblong below, rhomboid higher up, and lastly oblongo-hexagonal in upper third of leaf, all hyaline with well-defined but slender walls.

Habitat.—On mossy earth in Lovedale Woods, near an open marshy place, and close to Gairloch.

With the exception of *B. tenerrimum*, none of these five mosses can with any degree of assurance be placed under the subsection of *Bryum* called *Pohlia*. None of the five has hitherto been found in fruit.

Some Leeches of the Glasgow District.

By L. A. L. KING.

[Read 25th November, 1913.]

THE Leeches or Hirudinea are elongated segmented worms (Annelida), with suckers at the front and hind ends of their bodies, and with unpaired reproductive openings situated in the middle line of their under-surface. Each individual has the reproductive organs of both sexes. They are predaceous, attacking living animals. Some devour their prey piecemeal, others attach themselves to its body and suck its blood.

All the British Leeches known are aquatic with the single exception of Dutrochet's Leech (*Trocheta subviridis*, Dutrochet), which has been found on lawns and garden paths in England. It has not yet been recorded from Scotland (Harding, 1910, page 184.)

Fourteen species have been recorded as British (Harding, 1910.) Of these, one, the Medicinal Leech (*Hirudo medicinalis*, L.), is said to be now extinct.

The Clyde Area List (Scott Elliott, Laurie and Murdoch, 1901, page 363), names two Leeches, in the section on Marine Worms, edited by Dr. J. F. Gemmill. These are the Skate Leech (*Pontobdella muricata*, L.), and another referred to as (!) *Piscicola marina*, taken in Loch Goil, 24-40 fms., by the S. Y. "Medusa." Under this name Johnston (1845) described a leech parasitic on the fish *Aspidophorus cataphractus* from the coast of Northumberland. Harding (1910, page 138), refers Johnston's species, provisionally, to *Trachelobdella lubrica*, Grube.

Classification (after Harding, 1910).

ORDER HIRUDINEA.

Sub-Order I.—"Snouted Leeches" (Rhynchobdellae), with colourless blood, with protrusible proboscis, without jaws, marine and fresh-water.

Fam. 1.—"Fish Leeches" (Ichthyobdellidae), with body divided into a "neck" and an "abdomen;" both suckers permanent, cup-shaped or disc-like.

Fam. 2.—"Siphoned Tongue-Leeches" (Glossosiphonidae), with body tongue-like, flattened; anterior sucker, only slightly, if at all, differentiated from the rest of the body.

Sub-Order II.—"Snoutless Leeches" (Arhynchobdellae), with red blood, without protrusible proboscis, generally with jaws; anterior sucker not distinct from the body; fresh-water and terrestrial.

Fam. 1.—"Jawed Leeches" (Gnathobdellidae), with jaws, as a rule finely toothed, and with usually five pairs of eyes.

Fam. 2.—"Serpent-like Leeches" (Herpobdellidae), without jaws; with four pairs of eyes arranged in two transverse rows.

In these notes only the more obvious external features are considered, but in the work of identification use has been made of the details of external segmentation and of the form and arrangement of internal organs. An account of these details,

with figures, will be found in Harding *loc. cit.* Identification should be carried out if possible while the specimens are alive.

List of the Species referred to below:—

RHYNCHOBDELLAE.

Ichthyobdellidae:—

(?) *Trachelobdella* sp.

Pontobdella muricata (L.)

Glossosiphonidae:—

Protolepsis tessellata (O. F. Müller.)

Glossosiphonia complanata (L.)

Helobdella stagnalis (L.)

ARHYNCHOBDELLAE.

Gnathobdellidae:—

Haemopsis sanguisuga (L.)

Herpobdellidae:—

Herpobdella octoculata (L.)

ICHTHYOBDELLIDAE.

Trachelobdella sp. (See Note at end of paper, p. 46.)

Three preserved specimens of a small marine leech found on the skin of the Spur Dogfish (*Acanthias vulgaris*) were sent to the writer by Mr. R. Elmhirst, Superintendent of the Millport Biological Station. The largest is about 15 mm. in length, the others about 10 mm. each. The body is vermiform and two suckers are present. The anterior sucker is expanded, disc-like and thin. Its diameter is approximately 1.5 mm. in the largest specimen. The posterior sucker is also discoidal but larger, approximately 2 mm. in diameter in its present state of partial contraction.

Pontobdella muricata (L.)

= *Hirudo muricata*, Linnaeus, 1754.

= *P. muricata*, de Blainville, 1818; etc.

The common marine leech of the Clyde Area, found as a parasite upon the body of various species of Skate (*Raja* spp.), locally known as the "Skate Leech" or "Sucker." Its egg-capsules, of which dried specimens are exhibited, are attached in

groups by separate stalks to stones, pieces of coal shells, &c. They are so brought up by the dredge from stony ground in the neighbourhood of the Millport Station, at depths of from 5 to 15 fathoms or more. Each capsule, when dried, has the size and appearance of a dried clove.

In the case of several specimens of this leech in captivity at Millport during the past Summer, the method of attack in feeding upon a Skate, was observed. Directly the Skate, placed in a tank in which the leeches were resting attached to the walls, brushed against a leech, the animal planted its anterior sucker rapidly on the skin of the fish, let go its hold of the tank with its posterior sucker, curled its body into a coil, leaving the posterior sucker free, and was carried along by the Skate. It must have inserted its proboscis at once, as the Skate showed signs of discomfort and dashed excitedly about the tank.

GLOSSOSIPHONIDAE.

1. With four pairs of eyes. (Genus *Protoclepsis*, Livanow, 1902.)

Protoclepsis tessellata (O. F. Müller.)

= *Hirudo tessulata*, O. F. Müller, 1774.

= *Nephelis tessellata*, Savigny, 1822, etc.

= *Clepsine tessulata*, Fr. Müller, 1844.

= *Glossiphonia tessellata*, Moquin-Tandon, 1846.

= *Hirudo vitrina*—the Glassy Leech, Dalyell, 1853.

= *Hemiclepsis tessellata*, Vejdovsky, 1883 ; etc.

Three specimens of this interesting leech were found by the writer, on 30th May last, on the under side of a stone near the mouth of the outflow channel from Possil Loch to the canal. They were large gelatinous-looking leeches, translucent, greyish green. Two of them were flecked with black pigment ; the third, more flattened and leaf-like in form, was almost devoid of this pigment, and almost transparent. The length of the specimens, when moderately contracted, was approximately 20 mm. ; and the width about 4 mm.

Papillae, visible by reflected light, occurred dorsally on the first ring of each somite or complete segment (here consisting of three

rings, for the greater part of the length of the body). The anterior end of the body was slightly expanded.

The writer, not at first aware of the identity of the leeches, supplied water-snails, aquatic worms, and larvae of aquatic insects for their food. They did not feed. This is not surprising, as it appears (Harding, 1910), that *P. tessellata* "is parasitic upon various species of waterfowl, and particularly upon the fresh water ducks (*Anatinae*)." It is said to attach itself to the walls of their oesophagus. As is well known, waterfowl abound on Possil Loch.

The species was recorded by Dalyell (1853), from Berwickshire, the counties of Edinburgh and Linlithgow, and the Island of Bute.

2. With three pairs of eyes. (Genus *Glossosiphonia*, Johnson, 1816.)

Glossosiphonia complanata (L.)

= *Hirudo complanata*, Linnaeus, 1758, Dalyell, 1853.

= *Glossiphonia tuberculata*, Johnson, 1816.

= *Clepsine complanata*, Savigny, 1822; etc.

According to the observations of the writer, this is the commonest species of fresh-water leech in the Glasgow district. He has found it repeatedly at Anniesland and at Possil, and also in the burn at Gleniffer Braes, Paisley. It occurs usually on the under side of stones, or attached to the stem of water weeds, where it may be found stretched out and clinging by its suckers. When detached it almost invariably rolls itself up, like the Armadillo Woodlouse (*cf.* Harding, *loc. cit.*) Papillae on the first ring of each true segment are more conspicuous than in the previous species. The colour of the specimens from Anniesland was brown, the pigment being in streaks or striae, longitudinal and transverse. Those taken at Possil and at Paisley were lighter in colour, uniform pale brown to greenish yellow. Length at rest, slightly extended about 20 mm., width about 8 mm. Specimens kept in captivity were fed on small pond-snails (*Lymnea peregra*), and on "bloodworms," the larvae of *Chironomus*, a gnat.

3. With one pair of eyes. Body smooth. (Genus
Helobdella, R. Blanchard, 1896,)

Helobdella stagnalis (L.)

= *Hirudo stagnalis*, Linnaeus, 1758, Dalyleil, 1853, etc.

= *Clepsine bioculata*, Savigny, 1822.

= *Helobdella stagnalis*, R. Blanchard, 1896; etc.

A small, almost transparent, and very active leech found by the writer in an aquarium containing weeds from Possil Marsh, and also from Anniesland. The locality is therefore uncertain as between these two grounds. The single specimen, of which a cleared preparation is exhibited, shows distinctly the small, rounded, brown horny plate in the dorsal middle line between rings 12 and 13.

The length of the specimen, moderately extended, was 13 mm., and the greatest width about 2 mm. When alive it swam and crawled actively, and was pale fleshy-brown in colour, finely speckled with black. It is said to be parasitic, mainly upon water-snails and *Chironomus* larvae. *Lymnea truncatulus* and bloodworms were both present in the tank in which it was found.

GNATHOBDELLIDAE.

Haemopsis sanguisuga (L.)

= Horseleech, Mouffet, 1634, etc.

= *Hirudo sanguisuga*, Linnaeus, 1761, Dalyleil, 1853, etc.

= *Aulastoma nigrescens*, Moquin-Tandon, 1826.

= *Aulostomum gulo*, Diesing, 1850; etc.

This is the so-called Horse-Leech of several authors. It is carnivorous, not parasitic, and feeds upon Earthworms, which it eats and does not merely suck, as the writer has observed on several occasions. It is also said to eat Molluscs, aquatic larvae, tadpoles, and small fish and frogs. It is almost of the size of the Medicinal Leech (*Hirudo medicinalis*, L.), which it resembles in general form, and in being usually of a dark green hue above; but it is without the characteristic brown, orange, and black pattern-marking of that animal. The ventral surface is usually green or greenish grey, with black specks and streaks. This leech is common amongst the mud of small streams running out

of the marsh at Possil, and has also been found at Anniesland. In captivity it shows a great tendency to leave the water in which it is confined, and to effect its escape, or, if this is prevented, to attach itself to the sides of the vessel at or above the surface of the water.

HERPOBDELLIDAE.

Herpobdella octoculata (L.)

= *Hirudo octoculata*, Linnaeus (in part), 1761.

= *Nephele vulgaris*, Moquin-Tandon (in part), 1826,
and many other authors.

= *Herpobdella octoculata*, R. Blanchard, 1894; etc.

This leech is common in Possil Marsh amongst the sheath-leaves of bulrushes. It is ribbon-like in form, usually reddish brown, or pink when young, and about 20 to 25 mm. long in the specimens examined by the writer. In May, its flattened horny cocoons, containing usually 2 to 3 eggs each, are found attached to the submerged sheath leaves, particularly the dead leaves of bulrushes around the margin of the loch or in the outflow channels.

Specimens kept in captivity were supplied with small aquatic worms (*Tubifex*), and also with insect larvae, and with pond-snails. The process of feeding was not observed.

Up to the present, then, without any systematic search having been made for leeches in this district, six, possibly seven, of the thirteen known British species, have been found to occur around Glasgow or in the Clyde Sea Area. It is possible that most of the remainder will be discovered if proper attention is given to the study of this group. Identification is not difficult owing to the completeness of description and of illustration afforded by the paper of Harding, to which the writer is largely indebted for the possibility of supplying these notes.

A convenient pocket-book of leeches, written in German, is—

“Die Süßwasserfauna Deutschlands” of Dr. Brauer, Heft 13.

“Oligochaeta und Hirudinea,” by Dr. L. Johansson (Fischer,
Jena, 1909).

NOTE ON (?) *Trachelobdella* sp.

Two living leeches taken from the sides of a Cod have been sent to me (January 1914), from Millport, by Mr. Elmhirst. There is little doubt that they belong to the same species as the preserved specimens mentioned above (p. 41). A brief description is as follows:—Body vermiform, tapering gradually towards the front. Colour, whitish with a pale fleshy tinge due to flecks of orange pigment. Some of this pigment is superficial, as in the suckers, some apparently situated in the tissues surrounding the gut, and most markedly developed in the clitellum. The appearance to the naked eye, agrees with Dalyell's (1853) "supposed" *Hirudo vittata*, in his Pl. I. fig. 21. Length—extended, 26 mm.; contracted, 15 mm. Breadth—0·5 mm. to 0·8 mm. Suckers occur at both ends. The posterior is discoidal; diameter 2 mm. The anterior is discoidal when attached; diameter, 1·5 mm.; when free, has its lateral margins approximated so as to enclose ventrally a longitudinal groove. Paired lateral vesicles project in the hinder half of the body. The male genital opening, with exsertile penis, occurs in the clitellum, and at a distance of 5 to 6 mm. from the anterior end. No eyes are present.

In general the specimens agree with the diagnosis of *Trachelobdella*, Diesing, as condensed by Harding (1910, p. 136), but as they do not agree in colour and markings with the description (*loc. cit.*) of the species *T. lubrica*, Grube, I record them here, provisionally, as (?) *Trachelobdella* sp. They are possibly young individuals.

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New Records of Mosses and Hepaticæ from Vice-County 87.

By JAMES M^cANDREW, Corresponding Member, Edinburgh.

[Read 28th October, 1913.]

DURING a holiday spent at Aberfoyle in June, 1913, the following Mosses were gathered by me within two or three miles of the village, and are all new records for Vice-County 87 (West Perth). The numbers prefixed to the names of species are those given in the *Census Catalogue of British Mosses*, 1907.

- 242. *Barbula recurvifolia* Schp.
- 320. *Orthotrichum diaphanum* Schrad.
- 345. *Funaria Templetoni* Sm.
- 419. *Bryum erythrocarpum* Schwæg.
- 421. *Bryum atropurpureum* Web. & Mohr.
- 470. *Leskea polycarpa* Ehrh.
- 511. *Brachythecium populeum* B. & S.
- 536. *Eurhynchium murale* Milde.
- 564. *Hypnum riparium* L.
- 575. *Hypnum fluitans* L. (Group *jalcatum* Schp.), var. *ovale* Ren., forma *angustifolia*.
- 576. *Hypnum exannulatum* Gümbl., var. *brachydietyon* Ren.
- 585. *Hypnum cupressiforme* L., var. *resupinatum* Schp. ; var. *ericetorum* B. & S. ; var. *tectorum* Brid.

The following Hepaticæ were also gathered in the same district, and are new records for Vice-County 87. The numbers are those of the *Census Catalogue of British Hepatics*, 1913.

11. *Riccia sorocarpa* Bisch.
111. *Lophozia bicrenata* (Schmid.) Dum.
152. *Harpanthus scutatus* (W. & M.) Spruce.
250. *Madotheca Thuja* (Dicks.) Dum.—This Hepatic is very rarely found inland.
274. *Frullania fragilifolia* Tayl.

Kilkerran and its Trees.

By JOHN RENWICK.

[Read 25th November, 1913.]

KILKERRAN, an estate belonging to Major-General Sir Charles Fergusson, Bart., D.S.O., is situated in the valley of the River Girvan, and in the parish of Dailly, Ayrshire.

The name commemorates St. Ciaran, who lived in the seventh century. Chalmers states that the parish was anciently called Dalmakeran [the field of the dear Kieran], or Dalmaolkeran [the field of the tonsured Kieran].

The old tower of Kilkerran had been, says Paterson in the "History of Ayrshire," a place of great strength at one time. It stood on the margin of a deep ravine among the hills.

The modern mansion occupies the site of the strong-house of Barmaclanachan or Barclanachan. The old part was built about 1650, an addition in 1800, and the third part in 1870. About 1686, when Abercrombie wrote, it was surrounded by a thick wood. He says: "Upon the south side [of the valley], and at some distance from the river, stands the house of Barclanachan, with its gardens and orchards, all which are surrounded by a wood. All the water from this downward, till near Daillie, being so covered with wood that it looks like a forest." "Water" here means the ground on the side of the river. In

the Border ballad of "Jamie Telfer," the bauld Buccleuch gave orders to "warn the water, braid and wide": that is, to alarm those who lived along its side.

The writer of the Statistical Account of the parish (1793), states: "It is computed that 2,500 acres are under wood, natural or planted. The trees planted are generally oak, ash, plane [sycamore], and elm, with such proportion of Scotch, larch, and spruce firs, as fills the ground for an early crop. The indigenous trees are chiefly oak, ash, and birch." Mr. James Maxwell, the overseer and forester on the estate, to whom I am much indebted for information and for attention on my visits, writes: "During the last eighteen years about one million and a-half of trees have been planted in Kilkerran, about the half of them larch. Of late years we have not planted as many larch as formerly. On 27th April, 1903, there was a very severe frost which injured the young larch trees badly, more especially in damp ground, where there was too much moisture hanging on the foliage. As all the side branches were frosted many of the trees died. After ten years some are just beginning to recuperate. The hardwoods planted were mostly oak, ash, sycamore, elm, and beech; with Scots fir and spruce of different kinds suited to the various soils. We planted about 40,000 Sitka spruce last season. It is a quick-growing tree, but grows rather rough in the side branches when not checked."

Proceeding now to deal with some of the more notable trees, we observe that near Mr. Maxwell's house, which bears a name familiar to Glasgow people—Ruglen—are two fair-sized Grey Poplars (*Populus canescens* Sm.). Lower down the road is a somewhat dilapidated Silver Fir (*Abies pectinata* DC.). Mr. Maxwell states that it was frosted about the middle of June, 1911, and again on 14th June, 1912, and that it will hardly recover, as the side branches are nearly all dead. On the opposite side of the road is a Noble Silver Fir (*Abies nobilis* Lindley), which was blown down in December, 1909, but was raised and is growing well: its height is now 60 feet. Within the policies is an Ash tree which has always had a different appearance from the Common Ash. It has pale yellowish foliage and yellowish twigs. Part of the stem near the ground has been broken, and much of of the bark eaten by rabbits. Prof. A. Henry, Dublin, to whom

I sent a specimen, replied that it looked like *Fraxinus excelsior* L. var. *aurea*, the Golden-edged Ash. There is, I think, a specimen in the Queen's Park, Glasgow.

Near the foot of the road to the garden is a fine English Elm (*Ulmus campestris* L.), with a bole of 32 feet, a girth in July of this year of 10 feet 6¼ inches; and a height in 1904 of 75 feet. Close to it is a large Elder or Boortree (*Sambucus nigra* L.) which rises to a height of 35 feet. It divides at 6 inches from the ground into two stems; the thickest one has a girth of 3 feet 6 inches at 3 feet up, and 1 foot 11½ inches at 5 feet. Not far from this is a Douglas Fir (*Pseudotsuga Douglasii* Carriere); girth last July, 11 feet ¾ inch; height in 1899, according to Mr. Maxwell, 102 feet.*

A Noble Silver Fir here had a girth in 1909 of 3 feet 1½ inches at 5 feet up. In this neighbourhood, on the side of the garden walk, is a remarkably fine Alder (*Alnus glutinosa* Gærtner), 7 feet 10 inches in girth last September; bole, 16 feet; height in 1899, 74 feet.

Entering the extensive park called the "pleasure ground," a small enclosure recently planted may be noticed. It marks the site of a very large Beech tree which was blown down in October, 1909. We measured this Beech in April, 1909, when it had the great spread of 120 feet in one way, and 116 feet at about right angles thereto, and a girth of 21 feet at the narrowest part of the short bole of 5½ feet. In 1904 we made its height to be 68 feet. Mr. Maxwell states that when it was cut up there were fully forty tons of wood in it, most of which went to the chemical works. From the rings of growth, he estimated that it would be about 220 years old. The average annual rate of girth increase would thus be 1.14 inch—a very high rate for the whole life, and undoubtedly largely accounted for by the fact that the short trunk included both the swell of the branches and that of the roots.

A Beech tree near the house was cut down in 1909. It had a long bole of 32 feet, with a girth of 12 feet 11½ inches at 5 feet up, quite free from the swell of the root. The age was about 200 years, the average increase in girth being thus, .78 inch annually. Loudon, in Vol. III., p. 1979, of his *Arboretum et*

* For any height given as in 1899, I am indebted to Mr. Maxwell.

Fruticetum Britannicum, dated 1838, records a Beech at Kilkerran; circumference of trunk, 24 feet; diameter of head, 96 feet; height, 75 feet; age, 130 years. The age agrees fairly well with our large tree, and suggests that the two may be the same. If so, the diameter of the head had increased 24 feet in about 72 years, but the height had apparently decreased 7 feet! We, however, often find that other measurements are more generous than ours.* The circumference of the trunk of the Beech, recorded by Loudon as 24 feet, has likely been taken at the ground; and, if we had taken it at the same place, I think it would have been over 30 feet.

At the back of the garden is a Beech of apparently somewhat greater girth (22 feet 3 inches at the narrowest part of a short bole of 4 feet), but the trunk is not quite solid. It has increased $11\frac{1}{2}$ inches between September, 1904, and July, 1913, or at the average rate of 1.35 inch annually, and is probably about the same age as the other, viz., between 200 and 220 years. A Beech near the Chapel well, with a bole of 12 feet, had a girth in July, 1913 of 14 feet 11 inches, and a height in 1899 of 71 feet; girth-increase during $8\frac{1}{2}$ years at the rate of .71 inch annually. In the pleasure ground is a large Black Poplar; bole, 24 feet; height in 1899, 88 feet; girth in July, 1913, 15 feet 5 inches; average increase during $8\frac{1}{2}$ years, .41 inch annually. Dr. A. Henry calls it var. *typica* Schneider, the glabrous form of *Populus nigra* L., a Continental form not native in Britain, where it is rarer than the variety *betulifolia*, the English Black Poplar. The tree shows signs of decay, and is probably not improved by the colony of rabbits which burrow among its roots. A Poplar near the stables, cut down in 1909, had a bole of 24 feet, and a girth of 14 feet at 5 feet. A small stream coming down from the hills to the south-east, and passing conveniently close to the mansion house, is called the Toddie Burn—the name, it is alleged, being derived from the circumstance that the water was found to be the best for brewing that delectable beverage! Crossing it we enter upon the region covered by the wood mentioned by Abercrombie, and find a very fine Hornbeam

* In one such case, a Larch at Auchentorlie, Dumbartonshire, recorded as 130 feet high about 1863, we found in 1907 to be only 95 feet. The proprietor assured us that it was the same tree.

(*Carpinus Betulus* L.). It girths 11 feet 7 inches at 4 feet, the narrowest part of a short bole of 7 feet. It has a great spread of foliage, no less than 96 feet, and a height of 60 feet. With the exception of one at Eglinton Castle, Ayrshire, which divides into three stems at 1 foot from the ground, and girths 15 feet 6 inches straight round, or 14 feet 3 inches at the narrowest on an irregular line, this is the largest Hornbeam we know in the Clyde area. The next is at Househill, Renfrewshire; girth, 10 feet at the narrowest part of the bole of 5 feet, with a spread of 72 feet in 1903.

There are a number of young Elms in the park, one of which, according to Prof. Henry, is *Ulmus nitens*, Moench, the smooth-leaved Elm; and another, with a height of 65 feet, is *U. nitens* var *stricta*, Aiton, "so far as the foliage goes." He wrote: "It should be rather a narrow tree," which is quite correct. *U. nitens* of Moench is the same as *U. glabra* of Miller, of Smith, and of Loudon; while var. *stricta* of Aiton is the Cornish Elm, which Loudon calls a variety of *U. campestris* L. Dr. Henry, from ten lots of seeds sent to him from different localities in Cornwall, raised in 1909 thirty-eight seedlings, all of which bore opposite leaves. The plants, two or three years later, were all uniform in appearance; and, he says, in all probability the Cornish Elm is a pure species. He states that *U. nitens* is unknown in Scotland except as a planted tree; while Mr. Elwes writes: "In Scotland I have not noticed any large tree of this species, but Mr. Renwick measured a tree at Loudoun Castle 107 feet by 15 feet 4 inches.*" This tree is now 15 feet 7 inches, with a height of 112 feet; and near it is another, 15 feet 4½ inches by 108 feet; while one blown down in the winter of 1909/10 was 16 feet 4 inches by 104 feet.

Near Kilkerran House are several Wellingtonias (*Sequoia gigantea* Decaisne), one of which is 90 feet high, with a girth of 9 feet 6½ inches; while another is 85 feet high, girth 14 feet 5 inches, both at 5 feet up (1913). A very fine Horse Chestnut (*Æsculus Hippocastanum* L.) behind the house has a girth of 14 feet 5 inches at 5 feet up, a bole of 22 feet, and a height in 1899 of 84 feet. Other large trees of this species in Ayrshire

* See Elwes and Henry, *Trees of Great Britain and Ireland*, VII. 1887, et seq.

are: at St. Quivox, 14 feet 10 inches; bole, 12 feet; spread 100 feet (1905); at Loudoun Castle, 14 feet 5½ inches; bole, 4 feet; height, 60 feet (1908). A little further from the house is a splendid Sweet Chestnut (*Castanea sativa* Miller), girth in 1913, 14 feet 9 inches at 5 feet; bole, 36 feet; height in 1899, 76 feet. It increased in girth, between September, 1904, and April, 1900, at the average rate of 1·19 inch yearly, and from April, 1909, to July, 1913, at the rate of 1·17 inch yearly. A Sweet Chestnut below the Lady Chapel increased during the same periods at the rates of ·87 and ·88 of an inch, and has now a girth of 13 feet 1½ inches at 5 feet; bole, 25 feet; height in 1899, 78 feet. A Scots Pine (*Pinus sylvestris* L.), on the opposite side of the walk from the larger Sweet Chestnut, has a girth (1913) of 12 feet at 5 feet; bole, 38 feet; height in 1899, 87 feet.

On the slope of a hill in the back wood, or Cockston Wood, is a very fine Silver Fir, which Mr. Maxwell considers is the largest on the estate, so far as the girth is concerned, though not the tallest. We made it to be 95 feet high; girth at 5 feet, 14 feet 11½ inches.

In the Chapel Wood, to the East of the house, are a number of Cedars, Spruces, &c. Two Sitka Spruces (*Picea sitchensis* Carriere) measure 10 feet 1 inch and 9 feet 4 inches respectively at 5 feet. An Oak (*Quercus Robur* L.) here has a girth of 10 feet 8½ inches at 5 feet. An *Araucaria* at the back of the garden was broken through the middle by a storm on 22nd December, 1894. Three small tops came up in the following year. Two were cut off. The tree has since made good growth and is now very shapely. At the other, or North, side of the garden a large Copper Beech (*Fagus sylvatica* L. var. *cuprea*) has a girth (1913) of 13 feet 2½ inches at 3 feet, the bole being only 5 feet. In 1909 Mr. Maxwell found the diameter of the head to be 73½ feet. Near it are a number of Turkey Oaks (*Quercus Cerris* L.), one of the largest having a girth of 7 feet 6 inches (1913), with a bole of 23 feet. The most beautiful part of the estate is the Lady Glen, a romantic ravine which the Shiel Burn has, in the course of ages, worn out of the sandstones, shales, &c. The characteristic tree is the Silver Fir, towering far overhead. Two of them were found by Mr. Maxwell in 1899 to rise to a height of 112 feet and 126 feet. They have now the girths of

13 feet $\frac{1}{2}$ inch, and 12 feet $3\frac{1}{2}$ inches respectively; while other two are larger, being 13 feet $8\frac{1}{2}$ inches and 14 feet $7\frac{1}{2}$ inches. This glen gets its name from the circumstance that in it there was a Chapel dedicated to "Our Lady"; hence also the name of the Chapel Wood. Trees, flowers, ferns, and mosses make it a desirable resort in the leafy summer months.

Notes.

Invasion of Wood-Pigeons (*Columba palumbus*).—An interesting note by the Duchess of Bedford on a remarkable irruption of Wood-Pigeons in Kirkcudbrightshire in the first days of November appears in the December (1913) number of the *Scottish Naturalist*. Mr. Wm. Rennie having observed larger numbers of this species about Possil in November than on any previous occasion, saw Mr. Aitkenhead, of Lochfaulds Farm, in that neighbourhood, regarding his experience this winter, and was informed by him that about the third week of November he noticed an unusual number about on his field, and in others round about. The numbers quickly increased till there were thousands about, and provided excellent sport for many gunners in the district, who kept them going from one farm land to another. By the 7th of December there were few about that neighbourhood. Mr. Aitkenhead has never witnessed anything like this irruption in his thirty-five years' experience. The fields the birds seemed most partial to were those that had been potato fields and are now sown with wheat. In the *Glasgow Evening Citizen* of 20th December appeared a note on this subject from "M.L.A.," who some weeks earlier had seen myriads on a field near Ardencaple Castle, Helensburgh, and later considerable numbers at Old Kilpatrick.

Podosphæra myrtillina (Schub.) Kunze.—In a former communication to the Society, I referred to the occurrence of this fungus in localities within the Areas of Moray, Forth, and Solway, and suggested the probability of its future discovery in the wooded district around Loch Lomond.* This surmise has proved correct, and I am now glad to be able to

* *Glasgow Naturalist*, IV., 86.

report the addition of the species to the list for the Clyde Area. When visiting Tarbet, Loch Lomond, on 17th September last, I found the *Podosphæra* abundant on leaves of *Vaccinium Myrtillus* on the side of the road leading up the loch. It may be noted that this species has now been reported for the first time from an English locality, having been detected in the neighbourhood of Haslemere, Surrey, in the course of the annual week's foray of the British Mycological Society, held in that district last September.—D. A. Boyd.

Reviews.

Bulletin of the British Ornithologists' Club. Vol. XXXII. (Witherby & Co., London, 6s.) This volume contains the notes on the migratory movements and records received from lighthouses, &c., relating to the autumn of 1911, also the report on the immigration of summer residents in the spring of 1912. When we noticed the last of this series of reports (see Vol. V., pp. 46, 47) we drew attention to a reported occurrence of the Pied Flycatcher in Argyll. This we have since learned was an error, the Spotted Flycatcher having been intended. In the volume now under notice we see it stated (p. 63) that an early Blackcap reached Renfrew on 5th April. We suppose this to be an error for 5th May, the date on which a pair was seen at Cathcart (Renfrew), as recorded in this journal (Vol. IV., p. 70). Errors of this sort are inevitable, we believe, where such a mass of detail has to be dealt with, and they are probably more annoying to the editors than they can be to the public. They in no way affect the general accuracy of the Report. It is only a seeming paradox that the weather being favourable for passage movements, they have been correspondingly less observed at lighthouses and lightships. Untoward conditions bring birds to lighthouses, and more often than not when there they are out of their way. Hence arises a difficulty in dealing with the phenomena of migration, that the data available we owe largely to influences disturbing its normal flow. The great feature of the winter of 1911-12 was the wreck of the Little Auk on the east

coast of Britain, and of this some interesting details are given. The birds began to appear in great numbers in the Pentland Firth early in November, 1911, and before the end of that month the first stragglers in Yorkshire and Lincolnshire were reported. Early in December they began to be driven south, considerable numbers arriving between Scarborough and Filey during the latter part of December. Gales on the 8th and 15th of January drove many hundreds ashore, but few were reported from Scottish localities after the end of that month. February opened with a fierce blizzard on the 1st and 2nd, which swept "enormous numbers" on to the east coast of England, and during the following ten days many stragglers were found scattered throughout England "to the east and north of a line through Sussex, Surrey, Buckinghamshire, Gloucestershire, Worcestershire, Shropshire, and Cheshire, while stragglers reached Counties Dublin, Wicklow, and Carlow in Ireland." So much for waste and pain in nature. *Per contra*, the weather during the spring passage was on the whole very favourable. The following list of first appearances during the month of March makes curious reading to Scottish observers:—Wheatear, 6th; Ring-Ouzel, 7th; Willow-Warbler, 10th; Chiffchaff, 14th; Yellow Wagtail, 16th; Wryneck, 17th; Sand-Martin, 18th; Swallow, 21st; Blackcap, 24th; White-Wagtail and House-Martin, 25th; Cuckoo, 26th; Redstart and Whitethroat, 27th; Common Sandpiper, 29th. We always feel that in the case at least of all the occurrences of rare birds or the rare appearances of more familiar species, under the heading, "Isolated records and single observations," the sources of the information should be indicated. Were a series of numbers assigned to the chief sources of information, the addition of the volume and the page would not be a very heavy matter. We feel that this is an improvement that must surely come with time.

The British Rust Fungi (Uredinales): their Biology and Classification.—By W. B. GROVE, M.A. 8vo. x., 412 pp. With 290 figs. Cambridge University Press. Price 14s. net.

Since the publication in 1889 of Plowright's "Monograph of the British Uredineæ and Ustilagineæ," an increasing amount of attention has been devoted to the investigation

of these groups of parasitic fungi. The importance of many species, in their relation to various diseases of field and garden plants and forest trees, has kept the subject under the notice of students of economic botany; while the remarkably interesting phenomena of heterœcism exhibited in the course of the life-histories of many of the rust-fungi, and the comparative ease with which specimens of most of the species can be collected and preserved, have also tended to render these organisms common objects of study. While Plowright's book has continued to maintain up till the present time a deservedly high position in popular esteem, the rapid advance made by Continental mycologists towards a better understanding of problems which Plowright failed to solve has rendered a revision of the British species of rust-fungi eminently desirable. This work has now been accomplished by Professor Grove in a manner certain to elicit the warm approval of students both at home and abroad. In the first five chapters, extending to 84 pages, an account is given of the life-histories of various typical species, while the most important biological features of the group are also fully described and explained. In the systematic portion of the work, extending from p. 85 to p. 390, a description is given of the families, genera, and species ascertained to occur in Great Britain or Ireland. An important feature of the book is the illustration of nearly every species by a figure placed in the descriptive text, and usually showing the shape and structure of the teleutospores. Another notable feature is that the species in the respective genera are not grouped under subgenera (such as *Leptopuccinia*, *Micropuccinia*, &c.), or in accordance with their heterœcism or autœcism, but are arranged according to their host-plants. As affording an indication of the progress made since Plowright's book was published, it may be stated that the species of *Puccinia* now claimed as British has been increased from 97 to 137, partly by the addition of novelties to the list, and partly by the separation of various forms which were included by Plowright under such comprehensive species as *P. pimpinella*, *P. hieracii*,

P. rubigo-vera, &c. Most of the changes introduced by Professor Grove will doubtless meet with approval and acceptance by the majority of British mycologists. It is possible, however, that some misgivings may be felt regarding an obvious tendency at the present time to accept implicitly the results of cultural experiments conducted on the Continent, but not yet verified by similar experiments successfully made in this country. When we consider that certain closely allied species of *Puccinia* differ in their life-histories, but yet so closely resemble each other in their spore-forms as to be practically indistinguishable, the necessity for caution is sufficiently obvious. The alleged heterœcism of various common British species of *Melampsora*, for example, would be more satisfactorily established if specimens of the æcidia could also be found to occur commonly in Britain on the host-plants said to be affected by them on the Continent.

Mildews, Rusts, and Smuts; a Synopsis of the Families Peronosporaceæ, Erysiphaceæ, Uredinaceæ, and Ustilaginaceæ.—By GEORGE MASSEE, F.L.S. Svo. 231 pp. With 4 plain and 1 coloured plates (73 figs). Dulau & Company, Limited, London. Price 7s. 6d. net.

The convenient size of this book, and the wide scope of its contents, should insure its popularity as a handy guide to the important groups of parasitic fungi with which it deals. In addition to descriptions of the British genera and species of Peronosporaceæ, &c., Mr. Masee gives useful keys to the genera included in the various orders, and to the species included in various genera; as well as descriptions of certain species which have not yet been detected in Britain, although occurring on the Continent on host-plants which grow in this country. In the Uredinaceæ, the species of *Puccinia* are arranged in accordance with the natural orders of the host-plants; but it is to be regretted that in the treatment of this particular group Mr. Masee falls short of the high level reached in Professor Grove's work. In a book professedly dealing with "Mildews," too, we should have expected to find a description of the parasitic Hyphomycetes, such as

Cladosporium fulcum, and the numerous species of *Ocularia*, *Oidium*, *Ramularia*, &c., which affect living plants. There is no mention of *Peronospora chrysosplenii* Fckl. as a British species, although it is included in Professor Trail's list (published in 1887) as having been found near Forres by the Rev. Dr. Keith, and has more recently been reported from Ayrshire. Other notable omissions are *Entyloma achilleæ* P. Magn., recorded for Bute; *E. Henningsianum* Syd., for Inveraray; and *Doassansia Martianoffiana* Schröt., for Ayrshire. As all these omitted species have been described in the *Transactions of the British Mycological Society*, and are represented by specimens in the Herbarium of the British Museum, it is difficult to account for their absence from Mr. Masee's book, unless on the assumption that the latter is restricted to such species only as are represented by specimens in the Herbarium at Kew.

Toadstools and Mushrooms of the Countryside: a Pocket Guide to the Larger Fungi.—By EDWARD STEP, F.L.S. xvi., 143 pp. With 8 coloured plates, and 132 illustrations from Photographs by the Author. Hutchinson & Co., London. Price 5s. net.

This bright little volume, measuring $7\frac{1}{2}$ inches by 5, contrasts pleasantly with the ponderous tomes which usually bulk largely on the botanist's book-shelf. We have here an interesting account of many of the toadstools familiar to rambles through the woods in autumn, as well as descriptions of some less common kinds for which the Clydesdale mycologist may probably have to search in vain. Mr. Step's book should be instrumental not only in adding to the number of enthusiastic fungus-hunters, but in demonstrating the utility of photography as a means of illustrating objects of natural history, and in showing the suitability of fungi as subjects for artistic treatment with the camera. The volume is not burdened with details of classification, but these are given in a special index at the end. As an introduction to more severely scientific text-books, this pocket guide should prove helpful to beginners, while its pleasant pages and beautiful plates may also be

perused with profit by more advanced students. We have doubts, however, as to the utility of bestowing upon fungi such English names as "Cock-of-the-Woods," "Devil's-own Boletus," "Lawyer's Wig," and the like; but individual tastes may possibly differ with regard to that particular point.

Excursions.

ROWARDENNAN. 21st June, 1913.—Conductor, Mr. J. R. Jack, M.I.N.A.—Most of the party travelled by the steamer due to arrive at Rowardennan at 4.25, but it was nearly 5 o'clock before a landing was effected. The Balmaha Road was followed for about a mile, after which the party separated into small groups. Common wild-flowers occurred in considerable variety; and among the more conspicuous species seen were the Broom, in fine condition on the roadside banks, and *Orchis maculata* in the marshes. Nothing, however, of special importance falls to be recorded among the flowering-plants. Like other parts of the Loch Lomond district, the neighbourhood of Rowardennan suffers from an overgrowth of bracken, which has much increased within living memory. Though itself a graceful plant, it tends to choke out better things, and in some places efforts are now being made to keep its wanderings within convenient bounds.

Mr. William Rennie reported that only 31 species of Birds were observed, among which were included the following 12 summer visitors:—Whinchat, Whitethroat, Garden Warbler, Blackcap, Willow Wren, Wood Wren, Tree Pipit, Swallow, House Martin, Cuckoo, Sandpiper, and Lesser Black-backed Gull. Among the other species seen, the Stonechat and Lesser Redpoll deserve mention. The occurrence of the Blackcap (*Sylvia atricapilla*) is very interesting. Mr. W. R. Baxter saw a pair in a little planting near the hotel at Rowardennan, and Mr. Rennie, working independently, saw the male of this pair. Later, at the Lochan, Mr. Baxter saw another male. Very little is known about the Blackcap on Loch Lomond, where its congener, the Garden Warbler, is well known to be common on the west side of the Loch and some of the islands.

Mr. D. A. Boyd reported that among the Microfungi observed, the most notable species were *Pseudopeziza repanda* (Fr.) Karst., found on *Galium Aparine*; ascophores of *Sclerotinia Curreyana* (Berk.) Karst., on dead culms of *Juncus conglomeratus*; *Dasyscypha crucifera* (Phil.) Sacc., on dead branches of *Myrica Gale*; *D. grisella* (Rehm) Sacc., on the under surface of the pinnules, and *D. pteridis* (A. & S.) Mass., on the stipites, of dead fronds of *Pteris aquilina*; *Diaporthe Wibbei* Ntke., on dead branches of *Myrica Gale*; *Septomyxa negundinis* Allesch., on recently dead bark of *Acer Pseudo-platanus*; *Ramularia taraxaci* Karst., on *Taraxacum officinale*; and *R. variabilis* Fekl., on *Digitalis purpurea*.

Mr. George Lunam reported that a general examination of the material collected at the excursion showed that a number of interesting species of Fresh-water Algæ had been secured. Among these, the following may be mentioned:—

Hormospora mutabilis Breb. was found in the Dubh Lochan in small quantity. This form had been previously obtained by Mr. Lunam at Loch Ardingning, and on the West Coast of Bute.

Calothrix epiphytica W. & G. S. W., unrecorded for the Clyde Area, but recently obtained by Mr. Lunam at Glen Falloch. In both instances, it occurred as an epiphyte on a form of *Batrachospermum vagum* (Roth.) Ag., itself a rare alga in the Clyde Area.

Hapalosiphon hibernicus W. & G. S. W., *Scytonema mirabile* (Dillw.) Thur., *Dichothrix orsiniana* (Kütz.) Born. & Flah., *Rivularia hæmatites* (DC.) Ag., and *Stigonema mamillosum* (Lyngb.) Ag., have been recorded previously from a few stations, and are certainly common at Rowardennan.

Scytonema varium Kütz. has not been recorded for the Clyde Area. A large patch of it was found on damp earth near the loch.

Desmonema Wrangelii (Ag.) Born. & Flah., a rare species, occurred near Rowardennan Pier.

Merismopedia punctata Meyen, found in the Dubh Lochan, is another addition to the Clyde list.

ROSEMOUNT, 9th August, 1913.—Conductor, Mr. D. A. Boyd.—After leaving the railway station at Prestwick, the party proceeded by way of Monkton to Rosemount, where they were met by Mr. Peter Melville, gardener, who conducted them through the grounds and gardens, where there was a brilliant display of herbaceous perennials, roses, &c. Prior to the middle of the eighteenth century, this property was known as Goldring, and is referred to under that name in numerous charters and other documents. The residential portion of the estate lies chiefly in the Parish of Symington, but a part is situated in the Parish of Monkton. The boundary between the two parishes at this point is a small stream, and where it passes through the Rosemount grounds its banks are pleasantly wooded and traversed by walks. The party afterwards returned to Prestwick by a road which passed the entrance to Adamton policies. During the afternoon's walk, few noteworthy flowering-plants or mosses were observed. In the woods at Rosemount, *Saxifraga umbrosa* Linn. had become naturalized, and occurred in great abundance; while a corn field near Prestwick yielded specimens of *Lycnis Githago* Scop., and *Lycopsis arvensis* Linn., in bright blossom. About 42 species of Microfungi were identified, of which the most notable were *Synchytrium aureum* Schröt., observed on leaves of *Plantago lanceolata*; *Ascochyta philadelphia* Sacc. & Speg., on leaves of *Philadelphus coronarius*; and *Ramularia Tulasnei* (Rab.) Sacc., on leaves of *Fragaria*.

COLINTRAIVE, 23rd August, 1913.—Conductor, Mr. John R. Lee.—Two members of the party (Messrs. D. A. Boyd and Thomas Anderson) travelled by forenoon steamer, and reached Colintraive shortly after mid-day. They devoted some time to the exploration of part of the moist woods and shore between Colintraive Pier and South Hall. These proved rich in Microfungi, of which over 70 species were obtained. Among the more important forms secured were *Synchytrium succisæ* De Bary & Wor., on *Scabiosa succisa*; *Peronospora alta* Fekl., on *Plantago major*; *Milesina blechni* Syd., on *Blechnum Spicant*; *Dasyyscypha crucifera* (Phil.) Sacc., on dead bark of *Myrica Gale*; *Leptosphaeria agnita* (Desm.) Ces. & De Not., on dead stems of *Eupatorium cannabinum*; *Phyllosticta ajugæ* Sacc. & Roum., on *Ajuga*

reptans; *Septoria quevillensis* Sacc., on *Spiraea Ulmaria*; *S. myriceæ* Trail, on *Myrica Gale*; *Marssonina Delastrei* (De Lacr.) Sacc., on *Lychnis dioica*; *Ocularia rufibasis* (B. & Br.) Mass., on leaves of *Myrica Gale*; *Ramularia taraxaci* Karst., on *Taraxacum officinale*; *R. knautiæ* (Massal.) Bub. on *Scabiosa succisa*; and *Scolecotrichum sticticum* (B. & Br.) Sacc., on *Glyceria aquatica*.

During the course of the afternoon, the weather became very unsettled, and heavy showers of rain fell at short intervals. On the arrival of the rest of the party, the woods extending towards Loch Ridden were visited; but nothing worthy of mention was discovered, as the shortness of time available and wet condition of the herbage prevented a careful search being made. Among the Microfungi noted in the woods were *Coccomyces dentatus* (Kze. & Schm.) Sacc., common on fallen leaves of Oak; and *Phyllosticta teucrii* Sacc. & Speg., on leaves of *Teucrium Scorodonia*.

DUNTREATH, 13th September, 1913.—Owing to very unfavourable weather, this excursion was attended by a party of only five, who were met at the entrance gate by one of the gardeners and conducted through the grounds. After inspecting part of the gardens, where there was a remarkably brilliant display of autumn-blooming flowers, the visitors were met by Sir Archibald Edmonstone, Bart., who kindly took them into the Castle, and invited them to return later in the season, when the weather conditions might prove more propitious. About 20 species of Microfungi were obtained, including *Taphrina aurea* Sadeb., *Phyllosticta ulmi* West., *Phoma cylindrospora* Desm., *Ascoclyta philadelphi* Sacc. & Speg., *Glaeosporium tilie* Oud., *Marssonina populi* (Lib.) Sacc., &c.

DOUGALSTON, 20th September, 1913.—Conductor, Mr. R. B. Johnstone.—This excursion took the form of a joint Fungus Foray with the Andersonian Naturalists' Society, by whom the necessary arrangements were made and carried out. Although, owing to the very dry condition of the ground, common agarics were somewhat scarce, a notable exception was afforded by *Cantharellus aurantiacus* (Wulf) Fr. which occurred in remark-

able abundance all through the woods. The 57 Hymenomyces observed in the course of the afternoon included *Clitocybe candicans* (Pers.) Fr., *C. dealbata* (Sow.) Fr., *Mycena rosella* Fr., *M. lactea* (Pers.) Fr., *Russula cutedructa* Cke., and other well-known species. 26 Microfungi were also reported, among which the most notable were *Milesina blechni* Syd., *Cenangium abietis* (Pers.) Rehm., *Gnomonia lugubris* Karst., and *Stilbum erythrocephalum* Ditm. The sclerotia of *Sclerotinia baccarum* Rehm, and of *S. Curreyana* (Berk.) Karst., were also obtained.

KILKERRAN, 29th September, 1913.—Conductor, Mr. John Renwick.—This estate is situated in the valley of the Girvan, about three miles below Maybole. It belongs to Major General Sir Charles Dalrymple, Bart., D.S.O., and is let to Mr. Edward Wormald, both of whom kindly granted permission to visit. On arrival at Kilkerran railway station, the six members who formed the party were met by Mr. James Maxwell, overseer and forester, who kindly accompanied them during the day. When approaching the entrance to the policies, it was noticed that the hedges on the roadsides on the estate were unusually well-grown, thick, and square-cut on the top, so as to form a prominent and ornamental feature which always attracts the attention of visitors to the district. The policies contain many very fine trees, measurements of some of which were taken, and form the subject of a separate communication to the Society. Only 23 species of Birds were observed during the day, the most notable of which were a few examples of the Swallow and House-Martin, still lingering in their summer haunts. Among the Plants seen were the Yellow Balsam (*Impatiens Noli-tangere* Linn.), which had become naturalized in a part of the woods, where it occurred in some abundance; and Wall-rue (*Asplenium Ruta-muraria* Linn.), which grew on a bridge over the river. About 50 species of Microfungi were collected, among which were *Peronospora alta* Fekl., *Puccinia circeæ* Pers., *P. chryso-splenii* Grev., *P. buxi* DC., *Phyllosticta syringæ* West., *Ph. ajugæ* Sacc. & Roum., *Ascochyta philadelphii* Sacc. & Speg., *A. armoraciæ* Fekl., *Septoria quevillensis* Sacc., *Botrytis deprædans* Cke., *Ramularia armoraciæ* Fekl., *R. heraclei* Sacc., *R. taraxaci* Karst., *R. ajugæ* Niessl., and *R. plantaginea* Sacc. & Berl.

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[November, 1914.

Observations on some London Trees.

By HUGH BOYD WATT.

[Read 27th October, 1914.]

THE PLANE.

THE most abundant and vigorous tree in the Metropolis is undoubtedly the plane, which was introduced from Eastern lands in the sixteenth century, and, finding a congenial home, has established a race of its own, called the London Plane. It is now so numerous that probably there are in and around the city more plane trees than in any other part of the world of equal size. Many of the trees are grand specimens, such as those in the west-central and western squares—Bedford, Mecklenburgh, and Berkeley may be named. The trees tower up higher than the big houses which surround them, and in the suburbs there are even taller trees, exceeding one hundred feet in height. The pendulous droop of the ends of the great branches, sometimes sweeping down to the ground, add an air of elegance and grace to the size and vigour of such trees. One of the most attractive tree-prospects in the city is at the north-east corner of St. Paul's Churchyard (near Cheapside), where a group of well-grown planes stand guardians in front of the recently re-erected Paul's Cross, and above them the great dome of the Cathedral rises hundreds of feet into the heavens.

Further along Cheapside, at the corner of Wood Street, the plane immortalized in Wordsworth's lines (or a successor to it) still stands, but the narrow limits of the situation have brought down on it the hard fate of severe lopping and disfigurement. This foreign species seems likely to extend its peaceful conquest, judging by the number of young trees that are being planted throughout the district. Those growing on the Thames Embankment are well known and flourishing, and the half-mile-long double avenue lining The Mall, from the Admiralty Arch at Trafalgar Square to the Queen Victoria Memorial at Buckingham Palace, consists of trees which are being carefully trained and looked after, and although only a few years planted have already attained a fair height, and give promise of a truly magnificent leafy way. It may be necessary to remark that the tree spoken of is not the one known in the North Country under the name of "plane" or "plan," which is correctly the sycamore or great maple.

THE TREE OF HEAVEN.

In one of London's new streets—Kingsway—an experiment has been made in planting the Chinese ailanthus, or tree of heaven, alternately with the plane, but the first-named are having a struggle for existence, and have not made nearly so much growth in height as the young planes. The ailanthus, however, is quite at home in London, and does well, holding its own even in adverse surroundings, for one of the finest trees of the kind I know is growing in a stonemason's yard in the dinginess of Euston Road. None, however, equals in size the great tree which stands in the garden next Shakespeare's old home, New Place, Stratford-on-Avon; this is the largest ailanthus that I have seen. In New Square, Lincoln's Inn, there is a flourishing set of six symmetrical well-grown trees, and the neighbouring Lincoln's Inn Fields (the rural name for an attractive town-square) have several. A visit to Hyde Park will show this tree growing in another style, a short avenue being on the south side of the Serpentine, near the bridge. It is a late leafer, contemporaneous with the

plane towards the end of April, and the burnished bronze colour of its young leaves, bursting from their envelopes and pointing skywards like plumes, makes it something of a decorative tree at this season of the year. The leaf is impari-pinnate in form, not unlike the common ash, but larger, growing to a great size, and a distinctive external feature of the tree is the faint streaky markings on its bark.

POPLARS.

Next in number to the plane come the various poplars, of which several different species flourish in London. A strong inducement to plant them is the great rapidity with which they make growth. The most abundant is the black Italian tree, which passes through a phase each spring that even the casual passer-by can hardly overlook. Some stormy April morning he finds the pavement under a city tree, such as that growing in Holborn, near the City Temple, profusely strewn with big, bursting catkins showing a deep claret colour and almost as dangerous to step upon as orange or banana skins. This is the black Italian poplar scattering its flowers on stony ground, and I have seen these literally forming a carpet for a wide circumference around a tree, many thousands of catkins having fallen during a single night of wind and rain. While the tree carries this crop it has the appearance of being fairly well clothed, but after its catkins are shed it reverts to a state resembling wintry bareness for a period of about a fortnight before the young leaves make their appearance. These come copper-like in colour, twinkling in the sunshine, and when fresh and small veil the twigs and branches with an air of radiant loveliness. When a number of trees grow together, as in the intersecting and converging avenues on Primrose Hill, the effect is perhaps rather same and formal. This tree and the English black poplar (which is not nearly so common) may be compared growing near one another in Lincoln's Inn Fields. The English tree has greener foliage and is earlier in leafing than the Italian tree, and in this respect is more like its relative, the Lombardy poplar. The Canadian balsam poplar also

grows in the place named, and is the first of the poplars to break into leaf.

THE LIME.

This fragrant tree is frequent in town, and in its spring foliage is even more lovely than the trees already named, its greenery being of the brightest and softest tint—only, however, too readily soiled by smoke and dirt. It grows in the very heart of the city, and an ancient tree stands in the garden-plot of the Bank of England. Finsbury Circus has quite a grove, and many town squares and gardens are screened by lime trees.

NATIVE AND FOREIGN TREES.

Richard Jefferies considered it deplorable that exotic trees and shrubs were preferred for planting in and around London, and asked that the products of English woods and hedgerows should be more generally used. His text was "Trees about Town"; but if it were not for the foreigners we would have rather a treeless London, as our native trees do not take kindly to town life, and even in the parks most of the sylvan favourites are aliens or denizens. The so-called English or common elm is itself an introduced species and not native in the land of its adoption, but one of its strongholds is Kensington Gardens. Of native English trees in the city proper neither oak, beech, aspen, nor yew occur, and very few examples are found of the common ash, wych-elm, rowan, elder, birch, and willow, and these but poor and struggling specimens.

Amidst the tree wealth of Lincoln's Inn Fields it is gratifying to Scottish eyes to see the birch flourishing, but it is not less pleasing to find some of the less usual foreign trees. A small Judas tree bears its rosy flowers by the middle of April, preceding the leaves; and the American catalpa, or Indian bean-tree, occurs there and in other places, flowering profusely in a good summer, such as this year (1914). The fine trusses of bloom are sometimes carried as late as September, and if it fruits, as it has done this Autumn, the long seed-pods are

conspicuous hanging from the branches through the winter. The oldest tree of this kind in London is in Gray's Inn Garden, and the garden of another of the Inns of Court—Lincoln's Inn—supplies the Chinese ginkgo or maidenhair tree, a link between the conifers and the deciduous trees. The neighbouring Staple Inn has two whitebeams, which flower and fruit each season. These are not, however, the typical wild species, but are the pinnatifid form. A fine example of an allied and much rarer species, the true service or sorb, grows in Hyde Park, near Victoria Gate. The old Charterhouse (near the centre of the city) boasts several fine mulberry trees, leafing late and, if the season is favourable, bearing a crop of luscious berries, some of which are generously dropped over the wall on to the pavement outside. Two trees of the less-known paper mulberry have grown to a good size in Lansdowne Place, on the west side of the Foundling Hospital grounds. Tavistock Square is glorified early each spring by the flowering of its avenue of small almond trees, and it also possesses two or three flowering or manna ashes, blooming early in summer. Fig-trees may be seen in many places, including the very heart of the city, where in the little woodland oasis at All Hallows Staining, near Fenchurch Street Station, a fine standard tree spreads its shade. This species is put to a different use at the National Gallery, Trafalgar Square, where it is trained all along the railings in front of the building, with a very delightful effect.

Without attempting any comprehensive survey, the above notes are some indication of what the lover of trees may see in the streets and squares of the greatest city the world has ever known. Leigh Hunt's old challenge to anybody to name a street in the Metropolis out of some part of which a tree or trees might not be seen still holds good.

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Dante and Burns and their use of Trees and Birds: a Parallel.

By JOHN PATERSON.

[Read 27th October, 1914.]

IT may seem extreme literary hardihood to bring into conjunction, in any connection, two such poets as Dante and Burns. The former has embodied in his great work a transmutation of all the learning of the ancients and of mediæval times—

“in my noble book doth every kind
Of earthly lore and heavenly doctrine dwell,”

as Boccaccio says of him in his fine sonnet *Inscription for a*

Portrait of Dante; the latter, comparatively unlettered, had to content himself with the transmutation and, happily in many cases, the purification of the songs and ballads of the people of this "land of brown heath and shaggy wood." It might have been supposed that, owing to the diversity in their history and upbringing, their associations, aspirations, and sources of inspiration, these two great poets, moving in different orbits in the world of thought, would never have come into touch with one another. But a double parallel between them exists to which attention does not seem to have been drawn. It consists in this, that the same group of natural objects has been greatly neglected by both, while yet another group has been freely handled and adorned by them to the great delight of nature-lovers.

It is necessary to go back a little. Six years since, in a paper on "Burns on Trees and Birds" (*The Glasgow Naturalist*, vol. I., pp. 38-49), it was pointed out that the use Burns made of trees in his poems was almost wholly conventional. "Indeed," as was then stated, "speaking of trees, when you take out of the poems and songs the 'milk-white thorns' and 'fragrant birks' little remains." Though our debt to Burns is infinite in many ways, some of us must regret that, but for a couple of descriptive phrases, "ashes cool" and the "close embow'ring thorn," both curiously occurring in the same poem, all the rest of his descriptive matter relating to trees could well be spared. When, however, attention is focussed on what Burns did for birds, we find convention was thrown to the winds, and directness, sincerity, sympathy, and close observation united to make his songs and poems a happy hunting-ground for the genuine bird-lover. More than this, no naturalist interested in the history of ornithology in Scotland can safely neglect what Burns taught regarding the birds of Ayrshire at the time at which he wrote. It was pointed out, when this matter was last discussed here, that "a better and fuller picture of the birds of that county" was to be found in Burns's poems and songs, than in all the accounts of all the parishes by their respective ministers in the *Statistical Account of Scotland*, 1791-3. In

respect to birds, then, Burns need fear no comparison with any predecessor, contemporary or successor.

Turning now to Dante, the subject of his relation to nature and his use of natural objects, has been carefully and fully examined in a work entitled *The Treatment of Nature in Dante's "Divina Commedia,"* by L. Oscar Kuhns, a professor in Wesleyan University, Middletown, U.S.A. As one likes a work of this kind well done, it is pleasant to see in the preface that the most distinguished of American Dante scholars, Professor Chas. Eliot Norton, read the author's manuscript, and in the light of suggestions and corrections received from Professor Norton the author rewrote parts of the book and revised the rest.

A reference is here necessary to the second chapter of Professor Kuhns's work, which contains a discussion of Dante's conventional treatment of Nature. There it is properly laid down that to obtain any clear idea of our poet's feeling towards the world of Nature "only those references must be considered which reveal conscious observation and personal interest on the part of the poet." The task set himself then by the author in this chapter is "the elimination of all those passages descriptive of Nature which are more or less conventional."

Calling up recollections of a sojourn in Italy, one brings to mind the oleanders, tamarisks, and planes in the streets of the cities, the gleditschias and glorious cypresses in the cemeteries, the great numbers of the stone pine in the Tuscan landscapes, umbrella-topped and of the tenderest green even in September, and the slopes of the hills round Carrara covered all over with grey olives, trees which, as Mrs. Leigh Hunt said, seem to have grown up in moonlight. But, as Professor Kuhns declares, "the number of different trees mentioned in the *Divina Commedia* is surprisingly small, and forms a striking contrast with Vergil, and even Ovid. The palm and laurel are alluded to conventionally, the pine forest of Chiassi is mentioned, and there is reference to the twenty years it takes for an acorn to become an oak. But this is practically all." It may be mentioned also that the ivy is casually mentioned

in the *Inferno*, the apple symbolically in the *Purgatorio*, where it represents the Roman Empire, and its flowers are delicately alluded to “as putting forth a hue more faint than rose, and deeper than the violet,” and the plum, metaphorically, in the *Paradiso*. Now this is pretty literally all the use made of trees in the *Divine Comedy*, so it is clear that Dante, like Burns, and both of them unlike some at least of their predecessors and successors, found practically no inspiration in trees.

With his customary wealth of illustration and ingenuity, Mr. Ruskin in *Modern Painters* (ch. xiv.), has examined the attitude of mediæval writers to deep forest, enlarging on their dread of thick foliage, but no convincing argument is put forward to explain the lack of response in Dante to the impressions which trees in varying degrees have made on Hebrew, Greek, Latin, and modern writers. Dante found no “tongues in trees” individually, and in mass they seem chiefly to have affected him with dread, as the *selva oscura* that *selva selvaggia ed aspra e forte* in the opening lines of the *Inferno* clearly show.

Turning now to birds, we find, as we found in Burns’s case, that they are treated with evident knowledge, and the illustrations taken from their behaviour express the conscious observations of the poet. Again, the two poets agree in making a much more liberal use of them than they did of trees.

Early in the *Inferno* we find, within lines numbers 40-49* of the fifth canto, two examples of Dante’s illustrations drawn from bird-life. In Carlyle’s translation they read as follows:—
(1) “And as their wings bear along the starlings, at the cold season, in large and crowded troop: so that blast [bears

* E come gli stornei, ne portan l'ai,
nel freddo tempo, a schiera larga e piena:
così quel fiato gli spiriti mali; [Lines 40-42.

E come i gru van cantando lor lai,
facendo in aer di sè lunga riga:
così vid'io venir, traendo guai,

Ombre portate dalla detta briga; [Lines 46-49.

along] the evil spirits"; and (2) "And as the cranes go chanting their lays, making a long streak of themselves in the air: so I saw the shadows come, uttering wails, borne by that strife of winds."

In the opening of the twenty-third canto of the *Paradiso* occurs this feeling description of a brooding bird:—

"Just as a bird among the lovèd leaves
 Broods o'er the nest where sleep her tender young,
 When night's dark shadows hide all things from view,
 Who yearns to see again their longed-for looks,
 And sally forth to seek their food,—a task
 In which all heavy labour seems a joy,—
 And who upon the open branch forestalls
 The day, and waits with ardent love the sun,
 Gazing with steady eyes to see the dawn."

—Kuhns's translation.

In Dante's time, and, indeed, till much later, hawking was one of the great diversions of the rich and noble, hence, in the works of Dante's predecessors and his own, this sport and the birds employed therein figure prominently. There is an attractive picture in the *Inferno* of the disappointed falcon, after being long upon the wing without result, descending wearily in answer to the falconer's call, but, piqued at his non-success, on second thoughts "swiftly moves himself with many a circle, and far from his master sets himself, disdainful and sullen." Again, in the *Paradiso*, there is an intimate description of the way in which a falcon, just released from the hood, expresses satisfaction at the freedom, moving his head about, clapping himself with his wings, showing desire and making himself beauteous. Such illustrations need not be multiplied, others will occur to students of Dante, but it is interesting to notice that one of his predecessors, Folgore da San Geminiano, distinguishes, in one of his sonnets, "Falcons and astors, merlins, sparrow-hawks," and Dante refers to the *astore*, the *sparviere*, and the *falcone*—evidently the goshawk, the sparrow-hawk, and the falcon. In Shakespeare's time, Mr. Harting tells us, whoever could afford it kept a hawk, the rank of the individual being indicated by the species,

thus:—"To a king belonged the gerfalcon; to a prince, the falcon gentle; to an earl, the peregrine; to a lady, the merlin; to a young squire, the hobby; while a yeoman carried a gos-hawk; a priest, a sparrow-hawk; and a knave, or servant, a kestrel."

Noteworthy in the *Divine Comedy* are detailed accounts of the domestic economy of the stork, of the familiarity and timidity of the dove, of the song-flight of the skylark, and of the rook bestirring himself at dawn, when, for all his feathers, he is "a-cold."

"As the rooks, at dawn of day,
Bestirring them, to dry their feathers chill,
Some speed their way afield, and homeward some
Returning cross their flight, while some abide
And wheel around their airy lodge."*

—Cary's translation.

Enough has probably now been said to show that Dante's use of birds is full and feeling, just as, on a previous examination, Burns's use of them was found to be, while neither has shown the susceptibility to inspiration from trees which has distinguished so many writers, ancient and modern.

Additional Records of Microfungi for the Clyde Area.

BY D. A. BOYD.

[Read 30th June, 1914.]

DURING the summer and autumn of 1913, a large amount of interesting material, considerably in excess of what had been

* E come, per lo natural costume,
le pole insieme, al cominciar del giorno,
si movono a scaldar le fredde piume;

poi altre vanno via senza ritorno,
altre rivolgon sè, onde son mosse,
ed altre roteando fan soggiorno:

—*Paradiso*, xxi., 34-39.

obtained in the previous year, was collected from many localities in the West of Scotland. Part of that material was gathered at excursions of the Society, and has already been reported on; but the remainder consists of specimens of many species of Microfungi apparently as yet unrecorded for our district, and has been reserved for further examination. This, it is expected, will afford a considerable number of new records, and will form the subject of a report to be submitted to the Society at a future meeting.

In the meantime the following may be noted as recent additions to the list for the Clyde Area:—

Peronospora affinis Rossm.—Parasitic on leaves of *Fumaria* in a garden near Millport, Island of Cumbrae; 19th August, 1913.

Synchytrium cupulatum Thomas.—New to Britain. Parasitic on *Potentilla palustris* at Blae Loch, near Beith, Ayrshire, where it formed small, rounded, gall-like warts of a reddish colour on the affected leaves. When older the warts become dark red, and are then somewhat collapsed or cupulate at the apex. The resting-spores have a thick, brown, smooth epispore, and usually occur singly, rarely in pairs, in each wart. July, 1913.

Doassansia alismatis Cornu.—This species appears to be rare in the West of Scotland, as I have searched for it unsuccessfully in many localities where the host-plant is abundant. Last September, however, I obtained a good many specimens on *Alisma Plantago-aquatica* at Loch Fad, near Rothesay. The spore-clusters occurred in very numerous groups on rounded yellowish spots on the affected leaves, and were easily detected. It may be noted that *D. Martianoffiana* Schröt., an allied species recently added to the British fungus-flora,* was also obtained on the same occasion in marshy ground adjoining the Kirk Dam, at the lower end of Loch Fad, where it affected living leaves of *Potamogeton*.

Humaria jungermanniae (Nees) Sacc.—Amongst living Hepaticæ on a moist bank beside the Gourock Burn, West Kilbride, Ayrshire; 27th March, 1914.

* See *Glasgow Naturalist*, V. 121.

Ceriosporella polygoni A.L.Sm. and Ramsb.—New to science. Abundant on dead stems of *Polygonum amphibium* var. *terrestre* at Burnfoot, Ardrossan; February, 1913.

Gnomoniella vulgaris (Ces. and De Not.) Sacc.—On fallen leaves of *Corylus Avellana* at Linn Spout, Dalry, Ayrshire; 16th March, 1914.

Orphiobolus herpotrichus (Fr.) Sacc.—On dead leaf-sheaths and culms of *Holcus mollis*, Gourock Burn, West Kilbride; 27th May, 1914.

Phyllosticta erysimi West.—In spots on fading leaves of *Sisymbrium Alliaria*, near Garrionhaugh, Cambusnethan, Lanarkshire, at an excursion of the Andersonian Naturalists' Society; 17th May, 1913.

Phoma orthotrichi A.L.Sm. and Ramsb.—New to science. On dead capsules of *Orthotrichum anomalum* var. *saxatile*, on a bridge near South Biggart, Beith, Ayrshire; July, 1912. The pycnidia appear as scattered black dots on the surface of the dead capsules of the moss, and the sporidia are remarkable for their minute size (0.003×0.001 mm.).

Aposphaeria populea A.L.Sm. and Ramsb.—New to science. On decorticated poplar-wood, Corsinkeil Glen, Stevenston, Ayrshire; February, 1913.

Coniothyrium pepelis, A.L.Sm. and Ramsb.—New to science. I observed this interesting species during several successive seasons. It occurred as a parasite on *Pepelis Portula* in a small marshy hollow among the sandhills at Ardeer, near Stevenston. The affected plants did not immediately lose their colour, but became soft and flaccid, as though boiling water had been poured upon them. At that stage the pycnidia began to make their appearance on the stems and leaves, and gradually matured while the latter were becoming dead and withered. When fully developed the pycnidia were rather prominent and very numerous. On visiting the place last autumn, I found that operations in connection with the sinking of a new coal-pit in the neighbourhood had led to the marsh becoming dried up, and that the *Pepelis* was much reduced in quantity, while no trace of its parasite could be detected.

Ramularia arenariæ A.L.Sm. and Ramsb.—New to science. On *Arenaria trinervia* near Lochwinnoch, Renfrewshire; July, 1912. Also in Noddsdale Glen, near Largs. This species forms dry, yellowish spots on living leaves of the host-plant. The conidiophores are produced abundantly on the under surface of the spots.

R. adoxæ Fekl.—Parasitic on leaves of *Adoxa Moschatellina*. Banks of Mouse Water, near Lockhart Mill, Lanark, at an excursion of the Andersonian Naturalists' Society, 2nd May, 1914; also near West Kilbride on 27th May.

I have to express my indebtedness to Miss A. Lorrain Smith, F.L.S., and Mr. J. Ramsbottom, M.A., for kindly determining the species above referred to as new to Britain or new to science. A full description of these species, with particulars as to spore-measurements, &c., will be found in the *Transactions of the British Mycological Society*, Vol. IV., pp. 318, 325, 326, 327.

Some Additions to the Clyde Marine Fauna.

By RICHARD ELMHIRST, F.L.S.,

Superintendent of the Marine Biological Station, Millport.

[Read 26th May, 1914.]

INFUSORIA.

Vorticella patellina, Müller.—Saville Kent, "Manual of Infusoria," 1880-2, Vol. II., p. 679, fig. On stones from shallow water and in aquaria.

Vorticella nebulifera, Müller.—Kent, *op. cit.*, Vol II., p. 673, fig. Occasionally amongst the above species—already recorded from fresh water in "Clyde Fauna and Flora, 1901," as *V. nebulifera*, Ehr.

Amphileptus claparèdii, Stein.—Kent, *op. cit.*, Vol. II., p. 526, fig. (*A. meleagris*); Entz, "Mittheilungen aus der Zoologischen Station zu Neapel," Vol. V., 1884, p. 320, fig. Lives amongst and is parasitic on *Zoothamnium marinum*. May. 1914.

Euplotes harpa, Stein.—Kent, *op. cit.*, Vol. II., p. 799, fig.
Plentiful in a culture of larvae of *Spatangus* which had died
off. May, 1914.

HYDROIDA.

Stauridium productum, Wright.—Hincks, "History of British
Hydroid Zoophytes," 1868, p. 68, fig. Found in spring in a
glass vessel in which *Amphicora* had been kept through the
winter.

Eudendrium insigne, Hincks.—Hincks, *op. cit.*, p. 86, fig.
Trawled off Farland Point. May 6, 1914. 15 fs. Identified
by J. Peden.

Campanularia exigua, Sars.—Hincks, *op. cit.*, p. 172, fig.
Trawled in mid-channel between Fairlie and the Lion Rock.
April 17, 1914. Identified by J. Peden.

Campanulina turrita, Hincks.—Hincks, *op. cit.*, p. 190, fig.
Trawled off Keppel Pier. May 9, 1914. 10 fs. Identified
by J. Peden.

NEMATODA.

Enoplus trientatus, Dujardin.—Dujardin. "Histoire Naturelle
des Helminthes," 1845, p. 233. Fairly common on stones
between tide-marks.

POLYCHAETA.

Amphicora fabricia. Müller. = *Fabricia sabellia*, Ehr; Johnston,
"Catalogue of British Non-Parasitical Worms," 1865, p. 274,
fig., as *Othonia fabricii*. Common on stones on shore and in
rock-pools.

On keeping Small Marine Aquaria.

BY JAMES F. GEMMILL, M.A., M.D., D.Sc.

[Read 26th May, 1914.]

I.

Probably most of us have more than once taken animals
from *their* homes on the shore and tried to keep them living in
our homes for a time. The desire of ownership awakens when

we see in some cool rock-pool a beautifully sculptured shell, a geometrical echinoderm, a starry sea-anemone, a graceful hydroid, or even an odd stone crusted over with all sorts of animal and vegetable growths. We want, if we can, to provide an equivalent for the rock-pool, where the specimens can be studied at leisure, with the assistance, perhaps, of microscopes and books of reference. From experience we know that, even when animals are killed and preserved by the best methods, they lose just those elements which add beauty to form and colour. We may still study their structure, but the magic of life has gone. We can neither gain the knowledge nor enjoy the pleasure which are open to the naturalist who watches his living things from day to day, and feels that they are responding to his care by healthful continuance of life and growth.

Probably with most of us the results of first experiments in keeping marine animals spelt disaster and disappointment. We brought home a fine assortment, but our specimens became unhealthy and died off, till in the end the contents of an ill-smelling and unsavoury aquarium had to be cast forth, and we probably resolved to make no more ventures of the kind. However, one need not be above profiting by mistakes, and experience shows that the first and worst mistake is to keep too big or too many animals in a small quantity of water. Be content with a modest beginning. Don't crowd your aquaria. If you can you should have two or three small aquaria, rather than a single one the size of all combined. These are golden maxims, and it is to be remembered that small animals are just as interesting as big ones. In many ways they are more suitable for observation, since, by employing the microscope, we may gain an insight not only into their outward form, but also into the details of their structure, and watch such processes as the circulation of blood, the contraction of muscles, and the taking of food. Besides we can keep ever so many more of them.

Suppose we have started our aquaria, the next thing is to see that the water is kept sweet by being stirred up regularly or by having bubbles of air passed through it. Surprisingly good results may be got by the vigorous use of an ordinary glass syringe twice a day or thereby. The writer remembers with pleasure a very interesting set of small aquaria which the late Mr. George

M'Crie, the first chairman of the Millport Marine Station Committee, used thus to keep "going" in his study. But it is better, if we can, to employ some device which will save trouble without sacrificing efficiency. If one can secure the use of a water-tap there are various means* whereby it can be made to provide a regular supply of air which may be led to the different aquaria. But a spare water-tap may not be available, and the object of the present paper is to describe a different kind of arrangement which the writer fitted up in his own study, and which proved very helpful during the period it was in use. The arrangement is illustrated in Fig. 1. Two bottles of equal size are hung up in such a way that when one descends the other rises. We put in just so much water into the two as one of them would comfortably hold by itself. Both bottles have tightly-fitting corks with holes for two glass tubes ($\frac{1}{2}$ -inch bore). One of these tubes, the air tube (D in the fig.), just goes through the cork, while the other or siphon tube (C) dips down to the bottom of the bottle. The two siphon tubes are connected by rubber piping (E) ($\frac{1}{8}$ -inch bore), long enough to sag a little when one bottle is up and the other down. A piece of rubber tubing (H), easily slipped on or off, connects the air tube of the lowest bottle with a distributing tube (G) leading to the nozzles in the aquaria. Suppose to begin with all the water is in the right-hand bottle (bottle A). We raise it up as far as it can go by pulling B down, and we then start siphon action between A and B. The water passes from A to B, displacing the air contained in the latter, and, if one has meantime connected the distributing tube to the air tube of B, the air in question will bubble up through the aquaria. By and by A will be empty and B full. We then detach the distributing connection from the air tube of B, and, after pulling B up and A down, we slip this connection on to the air tube of A, and the process of aeration proceeds again without further trouble, since siphoning from B to A will begin automatically through the agency of the water always left in the sagging part of the long connecting tube (E). We must, of course, have some arrangement such as the cord (F) and the catch (H) in the fig., for holding down the empty bottle when it is first lowered.

* See p. 85, and also papers by the author in *Journ. Roy. Micr. Soc.*, 1910, p. 10-13; and 1911, p. 24-25.

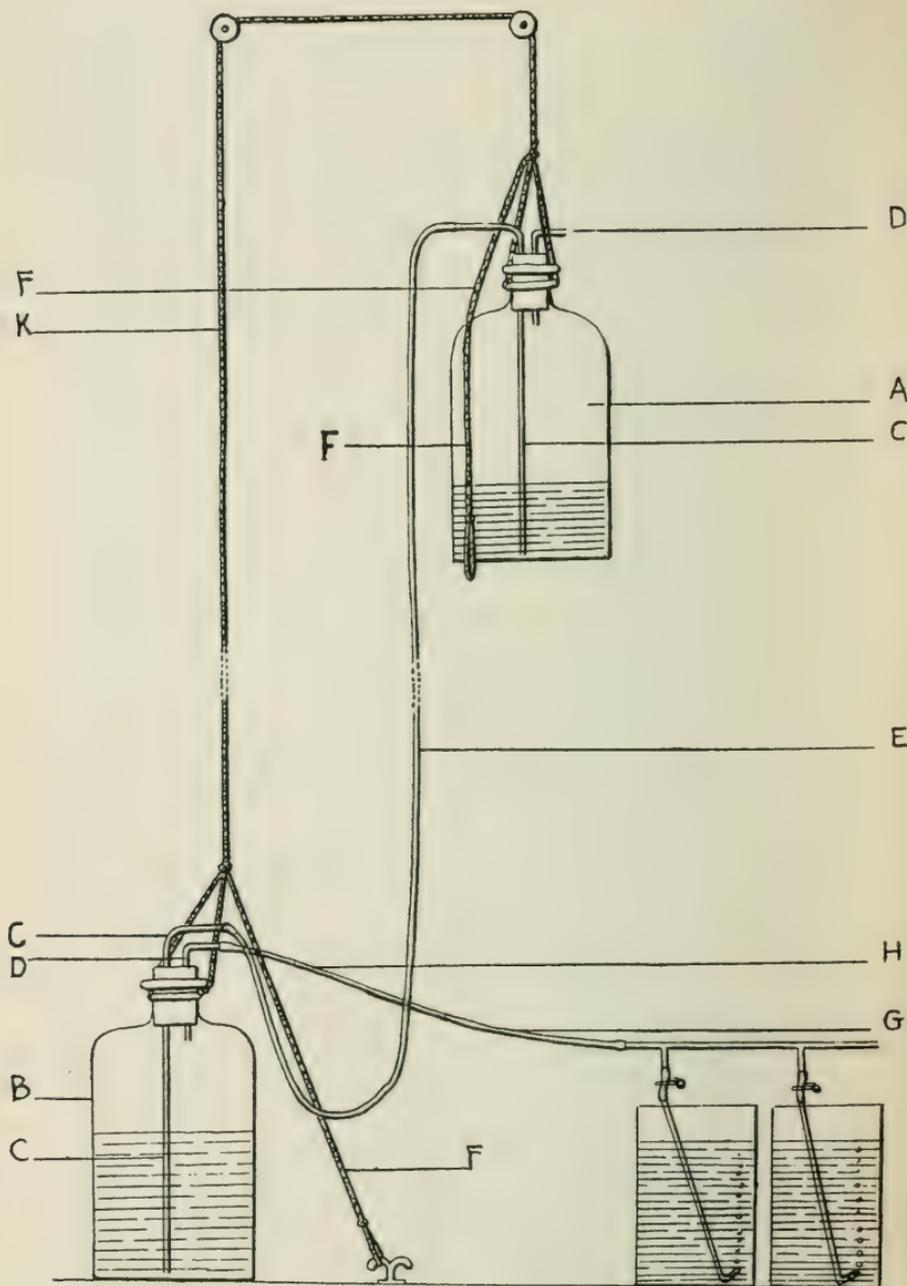


FIG. 1.

In practice the following points deserve attention :—

(1) The supply of air available will be used most economically if we force it through a nozzle of some finely-porous substance providing bubbles so small that streams of them look almost like mist. The difficulty is to obtain suitable nozzles, but pieces of partly-decayed dry wood, *e.g.*, small branches or stems of thorn, briar, &c., about a $\frac{3}{16}$ th part of an inch in thickness can be got to give excellent results. Cut off an inch or so of the wood and attach it by rubber tubing to the end of one of the air-distributing tubes. A trouble with nozzles of this kind is that through slow swelling in the water their transmitting power may alter in course of time, but adjustment by means of the screw-clamp mentioned under (2) is usually a perfectly simple matter. Manufactured nozzles may be purchased, but none I know of are more satisfactory than wood for the present purpose. Certain kinds of sea-urchins have large spines which are porous or canalicular in structure. Excellent and uniform results may be obtained by using these spines with the ends broken off, if one takes care that they are thoroughly macerated beforehand in order to remove all animal matter. Should the longitudinal canals prove too coarse we may dip the outer end of the spine when dry into melted paraffin wax, and then make a small notch or abrasion on one side to allow the exit of finer streams of bubbles.

(2) It is necessary to have a small screw-clamp on the rubber tubing leading to each nozzle, as by that means the amount of air allowed to each aquarium can be exactly regulated.

(3) The difference in height between the two bottles, when one is up and the other down, should not be less than five feet, and may with advantage be more. Increase of height increases the pressure available for forcing the air through the nozzles and allows more finely-porous nozzles to be used. It was noted above that the smaller the bubbles the more economically is the air being used up.

(4) The larger the bottle the bigger is the reservoir of air available at each period. In practice the size is limited by convenience, since the heavier weights require stronger cords and pulleys and a greater effort to pull up the full bottle. Gallon or gallon-and-third bottles will be found of useful size. *It goes*

without saying that every attention should be given to security in fixing up the apparatus.

(5) Using suitable nozzles one can keep five or six small aquaria in health with the apparatus described above, by pulling up the full bottle morning and evening. Very little air is actually required for such aquaria, so long as the supply is used economically and is constant or, at any rate, regularly intermittent. To illustrate what may be kept in a single small aquarium holding not more than half a gallon, a list is given of the principal contents of one which remained healthy with me during the four months in which it received attention of the kind described above, and also afterwards when, on account of the increasing number of my aquaria, a more wholesale method of aeration was installed:—the sea-anemone, *Stomphia*; two Terebellids; four or five Serpulids; a group of *Potamilla*; a number of *Ophryotrocha*; two Chitons; some small Ascidians, Copepods, and Turbellarians, and various Foraminifers.

Another small aquarium contained about forty examples of the attached stage of the jellyfish, *Aurelia aurita*; four or five small specimens of the feathery anemone, *Actinoloba dianthus*; many Serpulids; plenty of *Ophryotrocha*; and several examples of a species of *Cirratulus* not yet, I think, recorded from the Firth of Clyde. All were attached to or hiding within the crevices of one or two pieces of clinker which had been dredged up near Millport and had remained for a considerable time in one of the tanks at the Marine Station. Some baby Serpulids and an Ascidian attached themselves to the side of this aquarium in the end of December last. One or two of the *Ophryotrocha* also produced eggs. However, for the benefit of those who are specially interested in development, it should be stated that, if the keeping alive and rearing of delicate eggs or larvae are the ends desired, no kind of "air-bubble" aeration in my experience gives as good results as the gentle aeration and circulation which may be effected by the use of "convection" currents (see *Journ. Roy. Micr. Soc.*, 1913, pp. 247-9). It is a rule, well known but not without exceptions that, in general, those animals can best be kept in small aquaria which obtain their food by the agency of ciliary currents.

II.

The suggestion has been sent to me by various workers that I should publish an account of another form of aerator, perhaps the easiest of all to fit up, and needing the least attention once it is in working order. This is a kind which I set agoing two or three years ago at the Glasgow Corporation Tollcross Branch Museum, and, more recently, at the Millport Marine Biological Station, and elsewhere. The principle is the well-known one that water falling within a tube of narrow calibre tends to suck air down with it if an air-inlet is provided. The principle has long been applied for aeration purposes at the Stazione Zoologica, but the Naples apparatus (of which the Director has very kindly sent me a drawing) is not quite so simple as the one I shall now describe, which I have found entirely reliable and efficient so long as a water supply of even moderate uniformity is available. The arrangement will be understood from a glance at the accompanying illustration (Fig. 2). Water, led from a tap at ordinary level or from a source higher up, is allowed to flow over the bend at A which has an air-inlet at B. An ordinary Y tube inverted will provide the bend and inlet required. The water falls down the tube C carrying air with it, and accordingly air and water mixed enter the sorting-out tube D. From the bottom of D the waste-water tube E bends upwards to escape at F on a

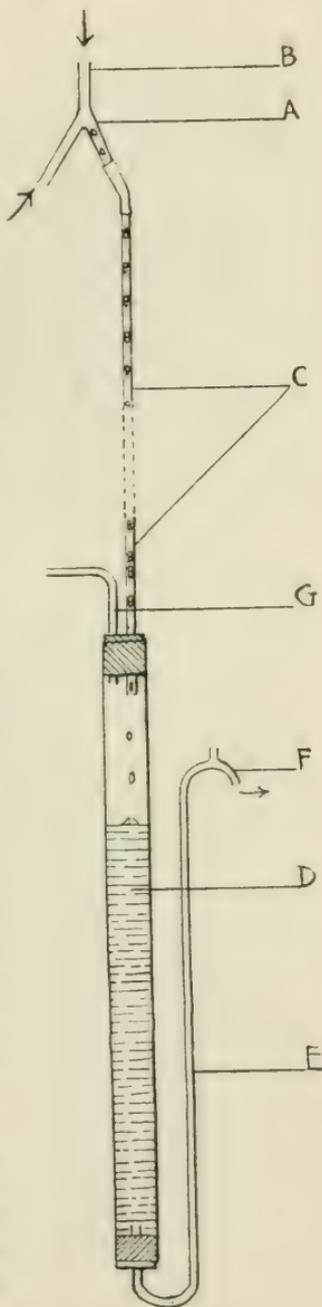


FIG. 2.

level three or four inches lower than the upper end of D. If the waste tube E is lengthened beyond F in a downward direction, it must be provided with an air-inlet at F (a Y tube again does very well) in order to prevent siphon action. The air supply is led away by the tube G which, like C, passes through a tight cork in the upper end of D. The air supply will be under as much pressure as the height of the column of water in the tube E permits, and the height of D should always be less than half the length of C. It is an advantage that C should be as long as possible, since the velocity of the column of falling water increases with the height of the column, and accordingly a greater quantity of air is sucked down. Unless the calibre of C is relatively small, the falling water is apt to flow down the inside wall of the tube without filling the lumen by a succession of "water bullets," as ought to occur. For C, tubing of $\frac{3}{16}$ -inch to $\frac{1}{4}$ -inch internal diameter and six or seven feet in length, will be found to meet ordinary requirements. A suitable calibre for D is $\frac{3}{4}$ -inch internal measurement, and if C is six feet high, D may be two feet nine inches. This height will not put sufficient pressure on the air to enable us to break it up into very fine bubbles by using the kinds of nozzles described earlier in this paper, but a sufficient supply of air will be provided to permit the unstinted use of bubbles of ordinary size. Starting and continuance of the "water-bullet" action in C with the smallest practicable usage of water will be facilitated if at B we insert a short length of rod or tubing (rather narrower than the calibre of the Y tube), which will just enter the descending limb of the fork and serve to break up the downward stream of water at its commencement. If the supply tap is over a sink, the whole apparatus may be set above the sink and thereby the risk of flooding in case of accidents reduced to a minimum. It is an advantage that we can stop or start the aeration at any time simply by turning the tap off or on.

The Return of Summer-Birds to the "Clyde Area" in 1914.

By JOHN PATERSON.

THANKS to the active co-operation of many correspondents throughout the "Clyde Area," it is possible to give a full summary of the results of observations on the return of summer-birds for the year 1914. The season has proved a very favourable one for the early appearance of the birds, and equally, of course, favourable for observation. During the third week of the month, for instance (a critical period, as in a normal year by that time migration may be in full swing), we had gloriously fine weather, and as a consequence many species were represented in their customary haunts by advance parties. Those conversant with what might be reasonably expected in these latitudes in a normal year will not miss the significance of the early dates given for the Whinchat, Garden-Warbler, and Wood-Wren. A fair clue to the nature of the season is to be found in the appearance of the Willow-Wren, which from its abundance and loquacity is easily observed. The great wave of the species seems to have broken in Solway in the middle of April. It was common, I am informed, at Lochmaben and Lockerbie on the 15th, and may have reached there earlier. On the 16th it was fairly represented in some favoured localities in "Clyde," the Irvine valley, for instance. It came pouring into "Clyde" for the next two days, and by the 19th it was as common as it ever is, which is equivalent to saying that wherever there were trees there the air was palpitating with the cadence which, except for the little flourish at its close, is all its song. To have this species in full numbers by the 19th of April, is a tribute to the amazingly fine weather which prevailed till, and including, that date. Against this may be put the fact that it has happened once in my experience, in a most unfavourable year, that I have passed through the month without hearing a single strain of music from the Willow-Wren.

LIST OF ARRIVALS OF SUMMER-BIRDS IN THE ORDER OF THEIR APPEARANCE IN 1914.

LESSER BLACK-BACKED GULL (*Larus fuscus*)—one, Erskine Ferry (T. Malloch), 14th March; one, Lennoxton (D. M'Donald), 15th; Harbour of Glasgow (W. Rennie), 19th; Possil (2) (Rennie), 21st.

WHEATEAR (*Saxicola œnanthe*)—two, Cadder, one with an injured wing which drooped badly, 29th March (Rennie); one, Greenock (T. Malloch), 31st; two (♂) singing, one ♀, Kilmacolm (T. Thornton MacKeith), 3rd April; two, Summerston (Rennie), 5th. Mr. M'Donald writes, on seeing one on 10th at Bardowie, that they are not common this season along the Kelvin Valley; and Mr. Robt. W. Wilson, in reporting one observed at Glen Afton on 18th, that they "have been very scarce all spring." Mr. John Robertson had not seen it nor had I when the 10th of May was reached.

SAND-MARTIN (*Cotile riparia*)—Endrick (Chadwick), 1st April; Summerston, three on 3rd, none again till 14th (M'Donald); Bothwell, 4th (1) (Rhodes); Rouken, two with Swallows, 13th (John Robertson).

WHITE WAGTAIL (*Motacilla alba*)—Williamwood (1 ♂), 4th April (R. Wilson), and Kelvin (3) (Rennie), same date; Summerston (2) 5th (Rennie); Summerston, one, 10th April, and common on and after 15th (4), 17th (3) (M'Donald); Cart below Clarkston (1) (Hugh W. Wilson and Robertson), 12th; seventeen at Kilmacolm (MacKeith), 14th; near Balloch (Ross), 15th.

CHIFFCHAFF (*Phylloscopus rufus*)—Blair, Dalry (Wm. Mair), 5th April; same place (Archd. Shanks), 13th.

SWALLOW (*Hirundo rustica*)—Possil (8), 8th April (Rennie); Beith (3) (J. Craig) 11th, and (2) Rouken (Robertson) same date; Rouken, about eight, 13th (Robertson), and (10) the Knapps (T. Malloch), same date; Summerston (2) and Caldercuil (6), (M'Donald), 14th; also two at Cowal

Golf Course (A. M'Leod) on the 15th, one at the Rouken (Robertson), one at Craighends (Malloch), and a pair at Darvel (N. Hopkins).

Particular interest attaches to Mr. William Rennie's observations on this species at Possil Marsh.

Beginning with a party of eight on the 8th of April, as quoted above, a party, this time of 60-70 birds, was seen at sunset on the 17th. At 7.25 p.m. on the 20th a score passed; then just after sunset another lot of not less than 80 appeared. On the 21st, at 7.30 p.m., several passed low to the water, which he consequently could not count, and twenty minutes later a fairly large flock appeared in the sky, but it was cloudy, and they were only visible at times. They could be heard twittering after sunset. While this larger body was high in the air another smaller group passed over the surface of the water. On the 29th he reached the Marsh at 7.20 p.m., and saw the first Swallows at 7.35. At 7.38 the number was 16, at 7.45 about 36, and at 7.55 over 50. So the narrative goes on. Mr. Rennie, from his experience in recent years, concludes that these gatherings at sunset are composed of birds passing onwards, which are here arrested for the night, and are attracted by the twittering of some already collected, which twittering naturally becomes louder in the afterglow as the numbers increase. He favours the idea of conscious interception by those arriving first extending the radius of the circles they make, but this is, of course, a little speculative. The interest in the observations is in no way lessened by the fact that conclusions cannot be reached yet regarding the methods of attraction—the place itself, by the way, with its body of water and its cover and seclusion, being, one would suppose, naturally very attractive to passing migrants.

RING-OUZEL (*Turdus torquatus*)—Greenock Hills (1) (Malloch), 8th April. Nest and three eggs there, 14th May, and feathered young in the nest, 25th May. Glen Afton ("Solway"), several in song on 18th April (R. W. Wilson). *Obs.*—The record under this species in Vol. V., p. 82, of the occurrence on the Cart at Clarkston

should have appeared on the following page under "Common Sandpiper."

WILLOW-WREN (*Phylloscopus trochilus*)—Cart below Clarkston (1), 12th April (H. W. Wilson and J. Robertson); Linwood Moss (3) (Malloch), Beith (1) (J. Craig), both on 15th; on the 16th at Lanfine on the Irvine water—"fair numbers" (N. Hopkins), who never saw, he writes, such an early influx before. On same day in all woods from Greenock Road to Erskine, but it was still absent at Bothwell, and only one, two, or three birds were seen in the other localities from which it is reported on that date, as at Kilmacolm (MacKeith), Cadder (M'Donald), and Possil (Rennie). On the 18th it was numerous in a larger number of localities, and by the 19th was up to its maximum spring numbers in many places (see p. 87). A nest with one egg was found by Mr. John Robertson at Williamwood on the 9th of May.

COMMON SANDPIPER (*Totanus hypoleucus*)—Cart below Clarkston, a pair 12th April (H. W. Wilson and J. Robertson), and Darvel (Hopkins) same day. Johnstone (2) (Malloch), Knapps (MacKeith), Summerston (M'Donald), all on 14th; Erskine (Ross) 16th. It was common on the Cart above Netherlee on the 26th (R. W. Wilson). It began laying at Darvel on 1st May (Hopkins), and a nest with four eggs was found at Harelaw Dam on 6th May.

YELLOW WAGTAIL (*Motacilla raii*)—Summerston (M'Donald), 16th April (1) (♀), and on following day (1 ♂ and 3 ♀); 18th, Beith (Craig) (3 ♂); 19th, Muirend (1), Williamwood (1), Rouken (1) (Robertson), Kelvin (1) (Ross and Paterson); Darvel, 23rd (Hopkins); Possil (3) (Rennie), 24th, and on following day 64 there. Under date 25th April Mr. Rennie writes:—"A lovely evening for observation. At 6.30 I noticed that single Yellow Wagtails were passing over 'the Marsh.' Realising that a movement was taking place, I began to take note of them. The movement was slow, and nearly all came in ones or twos,

with the exception of one lot of five. There seemed to be a little bit of a rush from 7.20 to 7.30. The last that I saw passing was at 7.50. In this way 64 came under my observation. They all came from the east, and rested along the south-west edge of 'the Marsh.' Of course, it stands to reason that many would arrive unknown to me, so I have not the slightest idea what the total number would be."

CUCKOO (*Cuculus canorus*)—Beith (Craig) (2), 18th April; Turnberry (MacKeith), several same day; Gareloch (W. R. Baxter), 23rd; Kilmacolm (MacKeith), 25th-26th; Darvel (Hopkins), 29th.

WHINCHAT (*Pratincola rubetra*)—Waulkmill Glen Dam (1) (Robertson), 19th April; Muirend (1) (H. W. Wilson), 26th; Darvel (Hopkins), 30th.

HOUSE-MARTIN (*Chelidon urbica*)—Millport (Mr. Dale), 18th April and several on 19th (Elmhirst); Gareloch (1) (Baxter), 19th; Kilmacolm (1) (MacKeith), 22nd; Castle Farm, Cathcart, one on 24th and 25th and two on 27th (Robertson); Darvel (1) (Hopkins), 26th, and (3) at Allander Toll (M'Donald); Johnstone (Malloch), 30th.

TREE-PIBIT (*Anthus trivialis*)—Cadder (2) (Rennie), Williamwood (1) (Wilson and Robertson), Mains Wood (1) (Robertson), Bagabouts (1) (Robertson), Rouken (1) (Robertson), Garelochhead (Baxter), all on 19th April; Kilmun (2) (Malloch), 22nd; Darvel (Hopkins), 23rd; Baldernock (4) (M'Donald), 26th; Kilmacolm (MacKeith), 29th.

CORNCRAKE (*Crex pratensis*)—Darvel (Hopkins), 21st April; Beith (Craig), 25th; Giffnock (Buchanan), 27th; Clippens (1) (Malloch), 30th; Muirend (1) (Robertson), 2nd May; Darnley Mill (Robertson), 3rd; Giffnock (3) (Wilson), 5th; Killermont and Caldercuil (M'Donald), 6th, and at Possil and Neilston same date. Mr. J. Robertson writes:—"Later in coming in, and at 10th May numbers seemed considerably less than on same date in 1913."

WOOD-WREN (*Phylloscopus sibilatrix*)—Gareloch (Baxter), 23rd April; in Glen Falloch two seen and at least six heard in full song on 25th, "they seemed to have been there several days" (R. W. Wilson); Darvel (1) (Hopkins), 26th, "very early"; Inchtavannach, several (H. W. Wilson), 2nd May.

REDSTART (*Ruticilla phœnicurus*)—Glen Falloch (R. W. Wilson), 25th April; Inchtavannach (H. W. Wilson), several on 2nd May.

GREENLAND WHEATEAR (*Saxicola œnanthe leucorrhœa*)—Balmuilly (M'Donald), 26th April. It is a pleasure to see this species, which is beginning to be distinguished in this district, appearing in this list.

GARDEN-WARBLE (*Sylvia hortensis*)—Rouken (3) (Robertson), 26th April; Darvel (Hopkins), 2nd May, "fair numbers since May came in," writes Mr. Hopkins. Rouken again on 2nd-3rd May (Robertson); Glen Luss (1) (R. W. Wilson), 4th May, but not heard on 2nd-3rd May on Inchtavannach.

GRASSHOPPER-WARBLE (*Locustella œvia*) — Inchmoan (Wilsons), 3rd May.

SEDGE-WARBLE (*Acrocephalus phragmitis*) — Near Cloch Lighthouse (A. Ross), Rouken and Darnley Glens (Robertson), and Darvel (Hopkins), all single birds on 3rd May; Summerston (1) (M'Donald), 4th, and Kilmacolm (MacKeith) same day; Possil, three on 5th, several on 6th, no trace on 7th and 8th; 10th common but not as on 6th; week ending 17th full strength (Rennie).

SPOTTED FLYCATCHER (*Muscicapa grisola*)—Woodside at Beith (Breckenridge), 10th May; Darvel (Hopkins), 12th.

COMMON TERN (*Sterna fluviatilis*)—Craigmore (2) (MacKeith), 16th May; Possil (Rennie), eight at 3.45 a.m. and two later—all passed north-west, 19th. Accustomed to see two or three Terns on the Clyde east of Glasgow after

the middle of May, I was surprised to find on the 23rd May of the year under notice (1914) that many were to be seen. For two or three miles east of Cambuslang they were never out of sight.

COMMON WHITETHROAT (*Sylvia cinerea*)—Gareloch (Baxter), 29th April; Darvel (Hopkins), 30th, "very early"; Cathcart (1) and Giffnock (1) (Robertson), 2nd May, and Luss same date (T. W. Wilson); Cathcart (2) (Robertson), 3rd; Glen Luss (1) (R. W. Wilson), 4th; Kilmacolm (MacKeith), 6th. Well distributed E. Renfrew 9th (Robertson), and nest ready Darvel 12th, and one egg in nest 16th (Hopkins).

SWIFT (*Cypselus apus*)—Lanark (3) (M'Donald), 2nd May, and Rouken two if not three (Robertson), same date; Gareloch (Baxter), Kilmacolm (MacKeith), 3rd; Summerston (10) (M'Donald), 4th; Kilmacolm (6) (MacKeith), 6th; Possil (3) (Rennie), 7th. Mr. Malloch writes that the Swifts always seem to be much later at Johnstone than they are in other districts, and leave earlier. The 19th was really the first arrival at their nesting place at Johnstone. It may be mentioned that the Swift continues coming to the city to the Blythswood district, and was this year first observed on 15th May, in West George Street.

Proceedings of the Society.

THE first meeting of the sixty-third session took place in the Society's Rooms, on 30th September, 1913, Mr. John R. Lee, President, in the chair.

Before the formal business, the President made appropriate reference to the great loss the Society had sustained in the death of Mr. Peter Ewing, F.L.S. (see Vol. V., pp. 113-116).

Reports on excursions to Rowardennan (see p. 60), Rosemount (see p. 62), and Colintrave (see p. 62) were submitted.

Mr. Andrew Gilchrist exhibited specimens of a rare crucifer, *Subularia aquatica* L., from Loch Finlas, a new station for this plant in Ayrshire.

Mr. D. A. Boyd exhibited *Podosphera myrtilina* (Schub.) Kunze, an addition to the fungus-flora of the Clyde Area, from Tarbet, Loch Lomond. He also showed specimens of *Doassansia alismatis* Cornu, from Loch Fad (Kirk Dam), Rothesay, and *D. Martianoffiana* Schröt., from the same place, the former being new to "Clyde."

Mr. Nicol Hopkins sent for exhibition the nest of *Vespa sylvestris* from the banks of the Lindsay Burn, Darvel.

Mr. Johnston Shearer exhibited a large specimen of *Pholiota aurea* Matt., from Maxwell Park, Glasgow.

Mr. Alex. Ross, F.E.I.S., read a paper on the "Birds of Islay" (see pp. 7-32).

The sixty-second Annual General Meeting took place on 28th October, 1913, Mr. John R. Lee, President, in the chair. The Council's Annual Report showed a successful year. During the year 5 Ordinary Members were elected, while the names of 1 Corresponding Member and 14 Ordinary Members were removed from the roll—4 of these through death. The membership, which is 240, is composed as follows:—Hon. Members, 14; Corresponding Members, 32; Life Members, 21; Ordinary Members, 173. There are also 4 Associates.

The Report of the Honorary Treasurer (Mr. John Renwick) was adopted (for Abstract Statement of Accounts, see p. 112).

The Report of the Hon. Librarian (Mr. James Mitchell) bore out the continued popularity of the Library.

Office-bearers were elected as follows:—As Vice-President, Mr. Robert W. S. Wilson; Members of Council, Messrs. J. G. Connell, F.R.M.S., Robert Henderson, Jas. J. F. X. King, F.E.S., and John Main, F.G.S.

Messrs. Jas. Jack and Joseph Sommerville were re-elected as Auditors.

Mr. R. S. Wishart, M.A., exhibited a specimen of the Danewort (*Sambucus Ebulus* Linn.) from near Chryston (per favour of Mr. Hugh H. Aitken); potatoes penetrated by the rootstocks of couch-grass; flowers of the Artichoke (*Cynara Scolymus* Linn.), and the larva of an insect that appears to induce the leaves of *Galium palustre* to form pink flower-bud-like structures.

Mr. G. Lunam exhibited 50 specimens of Channel Island plants.

Mr. Hugh W. Wilson exhibited a fine series of lantern slides (bird-life and landscape), from photographs taken in Tiree in 1912.

Mr. James M. Andrew's paper, entitled "New Records of Mosses and Hepatics from V.C. 87," was read by Mr. A. Ross (see pp. 47-48).

The third meeting of the sixty-third session took place on 25th November, 1913, Mr John R. Lee, President, in the chair.

Mr. John H. Gurney, Keswick Hall, Norwich, was elected as a Life-Member.

Reports were submitted on excursions to Duntreath (p. 63) and Kilkerran (p. 64).

Mr. Thomas Wilson, per favour of Mr. James Pottie, exhibited a photograph of a fruiting branch of a black currant and goose-berry hybrid. In Kew Gardens there is a specimen, planted in 1892, that has never fruited. The specimen represented in the photograph was found growing between Selkirk and Hawick, and had a spread of from 12-14 feet and a stem about 6 inches in diameter. The characteristics of the fruits of both parents could be plainly seen in the photograph, while some of the berries were evidently intermediate.

Mr. J. R. Jack, M.I.N.A., exhibited a delightful series of autochrome studies taken during the present year. They were mainly of Alpine plants and fungi.

Mrs. P. Ewing submitted her report as delegate to the Birmingham meeting of the British Association.

Prof. L. A. L. King read a paper on "Some Leeches of the Glasgow District" (pp. 39-47).

The fourth meeting of the sixty-third session took place on 30th December, 1913, Mr. John R. Lee, President, in the chair.

The following Ordinary Members were elected:—Messrs. James Shearer, Jun., 62 Pollok Street; George Stout, 156 Sauchiehall Street; James Stirton, M.D., 5 Newton Terrace.

Mr. R. W. Wilson showed a Curlew Sandpiper (*Tringa subarquata*) from Fairlie; Mr. T. W. Wilson, eggs of the House-Sparrow, showing great variations in colour and markings; Mr. J. Robertson, nests of our summer warbler visitors; Mr. George Stout a Waxwing (*Ampelis garrulus*) from Orkney.

Mr. John R. Lee exhibited some willows, notably Alpine forms, including *Salix Lapponum* L., from Myrdal, Norway, Cruach Ardran, and Ben Lawers; *S. arbuscula* L., from Meall Ghaordie and Meall Tarmachan; *S. reticulata* L. from Meall Ghaordie and Meall Tarmachan; *S. nigricans* from Meall Tarmachan; and *S. phylicifolia* from Possil Marsh.

Mr. N. G. Reid showed a delightful series of lantern slides illustrating Ailsa Craig and its bird-life.

The fifth meeting of the sixty-third session took place on 27th January, 1914, Mr. John R. Lee, President, in the chair.

Messrs. George Guthrie, 38 Lilybank Gardens; William Miller Kirkwood, Orchard Street, Motherwell; and John Inch, care of Mrs. Carey, 37 Arlington Street, were elected as Ordinary Members.

A report on an excursion to Dougalston for fungi was submitted (p. 101).

Mr. Jas. J. F. X. King, F.E.S., exhibited specimens of the recently recorded addition to the British Coleoptera, *Thanasimus rufipes* Brahm., and for comparison specimens of *T. formicarius* L., both from Nethy Bridge; Mr. King also showed specimens of the rare *Acrulia inflata* Gyll., from Nethy Bridge.

Mr. T. Thornton MacKeith exhibited two eggs of the Quail (*Coturnix communis*): one taken in a hayfield on Fauds Farm, Kilmacolm (Renfrewshire), in 1903, by Mr. W. L. Walker—there were nine eggs in the nest; the other specimen was taken by Mr. Andrew Walker in a hayfield at Knockinkelly, Whiting Bay, Arran, in the first week in July, 1905, there being seven or eight eggs in the clutch. Both specimens had been submitted to Mr. W. Eagle Clarke, who concurred in the identification.

Mr. George Heriot exhibited some highly successful autochrome studies.

Mr. James Stirton, M.D., submitted a paper, read by Mr. Alex. Ross, entitled "On Some Mosses from the West Highlands, &c." (pp. 33-39).

The sixth meeting of the sixty-third session took place on 24th February, 1914, Mr. John R. Lee, President, in the chair.

Messrs. Jas. Jack, 83 Aitchison Street, Airdrie, and John Ritchie, Jr., 18 Townhead, Beith, were elected as Ordinary Members.

A resolution expressing sympathy with a Bill promoted in Parliament for prohibiting the importation of the plumage of wild birds for millinery purposes, moved by Mr. Alex. Ross, was passed unanimously.

A pied Mouse (*Mus musculus*) from Islay was sent for exhibition by Dr. Thos. F. Gilmour.

Mr. J. G. Connell, F.R.M.S., gave a most interesting lecture on "Common Animals of the Seashore."

Mr. D. A. Boyd read a paper on "Plant Galls," and submitted a list of 35 species which had come under his observation in the course of other quests.

The seventh meeting of the sixty-third session took place on 31st March, 1914, Mr. John R. Lee, President, in the chair.

Suitable reference was made by the President to the loss which the community and our society had sustained in the tragic death of Sir John Murray of "Challenger" fame, who was for many years an Honorary Member of the Society.

Messrs. Henry John Rhodes, Burnbrae, Bothwell, and Thos. W. Wilshaw, 15 Armadale Street, Dennistoun, were elected as Ordinary Members of the Society.

Mr. John Renwick exhibited a walnut, in which, instead of the usual bivalve shell, the endocarp was in three sections, giving the nut a three-cornered appearance.

Mr. John Ritchie, Jun., submitted a note, read by Mr. A. Ross, on the occurrence of *Argulus foliaceus* L., a parasite which attacks fresh-water fishes. In the British Association Handbook to the Natural History of Glasgow, &c. (1901), the species is recorded as having been found on the Grayling, and Mr. Ritchie

stated that he had obtained specimens from the common trout from a burn which flows into Kilbirnie Loch. He had also identified a specimen sent to him by Mr. Robert Dunlop, Dunfermline, as belonging to the same species; in this case the parasite was taken from a stickleback (*Gasterosteus aculeatus* L.) from a brickfield near Airdrie.

Dr. R. Broom, late Professor of Zoology and Geology, Victoria College, Stellenbosch, gave a most interesting lecture on "The South African Reptilia and the light they throw on the Origin of Mammals."

The eighth meeting of the sixty-third session was held on the 28th April, 1914, Mr. John R. Lee, President, in the chair. Mr. John Renwick, by favour of Mr. James Whitton, exhibited specimens of *Lathræa clandestina*, Tourn., from the Botanic Gardens, Glasgow. This species, in its underground rootstock, covered with close-set, short, fleshy scales, resembles *L. squamaria* L., but differs from it very markedly in the inflorescence, which is very striking with its beautiful purple flowers. The specimens were found growing on the roots of a willow-tree in the garden.

Mr. T. Thornton MacKeith read a paper on the Birds of West Renfrewshire.

The ninth meeting of the sixty-third session took place on 26th May, 1914, Mr. John R. Lee, President, in the chair.

A report was submitted on an excursion to Mauchline (p. 102).

Professor L. A. L. King exhibited two living leeches; *Helobdella stagnalis* L. he had obtained from ponds at Anniesland, near Glasgow, and *Herpobdella atomaria* Car. had been sent to him by Mr. Wm. Miller, from Motherwell. The latter species has not previously been recorded for the Clyde Area; it was observed by Mr. Miller on the banks of the Clyde on the undersides of stones.

Mr. Richard Elmhirst, F.L.S., read a paper entitled "Some Additions to the Clyde Marine Fauna" (pp. 78-79).

Mr. John Paterson read a report on the return of our summer-migrants for the present season (pp. 87-93).

Mr. Jas. F. Gemmill, M.A., M.D., D.Sc., read a paper entitled "On Keeping Small Marine Aquaria" (pp. 79-86).

The tenth meeting of the sixty-third session took place on the 30th June, 1914—Mr. John R. Lee in the chair.

Mr. John Renwick reported on an excursion to Dalserf (p. 103) and Mr. John Robertson on one to North Bute (p. 107). Mr. James Stirton, M.D., exhibited *Hypnum Juratzkanum* Schp., in fruit from the Botanic Gardens, Glasgow, and *Barbula obtusula* Lindb., not hitherto found out of certain parts of Sweden, from Bridge of Allan. The President (Mr. Lee) exhibited *Webera proligeru* Bryhn., a new record for "Clyde," from Drumchapel, *W. polymorpha* Schp., from Ben Narnain, and *Trichostomum tenuirostre* Lindb., var. *Daldinianum* de Not., from Glenfalloch. Mrs. P. Ewing exhibited flowering specimens of *Epilobium nummularifolia* from her garden at Uddingston, the original plant coming from Ardrishaig, Loch Fyne. Mr. D. A. Boyd read a paper, entitled "Additional Records of Microfungi for the Clyde Area" (pp. 75-78).

Mr. James Whitton, Superintendent of Parks, Glasgow, submitted his annual report, entitled, "Meteorological Notes and Remarks upon the Weather during the year 1913, with its General Effects upon Vegetation." From the data in Mr. Whitton's paper it appears that the rainfall for the year was under the average, amounting in all to 35.24 inches, or $3\frac{1}{2}$ inches less than in 1912. The wettest months were March, with 4.43 inches, and November, with 4.96 inches. The driest months were July, with 1.42 inches, August, with 1.19 inches, and October, with 1.61 inches. The atmospheric pressure was wider in range, and slightly lower than in 1912. The highest reading was 30.40 inches, which occurred on 12th February and 19th December respectively. The lowest reading was 28.10 inches on 19th March. In regard to winds, for the fourth year in succession less easterly wind was experienced. The easterly group of winds prevailed on 79 days, and the westerly group on 262 days. The temperature averages were fully higher than in 1912, owing to absence of severe frosts, the low rainfall, and more sunshine. Frost was registered on 30 days to the extent of 118° in all. The lowest reading was 19° on 14th January, and highest 75°, which occurred on 3rd, 28th, and 30th July. A sunshine recorder is established at Springburn Park, and the monthly results from the time of its installation are, as follows:—

June, 128·5 hours; July, 195·4 hours; August, 143·2 hours; September, 80·2 hours; October, 87·16 hours; November, 41·3 hours; December, 28·0 hours. Till the end of May vegetation was backward, but later in the season the leeway was made up. The previous season's growth on trees and shrubs not having ripened satisfactorily, the display in the woodlands was neither brilliant nor satisfactory. Though the season's growth was slow at first its later development was good, and as it ripened well in the warm weather the prospects for 1914 were good.

Note.

Green Sandpiper in West Stirlingshire.—On the evening of 27th March, 1914, I flushed a Green Sandpiper (*Tringa ocropus*) off a mud patch on the Allander. The bird was seen in the same neighbourhood (Balmore Haughs) on March 28, April 3, and three immediately subsequent occasions. I found it exceedingly wary, and very difficult of near approach.

D. MACDONALD.

Excursions.

DUNTREATH, 18th October, 1913.—Conductor, Mr. John Renwick.—The second visit to this estate was mainly devoted to the measurement of some of the larger trees.

On the side of one of the rivulets, that come down from the hills on the north, is a very graceful Birch, which rises to a height of 63 feet, and has a girth of 4 feet. Near it is a Walnut, which had produced a good crop of juicy nuts.

Among the larger trees in the policies is an Oak to the west of the Castle, 84 feet high, with a fine bole of 36 feet, having a girth of 12 feet 9½ inches at 5 feet; also a Sycamore with a girth of 11 feet 6½ inches, and a bole of 20 feet.

Sir Archibald Edmonstone drew attention to a celebrated Oak, known as "Rob Roy's Tree." This Oak, otherwise known as "the Meikle Tree," or "Trysting Tree," was specially visited by the Society on 7th October, 1893—the

quatercentenary of a Notarial Instrument, dated 17th February, 1493. This document narrates the division of the lands of Blairquhosh into three parts, whereof the easter third part, which afterwards became known as Blairquhosh Edmonstone, has continued to be part of the Duntreath Estate to the present day. This fine tree is noticed in the late Mr. John Guthrie Smith's book on *The Parish of Strathblane*. It is also described, along with a neighbouring tree known as "the Smiddy Oak," in the *Statistical Account* (1793), as well as in the *New Statistical Account* (1841). It is now decaying, but the lower dead branches have been cut off, and the truncated parts protected from the weather. The last time Mr. Renwick saw it, prior to his recent visit, the trunk could not be measured accurately, owing to its being covered with zinc; but in 1898 it measured 16 feet 10 inches, having increased 2 inches in girth during the 11 seasons from 1888 to 1898 inclusive. The diameter of the head had, however, decreased 10 feet, from 90 feet about 1795 to 80 feet in 1893 and 1898. It is not a high tree, as it only showed an altitude of 56 feet in 1898 and 1905.*

The other Oak measured 12 feet 10 inches in girth in 1893; and it had increased from 13 feet in 1898 to 13 feet 1 inch, at 4 feet 7 inches, in 1905. It had a diameter of head in 1893 of 83 feet, which, however, had decreased to $78\frac{1}{4}$ feet in 1898, owing to the loss of some branches. Height, 57 feet.

There is a very fine Beech on the north side of the highway, to the east of one of the entrances to the policies, with a girth in 1905 of 15 feet 11 inches; height, over 84 feet; diameter of spread, 90 feet.

FUNGUS FORAY IN DOUGALSTON POLICIES. 20th September. 1913.—A fungus foray, in conjunction with the Andersonian Naturalists' Society, took place as above. The full list of fungi noted at Dougalston calls for no special remark, as the species named are either very or fairly well known. The ground was

* For further information regarding this venerable Oak, and a photograph showing its appearance, reference may be made to the Society's *Proceedings & Transactions* (New Series), vol. iv., p. 250; pl. ii.

very dry, and as it had been in that condition for some time, it is a matter of satisfaction that so many species were recorded. An interesting point is that while at the previous foray there in September, 1904, the prominent feature was the abundance of *Ithyphallus impudicus* all over the wood, this year that species was very rare, and *Cantharellus aurantiacus*, the false chanterelle, coloured the ground everywhere.

MAUCHLINE, &c., 13th April, 1914.—Conductor, Mr. D. A. Boyd. This excursion was arranged jointly with the Andersonian Naturalists' Society.

The Spring Holiday opened under very unfavourable conditions as regards weather, and heavy rain had, no doubt, the effect of deterring many from undertaking the journey to Mauchline. Seven gentlemen and five ladies braved the discomforts of the journey, and were not disappointed, for when Mauchline was reached it was found that the rain had ceased and the sky showed welcome signs of clearing.

The town of Mauchline stands high, and, under favourable circumstances, commands a very extensive view stretching over many miles of country. To a casual visitor the town gives the impression of being, in general, airy and clean. Most of the houses are built of the New Red or Permian Sandstone of the district, which has been extensively quarried at Ballochmyle and other places in the neighbourhood. The profusion of early flowers in full bloom in the gardens, afforded evidence alike of the fertility of the soil and purity of the air. Mauchline is in the centre of a district closely associated with the poet Burns, who there found inspiration for many of his best-known effusions.

After leaving the town, the party proceeded along the Ayr road, soon passed from the parish of Mauchline into that of Tarbolton, and gradually descended towards the valley of the River Ayr. For several miles the road is pleasantly bordered with beech trees, so as to resemble in summer, when the foliage is fully expanded, a private avenue rather than a public highway. Several patches of the Lesser Wintergreen (*Pyrola minor*), not yet in bloom, were observed on the roadside, while on sunny banks and in sheltered places many of the early flowers were already displaying their blossoms. A pleasant feature, characteristic of

the whole day's walk, was the song of the thrushes and other birds which seemed to abound everywhere in the woods and coppices.

In the neighbourhood of Failford House and village, fine views were obtained of several reaches of the River Ayr, with its richly-wooded banks. The little village of Failford, prettily situated in a fertile hollow near the river, was formerly famed for the manufacture of Water-of-Ayr whetstones, held at one time in high esteem for putting a fine edge on knives and other cutlery. A short distance beyond the village, the road passes below the railway, and immediately thereafter reaches the entrance to Montgomerie estate. By permission kindly granted by Mr. James Arthur, the present occupant, access was obtained to the policies and gardens. On the lawn near the house a shrubbery and rock-garden were resplendent with various bright-blossomed species of *Rhododendron*, *Erica*, *Anemone*, &c. Here we were met by Mr. Arthur, junior, who kindly conducted us through one of the conservatories adjoining the house, as well as through part of the policies, where several fine specimens of oak and other trees were measured by Mr. Renwick. Mr. Arthur has already done much to improve and beautify the grounds by forming new walks and planting choice shrubs and flowers. In the gardens many early-blooming perennials already made a fine display, one of the most notable being *Anemone appennina*, with its profusion of sky-blue star-like blossoms.

After leaving Montgomerie, the party walked to Tarbolton Station and returned by train to Mauchline. They then visited the Haugh on the banks of the River Ayr.

Although no special "finds" fall to be recorded, the excursion proved a very enjoyable one to all who were present; and there can be little doubt that if a visit could be arranged to the wooded banks of the Ayr, or the moist sandstone rocks bordering on the river, at a period somewhat later in the season, materials for a more satisfactory report would be readily obtained.

CAMBUSNETHAN HOUSE, 16th May, 1914.—Report by Mr. John Renwick. This was the third visit of the Society to these grounds. The first was on 17th May, 1902, conducted by Mr. James Whitton. Unfortunately his report was not available in

time for presentation to the Society nor for publication, but was handed to me shortly before the present visit and I shall include most of it. The second was on 5th June, 1909, joint with the Hamilton N. H. Society and under their leadership. Brief accounts of these appeared in our *Transactions*, Vol. VI. (N.S.) p. 343, and in *The Glasgow Naturalist*, Vol. I. p. 143.

The party went by rail to Dalsersf station, and walked by Garrion Bridge and Garrion Haugh, entering the policies by the south-east lodge. On the banks of the Clyde above Garrion Bridge several plants were observed, such as *Stellaria nemorum* and *Geranium sylvaticum*. On a visit a fortnight later two specimens of the Star of Bethlehem, *Ornithogalum umbellatum* were seen. Here and in the hedges *Alliaria officinalis* is conspicuous, and has evidently been so since the time of Patrick (1831) who says—"common about Dalsersf."

On our first visit Mr. Whitton wrote—"Owing to the backwardness of the season one of the features of Cambusnethan, viz., the great profusion of the Wood-hyacinth (*Scilla nutans*) intermixed with the Leopard's Bane (*Doronicum Pardalianches*) was missed, as the flowers were only showing, instead of being in full bloom."

On our present visit the Hyacinth was in splendid condition and immense profusion. Patrick remarks—"This is 'the azur'd Hare-bell' mentioned in Shakespeare's 'Cymbeline.'"

Still more interesting was a large patch of the Meadow Saxifrage (*Saxifraga granulata*) on the south-eastern avenue. Indeed this patch was almost a solid mass of white.

Patrick writes—"The double variety grows abundantly at the front of Jerviston House, where it is regarded as an inveterate weed." Mr. Bryson, gardener at Mauldslic, told me that it grows freely near his house.

In the field above the mansion-house and toward the glen were a number of fine trees, Turkey Oaks, Horse Chestnuts in abundant and beautiful flower, &c. A Turkey Oak which in 1909 had a spread of 86 feet and a girth at 3 feet 6 inches of 9 feet 11 inches has increased to 10 feet 3 $\frac{1}{4}$ inches. Another has grown from 9 feet 2 $\frac{1}{2}$ inches to 9 feet 7 inches at 5 feet. Both have short boles, only 7 feet and 9 feet respectively.

An Elm in this field, with a girth of 10 feet 3 $\frac{1}{2}$ inches at 4 feet, and a bole of 6 feet, does not look like the Wyeh Elm, but the

foliage was too immature for even Professor A. Henry to say decisively.

The venerable Spanish Chestnut is still making wood. It has increased in girth $2\frac{3}{4}$ inches since June, 1909, and $8\frac{1}{4}$ inches since May, 1900, and is now 22 feet $11\frac{1}{4}$ inches at 5 feet 6 inches on the low side. It is stated to have been struck by lightning, and its appearance goes to confirm this statement. A large part of the trunk has been torn off. It had a height of 70 feet in 1909, the very same figure as that given about 1863 and 1879. In girth it is the largest Sweet Chestnut we know in the Clyde area.

Another noteworthy tree is a fine example of the true Black Poplar (*Populus nigra*). In 1909 it had a height of 102 feet, and in girth it has since then increased $2\frac{3}{4}$ inches to 11 feet $11\frac{1}{4}$ inches. On both previous visits the Toothwort (*Lathræa Squamaria*) was found growing on its roots, and again on this occasion. Mr. Renwick has found it at The Ross, Hamilton, growing, as here, on the roots of *Populus nigra*. Neither Hopkirk in *Flora Glottiana* (1813) nor Patrick in *The Indigenous Plants of Lanarkshire* (1831) mentions *Lathræa* at all. From the British Association Handbook to "Clyde" (1901) it appears, according to Hooker, to have been found at Cambuslang and Cathcart and near Ayr; according to Henneidy, in Lanarkshire; according to Smith, at Dundonald. Henneidy in the second edition of the *Clydesdale Flora* says—"Very rare. Parasitical on the roots of Hazels, &c. Carmyle wood below the village. On the same spot for two seasons in May." Professor King in his edition of this work adds—"Langside; above Cambuslang on roots of Hawthorn; near Lanark." It was found abundantly this spring on the banks of the Clyde above Cambuslang.

Mr. Renwick found it in 1906 at the foot of a Lime tree at Doonholm in the Parish of Ayr. In reporting on a visit of the Society to Doonholm (see our *Transactions*, VIII. (N.S.) p. 90). Mr. Renwick wrote—"Mr. John Smith in his *Botany of Ayrshire*, 1896, records it from Dundonald and Maybole, on the authority of a *Botany of Ayrshire*, 1882, drawn up by Messrs. Borland, Duncan, and Landsborough. Mr. Smith informs me that he has never found it himself. Dr. Landsborough, in a letter to me, 24th April, 1906, writes—"According to my notes it was found by Smith, of Monkwood, at Blairston, Maybole; Dundonald

Woods by the Messrs. Paxton, Kilmarnock ; by W. M'Cutcheon (on Hazel), Clavens Hill, Dundonald ; and at Cleuch Glen, Sorn, by myself.' This discovery at Doonholm, Ayr Parish, appears therefore to be a new parish record for the County."

Near the house is a good Wych Elm with a bole of 13 feet and a girth of 11 feet 2 inches at 5 feet, an increase of $1\frac{1}{2}$ inches in 5 years. An Elm, which I take to be *Ulmus campestris*, the English Elm, near the foot of the glen, has a girth of 10 feet $10\frac{3}{4}$ inches at 2 feet 2 inches, an increase of $12\frac{3}{4}$ inches in 12 years. In the report of our visit in 1902 the girth of this tree was inadvertently given as 8 feet 10 inches instead of 9 feet 10 inches. On that occasion the party went by Wishaw South Station. Mr. Whitton wrote:—"Proceeding by the Ha' Gill—an excellent type of the gills or small giens common to the Clyde valley, the party slowly worked its way down by a somewhat difficult path to the haugh bordering the Clyde. Attention was directed to a dyke or fault in the mineral strata which necessitated the coal on either side of the gill being worked from pits at wide distances apart and on different levels. At one point a striking example of the effect of the withdrawal of the underlying coal was observed in the crushing and shattering of a huge face of rock which a few years previously presented a smooth compact surface. In the upper part of the gill few of the trees were of any note, the large Spruces were dying from the effect of smoke, or by the sinking of the ground through under ground workings wrenching the root-system of the trees, and also upsetting the natural water-supply—each cause in itself sufficient to kill the trees. In the park facing the main front of the mansion several fine healthy specimens of trees were noted, particularly two distinct varieties of the Great Maple, *Acer Pseudo-platanus*, one being a beautifully-variegated form, and the other, which is known as the 'Corstorphine Plane' with beautiful golden foliage, which makes it a conspicuous object in the landscape for some time, as later it assumes the usual tint of the type."

In addition to the trees already mentioned there are a number of good Beeches, tall Poplars (*Populus serotina*), 112 to 119 feet high, and Elms whose species can only be determined by obtaining mature foliage. There was great abundance of fruit on the Wych Elms, and the absence of foliage on the Ash which is very late this year, was notable.

MILLPORT MARINE BIOLOGICAL STATION, 20th June, 1914.—Mr. J. G. Connell, conductor. Ten members turned out to this excursion which took place in wretched weather. In the circumstances the arrangements for dredging and tow-netting were upset, but thanks to the numerous interesting objects in the aquarium and Robertson Museum, and a short demonstration in the class-room on the general character and adaptability of colouration in fishes, a profitable day was spent.

NORTH BUTE, 19th May, 1914.—Conductor, Mr. John Robertson. In perfect weather conditions, four members and a friend visited the policies of Kames Castle, where there are a number of well-grown trees. Though these are not exactly giants, among them are fine examples of Sycamore, Oak, Wych Elm, Spanish Chestnut, Horse Chestnut, and Lime. Proceeding by car to Etrick Bay, the coast was then followed south to St. Ninian's Bay, and from there the party returned to Rothesay by Greenan Loch. The day's outing was most enjoyable, but nothing was noted which has not already been recorded for this part of Bute.

TYNDRUM, &c.—18th to 21st July, 1914. (Joint with the Andersonian Naturalists' Society). Report by Mr. John R. Lee. It having been decided to hold Alpine Excursions during the Fair holidays in the western Breadalbane district, a party of seven members assembled at Tyndrum Station on the morning of Saturday, 18th July. The objective on this first day's outing was Ben Laoigh. Rain was threatening in the morning, and as the party proceeded over the moorland track towards Choninish farm, the weather continued to grow worse, until, when the mountain base was reached, it was evident that the members must be prepared for a thorough drenching. Crossing the stream which runs along the northern boundary of the main peak, an ascent was made to the rocks facing the north-east, and thence a diagonal line was followed upwards, in a north-westerly direction, along the rock ledges at an elevation of about 2,500 ft. above sea-level. After examining these rocks, and reaching a point not far from the Argyll watershed, a halt was called; and, as the weather had now become very bad, it was decided to abandon

the further ascent of the peak. the limit of the phyllite schists having been reached, and no further botanical results being expected. In spite of the weather conditions, the party were able to note most of the rare plants which grow in such profusion on this exceptionally rich mountain. Especially the great abundance of flowers of *Dryas octopetala* was noticed, and one or two magnificent specimens of *Pyrola rotundifolia*. Having decided to return, the two members who were in residence at Tyndrum retraced their steps across the moor, whilst those from Crianlarich followed the farm road from Choninish to Strathfillan, and thence proceeded to their destination by the main road.

On Monday, 20th July, six members of the party ascended Ben Challum in fine weather, starting at nine o'clock from Crianlarich. Crossing the River Fillan by means of the railway viaduct, the ridge of Creog Luiragan was crossed in a northerly direction, and a visit paid to Lochan Dhu, a tarn of considerable size, in which a species of *Utricularia* was found in some abundance. The ascent was then made along the ridge to the top of Ben Challum, which consists of a double peak, the northern and more distant being the higher—3,354 ft. In a rocky gully between the two, the Parsley Fern was found growing luxuriantly, and on the descent, which was made by the eastern side of the peak, this same fern was found in remarkable abundance. The botanical results were somewhat disappointing however, the only plants of special interest seen being *Juncus trifidus* and *Arctostaphylos Uva-ursi*.

On Tuesday, 21st July, a visit was paid to the banks of Loch Dochart, about a mile below Crianlarich, where *Subularia aquatica* was found abundant in the shallow water at the edge of the loch, along with a fine display of *Lobelia Dortmanna*.

The following is a list of the plants noted on Ben Laoigh:—*Arabis petraea* Lam., *Alchemilla alpina* L., *Cherleria sedoides* L., *Sibbaldia procumbens* L., *Armeria vulgaris* Willd., *Plantago maritima* L., *Aspidium Lonchitis* Sw., *Asplenium viride* Huds., *Cystopteris montana* Link., *Bartsia alpina* L., *Dryas octopetala* L., *Avena alpina* Sm., *Carex atrata* L., *Saussurea alpina* D.C., *Cerastium alpinum* L., *Habenaria viridis* Br., *Pyrola rotundifolia* L., *Trollius europæus* L., *Hieracium anglicum* Fr., *Luzula spicata* D.C., *Juncus triglumis* L., *Carex pulla* Good, *Silene acaulis* L.,

Saxifraga oppositifolia L., *S. stellaris* L., *S. hypnoides* L.,
S. aizoides L., *Solidago cambrica* Huds., *Polygonum viviparum*
 L., *Selaginella spinosa* Beauv., *Sedum Rhodiola* D.C.

FULLARTON HOUSE, TROON, 15th August, 1914.—Mr. Renwick, Conductor. This domain has been in the possession of the Dukes of Portland since 1805, but for more than five centuries previously it had belonged to the family of Fullarton of that ilk. The name "Fullarton" apparently means the town or residence or possession of the fowler. In ancient deeds it is usually written "Fowlertoun," or sometimes "Fowlertoun," and no doubt was pronounced in the same way as the modern "Fullarton."

In 1344 Sir Adam Fowlertoun of that ilk had a charter of the lands of Fowlertoun and Gaylis, with the hail fishings from *the Trune* to the water-mouth of Irvine.

It is interesting to note that the pronunciation of "the Trune," as indicated by the spelling, is still preserved locally. The older inhabitants do not speak of "Troon" but of "the Trune" (= trin). It is evidently the Welsh form of the Celtic word for nose (or point of land), of which the Gaelic form is "Sron" modified by the Sassenach into "Strone," and points to the former presence of Cymric-speaking people, as does also Cumbrae = the island of the Cymric.

The manor of Crosby or Corsbie is that on which the present house of Fullarton and the ancient Kirk or Chapel of Crosby are situated. This word with the termination "by" or "bye" may point to a settlement by Danish invaders. The name appears sometimes as Crosby and sometimes as Corsbie; the latter way of spelling is preserved in the Corshill of Kilwinning. An old Scotch name for a market place was Cors or Corse, from the cross being formerly erected there. The present house was begun in the year 1745 by William Fullarton, who succeeded to the estate in 1710, and died 1759.

In it and its accompaniments he showed a just taste by the simplicity and unity of the design. Gardening and botany he also cultivated with much assiduity and success, particularly the latter, of which he was a devoted admirer. Quite likely a number of the trees may have been planted by him, and some by his son, Colonel William Fullarton, who succeeded in 1759 and

died in 1808. In 1770, when only 16 years of age, the latter visited the continent, Malta and Sicily, with Patrick Brydone, a once celebrated traveller referred to by Burns in "The Vision."

This Fullarton, in 1793, wrote *An Account of the Agriculture of the County of Ayr, with Observations on the means of its Improvement*, and, in 1801, an essay on the best method of turning grass lands into tillage. He made considerable additions to Fullarton House in 1791. There are some fine trees at Fullarton. A Sycamore and an Elm measured by the late Dr. Landsborough in 1879, were blown down about Christmas, 1895. The largest elms now measure 14 feet 3 inches, bole 11 feet; and 13 feet 6½ inches, bole 20 feet, showing girth-increases since 1893 of 8 inches and 9 inches respectively. The most remarkable trees are a Holly (*Ilex Aquifolium*), and an Evergreen Oak (*Quercus Ilex*), each the largest of its kind known in the Clyde area. The former girths 11 feet 4½ inches at the narrowest part of the bole of 6 feet, say at 8 inches above the present level of the ground, equal to 1 foot formerly. A few years ago a large quantity of manure was put in around the tree, and the ground raised about 4 inches. The tree has since improved in appearance and health. The trunk has been cemented to keep out moisture and prevent decay.

Dr. Landsborough measured the tree in 1879. It was then 9 feet 8 inches in girth at 1 foot, and he remarked—"it is enormous, far exceeding the girth of the greatest holly the writer ever heard or read of." Dr. D. Christison in *Trans. Bot. Soc. Edin*, says it appears to be one of the finest Scottish examples of its kind.

The Oak (*Q. Ilex*), divides into 5 stems at 2 feet from the ground, and rises to a height of 48 feet. At the narrowest part of the trunk, about a foot from the ground, it has a girth of 13 feet 7½ inches. Dr. Landsborough, in 1879, made the girth to be 10 feet 11 inches. Loudon, about 1838, records two *Ilexes* here, one 40 feet high, diameter of trunk 2 feet, (= 6 feet 3 inches girth); another, 120 years old, 3 feet diameter, (= girth, 9 feet 5 inches). If the present tree is either of these it must be the smaller of the two. Two Sweet Chestnuts measure respectively, 15 feet 3½ inches, bole 13 feet, and 14 feet 8½ inches, bole 20 feet. A very fine Beech has a girth of 16 feet 0½ inch, bole 11 feet. There are a number of fern-leaved Beeches (*Fagus*

sylvatica, L. var. *heterophylla*, Loudon). The largest girths 10 feet 3 inches at 3 feet 10 inches, the narrowest part of a bole of 5 feet. Near the old house or Place of Crosby, is a Flowering Ash, *Fraxinus Ornus*, girth 4 feet, bole 11 feet. A good specimen of *Magnolia acuminata* has a girth of 4 feet 9 inches, at 5 feet, an increase of a foot in 23 years.

The present tenant of Fullarton is Sir Matthew Arthur, Bart., who cordially gave permission to visit the grounds. He met us in the avenue and accompanied us while we inspected a number of the trees. Then we had tea in the house, and later Lady Arthur went with us through the gardens. These have been much extended since Sir Matthew became tenant.

ABSTRACT STATEMENT OF ACCOUNTS—SESSION 1912-1913.

1912.—Sept. 1.	To Balance—Life Members' Fund, £173 5 0				
	Ordinary Fund, - - - - - 48 18 9		£222	3 9	
1913.—Aug. 31.	To 1 Life Member's Subscription, - - - - -		5	5 0	46 15 0
	158 Ordinary Members' Subscriptions, - - - - -				10 11 6
	@ 7s. 6d., - - - - -		59	5 0	6 19 0
	13 Members' Arrears, - - - - -		6	7 6	40 18 8
	3 Associates, Subscriptions, @ 5s., - - - - -		0	15 0	2 15 6
	2 Associates' Arrears, - - - - -		1	0 0	3 4 3
	Interest, - - - - -		6	13 7	0 7 0
	Transactions and Glasgow Naturalist sold, - - - - -		1	5 7	
	Mitchell Library, for Transactions and Glasgow Naturalist, - - - - -		11	5 4	
	Donation—Illustration Fund, - - - - -		0	2 6	
			£314	3 3	
1913.—Aug. 31.	By Rent and Attendance, - - - - -				46 15 0
	Postage, Stationery, &c., - - - - -				10 11 6
	Printing Circulars, &c., - - - - -				6 19 0
	Printing Glasgow Naturalist Vol., III., - - - - -				40 18 8
	Carriage on do., - - - - -				2 15 6
	Illustrations for Glasgow Naturalist, - - - - -				3 4 3
	Lantern Expenses, - - - - -				0 7 0
	Library—Books and Magazines, £4 8 0				
	Insurance, - - - - - 0 12 0				
	Bindings, - - - - - 5 6 4				
	Postage, Stationery, &c., 0 7 2				
					10 13 6
	Marine Biological Association, - - - - -				1 1 0
	Balance—Life Members' Fund in Bank, - - - - - £178 10 0				
	Balance, Ordinary Fund in Bank and on hand, - - - - - 52 7 10				
					230 17 10
			£314	3 3	

GLASGOW, 23rd October, 1913.—We have examined the Accounts, compared them with the relative Vouchers and Securities, and found them correct. Cash in Treasurer's hands, Three pounds nine shillings and eleven pence.

(Signed) JAMES JACK, } Auditors.
 JOSEPH SOMMERVILLE, }

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(a) Fresh-water Algæ; (b) Characæ; (c) Lichens; (d) Fungi; (e) Hepatics and Mosses; (f) Ferns; (g) Flowering Plants; (h) Trees; (i) Fossil Plants; (k) Foraminifera; (l) Cœlenterata; (m) Echinodermata; (n) Marine Worms; (o) Crustacea; (p) Arachnida; (q) Myriapoda, Collembola, Thysanura; (r) Coleoptera; (s) Diptera; (t) Lepidoptera; (u) Hymenoptera; (v) Polyzoa; (w) Mollusca; (x) Fishes; (y) Reptilia and Amphibia; (z) Birds; (a¹) Mammals; (b¹) Plant Galls; (c¹) Geology; (d¹) Hemiptera; (e¹) Parasites.

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