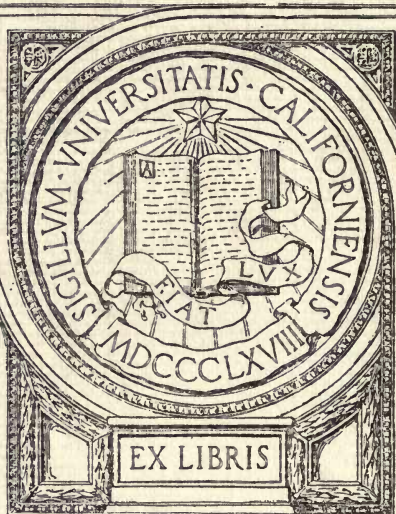




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LIFE AND LETTERS  
OF  
ALEXANDER GOODMAN MORE







Yours sincerely  
A. G. Moore



LIFE AND LETTERS

OF

ALEXANDER GOODMAN MORE

F.R.S.E., F.L.S., M.R.I.A.

WITH

SELECTIONS FROM HIS ZOOLOGICAL AND  
BOTANICAL WRITINGS

EDITED BY

C. B. MOFFAT, B.A.

WITH A PREFACE BY

FRANCES M. MORE

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DUBLIN

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*An Alumnus*

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## P R E F A C E .

MANY friends of my Brother's have pressed me to give them a sketch of his life. This memoir is an effort to comply with their wishes; and I have thought it due to the memory of one who worked so devotedly in the service of Natural History, not to restrict the book to mere private circulation, but rather to make the record of a noble and unselfish life accessible to all. The high position which my Brother long held among the naturalists of Ireland was partly the result of qualities which his published writings do not show, but of which, perhaps, some idea may be gathered from the extracts from his journals and correspondence given in these pages. To quote the words of his friend, Mr. R. M. Barrington, in the *Irish Naturalist* (May, 1895):—"Nobody can hope to fill his place; no one is equally familiar with birds, mammals, fishes, reptiles, flowering plants and ferns, a versatility which was happily combined with a sound judgment, great tact, and a suavity and gentleness of manner peculiarly attractive. His ability was perhaps best testified by the regard which was entertained for him by every one. He has left a blank

which can never be filled, and which will be more vividly realized every day by those who had the privilege of his friendship.”

My warmest thanks are due to Professor Newton, of Cambridge, and to Mr. H. Evans, of Jura, who first suggested the idea of a memoir of their old friend, for their help, and for the unflagging interest they have taken in its preparation.

To the Editors of the *Irish Naturalist* I would offer my grateful acknowledgments for the reproduction of the portrait which illustrates this Memoir; to the Linnean Society, the Royal Irish Academy, the Botanical Society of Edinburgh, and the Editors and Proprietors of *The Ibis*, *The Zoologist*, *The Journal of Botany*, *The Irish Naturalist*, Stanford's *New Guide to the Isle of Wight*, Guy's *Pictorial Guide to the South of Ireland*, &c. &c., for permitting the re-publication of some of the most interesting of my Brother's papers; to the Science and Art Department, for very kind permission to reprint the *List of Irish Birds*, now in use at the Museum in Dublin; and to Mr. R. M. Barrington, Professor F. Darwin, the late Sir Edward Newton, Sir John Dillon, Bart., Mr. R. J. Ussher, Mr. Robert Warren, Mr. J. E. Harting, Mrs. Babington, Mrs. Joyce, Mr. G. E. H. Barrett-Hamilton, Dr. R. F. Scharff, Mr. N. Colgan, Mr. W. F. Kirby, Mr. J. A. Harvie-Brown, Mr. Arthur Bennett, Mr. S. A. Stewart, Mr. J. R. Sheridan,

Mr. J. H. Gurney, Mr. J. E. Griffith, Rev. H. A. Macpherson, &c. &c., for the use of letters and other valuable information.

In conclusion, let me add that if the perusal of this Memoir recalls the warm and never-forgotten friendships of other days, sunny hours spent in kindred pursuits, and the painstaking and unselfish assistance given to every young Naturalist, my aim in publishing it will have been accomplished, namely, to give pleasure to my dearest Brother's many friends.

FRANCES M. MORE.

74, LEINSTER ROAD,

*January, 1898.*



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# ALEXANDER GOODMAN MORE.

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## CHAPTER I.

### BIRTH AND CHILDHOOD.

[1830-1842.]

ALEXANDER GOODMAN MORE was born in London on the 5th. of September, 1830. Both his father and grandfather bore the name of Alexander More. The latter, who was Collector of Customs in Aberdeen, was son of Gilbert More, of Readen, in the same county, and grandson of the Rev. Andrew Moir, of Ellon, also in Aberdeen, who died in 1770. The family of Moir (as earlier generations spelt it) had long been of consequence in Aberdeen, in whose Ecclesiastical Records for 1659 it is curious to find "John Moir, burges," recording his "disasent" against a "pretendit" nomination to the ministry of Ellon, held a century later by one of his line. The Moirs of Ellon adhered to the Jacobite cause, and were proud of their sufferings on its behalf.

On his father's side A. G. More's extraction was almost exclusively Scottish. His paternal grandmother was daughter of Alexander Innes, of Breda and Cowie, whose ancestor Berowald had in the twelfth century received a Charter from Malcolm the Maiden. The wife of Gilbert More of Readen belonged to the Aberdeenshire family of Shepherd, and Andrew Moir, father of Gilbert, married Jane Forbes, great niece of the first Earl of Aberdeen. Through the marriage of Jane Forbes' grandfather, Sir John Forbes, with Dame Jean Gordon, the More's traced relationship

with the family of the Marquis of Huntley and with Lord Byron.

Having thus practically none but Scottish blood on his father's side, he was equally English on his mother's. His own second name was that of his mother's family—the Goodmans, of Leeds.

It cannot be said that the taste for natural history which distinguished the son was inherited to any conspicuous extent from either parent; though his father was, undoubtedly, fond of animals, and his mother of flowers.

Alexander Goodman was the eldest of three children. From infancy he was remarkably delicate; and was privately baptised. His parents lived at Woodford, in Essex, during the days of his earliest childhood; and here was baptised in 1834, the third and youngest of the children, his only brother, George.

A few changes of residence, but never far from London—annual visits, during the summer months, to Broadstairs—Alexander's going to Scotland, when three years old, to see his grandfather—and his father's going away the next year on an expedition into Russia—seem to have been the principal occurrences in the family history until the year 1837, and are mentioned by the eldest boy in a curious little journal which, at that early period, he had begun to keep.

But early in this year scarlatina attacked the three children, and carried off George. Grief at the loss of his little boy determined Mr. More to break up his home in England, and remove the family for some years to Switzerland. They went abroad in the course of the summer, and after visiting Paris, Lyons, Geneva, Vevey, Berne, and Interlaken, settled at Renens, near Lausanne.

The change from the environs of London to the fresh and beautiful surroundings of the Swiss home at once awakened in the boy of six that taste for natural history for which throughout the remainder of his life he was so remarkable. Indeed, even at Paris he mentioned in his Journal having seen "Le Jardin des Plantes and other fine things." But it appears to have been in the neighbourhood of Interlaken that some of his strongest early

impressions of natural beauty were received. Here he mentions in detail seeing the Jungfrau, the goats, the wild strawberries, a covered bridge, and Swiss carvings; and, more important still, "caught first pretty butterfly." A second fatality in the little household was somewhat narrowly averted at the same place, Alexander being "nearly drowned in the mill-stream," but, happily, rescued by a boy. The beauties of Renens still further drew out his growing love for nature. Each succeeding novelty quickened his thirst for information, and he became a most imperious questioner. His nursery-governess dubbed him "Master Why-Why." The handsome butterflies of Switzerland, already noticed at Interlaken, were naturally among the first objects to attract his interest, and he soon began to form a collection. They were chiefly species which he had no means of naming: but still the boy delighted in discriminating the different kinds. His one constant companion was his only sister, on whom he early impressed it as a first principle that she must do exactly as he did. They climbed the rocks, waded the streams, and scrambled through the thickets together. Occasionally, their efforts at self-education were discouraged, as, for instance, when they brought home a number of frogs, which they believed they had correctly made out to be of the edible species, and demanded to have them cooked. This was refused; but the children, not to be balked, carried their treasures elsewhere, killed, cooked, ate, and voted them delicious. At the time of this incident he was seven or eight years old.

In another respect the years spent at Renens indirectly, but largely, affected his later life. Captain and Mrs. Shawe (afterwards Shawe-Taylor), of Castle Taylor, Co. Galway, were here for a time the Mores' nearest neighbours; and while a friendship sprang up between the families, the two boys, Walter and Alexander, became particularly attached to one another. At the age of nine, however, Alexander was sent to live with a tutor, M. Germond, at Yvonnand, on the Lake of Neufchatel. Towards this good pastor, with whom he remained for one year at Yvonnand, and then for another year at Echallens, he ever afterwards enter-

tained the warmest feelings ; and M. Germond looked on him as a son. Nor was the locality of Yvonnand without its peculiar attractions ; he began now to collect fresh-water shells in the Lake of Neufchatel, and fossils from the surrounding district.

He was nearly eleven when his sojourn in Switzerland ended, it being thought time, in the summer of 1841, for him to go to an English school. Keeping his journal, at this time, in French, he says :—

Je quittai la famille Germond le 24 juillet, et j'allai avec papa à Lausanne. Nous arrivâmes à 7½ à l'Hotel Gibbon, et je me rendis tout de suite chez les demoiselles B., où je trouvai ma sœur Fanny. Les D. B. eurent toutes sortes de bonté pour moi pendant mon séjour à Lausanne, où je restai cinq jours. . . . Nous partimes pour Yverdun le 29, en passant par Echallens, où nous dîmes un dernier adieu à M. Germond, qui avait eu tant de bonté pour moi.

Notes kept of the "Voyage de Lausanne à Londres par le Rhin" continue to illustrate the bent of the boy's tastes. At Neufchatel "Papa nous conduisit voir le musée, où nous vîmes une belle collection d'animaux, d'oiseaux, et de poissons." At Cologne, "il y avait à l'hotel un singe qui s'appelait Kiss ; il nous amusa beaucoup." From Rotterdam, "nous eûmes un horrible passage, ce qui nous dégouta un peu de la mer. Enfin nous arrivâmes très bien, après avoir admiré le grand nombre de vaisseaux qui se trouvait dans la Tamise. Maman et mes deux cousins S. et N. nous attendaient, et nous nous fûmes bien contents de voir enfin notre pays, le 11 août 1841."

Until the end of August the Mores remained in London, where "mes cousins vinrent un jour me chercher pour aller avec eux et leur grandpapa voir le Musée Britannique, qui m'enchantait beaucoup." The autumn months were devoted to a succession of visits to relatives and friends, chiefly in Scotland. The journal continued to be kept in French, with fair regularity, mentioning the birth of the Prince of Wales, the firing of cannon on Prince Albert's birthday, and, not least, the fact that his own birthday this year passed without the "celebration" to which he had been accustomed :—

Mais avant de le quitter il faut que je dise que Dimanche le 5 Sep-

tembre c'était mon anniversaire, et la montre que papa m'avait donné à Neuchatel fut son present, mais comme nous étions chez des étrangers il ne fut pas célébré.

Collections of birds and shells invariably entertained him. On November 16th, " nous allâmes diner chez Mr. G., et nous y vimes une belle collection d'oiseaux, en particulier un magnifique Argus Faisan, de Java." Several similar treats are mentioned. And on November 23rd, " je cueillis un peu de violettes, que je portis à maman, qui n'avait pas pu se lever parce qu'elle avait trop mal à la tête." But the most singular note, in the journal of the future botanist, is one made during a visit to a country residence in Aberdeenshire:—

Madame Spottiswood nous mena un jour voir un couvert de renards, qui était couvert de bruyère et d'une *plante piquante très commune en Écosse*.

He had been so long abroad as to know no name for the gorse of his native isle! One is here forcibly reminded of the story of Linnæus, when he came to England, falling on his knees at sight of that same "prickly plant" in its splendour. Linnæus, however, made its acquaintance under more favourable auspices than those of a Scottish October.

On the 6th of December he was placed at a school in Clifton (Mr. Bailey's), where he remained for two years. In June, 1842, he paid his first visit to the new home in which his parents had lately settled—Bembridge, in the Isle of Wight.

His first impressions of Bembridge were pleasant ones, and here he again met friends from whom he had for some years been separated. From Ryde, on his first arrival in the Isle of Wight (June 16th), " nous promenâmes à Bembridge, et nous allâmes voir Mr. Shawe, puis nous allâmes voir notre maison, que je trouvai bien jolie, et j'appris que papa avait acheté deux bateaux, un desquels était joliment grand et dans lequel il pouvait aller sur la mer." On the following Sunday (June 19th), " nous allâmes à l'église, et je rencontrai mon ami Walter, que je fus bien content de revoir."

## CHAPTER II.

## RUGBY AND BEMBRIDGE.

[1842-1849.]

SUMMER and Christmas holidays in the Isle of Wight, and the rest of his time at Clifton, went by happily and uneventfully, until, in December, 1843, he left Mr. Bailey's school, to go, in the following February, to Rugby. He was a Rugby boy for nearly six years, under the headmastership of Dr. Tait, afterwards Primate. He took to public school-life with gusto, for, though always delicate, he was a keen athlete as well as a quick scholar. Frequently ill, and more than once obliged to go home from this cause, he nevertheless made, on the whole, quick progress, starting in the Lower Fifth in February, 1844, and rising by five steps in eight half years to the Sixth Form, to which he was promoted at Christmas, 1847. Next year he became head of his house (Rev. Robt. B. Mayor's); and in 1849, while from ill-health "excused the June examinations," was winner of various prizes, including the second prize for Greek Iambics; he also gained the Lower Bench prize for Composition in Latin, Greek, and English. Mr. J. G. Goschen, whose school career was an exceptionally brilliant one, was More's contemporary in the Middle Fifth, upper division (June-Dec. 1845), in the Fifth Form (Jan.-June 1846), and again in the Sixth (1847-9) for four half-years, at the conclusion of which Goschen was first, and More tenth, on the school list.

During these years his taste for Natural History, of which he was himself at first only half conscious, was steadily developing. A gift of the 1st series of Waterton's Essays was made him in 1844. But it was not until two years later, when his family removed for a time from the Isle of Wight to Dagenham Vicarage, in Essex, that, according to his journal, "Taste for birds began from being curious



to know all about a Nuthatch I had shot, which I compared with and found out in Bewick." This happened in the Christmas vacation, 1846. The Nuthatch was a very natural bird to arouse his curiosity, for in the Isle of Wight it is never seen.

The Nuthatch was shot with a pistol, and it was at a friend's house that he looked it up in Bewick; but in April of the following year (1847) he received, as presents, Bewick's "History of British Birds," and a gun. Next year he himself bought Eyton's "Supplement to Bewick," and Selby's "Ornithology." The Mores were now again settled at Bembridge, and he had come home ill from Rugby before the end of the school half. As he says, he "began to study Birds more carefully." He read St. John's "Highland Sports." A friend lent him a boat for several months—an invaluable ally in the pursuit of water-birds. "I shall not easily forget my delight when first the Great Northern Diver fell before my gun," he wrote years afterwards, in reference to an episode of this autumn, in which, also, he shot his first Snipe, and made acquaintance with the Sanderling and the Brambling, both rare visitors to Bembridge. The severity of that winter brought more rarities than usual to the south coast. One day in December he saw a large white bird flying about in the flooded Sandown Marches, which he set down as a Stork; but afterwards, from there having been no black on its wings, he became convinced that it must have been a Spoonbill. But the best prize he obtained during the year was a Curlew Sandpiper, which he stuffed and kept ever afterwards, and which is now in the collection of one of his friends.

Natural History had now become his recognized hobby, and he was fortunate in finding several friends who much encouraged and helped him. Mr. Frederick Bond was one of these: he was in the habit of paying frequent visits to the Isle of Wight, and soon came to regard young More with great interest, the two having both entomological and ornithological tastes in common. But a still earlier stimulator was his near neighbour and family doctor, Thomas Bell Salter, a nephew of the zoologist Bell, and himself a distinguished botanist.

His early collection of butterflies he had left behind him in Switzerland; but, in 1849, he began a fresh one among the British species; while, as a third subject, he took up land-shells, besides paying, as his journal says, "a little attention to reptiles and quadrupeds." A number of books were purchased to help his studies—Jenyns' "British Vertebrate Animals," Temminck's "Manual of Ornithology," Westwood's "Butterflies," Turton's "Land Shells," Water-ton's "Essays" (2nd series), and White's "Selborne," being the principal volumes. The last-mentioned was a peculiar favourite, and he never lost his love for it, adding to his library, from time to time, different editions of the old classic, many passages from which he had at his fingers' ends. He also began at this time to take in the "Zoologist," and his first note to that periodical was contributed during the same year.

A beginner's first published note is seldom of remarkable value, unless as a caution to the writer; and A. G. More's first note had that value, and no other, being, in fact, a good downright blunder. He shot, early in July, a Golden-crested Wren, whose crest struck him as of an unusually fiery orange colour; and, mistaking it for the rare Fire-crested species, which is known only as a winter visitor to Britain, recorded it as such in the "Zoologist" for August. It was not until fully four years afterwards that he satisfied himself by consultation of higher authorities that his bird was, after all, the common *Regulus cristatus*. It was not likely that his note, if left uncorrected, would ever have deceived a competent ornithologist. So common, almost everyday, a mistake as that of Gold-crest for Fire-crest, would have been taken for granted, when the very unlikely time of year was considered. But no casuistry weighed with him against his first duty to Science, and in the "Zoologist" for September, 1853, occurs the following note, headed, "Correction of a previous error respecting the Fire-crested *Regulus*."

BEMBRIDGE, ISLE OF WIGHT,

*August 6th, 1853.*

I am anxious at once to correct a mistake into which I had fallen when I recorded the Fire-crest as having been shot in the Isle of Wight

in July (Zool. 2526). This correction is the more desirable, since all the birds of that species hitherto seen in England, with the exception of the young bird recorded by Mr. Jenyns, have occurred in the winter months from November to March, and my erroneous record might seem to favour the opinion that the bird builds in this country—a fact scarcely yet established. My mistake arose from finding a bird apparently young (from the yellow skin at the gape), and yet with a crest more brilliant than that of an adult male Gold-crest with which it was compared; while the form and character of the bill and tail appeared to agree with the description of the young Fire-crest. From what I have since learned, I believe my bird to have been a young Gold-crest in its second plumage.

A. G. MORE.

His first communication (which, besides the unlucky supposed Fire-crest, recorded the appearance of some Cross-bills at Bembridge), is the only note which he published in 1849; but from this time he kept manuscript notes of arrivals of all migrants (regular or irregular), which were either observed by himself or reported to him on good authority in any part of the Isle of Wight. The home at Bembridge was very favourably situated for the observation of the spring migrants. The Nightingale's rich music was a characteristic feature of the spot, and the Grasshopper Warbler's "amusing chirp" could be heard every evening throughout the summer; while the Redstart, Blackcap, Whinchat, and other species, on their spring passage, often rested here in conspicuous numbers, before dispersing generally over the country. But autumn brought a still larger train of interesting birds; and the resident avifauna included such noble species as the Peregrine, the constant robbery of whose eyries was to the young naturalist a source of ever-recurring indignation.

Occasional indulgence in verse was one of his minor hobbies, and the following lines, forming part of a ballad which he entitled, "Ye Prayse of Vectisse," enumerate some of the local associations amid which these years were spent:—

Where Ryde her long white terraces  
Turns to the Solent's tide;  
Where yachts lie off, in triple line,  
Our Island's darling pride;

Where Sea View looks at Portsmouth  
 Across the bright blue wave ;  
 Where Helen's Saint her Green extends,  
 Where graze the geese, so grave ;  
 Where fishermen at Bembridge  
 Entrap the savoury prawn ;  
 Where Culver rears her cliffs to hail  
 Each day's returning dawn ;  
 Where Godshill's ancient temple  
 Yet crowns her sacred hill,  
 And her tall tower uprising high  
 Doth beckon higher still ;  
 Where Ventnor on her sunny slopes  
 Shelters from winter's blast  
 The wan and languid sufferer  
 Till winds of March are past ;  
 Thence far away to Niton,  
 Where the great crabs are found—  
 Those mighty crabs that have been known  
 To weigh full fifteen pound !  
 Where Needles fling their shadows  
 Far o'er the western tides,  
 As evening's brightness lingers  
 Long on their purpled sides ;  
 Where Sandown crowns the red sand cliff  
 Above her winding bay,  
 And children gather sea-worn shells  
 The livelong summer day ;  
 Where Shanklin smiles beneath her Down,  
 Midst elms and meads so green,  
 They hardly winter seem to know :  
 Unchanging still they seem.  
 And all night long the Nightingale  
 Trills here her sweet lament :  
 How many happy hours have we  
 In those loved haunts yspent !

He "left Rugby for good" in December, 1849, "just after Tait had accepted the Deanery of Carlisle." He was now 19, and in another year was to enter Cambridge. "His scholarship gives fair promise that if his health is restored he will distinguish himself in the University," Dr. Tait wrote to his father a few months before he left school. Mr. Mayor, in reference to his quitting Rugby, wrote, "For myself I have lost a very efficient head of my house, and I cannot, I fear, get on well without him."

## CHAPTER III.

## FIRST VISIT TO IRELAND.

[1850.]

THREE months after he left Rugby, his friend Walter Shawe-Taylor quitted Harrow; and as both were destined to enter Cambridge in the following October they looked forward with eager anticipation to a renewal of the companionship which had, of course, suffered considerable interruption during the period of school. A visit from Walter to the Mores at Easter was followed by an invitation to Alexander to spend the summer of the year in Ireland: an invitation which was gladly accepted, and may be regarded as having in no small measure determined the course of his subsequent life.

Castle Taylor, the residence of the Shawe-Taylor family, is situated near Ardrahan, in the southern part of county Galway. The rocky limestone formation is very similar to that of the Burren district in Clare; and it is unnecessary to say that many of its natural history features are strikingly different from those which prevail in the Isle of Wight.

Here he passed four summer months, from the middle of June to the commencement of the Cambridge October Term, recording the doings of each day in a journal which bears ample testimony to the delight he felt in the fresh life and novel surroundings of his friend's Irish home. The two travelled to Ireland together in the highest of spirits: Dublin, where on landing they whiled away a few hours, is spoken of as "a very fair sort of town," while almost startling praise is bestowed on the travelling accommodation of the Ireland of 1850:—"mem., the Irish second-class (carriage) as good as our first."

A three days' journey brought them to Castle Taylor at 8 o'clock on the morning of June 14th; and here a sleep

till noon having dissipated their fatigue, luncheon was followed by a highly characteristic plunge *in medias res*: "took out my gun, shot Sparrow-hawk, took Wood-white butterfly, found *Geranium sanguineum*."

The above-quoted note contains his earliest botanical entry, and it was during his visit to Castle Taylor that he first developed that interest in plants which so strongly coloured his life. It had a very simple origin, for it was from gathering specimens of the Irish wild flowers to send home to his sister, who took pleasure in drying them, that he was led to begin the study of botany this summer in the west.

The day after his arrival he took "a first lesson in equestrianism," pronounced "pretty satisfactory," and "found *Dryas octopetala* and the Bedford blue." Next day (Sunday) in the course of an afternoon stroll, "heard the Corncrake\* and gathered Butterfly orchis." He had no up-to-date Manual of Botany, and had to rely upon "an old Withering," which at least did not overburden beginners with a plethora of species. But very soon he found himself sighing for thornier nutriment, and on August 16th began his day's record with the entry, "*At last* I have received Salter's paper on the Brambles. It seems a very carefully written treatise, and I hope will prove useful. They are a most difficult family to discriminate, but I hope a little careful attention will enable me to master them." It may be as well confessed that this hope proved "a little" sanguine.

Indeed, much botany of any sort was for the present out of the question. Fishing, riding, coursing, shooting, cricket-playing, butterfly-hunting—so the long days sped away—good humour and high spirits lighting up every page of the diary, not excepting that which tells of a certain severe fall "which brought me home limping, though not too bad to join in an assault on the fruit garden, which was carried on with great vigour until the parties engaged were *hors de combat*."

A few passages from the MS. will serve to illustrate the

\* In the Isle of Wight, and particularly near Bembridge and Ryde, the Corncrake is a very rare bird, except in autumn, when its "season of song" is over.

tenor of these pleasant days of mixed Natural History and Sport.

"July 20. Expedition in brake to see Kilmacduagh. Left at about 12 $\frac{1}{2}$ ; took about two hours to get there; admired the beautiful high round tower, which leans a little, but is in capital preservation; also the ruins of the Seven Churches; led by a boy through the bog to a lake; saw a brace of Snipe, also many Curlew near the Lake, and some Herons, but these latter too wary. My attention was soon drawn to three large brown birds of slow flight, sinking down with their wings spread at an angle, that I observed approaching. The guide called them Brown Crows, but I thought them too large for that, and I preferred to chase them while Walter went after Snipe. After advancing a good way to where I had marked them down, I put up a fellow within thirty yards and instantly fired into him; the bird was evidently pricked, for he was obliged to settle down in the reeds not very far off. Followed him and put No. 2 into him as he rose; this made him settle again within 70 yards, and nearer the fields. By this time his companions had both made off; I marked him carefully, and got nicely up within 20 yards, and took a deliberate aim; this time he got a good dose, for he dropped his legs and flew unsteady to the reeds, from which for a long time I could not raise him again; this last time I made out distinctly the Hawk's bill and yellow legs, also the yellowish appearance of the head. Meantime Walter came up, and I twigged our friend on the fly again, but very 'queero.' I fired, and also Walter, but we did not seem to wound him any more (W.'s shot being about 50 yards); but he dropped, again, into the rushes; and though a man sent his dog in, and we fired two barrels into the place, he would not get up, and we supposed him dead. The man said it was a 'Kite,' but it must, of course, have been a Marsh Harrier. After this, went up to the carriage, which was waiting for us in the road; came home very wet and cold about the pins, having been up to our middle in water all the day; and my powder I discovered quite wet, and set at the smallest charge, which may account

for my not flooring the gentleman at once. However, he, no doubt, fell a victim in the end."

(The bird—a Marsh Harrier—was secured about two days later.)

"Aug. 13. (Expedition to Deer Island, etc.) Up at  $\frac{1}{4}5$ . Morning rather dull but promising; three of us in the tax-cart; found all the Rooks dispersing over the country at about  $5\frac{1}{2}$ , and, of course, did not forget to knock over a few; our route was also varied with an attempt to stalk some Curlew past Kinvarra. Arrived at New Quay at  $8\frac{1}{2}$ . Here Mr. J— supplied our hungry necessities with breakfast. After breakfast we embarked in hooker (an open, strong-built cutter of fourteen tons) and sailed for Deer Island, the El Dorado of our hopes, with a nice breeze, foresail set, and one reef down, no jib. Walter got the first shot and knocked down a Kittiwake; but as to Deer Island, our hopes were doomed to disappointment, for, although we observed Herons, Cormorants, Curlew, Ring Dotterel, and some large Gulls sitting on the rocks, we could not approach sufficiently near to shoot; and we observed that as soon as a small boat landed to gather seaweed, all the feathered bipeds gave up their domain to the unfeathered ones. We then made a short stretch across the Bay of Galway, and soon fell in with a flock of 'Puffins' (as all the smaller diving sea-fowl are called here as well as at Bembridge), and I killed out of them a Foolish Guillemot, the first I had yet examined. As we advanced, we kept meeting with a pretty good number of the birds, and a constant fusilade was kept up; the best part of the fun was the picking up; for as we had no small boat and no landing-net, the sides being too high for us to catch hold of the slain with our hands, the only means we had were a gaff, which, however, one of the men wielded very adroitly, and a handled bucket, so that we frequently tacked several times before we could secure the bird, especially if only wounded. Thus the morning passed away in a most delightful manner, and we had leisure to survey the fine view which the clear day afforded of Connemara and the Isles of Aran, as well as of the nearer shore adjoining



Black Head, close to which latter we passed, and fired at the Cormorants as they flew between us and the high cliff; although in our case the birds were too wary to suffer from our shot, which I think was also too small, being No. 6. The solid table-like masses of rock of which Black Head is composed were very striking when viewed from below. In the meantime our bag was fast swelling and our luncheon devoured with great relish (chickens torn asunder in a most cannibal style). The birds that I could make out on the bay were—Greater White Tern, Herring Gull (the Black-backed is said to come at harvest-time), Kittiwake Gull, Foolish Guillemot, Black Guillemot, Razor-bill Auk, no real Puffins; but we only shot four different sorts. Our shooting, I think, was rather good, as we had not quite heavy enough shot, and yet there were very few misses. Capt. Shawe-Taylor had lent me his Manton, and I found it a most killing piece. . . . We only regretted not having got a Cormorant, which species is very numerous here, in so much that the boatman told me a friend of his, by ambushing their line of flight, had killed twenty-five in one single morning. We returned to ——'s house at about 5½, and dined there, got away at about 8, and reached home under three hours."

"Aug. 17. Went out into the wood after breakfast to hunt for brambles; was not very fortunate, as I only got four different sorts:—*Rubus idæus*, *R. nemorosus*, *R. discolor*, and one I take to be *R. saxatilis*. I, however, got an excellent view of a fox, that at the distance at which I first saw him looked just like a reddish dog; but I very soon made out his brush, and as my gentleman did not seem to be in any hurry, I walked slowly up until we stood about five yards apart, when, after a stare or two at each other, my vulpine acquaintance trotted slowly off, leaving me quite astonished at his assurance."

"Sept. 7. Set out at 5½ for the grouse-shooting. Got to —— at 7, and after breakfast we prepared for a start. As our ground was still four miles off, we thought it best to save our legs as much as possible, and so mounted whatever we could get for the occasion, Walter and I being on our old cart-horse without a saddle, and such a penance as

I never endured, shaken on the sharp spine of the brute for more than an hour. When we came to the mountain we separated, Walter and myself going with Mr. —— and his two dogs, one pointer, and ‘Grouse,’ the same setter he had lent us for ——’s bog ; three guns in one party, two in the other. Walter got the first chance and killed a rabbit ; we then walked on for a long time without doing anything, only observing three Kestrels hovering about, until the setter found us a bird which Mr. —— fired into. A little further on we came upon a second, and I began my experience in grouse-shooting by taking him down. From that till lunch (for which we lay down on the top of a hill) we saw nothing more ; but as the day wore on we had better luck, and kept stumbling on the birds pretty fast. . . . I think on the whole we shot rather well, and were very much complimented by Mr. —— for our style of aim. I might have done better, but I twice lost a shot among a pack, once through being behind, and another time having just been extricated from a bog-hole up to my neck, which was too great a damper to permit my being ready. The second jolt back to the house was very painful, but anything was better than walking after such a long day’s work, and by extensive bolstering up with hay I got on pretty well. We were not sorry to get to bed at about 11 o’clock.”

A fortnight later he enjoyed killing his “first partridge.” Another event he mentioned with satisfaction occurred in the course of an afternoon’s vigorous “crow-flaking, as Walter persists in calling it” (*i.e.* rook-shooting).

“ Heard a Curlew whistle as if approaching, and crouching down behind a wall awaited his coming. On he came steadily and unconscious of the ambushade, until when right over our heads small bore spoke to him : a stumble and sudden change in his flight proclaimed my success ; and ‘ he’s hit, he’ll not get over it, you needn’t fire again,’ was the cry ; lower and lower he swooped, unable to sustain his flight, and then slowly sank into the grass at the farthest extremity of the field. Then the difficulty was to find him, and at first we thought he had been able to run

off: but, at last, I espied him, quite dead, and on examination found that two grains of No. 7 had made their way into his breast, and one leg was broken in two places. So we carried him home—I not a little pleased at having slain my first Curlew.”

An entry on July 27th, “Shot my first Missel-Thrush,” may seem curious, but this bird was not common enough at Castle Taylor to give him many chances. Nearly six weeks earlier, on June 19th, he had “wounded a Missel-Thrush, but lost him.”

Elsewhere is a word on the “Crow-flaking” :—

“From the number of Rooks mentioned as killed, it will easily be supposed that they are very numerous and very much more tame than in England. This is, in fact, the case, and the horrid tameness of the creatures struck me very much on my first arrival, as they forcibly reminded one of the stories told of a similar effect produced when any land has been visited by famine or plague. I am told that during the scarcity the birds died in great numbers, and, no doubt, their starvation taught them to dig up the potatoes and turnips, in which depredations they are now constantly engaged, and for which offence they are proscribed.”

A note betraying some raciness of the soil speaks of “joining in a rat-hunt, which, however, was no great things, as we only killed three brace, and one was a mouse.” But a few days later came off “a capital rat-hunt, killed  $8\frac{1}{2}$  brace of vermin, only Walter and I working them.” This was wet weather sport, the heavy rain in August interfering with projects of distant excursions.

Needless to say, his butterfly net was not forgotten. Indeed, we have seen that almost the first notes taken at Castle Taylor recorded the capture of a Wood-white butterfly on the day of his arrival, and of a Bedford blue the day after: and it is curious that even these two captures would, if published at the time, have been new and interesting records, so little had the Lepidoptera of Ireland been yet studied. Four years later, the Rev. J. Greene included both in his list (the first published) of Irish Butterflies; but in both cases he did so upon authority which

stood in some need of corroboration. The "very lazy Fritillaries in the woods" at Castle Taylor evidently aroused his admiration, and are several times referred to in the Journal. During this first visit, no lepidoptera except butterflies were studied, but he had already taken in the earlier parts of Westwood's "British Moths."

The evenings at Castle Taylor were devoted chiefly to music; occasionally to reading: but when opportunity offered, conversation on the natural history of the district was always to him an irresistible attraction. Discussions on the extermination of the Eagles, the progress of the potato disease, supposed occurrences of the wild cat, the alleged difference between "dog-badgers" and "pig-badgers," &c., are referred to with a frequency which proves how deep an interest in the country had already been awakened within his mind. For the present, however, Ireland with her sports and wild scenery was but a holiday resort, soon to be exchanged for the routine of undergraduate life. In October he took leave of his kind hosts in time to repair to Bembridge for a brief space before the opening of Term, and before the end of the month found himself in new quarters at Cambridge.

## CHAPTER IV.

## SECOND VISIT TO IRELAND.

[1851.]

HE went to Trinity College, Cambridge, intending to devote himself principally to the classics, in which, had it not been for his constitutional delicacy, he might reasonably have expected to attain high honours, while at the same time entering into the outdoor enjoyments of undergraduate life. In point of fact, however, one year at the University was sufficient to prove his unfitness for work of the strenuous sort to which his habits of mind inclined him. A severe illness at Easter prevented his keeping his third Term of residence, and when, at the close of the long vacation, he returned to Cambridge only to break down once again and go home on sick leave in November, he was obliged, as he sorrowfully records, to "give up all thought of Classical Honours." Until the end of his eighth Term (May, 1853), he clung to hopes of competing for the Natural Science Tripos by way of substitute for the Classical; but this, too, constantly recurring attacks of ill health obliged him finally to abandon.

In other respects Cambridge benefited him greatly, bringing him into contact with those who shared his tastes; among whom must be specially mentioned five, whose names mark so many powerful influences in the current of his life. The beginning of his acquaintance with one he owed to Dr. Bell Salter, an introduction through whom (in 1851) to Mr. C. C. Babington laid the foundation of a lifelong friendship. The other four probably began as college friendships usually do. His journals record most of the dates; and the four names may here be mentioned together, in order of time:—Henry Evans, 1850; R. A. Julian, May, 1852; W. W. Newbould, November, 1852; and Edward Newton, January, 1855.

During his first year at Cambridge he purchased Sowerby's "English Botany," Babington's Manual, Parnell's "Grasses," and Harvey's "Algæ," besides taking in the "Botanical Gazette." This shows that he was now beginning to study Botany in earnest. One of his first steps on returning from Castle Taylor to Bembridge in 1850, had been to procure a copy of Hooker and Arnott's "British Flora." The want of such a manual had, of course, been much felt during the summer in Ireland, when his interest in botany had first been awakened by the wild plants at a distance from libraries or books of reference. His zoological library had received a most welcome accession about the same time, Yarrell's "British Birds" having been sent him (during his absence at Castle Taylor) by his old school-fellow "Hodgson major." He now added besides, to his collection, M'Gillivray's "British Birds," Yarrell's "British Fishes," Bell's "Crustacea," and Carpenter's "Physiology," subscribed to the "Insecta Britannica," and began to read Sir Charles Lyell's "Principles of Geology," and other books on the last-named science.

Once more the summer was spent amid the varied fascinations of Castle Taylor. With his parents and sister, he stayed there for four months, from the end of May to the close of September. Botany now occupied much more of his time than during the former visit, and a good part of the material published four years afterwards in his Paper on the "Flora of Castle Taylor" was collected at this time. His most gratifying botanical discovery in 1851, was that of *Viola stagnina*, not only a new plant to the Irish Flora, but one which had not hitherto been satisfactorily made out as a British species. It was first recorded (in the "Phytologist" and "Annals of Natural History") by Professor Babington, as "a new British *Viola*," on the strength of its discovery in Ireland by Mr. More. He found it by a "turlough" near Garryland, on ground where, the summer before, he had picnicked and shot partridge, inspected a silvermine, and caught perch "with a fly," little dreaming how near at hand lay his first real botanical prize.

Yet it is doubtful whether he would not, on the whole,

have preferred the loss of this discovery to that of another which almost fell to his lot the same summer in the domain of the entomologist.

Until this year, he had made no attempt to go beyond butterflies in the lepidoptera ; but now, fortified with most of the parts of Westwood, he threw himself eagerly into his first season of moth-collecting, sugaring as well as hunting with the net, and, it may be added, enlisting in both departments the willing assistance of his sister, whom he would never permit to learn *English* names for any of the insects collected.

In the first week of June he took several specimens of a Burnet moth whose markings puzzled him, and which he could not find correctly described in his books. On the wing it most resembled faded specimens of the well-known Six-Spotted Burnet (*Zygæna filipendulæ*), but when captured was seen to differ pointedly from that insect, not only in the semi-transparency of the wings, but likewise in the disposition of its colouring: the green and scarlet seemed to run into each other without a definite boundary, instead of being clearly distinguishable as ground colour and spots, as they are in *Z. filipendulæ*. It was curious, too, that this moth should be found quite plentiful at Castle Taylor—in some localities actually swarming on the stony pastures—a full fortnight earlier than the usual date of the Six-Spotted Burnet's emergence from the pupa condition ; and the pupa-cases of *Zygæna filipendulæ*, which were seen in scores on the grass-stems, were all apparently still unopened. No other species of *Zygæna* on the British list, however, answered to the description any better ; and unluckily, an entomological friend whom he consulted assured him that his moth was merely a suffused variety of *Z. filipendulæ* ; an answer with which, as his Westwood could not help him, he rested satisfied. A beginner could hardly have done otherwise ; but if at the time he had had access to a good work on European Lepidoptera, he could quickly have identified his insect with *Zygæna minos*—or, as it is now termed, *Z. pilosellæ* var. *nubigena*, a moth up to that time known only as an inhabitant of France, Switzerland, and Germany, but now

familiarly spoken of among Irish naturalists as the "Galway Burnet": the name, of course, having been bestowed on it with special reference to its localization in that western habitat for which the subject of this memoir so narrowly missed being the first to record it.

Two years later the full discovery of *Zygæna minos* as an Irish insect was made by Henry Milner, of Nunappleton, in Yorkshire, whose capture, in 1843, of about a dozen specimens in the Burren district of Clare was published in the "Zoologist" of January, 1854, by Mr. Newman. Mr. More and Mr. Milner met shortly afterwards in the haunts of the insect, and their acquaintance, thus formed on an entomological basis, bore fruit in later years in a correspondence on birds.

Not far unlike the history of *Zygæna minos* was that of another moth, which he took this year in abundance on the "rock" at Castle Taylor. This was a small "minor," which, being unable to identify it, he sent to Mr. Stainton, by whom it was named *Miana fasciuncula*. It really, as afterwards transpired, was the form then known to Continental naturalists as *Miana captiuncula*, but not at that date recognized as occurring in the British Islands. Nothing more was heard of it, however, till, in July, 1854, it was discovered in plenty near Darlington, and forwarded by its captors there, to Mr. Doubleday, who took it for a new species, and named it *Miana expolita*. After this, in 1857, Mr. Birchall took it, in the Co. Galway, and in a Paper read in December of the same year added it, as *Miana expolita*, to the Irish List. A few years later still, the discovery of its identity with the continental species necessitated the dropping of the name of *expolita* in favour of that of *Miana captiuncula*; but as eventually it was thought right to transfer it to another genus, it has once more been re-christened, this time as *Phothedes captiuncula*. The moth itself (the "Least Minor") is a very unpretentious little species. It is described by Mr. Stainton ("Entomologist's Annual," 1855), as an insect "readily known, being much smaller and darker than *fasciuncula* and extremely glossy." But the celebrated entomologist, when he wrote those words, was not yet aware that specimens of



the same moth had been named *fasciuncula* by himself. Thus, a curious fate prevented two new species from being added to the British Lepidoptera, on the strength of the captures made at Castle Taylor in 1851.

Eleven species were, however, added to the *Irish* list, as appears from Mr. Birchall's Paper, "On Additions to the Irish Lepidoptera," read in Dublin,\* in 1857. The author there expresses his obligations "to Mr. Alexander G. More, of Bembridge, for a very complete record of his captures during a residence of several months at Ardrahan, which has enabled me to add no less than 11 species to our list." The eleven species referred to had all been taken at Castle Taylor in 1851. They were—

1. *Calligenia miniata* ("Rosy Footman" or "Red Arches").
2. *Nonagria despecta* ("Small Rufous").
3. *Agrotis corticea* ("Heart and Club").
4. *Noctua umbrosa* ("Six-striped Rustic").
5. *Amphipyra pyramidea* ("Copper Underwing").
6. *Epunda lutulenta* ("Deep-brown Dart").
7. *Hadena dentina* ("Grey Shears").
8. *Acidalia bisetata* ("Small Fan-footed Wave").
9. *Bapta temeraria* ("Clouded Silver").
10. *Aspilates gilvaria* ("Straw Belle").
11. *Polygona tarsicrinalis*.

Perhaps the most interesting of the above was that which stands 6th in the list. Its identification had certainly afforded the greatest difficulty. It came in abundance to the sugar, especially during the first week of September, and being unable to identify it himself, he submitted it to all his entomological friends at Cambridge, only to find that none of them had met with the species. In the end it was sent to and named by Mr. Doubleday. Like the "Least Minor," it has undergone many metamorphoses of name. Doubleday called it *Charæas lutulenta*; in Stainton's Manual it is *Hadena lutulenta*; in Newman's British Moths it is *Epunda lutulenta*; and in Mr. W. F. Kirby's "European Butterflies and Moths," *Aporophylla lutulenta*.

The pretty "Rosy Footman" is still, so far as is known,

\* Nat. Hist. Review, vol. v., pp. 53, 54.

confined in Ireland to the county Galway, and the "Copper Underwing" (*Pyramidea*) seems to be very local in Ireland, but so abounded at Castle Taylor as to be quite a pest at the sugar.

It was in the June of this year that, while staying a few days with friends in the county Mayo, he first visited Lough Carra. It was the nesting season of the Terns, and among them he found a few Arctic Terns, a species whose nesting by fresh water had not been previously noticed in Britain. Indeed, the pages of volume iii. of Thompson's "Natural History of Ireland," in which it is described as seeming to select marine stations only, were at that time passing through the press. The fact of the birds breeding by Lough Carra was communicated by Mr. More to the "Zoologist" nine years later (vol. xviii., p. 6891). From a paper contributed by Mr. R. Warren to the "Irish Naturalist" for June, 1896, it appears that Arctic Terns still nest beside Lough Carra. Their only other nesting-ground hitherto discovered inland in Ireland seems to be an island in Lough Mask.

An expedition into the Connemara mountains in the company of his father and Mr. Walter Shawe-Taylor was made in August. Here, amid the delights of grouse-shooting, he enjoyed also gathering the St. Dabeoc's heath (white as well as purple), and notes having once seen three Eagles (*Haliaeetus albicilla*) over the lake at Kylemore. The Hen Harrier, "common on all the hills," was "often seen quartering the ground, flying swiftly along quite close to it," in marked contrast to the Raven, also "not uncommon; flight heavy; fond of sailing round observing the ground below." One night, on the road between Galway and Oughterard, he saw something shining which he took for a glow-worm, "the only one I have seen in Ireland." As the same mistake has been often made, and no real Irish glow-worm has ever been found, it may be well to add that there is in the margin of this page of his journal a subsequent pencilled annotation: "some other luminous insect."

Towards the end of September the long visit came to an end, and sugaring and botany for the season were over.

The severe illness from which he suffered in November has been mentioned, and the year closed under somewhat depressing auspices. In December, however, he received, through Mr. Babington's influence, the distinction, on which he set a high value, of being elected a member of the Ray Club. His "First Ray Anniversary Dinner" is mentioned among the leading events in his journal for 1852.

## CHAPTER V.

## FRESH BREAK-DOWN IN HEALTH.

[1852-1853.]

THE barrier which his delicate health had reared in the path of his university ambitions only wedded him the more closely to scientific study. It was in 1852, he says in his journal, that he "began really to study botany." His purchase this year of Watson's "*Cybele Britannica*" had doubtless much effect in influencing his mind in this direction, for no other book so completely dominated his whole line of thought, and throughout life, both as botanist and zoologist, he was the most ardent of "Cybelizers." The intervals between the Cambridge Terms were this year all spent at Vectis Lodge, Bembridge, where, in the long vacation, Mr. Walter Shawe-Taylor spent some time with him; and he began to collect the plants of the surrounding district. The chief materials accessible to a student of the Isle of Wight flora at this time were the scattered notes and papers published in the "*Phytologist*" magazine by the celebrated Dr. Bromfield, whose death at Damascus had occurred in the October of the preceding year. Since 1836, when he first came to reside at Ryde, Dr. Bromfield had been engaged in making preparations for a complete Flora of the Isle of Wight; but he was prevented from bringing this work to a conclusion by the extraordinary passion for travel which came upon him in the midst of his botanical researches, and which, though he first thought to appease it by a short trip to Ireland, "to see the arbutus growing wild on the hills of Killarney," finally appears to have taken irresistible possession of him, carrying him off by turns to the West Indies, to the United States and Canada, to Egypt and up the Nile to Khartoum, and lastly through the Holy Land to Syria, where he died, October 9th, 1851. Dr. Bromfield's unfinished "*Flora*

Vectensis" was taken in hands by Sir W. Hooker and Dr. Bell Salter: but botanists had still some years to wait for its publication, which was achieved in 1856. The cataloguing of his celebrated Herbarium was reserved to a yet later date (1858), when Mr. More undertook it.

The principal occupation of the summer was collecting and noting the distribution of the plants growing near Bembridge; but neither birds nor insects were neglected, and the following among his notes for 1852 records an uncommon experience, which he never published:—

*August 13th, 1852.*

After shooting at and wounding a Common Sandpiper on the sea-shore, upon going up to secure it, the bird without hesitation and of its own accord took to the water, holding its head well up, and quite as if a regular natator. So fast did it advance, in spite of stones thrown beyond it, as soon to be quite out of reach; but we could still distinguish it swimming along parallel with the shore, and as a boat was then approaching we hailed the fisherman to give chase. But then we were still more surprised to see it diving repeatedly (this after being ten or fifteen minutes afloat), and remaining for half a minute under water, insomuch that it was only by driving it towards land that it was at last secured. When diving in the shallow water I could see that it propelled itself by the use of its wings, flying as it were under water; and perhaps one point in its favour was that the pinion had been clean shot off, and so there was nothing to hang loose and impede it. I had previously seen a Sandpiper make a short dive, but never suspected it capable of such a vigorous performance.

The winter of 1852-3 was one of exceptional mildness, and occasioned his first contribution to a botanical print. This was a short note published among the proceedings of the Phytologist Club in the March number of the "Phytologist" (p. 874). It was merely supplemental to a few notes previously communicated by others, but the love of noticing minute details in common things is apparent enough in its few lines:—

If the following plants, observed flowering in the Isle of Wight, be added to the list already published in the "Phytologist," they will, I think, indicate still more clearly the remarkable advance of the present season, since they are all genuine spring flowers:—In December we found a solitary flower of *Viola sylvatica*. Jan. 10th, *Tussilago farfara* in flower. Jan. 21st, *Mercurialis perennis*—and by the end of the month plenty in flower. *Caltha palustris*, several in flower, and many

in bud, with quite an April luxuriance; *Narcissus pseudo-narcissus*, 20 or 30 in flower. Jan. 31st, *Cerastium tetrandrum*, in flower; *Alchemilla arvensis* (young plants), in flower; and on the same day we were no less pleased, than surprised to find our little friend of last March, *Draba verna*, mostly with only a flower or two, scarcely raised above the leaves, but in a few cases even in seed, on its usual stem.

Another consequence of the season's mildness is more regretfully mentioned in his journal, viz. that there were "no wildfowl and very little shooting." Not till January 3rd did he see the first "Black Duck" (Common Scoter), in most winters "a sure find off the mouth of the harbour." On January 25th "three Ducks were twice put up, but very shy"; and on the 28th "the strong easterly winds of the last few days have brought many Geese: Brent in large flocks, one Grey or Bean at Sandown, etc." Previously there had been no Geese. Again, on March 24th:—

Birds in the Harbour apparently fewer than usual. No Herons; these are common from June to October. A few Dunlins, perhaps a trifle tamer than usual, their rusty livery quite perceptible as they fly past; no Kingfisher; plenty of Herring and Common Gulls, and one Black-backed (Lesser). Not a single water-bird of a Duck description was seen to-day; and the Loons and Grebes seem also to have taken their departure. The Rooks pass regularly to and fro across the Harbour and over our house; only a few do so in winter. Sparrows begin to take a prospective survey of the spouts and corners, and are remarkably clamorous in the sun. I think I saw two or three Fieldfares the other day; and a Partridge was sprung from a hedge, as if on the lookout for a nest. Weather very cold; wind N.N.E.; and very frosty for the time of year.

There was, however, one winter migrant in evidence at Bembridge, whose visits seemed to possess almost a special fascination for him. This was the Black Redstart—a bird, the philosophy of whose movements appeared to him somewhat of an enigma. Indeed, it was from reflection upon the visits of this species to England that he afterwards fell into the train of thought which suggested his "Isocheimonal Theory of Migration." He twice met with the bird this winter, and sent notes of both occurrences to the "Zoologist":—

On the 9th of December last I met with a single individual of this species (*Sylvia tithys*) on the seashore here, in company with several

Rock-Pipits. This is quite confirmatory of the bird being an accidental winter visitor to our southern coast ("Zool." XI. p. 3753).

Another example of the Black Redstart occurred near Bembridge at the end of March. The day following its discovery, we proceeded to the place where it had first been seen, a large meadow sprinkled over with recently cut timber. We had scarcely made one round of the field when the peculiar "ducking" action of a bird alighting on a trunk attracted our suspicion, and on nearer approach the fiery tail, as the bird flew off, showed we were not mistaken. The bird was restless rather than shy, and kept taking short flights from one heap of faggots to another, occasionally settling on the turf as if in search of insects. On securing it, it proved a middle-aged male, and I am pretty confident that I afterwards saw a second individual at the same spot. Does not the occurrence of these birds, at the time of the spring movement, tend towards explaining the course of their migration, especially since we hear that they are not very uncommon winter visitors in Devon? It seems to me quite possible that these birds, when seen by me in the Isle of Wight, were at the time proceeding towards their summer quarters, moving in a direction from west to east along the channel. At all events the mild winter of our south coast would ensure a supply of insect food during the more rigorous winters of the eastern and inland parts of Europe (t. c. p. 3907).

The latter note is dated (May 3rd, 1853) from Cambridge, where he was now keeping his eighth term, and had just enjoyed the privilege of steering the head boat in the Cambridge race. He had also taken his certificate in geology, and had joined the Botanical Society of Edinburgh, then the best medium for exchange of plants in the kingdom.

And now came another serious illness, which may almost be said to have brought his Cambridge life to an end. He was taken home to Vectis Lodge for five weeks, and though he made a sufficiently good recovery to return to college in June, and was given credit for the term, his doctor insisted that for some time to come the keeping of another term must be avoided. Hitherto he had actually missed only one (Easter, 1851), though two others had been interrupted by periods of protracted sick leave. Not for a year and a-half from this time did he return for his ninth term of residence, and then again he found himself unable to proceed to the B. A. degree.

This premature severance from university life and aspirations was a severe disappointment, and one which he

never ceased to regret. But he was far too familiar with the checks and frustrations incidental to feeble health to give way to depression of spirits. Activity was to him recompense for almost any vexation. "Happy," he once wrote, "are you strong fellows, who can be always active, always hard at work"; and it truly conveyed his ideal of enjoyment.

Through the summer of 1853 he stayed at Vectis Lodge, "not good for much walking," as his journal records, and so hampered in his attempts at specimen-hunting. "Progress in botany," he remarks, was "not very extensive," but consisted "chiefly in more careful comparison of plants with their descriptions." The phrase was committed to paper almost apologetically; but this "careful comparison" was the very point in which, as Mr. Barrington says, "his critical eye subsequently excelled, and in which he had few equals."

One botanical excursion, however, he succeeded in making, which afforded him great pleasure. This was to Ape's Down Farm, a spot in the vicinity of Carisbrook, renowned by Dr. Bromfield's discovery there, in 1843, of the only British station for *Calamintha sylvatica*, while in its immediate neighbourhood lay also one of the very few localities known in Britain for the rare *Cyperus longus*. On September 12th he and his sister made their way together through Newport and Carisbrook to this interesting spot, where he was rewarded with the sight of "Bromfield's Calamint" in perfection, presenting, as he describes, "a most beautiful object, with blossoms far larger and handsomer than those of *C. officinalis*," and "in some places quite colouring the more open spaces in the copse, close under the Down." After some time spent in admiring those long strips of copse, with their ground carpeted with the purple hue of the handsome calamint, a hasty adjournment was made to the spot where, by Dr. Salter's directions, he hoped to find the *Cyperus*. In this, after a long and careful search, he succeeded; but the appearance of the *Galingale* was in strongly marked contrast with that of the flourishing *Calamintha*: for, alas! *Cyperus longus* "was in very poor and depauperated condition, and had



also suffered from the meadow having been mowed just as the large bracts were raising themselves." Indeed, it could scarcely be doubted that the plant's survival under such conditions was quite precarious; and seven years later, when writing the outlines of insular "Natural History" for Stanford's "Guide to the Isle of Wight," all he could say of the Carisbrook site was to express a hope that "at the western side of the hill *Cyperus longus* may *perhaps* still exist."\*

He now showed better signs of restored health, and utilized the few remaining weeks of summer with such good effect that, as the net result of his first season's collecting, he was able to forward for distribution through the Edinburgh Society a packet containing as many as 1500 plants: no light achievement when it is recollected what an invalid he had been throughout all the best part of the collector's year.

\* In contrast may be quoted from another page of the same little manual his description of a spot near the southernmost point of the island where "half-way down towards the shore grows the rare *Cyperus longus*, so zealously preserved by the owner of the land; within the little fence which encloses it will be found quite a jungle of *Cyperus*, recalling in size and elegance the papyrus of the greenhouses; with it *Juncus obtusiflorus* is equally plentiful, and *Mentha rotundifolia* fringes the stream."

## CHAPTER VI.

## AT BRIGHSTONE AND ST. CATHERINE'S.

[OCT. 1853 TO FEB. 1854.]

ON October 31st 1853, his diary begins—"Our whole family left Bembridge after two years residence in Vectis Lodge. Just before starting I took a last look after a Black Redstart that I had observed the day before haunting the garden-wall of Marina Villa, but I was unsuccessful in this pursuit, not even catching a glimpse of his conspicuous fire-tail."

"Father and self led the way in an open chaise, and drove through a smart breeze over the high downs to Newport, enjoying on our way a very fine view of Sandown Level, as well as the country towards Ryde on the other side; the little village of Knighton, well remembered as my most accessible station for *Thelypteris*, appeared most snugly situated close under the hill, surrounded and almost concealed by trees; Godshill Church conspicuous in the distance, where we could also discern St. Catherine's Down, with its lighthouse serving as a good landmark."

Their destination was the quiet little village of Brighstone, situated near the south-west coast of the Island, towards the western extremity of the Greensand Valley, where it had been decided to remain for at least the opening weeks of the winter. To all it was a pleasant change, and Alexander was delighted with the sequestered character of the spot; nor had he failed to note during the drive, what number of Kestrels were hovering over the Down, nor how thickly the lanes were fringed with masses of *Polypody*; *Campanula trachelium*, too, was flowering by the road side.

Going out-of-doors next day to "survey the new locale," "we were not long," he writes, "in finding our

way through a beautiful hollow lane thickly fringed with most luxuriant ferns to the top of the furze-clad hill over the village. From this, looking down, we have an excellent view of the village, placed, as most others at this side of the Island, close under the ridge formed by the Lower Greensand, while this, again, is backed by the far higher Chalk Down, so as to be most comfortably sheltered from the north winds. A still more extensive view is to be gained from the summit of Brighthstone Down, whence we discerned the tall white cliffs almost to the very Needles, and the opposite coast of Hants, Lymington, and Christchurch, the inlets of the sea at the former, and Southampton water especially conspicuous. Yarmouth, also, and Newtown lay still close beneath us, while on the other side the open sea seemed still more extended. On the top of the Chalk furze grows in abundance, as well as *Erica cinerea* and *Calluna*; in one spot *Anthemis nobilis*. In these I found the chief difference from Bembridge Down. The common Chalk plants, of course, are the same."

It did not take him long to find further difference between the Bembridge and Brighthstone floras. Thanks to the remarkable mildness and dryness of the season, he could botanize, almost daily, throughout November, with as much complacency as if it had been summer. During this time no fewer than 180 species of plants were observed in flower, out of which number, 9 are distinguished in the diary as hitherto unknown to himself, and one (*Filago spathulata*, first gathered, Nov. 12th), as new to the Isle of Wight." This he originally discovered at a spot between Gatcombe and Brighthstone, but afterwards found to be plentiful on many places on the Greensand.

On November 2nd, he writes:—"We drove through Shorwell, Kingston, Chale, and Blackgang to Niton, our object being to visit *Cyperus longus*. We had no difficulty in finding it, although, except one specimen, it was quite dried up and withered; the greater part, too, had been mowed down. From the Buddle Inn a very steep descent leads you right to the spot, and the square patch of rushes, fenced off in the centre of the field, may be discerned almost from the Inn itself. Not far from it

*Mentha rotundifolia* grows along the road and stream in profusion. *Festuca arundinacea* and *Daucus maritimus* were also observed. *Artemisia absinthium* became common as soon as we got to Blackgang, but previously *vulgaris* had been the only and profuse hedge-plant. *Rosa spinosissima*, *Filago minima*, and the long-sought *Silene anglica* were found along the road through the sandy heath near Kingston."

Next day Swallows were seen, and several specimens of the large Serotine Bat observed to be on the wing. On Nov. 10th, an excursion was made to Alum Bay, where "we dined on the shingle as comfortably as if it had been summer." Among the wild plants, whose blossoms at this season recalled the spring and early summer days, were noticed the marsh marigold (*Caltha palustris*), dog violet (*Viola sylvatica*), milkwort (*Polygala vulgaris*), bird's foot (*Ornithopus perpusillus*), ragged robin (*Lychnis flos-cuculi*), meadow-sweet (*Spiræa ulmaria*), Burnet rose (*Rosa spinosissima*), germander speedwell (*Veronica chamaedrys*), and primrose; while gems of the middle and later summer were even more numerous.

Not far from Brighstone lies Brook, whose celebrated "fossil forest," visible only when left bare by the waves at low water, he several times visited with much interest; finding, too, in the adjacent cliffs, "plenty of lignite incrustated with pyrites, affording some very pretty specimens of weald fossils." Another notable spot, once previously visited from Bembridge, now lay within easy reach. On the 18th he "rode through Calbourne and Swainton to Ape's Down Farm, and from that point through the farm-yard along the Calamintha copse, and past Rowledge Farm through a number of beautiful copses, from which I at last emerged across the Downs, and descended above Brighstone. This ride was over a very beautiful part of the country, and when surrounded by apparently endless complications of Chalk Downs, I was quite struck with the wildness and solitude, not a person to be seen."

But his rambles were not all solitary, and among those who shared them at times were his constant ally, Dr. Bell Salter, and the rector of Brighstone, Rev. E. M'All. To

Dr. Salter he had now the pleasure of exhibiting his new addition to the insular flora, *Filago spathulata*, in its place of growth. Dr. Salter was particularly anxious to see the submarine "forest," to which he walked on November 29th; but the day turned out unfavourable for the purpose, as the tide did not recede sufficiently far, and the doctor was fain to content himself with carrying home a quantity of lignite from the shore.

The following is from the diary for the last day of November:—

"Nov. 30. Walked out with Mr. M'All to show him the locality for *Osmunda* and *Blechnum*, in pursuit of which we got involved in some extremely swampy ground close to Motteston Mill, and were thoroughly wetted. We were, however, successful so far as ferns are concerned, and the locality looks a very promising one for the summer. I could not find *Thelypteris* or *Ribes nigrum*, for which the locality seemed well adapted. From this point, Mr. M'All conducted me to the Bottle, or Buddle Hole source of the stream, a spot of quite romantic interest, the clear stream gushing from a natural arch surrounded with ferns, in the centre of a beautiful hollow well shaded by trees. . . . I found *Chrysosplenium* in great abundance along the stream, and in the swampy alder thicket it quite covers the ground in many places. In one very small spot, where the wood had just been cleared, we must have flushed as many as twelve Snipes. The great tufts of *Carex paniculata* attain an enormous height on this ground, while between them the treacherous, soft watery bog requires some attention to avoid sinking above one's knees. *Equisetum palustre*, chiefly the form 'nudum,' was another plant new to me, flowering, and with fresh young shoots as if in spring."

A week afterwards the family left Brighthstone for a projected tour along the south coast of England, and with this departure the connexion with the Isle of Wight was practically severed for a considerable time. A stay of a few days was made at Lymington, where a change of programme occurred; and the winter months of 1853-4 were spent with some relatives at St. Catherine's, near Doncaster.

The Indian summer was now over. During the short stay at Lymington several spots of interest in the New Forest had been visited, and a little botanizing done at Brockenhurst on December 9th, and at Beaulieu\* on December 10th. But the drive to Beaulieu was "in the face of a piercing north-easter that really seemed to sting like needles through the thickest coat"; and "indeed (he writes a few days later) ever since we left Brighstone we appear to have been gradually approaching an Arctic temperature." Really severe weather set in with snow and frost on December 27th; from this date were experienced three weeks of bitter cold, the thermometer at St. Catherine's standing one day (January 3rd, 1854) as low as 10 degrees Fahr. The poor birds were, of course, in dire distress. "I saw two Rooks or Crows (he writes one day) chasing some small bird, Robin or Hedge-sparrow probably, right across the park; they seemed to act in concert, and, no doubt, intended to make a meal of the poor little bird, which in this hard weather was almost excusable; their quarry was lucky enough to escape into the firs in the plantation." "Moorhens driven from the frozen ponds I have seen perched high in trees; another was seen trotting over the snow, and seems to have been exploring the region of pig-sties in search of snails, &c." "Snipes are become very emaciated, and scarce worth shot. I have seen covies of Partridge feeding on the snow in many places; how do they subsist now I wonder." "I picked up a Blackbird quite starved to death; this is the first time I have met with a dead bird that I can recollect. The rabbits have done great damage to the trees, the hollies especially, many of which are completely barked so as to be in a hopeless state; they have also learned to jump clean over the wire-netting and so get at the shrubs in the avenue." The wire-nettings referred to were in full view of the windows, and he took great interest in watching the rabbits as they "cleared the hurdles." On January 17th a rapid thaw flooded the country, but ended the hardships of the feathered creatures. On the 22nd "*Eranthis hyemalis* (Winter Aconite) and *Galanthus* (snowdrop) are in

\* Pronounced Bewley.

flower in the garden, but have hardly yet reached their full bloom. How different here from when I walked through Centurion's Copse last January, detecting the earliest of adventurous daffodils and other forerunners of spring."

The note immediately following the above points to another kind of reminiscence :—

No doubt the *Zygaena minos*, in this month's "Zoologist," is the very same insect I took at Castle Taylor in June, 1851, when I remarked that it appeared a fortnight earlier than the Common Burnet. The pair Reid showed me are the exact counterpart of mine, only I think what I caught were rather fresher. What a pity — persuaded me they were only a suffused variety!

The Mr. Reid referred to in the entry just quoted was a well-known Doncaster bird-stuffer, whose skill in setting up specimens had many years previously elicited a complimentary letter from Charles Waterton. Mr. More had many conversations with him, and was glad of the opportunity to probe an ornithological question which had remained a more or less open puzzle for over two years. In the "Zoologist" for 1851, Mr. Reid had described (p. 3330) a Sandpiper, whose name was unknown to him, but of which he had received a British-killed specimen for mounting from a locality so far inland as Warwick.\* No correspondent of the "Zoologist" had grappled with the mystery; and Mr. More, suspecting it to be the American "Bartram's Sandpiper," made a point, when visiting Mr. Reid, of ascertaining all details. In his Journal for January 28th he mentions the outcome. "Next, as to the Warrington Sandpiper. It seems I was quite right in saying it was *Totanus bartramii*, and the bird is 'now in possession of J. B. Barnard, Esq., of Kenniton Hall, near Warwick, who received it from a labourer who had shot it in a bean-stubble.' Another instance of the long flight of which these strong-winged tribe are capable, and one which fully entitles the bird to rank as British, especially as we already have enrolled so many other American deserters. I wonder whether it is known to the London men that this is a *bona fide* case of 'British-killed.'" He sent a note to the

\* Misprinted Warrington in the original announcement.

“Zoologist,” the first record of “*Bartramia longicauda*” (Bartram’s Sandpiper) as a “British Bird.”

He was beginning to be a somewhat frequent contributor of short notes. Before leaving the Isle of Wight he had sent to the “Zoologist,” (1), a Table showing dates of arrival of the summer migrants, as observed at Bembridge during the previous four years; (2), a note upon the Serotine Bat (often confused with the Noctule) which he had observed to be common at Bembridge, and indeed the only large Bat he could find there; and (3), the correction of his early error about the Fire-crested Wren, which has already been quoted. To the “Phytologist” he had forwarded a short note on the discovery of *Filago spathulata*. These, with the two on the Black Redstart, another on a Puffin picked up in winter, and that on the plants flowering in January, complete the list of his printed communications bearing date 1853.



## CHAPTER VII.

## THIRD VISIT TO IRELAND.

[1854.]

A FORTNIGHT'S stay was made at Liverpool after leaving St. Catherine's in February, and a few days were devoted to such botany as the season allowed of. On February 25th he made an excursion to the Liverpool Sandhills, in the vicinity of Crosby—still a rather favourite spot with botanists, though several of its former rarities are said to be now extinct. Crosby was already the nearest point to Liverpool at which the dunes could be found “in their original condition.” “The building has advanced so fast that as far as Waterloo the whole shore is lined with houses. At first sight the sand-hills are rather different from the Hayling and St. Helens; in the first place, the hills are higher and more abrupt, and less clothed with vegetation, owing, no doubt, to their constant shifting, being exposed to the full force of the westerly winds. Then there are wet, swampy hollows in some places, almost like lakes, filled with rushes, docks, &c. Along shore, especially, the sand is heaped up in the most irregular manner, and an unceasing cloud of it keeps flying in your face, so that it was rather a matter of difficulty to make any head against it. The star-grass, *Ammophila*, and a dwarf willow in the lower parts are with *Carex arenaria* the only stay against the shifting tendency of the ground; and I could see in many places only the panicle of the star-grass exposed.”

“No fluffy silky appearance on the willows yet” could be detected, and the only plant in flower was the daisy. But among the species gathered at Crosby were *Pyrola rotundifolia*, *Erythræa* (?) *latifolia* (“new to me”); *Cynoglossum officinale*; *Euphorbia portlandica* (“plentiful: no paralias”); *Cerastium tetrandum* and (?) *semidecandrum*; *Parnassia palustris* (“rather common on the wetter

spots"\*); *Galium verum*; *Arenaria serpyllifolia*: two species of willow; *Juncus supinus*; *Equisetum variegatum*; *Orchis latifolia*; and "Epipactis palustris, I think was here, too."

On March 7th, leaving Liverpool with his sister, he set out for his third visit to Ireland. This time it was to Loughgall (Mr. R. Cope's residence) in county Armagh, a part of Ireland very different in character from the limestone plains of the West. And here were spent the three months of the beautiful spring of 1854. For notwithstanding the intense severity of part of the recent winter, the spring was turning out a singularly forward one. The rapid advance of vegetation since the melting of the snow had been manifest even in January, by the end of which month he had noticed, in the Yorkshire woods, "great numbers of primroses in flower, and on reverting to their usual companion the *Potentilla Fragariastrum* (Barren strawberry) I was much pleased at recognizing two of its little white stars in the centre of a dense tuft of foliage." By the 8th of March, when Loughgall was reached, Wood anemones, Dog violets, and daffodils were found to be in flower; and now in rapid succession followed butterbur (*Petasites vulgaris*), ground-ivy (*Glechoma hederacea*), marsh-marigold (*Caltha palustris*), blackthorn (*Prunus spinosa*), wood-rush (*Luzula campestris*), wood-sorrel (*Oxalis acetosella*), goldilocks (*Ranunculus auricomus*), and the wild cherries (*Prunus cerasus* and *P. avium*), all during March; the wood strawberry (*Fragaria vesca*), blue-bell (*Hyacinthus non-scriptus*), stitchwort (*Stellaria holostea*), cotton-grass (*Eriophorum angustifolium*), and cuckoo-flower (*Cardamine pratensis*) in the opening days of April—besides the curious toothwort† discovered "in free flower" on April 1st; then came the hedge-garlic (*Erysimum alliaria*), cuckoo-pint (*Arum maculatum*), bog-bean (*Menyanthes trifoliata*), germander speedwell

\* It is chiefly on the golfers' "putting-greens" that the Grass of Parnassus now flourishes at Crosby.

† "In afternoon Mama and F. discovered a large bed of *Lathræa* in free flower, growing very closely crowded." Diary, April 1st, 1854. This is still the only County Armagh station known.

(*Veronica chamaedrys*), avens (*Geum urbanum* and *G. rivale*), red-rattle (*Pedicularis sylvatica*), milkwort (*Polygala vulgaris*), sycamore, horse chesnut, lilac, and many others, all previously to April 22nd, on which date the hawthorn was observed to be out, along with *Orchis mascula* and *Chelidonium majus*, closely followed on the 24th by bilberry (*Vaccinium myrtillus*), bugle (*Ajuga reptans*), broom (*Cytisus scoparius*), wild pansy (*Viola tricolor*), and Hare's-tail cotton-grass (*Eriophorum vaginatum*). The dates of all, and indeed many more, were carefully tabulated; his "Floral Calendar" for March and April gives the records for 94 species. Arrivals of summer migrants are also chronicled, but some of these were by no means early. A white butterfly (*Pieris rapæ*) was seen on April 3rd, and the orange-tip and speckled wood on the 13th.

The ground which had most delighted him on his arrival at Loughgall lay around the shores of the lake, where he hopefully looked forward to many an enjoyable field day: his first visit (March 9th) resulting in the discovery of *Cladium mariscus*—in what proved to be its first and apparently its only locality in Co. Armagh—fringing the shore, while the sight of innumerable water-fowl studing the surface whetted his ornithological enthusiasm. Among his first steps, after viewing the lake, were to procure Anderson's "Carices," and, a few days later, Watters' "Birds of Ireland," which last-named little volume always remained rather a favourite with him. A bird which particularly interested him at Loughgall was the Great Crested Grebe, a pair or two of which he could generally find in calm weather by exploring the smooth water of the lake with a telescope: their slender white necks and beautiful tippets filling him with admiration while thus unwittingly displayed to close scrutiny.

Scientific naturalists are often suspected of some want of susceptibility to the charms of living nature; but the suspicion is sometimes far wide of the fact. From Mr. More's published writings little could be guessed of the intense delight with which he was accustomed to hail the sight of a rare or beautiful bird, the hearing of an unex-

pected note, the confirmation by experience of a reputed habit or a doubtful fact. For minute items of field-lore he was as constantly on the look-out as for rare specimens. One day towards the end of March, "hearing an unusual note from a hawthorn-bush," he stole up and "discovered a Redwing to be the author of it, conspicuous by the white streak over the eye." Having never before been treated to the strains of the "Norway Nightingale," he stood for some time an attentive listener. "It continued its rather monotonous but loudish song for some five minutes. This appeared to consist of two notes, sometimes carried on to four or six in rapid succession, or else the two with a little break—'cley-eet'; very different, however, from the inward soft song of the Fieldfare, which I heard the following day, and in quite a clear Thrush-like manner." It was another new experience in woodland sounds when (on May 9th), "Being out late in the evening, I heard the cry of the Eared Owl—'kri, kree, kree'"; the familiar "Cat Owl" of Irish woods being very rare in the Isle of Wight. But it was with even greater pleasure that, on the next day, along with the "crake, crake," of the Landrail, he heard for the first time "the Quail's 'wet, wet, wet,' in the young corn." It was now many years since that note had ceased to be, as described by Gilbert White, one of the sounds characteristic of a summer's evening\* in Hampshire. But Quails were still common in many parts of Ireland, and in his walks about Loughgall during the remainder of his stay he frequently heard their notes, and many times endeavoured, though without success, to catch sight of the bird. On June 3rd there is a disconsolate entry in his journal: "I spent the morning at Tartaraghan looking for a Quail, but could not succeed in meeting with a single bird. And so I am fated to leave Loughgall after hearing them on every side, and yet having never seen them."

\* See "A Naturalist's Evening Walk," in *Selborne* :—

"Then be the time to steal adown the vale,  
To hear the clamorous Curlew call his mate,  
Or the soft Quail his tender pain relate."

It is sad to reflect how greatly *both* the birds here intended (the Quail and the *Edicnemus*) have since decreased.

With the Rev. George Robinson, of Tartaraghan, an enthusiastic brother-naturalist, of whom, while at Cambridge, he had heard a good deal from his friend R. A. Julian,\* he took several excursions to the haunts of local birds. On May 12th, after driving to Armagh, "we went," he says, "to look after the Whinchat, and succeeded in finding one fine male bird in the hedges bordering some low meadows. It is said to be very local in this neighbourhood." Another day (April 24th) Mr. Robinson drove him to Lough Neagh, to visit the only known Irish breeding-ground of the Yellow Wagtail.† "We found the Yellow Wagtails flying about in pairs, at the usual and limited distance from the lake. It is very curious that their range should be so restricted, though the ground which they frequent is sufficiently varied—bog, arable, and gardens; but perhaps the extreme abundance of small gnats and other insects within a certain distance of the water may account for this." From a peninsula (tenanted by numbers of birds) over which they strolled, "the view of the lake was very fine, and the weather being remarkably clear we had a particularly good opportunity of seeing the mountains on all sides, Ram Island, etc. There was also a small islet to the left, where Mr. Robinson had gathered *Arundo stricta*. Altogether, what with the clear sky, bright sun, and beautiful blue expanse of water, with its islands, promontories, creeks, and mountains, it formed a most delightful prospect."

Mr. Robinson also accompanied him on many botanizing excursions, and Lough Neagh was several times visited, for the Yellow Wagtail was by no means its only attraction.

"May 15th. Sailed all day on Lough Neagh with Mr. Robinson: a light breeze from the north, just sufficient to carry us along, and the lake very clear and beautiful. We

\* Mr. Robinson and Mr. Julian had been friends in Devonshire.

† It may be advisable to explain that the name "Yellow Wagtail" is commonly applied in Ireland to a different bird, which, though yellow enough to deserve the title, is the "Gray Wagtail" of ornithologists. It was, however, the "Yellow Wagtail with black patch on throat," occasionally referred to by Gilbert White.

landed on two small stony islets, whose chief attraction was *Arundo stricta* just budding, and *Lathyrus palustris*, of which Mr. R. was the discoverer some time since. Here, too, we found Wild Ducks, Black-headed Gulls breeding, Terns recently arrived, Dunlin and Sandpiper nesting. Both the latter favoured us with their quavering songs; that of the Dunlin is very remarkable, and quite accounts for its name of Purre. Cormorants and Lesser Black-backed Gull were also seen in the distance. Landing on the Deer's Island when near home, Mr. R. was not long in turning up a fine beetle in the shape of *Carabus clathratus*,\* which he had previously mentioned as one of the rarities of the place. Found also nest of Reed Bunting, with four eggs hard sat, as was also the case with those of the Sandpiper we had taken from the other island."

Besides botany and birds, Loughgall afforded pike-fishing. One day he had a curious experience, losing a fine fish of 5 or 6 lbs. through "the single hook of the gorge having fixed itself, when in the pike's stomach, deep into an eel which was there undergoing digestion, so that when the fish was played this eel kept gradually emerging from his throat again, till at last, just as we got him along side, the last extremity was drawn out, and pikey escaped." The eel, he adds, must have been 2 feet long, and the pike had been played with this singular tug-rope for as long as a quarter of an hour.

On May 29th he had an inopportune attack of the chicken-pox. It was the day he had planned to set out with Mr. Robinson for the small island on the northern side of Lough Neagh, where the very rare *Carex buxbaumii* (found nowhere else in the British Isles) had been discovered twenty years previously by Dr. Moore. Mr. Robinson proceeded on the "Carex trip" alone, but on June 2nd "came over to tell me that he had been to Toom to search for *Carex buxbaumii*, but unsuccessfully, proba-

\* This note in Mr. More's journal seems to be the only preserved record of Mr. Robinson's capture of *Carabus clathratus* on Lough Neagh, perhaps its earliest discovery in the east of Ireland. Down to a much later date than 1854 it was supposed to be confined to the west, though this is now known not to be the case. See "Irish Naturalist," 1896, pp. 63, 191, 273.

bly because the season was rather too early. He described the three islands as connected now through the drainage with the mainland, and with many trees upon them. Cattle were also feeding upon the one nearest Toom, and had apparently cropped off nearly all the rising Carices and grasses; but I scarcely think they could have prevented the detection of the *Carex*." (It was gathered in the following year by Mr. Joseph Woods.) The botanical notes taken at Loughgall, with Mr. Robinson's valuable assistance, were, some years afterwards, embodied in a Paper\* which is by general consent the first important contribution to the flora of county Armagh.

He left Loughgall on the 5th of June, and went with his sister to spend a week by the sea at Howth. In fact his short illness had left him very weak and exhausted, and the sea air and rest were much needed. Howth, with its interesting wild plants and romantic cliff scenery, greatly pleased him, and he writes with enthusiasm in his journal of the lovely view from the summit of the Hill: "The Bay of Dublin, with its wide-extending sand-banks left bare by the tide, the high hills over Kingstown; on the other side, Lambay, rising high out of the sea, and Ireland's Eye, the silver streak of the Portmarnock strand ending in the hill and point of Malahide, and the beautiful blue sea studded with hookers and steamers—a view well worth the labour of scaling the rugged hill!"

Two extracts from his diary may be given, in which he records his visits to Ireland's Eye and the "silver strand" of Portmarnock.

"June 7th. Our second day we resolved to spend in exploring Ireland's Eye, and were accordingly ferried over and landed on the sandy beach that occupies its lowest and south-west side. Here we at once recognized our old friend of Hayling Island, *Euphorbia paralias* (sea spurge), and not far from it the allied *E. portlandica*. *Phleum arenarium* (sea cat's-tail grass), *Festuca uniglumis*, and *Rosa spinosissima* (burnet rose), we were prepared for, but to find *Thalictrum minus* (lesser meadow-rue) in such

\* "Localities for Some Plants observed in Ireland" ("Nat. Hist. Review," May, 1860).

company seemed to us rather unusual. There were a goodish few plants, but apparently confined to one spot. In some instances the corollas of the burnet rose were quite rosy, and even blotched with red. This I had never heard of. *Viola tricolor* (pansy), with unusually large flowers, perhaps the same as *V. curtisii* of Mackay, grows here; *Cynoglossom* (hound's tongue) in immense profusion; *Honkeneja* (sea purslane); *Festuca rubra*; but we missed the various species of trefoil that used to be so characteristic in the Isle of Wight. Ascending now the hill . . . I stumbled on some seeds of *Scilla verna* (vernal squill), *Aira flexuosa* (wavy hair-grass), *Kœleria cristata* (crested hair-grass), *Cerastium arvense* (large mouse-ear), and *Silene maritima* (sea campion); but it was only on reaching almost the highest point that we came (on the north slope) upon a whole bank of *Scilla verna* in beautiful flower, and quite a treat as a novelty.\* Here we sat down with the fresh sea-breeze, and took a most delightful rest. Another liliaceous plant, *Endymion nutans* (blue-bell), was growing in the open pasture along with its relative, and plenty of the pretty *Lotus corniculatus* (bird's-foot trefoil). A herd of deer were feeding in the hollow at our feet, while the anxious wheatear was flitting around, settling every now and then on some bare rock, with ever-repeated 'chack-chack.' There were but few Herring-Gulls about, a little band of Puffins, and we found a nest of the Rock Pipit, with its very dark eggs: one which I tasted had a *very bitter* taste. The north and east sides are very precipitous, with some caves, but we had no time to explore these; they did not look very likely, but might produce *Asplenium marinum* (sea spleenwort). The view from the top was very fine, something like yesterday's (from the Hill of Howth), but from being closer above the sea still preferable."

"June 10. Made an excursion to Portmarnock sands, starting on a car at 10 o'clock, with a high N. W. breeze, which made the weather appear quite cold compared with what we had felt it the last fortnight. Along the road we

\* One of his favourite botanical localities at Bembridge, St. Helen's Spit, produced the autumnal squill (*Scilla autumnalis*).



saw *Cerastium arvense*, *Carduus tenuiflorus*, *Sisymbrium sophia*, plenty of poppies among the corn, and just after passing through Baldoyle, I caught sight of some close-growing reddish heads; when alighting, I was charmed at pouncing upon a thick crop of *Blysmus rufus* growing close to the water's edge, in wet sandy rushy ground, along with *Carex extensa*, *Glaux maritima*, *Juncus maritimus*, *Triglochin*, &c. This was the first time I had met with this curious plant, and it looks, a little way off, very like *Carex intermedia*, but when gathered you could never mistake it. Some heads were terminal, others were overtopped to two or three times their length by green grooved bracts, and one head, besides the bract, was furnished with a pedicel of its own, 1 inch long. The number of heads, from their abundance, quite gave a colour to the ground; it was well seeded already. Further on we observed plenty of *Anthriscus vulgaris* growing in the sand-walls that bordered the road: *Lycopsis arvensis*, *Cynoglossum*, and *Cochlearia officinalis* were also noticed. A drive of some miles further brought us down through the sandhills to the very beach, and we set to work for our two hours as fast as possible. First, the handsome yellow violet (*Curtisii* of Mackay, but evidently only a variety of *tricolor*) was seen everywhere here and there; *Ammophila* of course abundant, but I could not see *Elymus*; *Cerastium tetrandrum*, *Galium verum*, *Phleum arenarium*, *Festuca rubra*, *Koeleria cristata* plentifully, *Thalictrum minus* again, *Rosa spinosissima*, *Festuca uniglumis*, *Euphorbia paralias* (no *portlandica*), *Ononis* in plenty, *Lotus corniculatis*, *Eryngium*, *Honkeneja*, *Carex arenaria*, *Papaver argemone*, *Salix fusca* plentifully in the low hollows, where I looked in vain for *Pyrola*, as I had seen it in similar localities near Liverpool; *Trifolium repens*, *T. pratense*, *Cynoglossum*. Shells—*Bulimus acutus* and *Helix virgata*; no *pisana*; *pisana*, however, is found in plenty somewhere near Dublin. Altogether, I was a little disappointed in the variety of botanical productions, but, perhaps, there may be better ground further from the sea; our ramble extended to no great distance from the shore. The little blue butterfly, *Polyommatus alsus*, was flitting about,

settling now and then on the stems and leaves of ammophila, its dark colour well contrasted with the gayer livery of the males of the common blue, which was in still greater plenty. After walking towards the end of the strand for about an hour, we turned our attention to the beach, and here there is, indeed, an extraordinary accumulation of fragments of shells of many kinds, especially Solen, Cyprina, Mytilus, Venus, Mactra, Donax, Tellina, Turritella terebra, &c.; we saw, however, but few unbroken specimens, but the whole of the drier sand is quite whitened by the intermixture of the pieces, and I daresay would prove a valuable application for some lands that require lightening and lime at the same time. Skeletons of sea-urchins were lying about bleaching in plenty, and great numbers of a long-armed, curious crab,\* were strewn about, some of them transformed by the hot sand into very excellent and perfect specimens. There were not the same quantity of zoophytes that we saw at Liverpool,† but I believe it is for shells that the Silver Strand is famous. The sand is not, to my eye, any whiter than St. Helen's Spit. The absence of trefoils was here, again, very striking."

\* Afterwards ascertained to be the Masked Crab.

† Near New Brighton, Feb. 27th.

## CHAPTER VIII.

## THIRD VISIT TO IRELAND (CONTINUED).

[1854.]

THE next move (June 12) was to Castle Taylor. Here he had not been since the summer of 1851, when he took the moth which had subsequently turned out to be *Zygæna minus*. On arriving, "I lost no time," he says, "in hunting up the moth on the rock, and took a good many in the rain on the 13th." It was a few days after this that he "had the pleasure of making acquaintance with Mr. H. Milner who had taken *Zygæna minus* the year before on Burren; and he was very glad to be shown the insect so abundant quite close to him, as he had intended making an excursion all the way to his old locality."

During this visit to Castle Taylor (where his parents also arrived before the end of June) he finished collecting materials for his Paper on the local Flora. But, perhaps, the most enjoyable part of the summer was a four days' tour in Clare (July 24th-27th), the account of which may be given almost *in extenso* from his Journal.

"Monday, July 24. Our party, composed of Captain and Mrs. Taylor, Fay, Father, and self left Castle Taylor at a quarter after 9 o'clock, with the most beautiful weather, and glass rising; the dust having been also completely laid by the late constant rain, we could not have been more comfortable.

"After passing Kilmacduagh the same loose limestone prevails, only becoming still more exclusively rock and less capable of cultivation; in fact, all through what is called 'Rock Forest,' the surface is very similar to the most barren tracts of the Burren, and inhabited by much the same plants. We looked out in vain for *Potentilla fruticosa*; and the only plant not growing near Castle Taylor was *Carduus tenuiflorus*, close to the boundary of

the two counties. Several small lakes seen close to the road had generally one end thickly overgrown with reeds and sedges; *Cladium mariscus* we particularly noticed. No birds were seen on the water.

“We soon entered the well-wooded demesne of Mr. Blood, and drove through trees for about half-an-hour, quite a novelty in this part of the country. Further on more rock, and a good and rather near view of some of the Burren—a very perfect old ruin of a castle—the exterior wall with its corner tower still remaining. At Corofin, a large village, we first found *Senebiera didyma*. . . . Starting hence we noticed the great change produced by the strata. Instead of dry, short pasture appeared heavy clay lands, producing in the valleys luxuriant crops of hay, and even along the hill-sides a most deplorable crop of rushes, docks, &c. The country now became undulating, with streams running along the hollows, bogs in some places, and the conspicuous foxglove reminding one somewhat of Connemara. The rank vegetation of coarse weeds was to my eye anything but a pleasant contrast with the neat and bright flowers of the mountain limestone, and certainly offered far less variety to the botanist. The water, too, besides accumulating on a less pervious soil, has not the drainage afforded by ‘swallows’ and caverns, but works its way in the usual manner towards the sea. The flat slates or flags were very remarkable at Inistymon, where the road crosses the river, which occupies an enormous breadth of bottom and is very shallow, disappearing in the distance in a dark sluggish stream below some trees.

“We soon reached Lahinch, and got an excellent view of Hag’s Head, and the hill that slopes down from the Cliffs of Moher. Here a most surprising multitude of people had collected as if the whole population had migrated to the seaside, crowding every available wall and seat, as thick as crows, all inhaling the sea-breeze. It is wonderful how anxious the people here are for a trip to the sea; they appear to consider it quite indispensable. A great number of lodges of every sort, all well white-washed, give one the idea of a very important watering-place. Skirting along the bay to the left, we proceeded

through bog and under hill-sides till a second collection of white houses proved to be Miltown-Malbay, and we took up our quarters at the Atlantic Hotel, very comfortably, but not in view of the sunset.

“There is a good bit of strand below the sandhills, but only for a short distance, since the coast is a low cliff with ledges of the slaty limestone rock, running far and irregularly into the sea, abounding in rockpools and inlets, in which wherever the water remains at low water, there the Purple Urchin quite paves the bottom and is a most curious and interesting sight; each one burrowing a lodgment for itself, and then adhering with its numberless suckers so firmly that it is a matter of difficulty to detach them; the suckers frequently break off sooner than let go their hold. The animal has also a way of moving its spines which, no doubt, assists progression; though they do not move much from their holes. A few, however, were seen scrambling over the backs of their comrades. Their size varies from a hazel-nut to an orange, and their colours are quite beautiful, contrasting well with sea-anemones of various hues.

“25th. In the afternoon we went across the sandhills. . . . We saw *Viola lutea* (? *curtisii*, Bab.) growing in immense profusion, and a pink-flowered variety of the scarlet pimpernel (var. *carnea*) similar in colour to *Anagallis tenella* (bog pimpernel). Along a small cliff of rock, just below the mill, I found *Osmunda* growing in plenty *in the stone* along with several other common ferns.

“July 26th. We left the hotel for the Cliffs, passing Lahinch with its sandhills and bay (*Viola* ? *curtisii* seen here; *Althæa officinalis* near Miltown) . . . and made our way to the stables, built, as well as a tower for the accommodation of visitors, close under the best part of the Cliff. *Viola* still growing in the grass (not sandy). On reaching the edge, we betook ourselves to one of the little safe crows' nests built expressly, and gazed down this awful height some 700 feet. The descent is quite abrupt, and in some places the cliff overhangs the bottom; the horizontal strata so well marked in most parts as to make it look almost like a built wall. There are two detached pieces, one a long

narrow ridge, and the other an isolated pyramidal needle; and there is no better way of realizing the stupendous height than to look first at one of these, and after calculating the distance, to carry your eye again to the water. At first I think the very magnitude makes the eye deceive itself, and underrate the height.

“Scores of Gulls were wheeling round in clamorous indignation, while the cliffsmen were following their avocation not far from the tower, and ever and anon a little Puffin or Guillemot would shoot out and describe a circle, only to return to the cliff—their quick, straightforward progress very different from the Gulls. The birds seen were—Herring Gull (a few), Kittiwake (thousands), Puffin (a few), Guillemot (plenty), Razorbill (plenty), Chough and Jackdaw (a few), Kestrel (several), Peregrine (one), Cormorant (a few). Many Eagles are said to breed near Hag’s Head, in a place quite inaccessible from the cliffs, retreating as it descends: one is seen rarely at Moher. The Rockdove is said to inhabit the caves.

“The cliffsmen form a company of fourteen, with a captain of long experience from his youth up, and still said to be the best climber. They are seated in a loop at the end, and take the young birds in nooses at the extremity of a rod of some 12 feet. A man brings up four score, sometimes more, at a haul. All I saw were young Kittiwakes. The birds are boiled down for oil, and the flesh eaten afterwards by the men. They consider forty birds a-piece an average day’s work, and these will produce one bottle of oil, worth two shillings. The season lasts about two months, and their earnings average one shilling per day. The oil is said to be good for bruises, etc.; the feathers are also picked for sale. The names the birds go by are worth notice:—

The Puffin	is called	‘Parrot.’
„ Razorbill	„	‘Puffin.’
„ Guillemot	„	‘Cliffbird.’

The Puffins are said to resort to the green grassy ledges where they burrow in the turf, while the others lay their eggs on the bare rock.

“*Sedum rhodiola* (rose root) grows on the cliffs, and *Silene maritima* (sea campion), with a dichotomous panicle of three or more flowers. The weather was too thick to see much, but a little further on we saw all three Isles of Aran, the largest furthest off.

“After spending some three hours here, we continued our journey, and this prevented my attempting a descent on the rope, to which I had just made up my mind: the danger being only apparent,\* not real.

“Passing through some extent of similar ground to what we had seen before, boggy, hilly, and varied with streams, we presently regained the stony region of the mountain limestone, and the change was most remarkably apparent in the vegetation, the bright and neat plants of the calcareous soil forming a most pleasing contrast with the land of bog and low rich meadow-ground, through which we had passed. *Geranium sanguineum*, *Dryas*, *Sesleria*, *Antennaria* seemed to *smile* upon us as old friends, and the first especially in many places quite coloured the ground. Near a glen bounded by some masses of rock, we saw a most perfect square castle placed in a commanding position, accessible only on one side, the outworks built in with the rock, so as almost to be incorporated with it, forming thus a place of immense strength. We also noticed, what is very unusual, a round castle.

“The road presently brought us quite close to the sea, and we enjoyed the pleasant breeze off the water, curling so blue under a gentle wind; and, winding along beneath the first point, we alighted at a spot of great botanical interest. Some green tufts caught the eye, and these turned out to be *Samphire*; close by, *Statice dodartii*,† quite recently added to the Irish flora, and new to me; under foot the pretty *Arenaria verna* spread its lovely little stars in hundreds, and in great tufts large enough to fill my hat; and in the fissures of the rock *Asplenium maritimum*, rather stunted; but we gathered it very fine further on, at Black Head. Hence the road kept close under the

\* An opinion which the other members of the party did not endorse.

† Afterwards corrected to *S. occidentalis*, being a peculiar variety.

Burren, rounding Black Head, and giving us quite a grand view of the mountain-side, very stony, to be sure, but in some places patched with green. This was, perhaps, the most enjoyable part of our whole trip, the water often within a few yards, and on the other side the mountain rising quite suddenly. We found *Saxifraga hypnoides*, like a little to hirta, and the *Cystopteris*."

["But, alas (he adds later) we missed the great prize; for, under our feet, and only across the road where we alighted to gather *asplenium*, a little nearer the water, was probably growing that lovely fern, the maidenhair. Had I seen Newman before this trip, we had not passed without a good search, at least."]

"27th. Continued our way, seeing many old castles, and with an indistinct view of Connemara in the distance. At a part of the road, half way up one of the Burren hills, we had an excellent prospect, reaching to Galway (and, I believe, Castle Taylor, too). At the road-side, F. spied out *Nepeta cataria* of gigantic dimensions, *Orobanche rubra*, a thyme, and *Festuca rubra*. After visiting the 'Holy Well,' where the water is wonderfully cold, we followed a foot-path, some three miles over the spur of the mountain, to Corcanroe Abbey, a ruin of some interest; we were especially struck with the angular ornaments of the chancel roof, and the capitals of several of the pillars were well carved. They showed the tomb of King —, reported to have been represented as a true Irishman, with a pipe! in his hand, of which the traces are still pointed out. At Kinvarra we saw *Coronopus didyma* plentifully, also *Carduus tenuiflorus*, and reached Castle Taylor about 6 o'clock in the evening."

A visit to Hollymount, Co. Mayo (August 1st—10th), concluded this summer's botanizing so far as Ireland was concerned. At Hollymount he gathered several species new to him, and was shown some interesting rarities, especially enjoying a day's botany on the banks of Lough Carra. But, perhaps, nothing seen during this summer left a more abiding impression than the majestic view from the Cliff of Moher. Two years later, in a letter



signed “*Hesperus*,” which he contributed to the “*Zoologist*” (vol. xiv., p. 4941), he thus referred to his recollections of the afternoon of July 26th, 1854:—

How shall I describe the noble sight that burst upon us all at once, as we topped the rise of undulating turf, strewn here and there with yellow mountain pansies? The feeling at first of familiarity, as if it had been a scene we had visited before, and then the gradual awe stilling the heart, as it broke upon the soul in all its reality and magnificence. The dark wall that has defied the wasting ocean beyond the reach of history or of man—bulwark of earth—champion of the land! and the white birds, attendant spirits of the precipice, a whirling maze beneath, around, above, all with ceaseless clamour of affection and anxiety, not without reason. Marked you yon gang of men sitting in a group, who seemed so quietly at home, so thoroughly familiar with the wonders of the place? They are not there for nothing. . . . The poor Kittiwakes pay a heavy toll, eggs from the nest and young birds from the rock ledge, noosed, as of old, with rod and snare by the dexterous fowler; they are drawn up by twenties, tucked under the belt of that man now hauled up a mass of feathers. . . . A little further, let us look elsewhere at the fluttering clamorous Gulls and circling Auks that start every moment from the cliff and describe short circuits, with now a succession of rapid strokes and now an even swinging flight, the Guillemots browner, the Razorbills blacker of the two, and the lesser Puffin also (called Parrot here) tunnels his way to a secure retreat in the turf of the slopes and ledges; and the Chough you may chance to see, and the Jackdaw, and the Rockdove, with earnest beat of its hurrying wings; and they will tell you of the Eagle (*H. albicilla*) that shuns approach, and lays his eyrie beneath some overhanging arch, secure from plunder himself though he may not spare. And the gallant Peregrine, relic of chivalry, as thou wert its compeer, crossed he not our sight as we skirted the edge, well known by his stalwart form and knightly moustache? How I rejoiced in the absence of the murderous gun; else were the temptation perhaps too great. . . . Is that a seal? Your guide hesitates, for it is no easy matter to distinguish him from the rock on which he sits; but they are common enough most days. Turn, then, your attention westward, ye naturalists and sportsmen, that like something larger than gnats or diatoms for your quarry; not Scotland only is worthy an excursion. There are fewer species of birds, perhaps, and less variety breeding in the inland lakes of Ireland; but for one grand feature—the precipice breasting the Atlantic—the place is well worthy of your notice, and the Irish highlands offer, too, a little-explored country.

## CHAPTER IX.

## DUBLIN AND CARNARVON.

[1854.]

BEFORE re-crossing the Channel it was decided that the family party should stay for a week in Dublin. Of this city, A. G. More had hitherto obtained only mere glimpses "on passage," but he was now fortified with notes of introduction to some of her scientific men, amongst whom he quickly gained several friends.

His first meeting with his future partner in authorship of the *Cybele Hibernica* is mentioned in his diary for August 14th, 1854. "F. and I paid a visit to the Botanic Gardens, at Glasnevin, which appeared most beautiful on such a clear sunny day. The whole arrangement displays much taste, and the collections in the green-houses appear extremely complete and valuable. I called on Mr. Moore at his house, within the grounds, and he introduced us to Professor Melville, of Galway, so that we had the great advantage of making the rounds in the best possible hands. We were shown *Equisetum moorei*, as well as the other Irish species, *Trichomanes*, &c.; and the hot-house plants were most interesting. The *Victoria Lily House* was something wonderful in the way of temperature; the plant in bud, and many other curious aquatics, lilies and others, growing in the place. Professor Melville kindly supplied me with *Arenaria ciliata* and *Helianthemum polifolium*. Walking back we gathered *Sisymbrium irio* by the roadside, not far from Botanic Gardens, and returned home very well pleased with the morning visit."

Later, on August 16th, "In the evening, Professor Melville and Mr. Moore visited us, and looked at my plants, several of which were sufficiently scarce as Irish, particularly *Monotropa*,\* *Ophrys muscifera*,† *Hieracium*,‡

\* Yellow Bird's-nest, from Castle Taylor. † Fly Orchis, from Castle Taylor.

‡ *Hieracium umbellatum*, from near Hollymount.

&c.” The interest shown in the Castle Taylor plants was naturally a great encouragement to the writing of the long-contemplated botanical Paper.

The kindest encouragement was also accorded by another eminent naturalist, whom, unhappily, he was to have no opportunity of meeting again—Dr. Robert Ball.

“Aug. 15th. Received from Mr. Robinson a note of introduction to Dr. Ball, which I forthwith put in requisition, having found Dr. B. at the Trinity College gate. He took me over the Museum, where are some very scarce birds—Great Auk, King Duck, Belted Kingfisher, &c.—and very complete examples of the Irish Deer. Dr. Ball showed me a number of plaster casts of native fishes, mostly of unusual size, which exhibit the species far better than the preserved skin; at present the casts are all plain, but it is intended to have them painted after nature, and so they will be perfect fac-similes of the animal. We also saw a young bird of the Great Snipe, very different looking from the adult, and marked with blotches of reddish-brown. Leaving two or three *Zygæna minos* behind me, we proceeded to Dr. B.’s rooms at the Castle, where he was kind enough to write me several notes of introduction, to Dr. Mackay, and others.

“16th. Went to breakfast with Dr. Ball, when he showed me several very fine Wardian cases, especially an uncommonly large one in the back-yard, built like a cupboard with shelves, bearing sods of turf, on which the ferns grow most luxuriantly; also his dredging apparatus, recommending the smaller  $1\frac{1}{2}$  foot one, with cheese-cloth bag of galvanized iron. I also went with him into his library and sanctum, where he has many curious preparations; his masquerade dress of the chimpanzee was most excellent imitation, and I should think very effective. . . . Dr. Ball took me to see the Irish Academy, the College Herbarium, and several jewellers’ shops where the revived old Irish brooches are kept. It appears he was the first man who recommended the imitation to be tried, but he was quite repulsed at first: it was only after an English jeweller had shown the way, that the man he had advised chose to take up the business. Dr. Ball told me he has

so much to do, he will be unable to join the British Association at Liverpool this year. With his varied occupations he has little time to spare, and I cannot say too much of his kindness in giving up his little leisure so readily to a stranger."

The letter of introduction to the veteran botanist, Dr. Mackay, was turned to account next day.

"17th. F. and I visited the College Botanic Garden, and made acquaintance with Dr. Mackay, whom we found to be a most good-natured old man, rather a martyr to rheumatism, but most anxious to show us all he could, and his kind fatherly manner was worth anything. He showed us his own *Erica*,\* and other things, took us through the hot-houses and descanted with great readiness on his discoveries, and the scarce plants of Wicklow, where he was most anxious we should accompany him the following day; but, unfortunately, we could not spare the time."

Dr. Carte, Director of the Royal Dublin Society's Museum, was absent from Dublin, as was also Mr. R. J. Montgomery, the donor to that institution of the celebrated "Montgomery Collection" of Irish birds. Mr. T. W. Warren, however, was found at home and was pleased to exhibit his collection, in which were comprised, amongst other rarities, a Noddy, White-winged Tern, and Belted Kingfisher. On the afternoon of August 15, a visit was paid to Mr. J. J. Watters, author of the little manual on the "Birds of Ireland," already alluded to, and "an hour very pleasantly spent with him." Mr. Watters was a book-binder, an enthusiastic collector of birds, and "a writer of poetry in the Dublin University Magazine." The last fact will not surprise readers of his book.

On August 18th, the day of Dr. Mackay's proposed start for the Wicklow exploration, "our stay in Dublin came to a close, after a week spent in a very satisfactory manner."

It was with longing thoughts of *Helianthemum breweri* in his head that, some hours later, he passed by Holyhead mountain, "but could not wait for the time requisite to

\* *Erica mackaiana*, from Roundstone, Co. Galway.

explore it." A stay, however, of three months was made at Carnarvon, whose botanical attractions are at present, perhaps, somewhat too well known, as indeed was already the case with some of them in 1854.

An unavailing search was made at Abermenai Ferry for the rarities which Ray had found there in the seventeenth century.

"Sept. 20th. F. and I rowed down to the Abermenai Ferry, in order to explore the long narrow strip of sand where we expected to find *Diotis* and *Matthiola*. Taking the tide down, we were not long in reaching our destination, and landed near the two houses which are built on the small round island at the end of the isthmus. Neither of these is now inhabited, but one is used as a land-mark. Taking the seaward shore, we skirted the whole edge of the tongue of sand, but most unsuccessfully, since there were only the very commonest sand plants, and, in fact, except at the extremity, only *Ammophila*; *Eryngium* sadly washed; *Salsola*; one plant of *Triticum junceum*. The sea appears now to make a clean breast over this tongue at high tides, if one may judge from the numerous channels cut through it, and the denuded state of most of the roots. Many places seemed as if a torrent had run through, and hollows with shingle at bottom were plentiful. The sand lay in hopeless irregular water-worn heaps, crowned at the top with *Ammophila*, which the old women were stacking; but their sides were mostly bare, and the whole tongue looks as if it was some day to be carried away or turned into a mere bar. It must be much altered since the time of Ray, and probably the plants are now lost in this locality. . . . Even at the part where the mainland commences there are the same broken, loose sandy hummocks, and we hardly gathered any plants at all. (*Silene maritima* in addition to those named.) The most likely spot we thought was at the end; . . . but in vain; a great profusion of *Thrinchia arenaria* was the most abundant plant."

Two days later, however, a most exhilarating scramble was enjoyed among the alpine plants of the famous chasm of Twl Du.

"We came to a sort of table-land, intersected with little

rills, and mostly boggy ground, where Fay spied out one plant of *Lycopodium clavatum*, and Selago began to be abundant. Presently, after crossing a good bit of flat overstrewn with loose flat blocks of rock, we saw Llyn y Cwn (called Klin i Coon), and leaving this on the right, soon came upon the head of the fissure of Twl Du, through which the stream plunges down towards Llyn Idwall. The view through this chasm is very fine, and you see the pass of Nant Francon and an extremity of Llyn Ogwell. The whole hollow round the lake is surrounded by the awfully precipitous Dark Rock.

“After one look at the view, I lost no time in scrambling down as well as I could into the chasm, regardless of water and slippery rocks. Here at once appeared for the first time during our walk a number of alpine plants. *Silene acaulis* (cushion pink) in plenty, and we found two or three in flower; *Arenaria verna* (spring sandwort); *Rhodiola* (rose-root) with its very flaccid leaves now drooping all along the rocks; *Saxifraga stellaris* (starry saxifrage); *Hieracium*, one or two species; *Oxyria reniformis* (mountain sorrel), rather common; *Poa balfourii* in some plenty; *Hymenophyllum wilsoni* (Wilson’s filmy-fern) sparingly; *Cystopteris* (bladder-fern); *Lycopodium alpinum* (mountain club-moss); *Thalictrum minus* (?) (lesser meadow-rue); *Solidago* (golden-rod) *var.*; *Oreopteris* (sweet mountain fern). From a little way down, where you find the passage stopped, there is a view even better than from the top.

“We now resolved to descend and explore from below, and after a very steep scramble over loose stones and blocks where we found *Asplenium viride* (green spleenwort) in some plenty, and *Saxifraga oppositifolia* (purple mountain saxifrage), we got to the lower entrance of the chasm. . . . We sat down for a few moments to lunch, and then I scrambled up the torrent, a most difficult business. However, there were many good plants to reward the exertion: *Meconopsis cambrica* (Welsh poppy), and one plant of *Saxifraga nivalis* (alpine saxifrage) in full flower; *Poa balfourii*; *Arabis hirsuta*, certainly not *ciliata*; *Saxifraga hypnoides* in plenty, but I failed to get *caespitosa*, though I looked carefully; and most of those gathered at the sum-

mit. For the Anthericum (spider-wort) we looked anxiously and in vain. . . . Meanwhile F. had got the *Sedum rupestre* (rock stonecrop), but not in flower; and I went round to the right to examine some very curious perpendicular and eroded rocks that rise just round the first corner. The path is rather dizzy here, and leads to the top on the other side from that by which we descended. All these rocks are covered with moisture both right and left, and produce a number of the mountain plants. It is a most excellent botanical locality, shady and dripping.

“We returned to the top the same way and made for Llyn y Cwn, where we found the *Subularia* plentifully, seeding, and *Lobelia* in abundance, as well as a curious form of *Juncus uliginosus*. From this point we had a most beautiful descent along the mountain torrent, with a capital opportunity of observing the Dipper\* as he stood for some time sunning on a large stone near a small pool. . . . The alpine plants descend a good way down the stream, especially the *Saxifraga stellaris* and *hypnoides*. Halfway down we had a good view of a lofty fall over several ledges of rock, and adorned near the summit with a mountain-ash in full red berry which had a very fine effect. Here, too, was *Cnicus heterophyllus* (mountain thistle) with its showy leaves below; *Parnassia*, ever beautiful; *Phegopteris* (beech fern), &c. We found the descent very steep, and soon reached the road close by the turnpike, just as the rain was commencing, through which we drove to thorough soaking, arriving home at 8 o'clock after a most enjoyable and successful expedition, in which we found no less than ten plants new to us.”

The expedition, as originally planned, was to have been made under the escort of the experienced guide, William Williams, without whose assistance some of the best rarities of the district were scarcely to be hoped for.

It was not until the late date of October 16th that, after many disappointments, the long projected visit to the summit of Snowdon was accomplished, and through Williams' help, he obtained “that rarity of all Snowdonia” the spiderwort (*Anthericum serotinum*), for which he had so

\* An absentee from the Isle of Wight fauna.

anxiously and vainly sought at the Twl Du chasm. "We met with *Thalictrum alpinum* and *Arabis petræa* both plentiful, and . . . a large patch of brilliant green which proved to be *Cochlearia grœnlandica*. Proceeding . . . we climbed a shady recess of the rock; and the guide soon pointed out two or three little grassy blades pendant from the fissures where one would think they had scarce enough soil to grow upon. This was the great prize, and we soon unearthed two or three of the little bulbs sheathed in their brown spath, and with each two or three narrow, bright, yellow leaves, now quite withered, but still sufficient to show it was the right plant."

Having been to the top of the mountain, where the cold was intense, and gathered the little willow, *Salix herbacea*, "we went after the *Woodsia hyperborea*, which has two localities" on the mountain; and, at last, "the guide after a most close and careful inspection pronounced a miserable little bit of green seedling-looking stuff to be the real thing; but so diminutive was it that he several times took a seedling of *Cystopteris* for the same. It seems *Lonchitis* (holly fern) used to grow here; but from the locality being betrayed, Williams now crops the whole of the full-sized fronds (of *Woodsia*) so as to conceal the plant as much as possible, and for the same reason he has eradicated the *Lonchitis*."

"The other spot" was also visited. "Here used to be lots of *Woodsia*, and I could still see the little bits of burnt-up fronds shooting out of the crevices, but with no real appearance of *Woodsia*. It cannot be too much regretted that the fear of its extermination should have led to this result, since no botanist can now hope to see this curious plant in perfection, and probably a continual system of cropping may result in its destruction in these localities. There are three more on Clogwyn y Garnedd, I hope more inaccessible; and these, with one above Llyn y Cwn for *ilvensis*, are, I believe, all. . . . *Hymenophyllum tunbrigense* was a seventh plant to my list of novelties as the result of this excursion, which for the time of year was wonderfully successful. The only disagreeable impression it left was regret at the rapacity of tourists, who, with no



taste for botany will hunt out, carry off, and ruthlessly exterminate the poor ferns which are unfortunate enough to be notable rarities."

A smart fall of snow had been among the incidents of this excursion, and for the remainder of the time spent at Carnarvon, Snowdon was generally robed in white. The last expedition taken before leaving Wales was a ride (November 14) "to Landcorog, to say good-bye to Mr. Williams, who has acted towards us in a most friendly manner all the time we have remained at Carnarvon."

Seven years later poor Wm. Williams, a mountaineer to the last, met his death by falling from Clogwyn y Garnedd, almost the last remaining fastness of Woodsia hyperborea.\*

A week (November 15th-22nd) was spent at Chester, and then a fortnight in London. In London he notes making acquaintance with Mr. Thomas Boyd, afterwards his colleague in writing an article on the distribution of butterflies, who "presented me with a large number of Lepidoptera in the most liberal manner." After a whole year thus spent in wandering, the family about the beginning of December returned to the Isle of Wight, where for the next six months they resided at Ryde.

\* An interesting obituary notice of Wm. Williams appeared in the "Phytologist" for October, 1861 (p. 307).

## CHAPTER X.

## A NEW ORNITHOLOGICAL FRIENDSHIP.

[1855.]

AFTER eighteen months' relaxation from University work, his health seemed so far improved that, on January 12th, he returned to Cambridge to keep his ninth Term, but "spent nearly the whole time under aegrotate." "On the whole," he writes, "did not find many of the old acquaintance, and from my retired mode of aegerizing, not much chance of making more." "Spent several mornings most pleasantly with Babington, whom I find kinder than ever; so extremely considerate and good-natured that it is impossible not to like him. From him I derived much assistance in my Paper on Castle Taylor plants, as well as from W. W. N.,\* who often favoured me with his company. Godman† very good-natured to me, &c. At end H. Evans, nowise altered, paid me a visit of a few days . . . And not least, made friends with Edward Newton,‡ one of the Elveden ornithologists."

On the 1st of March he returned to Ryde, and from this date did not again see Cambridge for nearly eight years.

The "Essay on the Flora of Castle Taylor" was now finished. The utmost pains had been expended on the preparation of this, his first botanical Paper, and, as has been seen, the assistance of Mr. Babington and of Mr. Newbould had been freely given in the analysis and arrangement of the materials. On April 12th, it was read at the meeting of the Botanical Society of Edinburgh, whose Proceedings were at that time published monthly in "The Scottish Gardener," and the article, consequently, first appeared in print in the May number (pp. 234-8) of that Magazine.

\* Mr. Newbould.

† Mr. F. D. Godman, the ornithologist.

‡ The late Sir Edward Newton.

It has been thought desirable to re-publish these "Notes on the Flora of the neighbourhood of Castle Taylor," in the Appendix to the present Memoir, in the belief that they will be found of interest, not only as his first contribution to Irish botany, but from the uncommon and striking character of the district treated of, which, though not rich in number of species, is shown to be, in its remarkable association and commingling of northern and southern plants (as well as animals), practically unique:—

The occurrence of the Bee and Fly Orchis, characteristic of the infer-agrarian zone, among such alpine plants as *Sesleria*, *Gentiana verna*, *Juniperus nana*, and *Arbutus uva-ursi*, strictly belonging to the (infer) arctic, is perhaps the most remarkable feature of the district, and presents a combination of characters probably nowhere else to be met with by the explorer of British botany.

"As spring advanced," says his Journal, "I found myself less strong, and so did not accomplish much either botanically or ornithologically." The Cambridge Term had, as usual, been kept at the expense of his recruited strength. At Ryde, where the family remained till June, he did little in his favourite line beyond "looking after the old season marks," which were sadly late.

The severe frost set in about the middle of January, at which time the vegetation had made but very little advance. The hazel was not flowering, and a few primroses in the woods were all the signs of life (*Arum* leaves just rising). The true winter lasted till the end of February, with one slight interruption only; and in the Isle of Wight there was more or less snow the whole time. In fact, it proved the most rigorous winter remembered by the "oldest inhabitant." Still, at the beginning of March, when the thaw came, there was yet plenty of time for plants to make a timely start, and very soon the hazel shook out his pollen in the bright sunshine. *Potentilla fragariastrum*, *Veronica hederifolia*, and *Taraxacum*, I also noticed in flower a very few days after the thaw; but (with the exception of the usual persistent species of *Veronica*, *Senecio vulgaris*, *Poa annua*, *Stellaria media*, *Ulex europæus*) these were all I could find in the first week of March.

Here cold northerly winds set in, veering eastward and westward, but scarce ever on the south half of the compass—mostly eastern—which soon hardened the soil, and this, combined with night frosts, kept everything wonderfully back during the whole month. I picked a few daffodils in a very warm nook on the 20th March, just about two

months later than in 1853; and what gave me the best idea of the state of things was a visit I paid to St. Helen's Spit on March 31st with Dr. Salter, where on the sand the advance was exceedingly similar to what it was on January 31st, 1853:—

*Draba verna* (whitlow-grass), a good many, but sessile.

*Cerastium semidecandrum* (little mouse-ear), several plants, but with scarcely ever more than one flower, and that nestling quite among the bracts. No *C. tetrandrum* at all.

*Alchemilla arvensis* (parsley piert). By careful examination I found one flower.

*Cardamine hirsuta* (bitter-cress), two plants just in flower.

Plenty of chickweed flowering among the furze, as also *Ulex europæus* (gorse) in flower.

*Luzula pilosa* (small wood-rush), one plant barely in flower: Firestone Copse.

Not a single Wheatear to be seen."

On the same day, "willow-catkins show woolly, but no anthers," and on the next day (April 1st), "A very few anthers on a forward willow, but no filaments developed." On April 1st, also appeared the first Brimstone Butterfly; "*Gonepteryx rhamni*, male, in Quarr Copse." The Floral Calendar was punctiliously kept throughout April, at the end of which month many species were still far behind their time; but no notes were taken in May. Even the calendar of the Migratory Birds abruptly ends this year with the day he "saw a few Swallows" (April 22nd), before the Martin, Swift, Sedge-warbler, Grasshopper-Warbler, or Spotted Flycatcher, had yet put in an appearance.

This was in great measure due to his bad health, which prevented exploration; but he was not debarred from correspondence on natural history, and his list of correspondents had lately been enlarged by the inclusion of his newest ornithological friend, Mr. Edward Newton. He had consulted Mr. Newton by letter about a bird—a Red-throated Diver in unusual plumage, which might, he thought, possibly have proved to be the rarer Black-throated, and the correspondence thus started continued. The following letter is partly in reply to Mr. Newton's request that he will look out for the Eared Grebe at Bembridge.

35, UNION-STREET, RYDE,

April 10th, 1855.

MY DEAR NEWTON,—The receipt of your letter the other day gave me a great deal of pleasure, and I hope you will allow me to look forward to many more consultations with you when an ornithological difficulty presents itself. So you were right after all about the Diver! And indeed I felt so very uncertain about its unusual state of feathers that I was quite prepared for either solution, whenever books and foot-rule were brought to bear upon the bird. I was very glad also to find that the sternum was an acquisition to your osteological cabinet, and I suppose all the more valuable from belonging to an adult bird.

To distinguish between two such very similar species as *Podiceps arcticus* and *cornutus* would, I fear, require more acuteness than I possess, albeit that I have as yet rather followed in botany the Splitters than the Lumpers. In winter plumage especially, which is the only state in which I have shot the “dusky Grebe,” there must be almost insuperable difficulty; and when I tell you that I never could determine that Red-legged Gull,\* of which you saw the skin, I don't think you would give much for any notions of mine as to the two Grebes. Such knotty points must be left to men like you who believe in three Jer-Falcons, and who have not the second hobby of botany to employ half of the natural history hours. I suppose it would be too wild a heresy to hint that perhaps the younger birds of first or second breeding season have smaller crests? You will remember how much the Great Grebe varies in size of its ruff. I confess that I should prefer having some character founded on careful anatomical comparison. This would be more satisfactory than a shade of colour on one quill.

I will not forget, however, to look out for the second species, and I am much obliged to you for pointing out some of the critical points. As you say, the fig. in Naumann bears considerable resemblance to the Eared Grebe.

How glad you must be at returning home with all your time free to mark the arrival and passage of each returning migrant. The spring here is so very backward that but for the appearance of our little friends, Wheatear and Chiffchaff, one might fancy oneself scarce out of February. Now the wind has at last got round to the south-west and I suppose we may look for a wonderful advance. It is astonishing in how short a time the vegetation regains its lost ground, and I rather rejoice at the present state, from the advantages we shall have of seeing the summer visitors all the more plainly among the bare branches.

I was equally amused with yourself at ———. Surely our friend must be inspired by the spirit of the Long-legged Plover, who can filch

\* A Gull shot at Bembridge in January, 1850, and mentioned in his notes (1851) as “confidently referred by my friend R. A. Julian to *capistratus* (Masked Gull) . . . At the same time there is too great resemblance to the Black-headed to allow any great amount of confidence as to its specific value.” The “specific value” is now universally discarded.

another man's credit so coolly, and then stilts himself up so complacently upon the stolen goods. There's a simile for you.

Do you know, from shortness of time, I rather "funked" degree in May, and so shall not try until October; hence I fear I shall not be able to see you as I hoped next term; but if anything should happen to take me to *Alma Mater*, I will make a point of looking you up.

I have a friend whose brother lately sent him a magnificent Penguin (from Australia, I think), and so I can easily ask him whether the eggs are to be had. This is rather against principle, but I hope I shall be able to quiet my conscience; and it's not quite so bad as giving an order for the colony of Great Auks (to be brought home by Mr. Dunn), *doubly* valuable because the last of their race.

Can you tell me whether there is to be a Supplement to Yarrell's 2nd Edition? Do try and put in a word for us poor fellows who cannot afford to buy a second copy. What do you think of the new Edition? Is there much new matter, and are many articles re-written? I have just received the new "Zoologist" List of British Birds, and am very much pleased with it: it is such a vast improvement on the last. I suppose you will have seen that the Long-tailed Duck has somehow slipped out. I hope you have not reason to suppose the bird has become extinct quite yet.

I saw the Chiffchaff on the 5th; Wheatear, 6th (later than usual). Are your dates much different? I am quite sorry to find my whole letter is made up of technicality; but I have really no ordinary chat worth writing down. We saw the fleet sail, but the day was too misty to let us enjoy a good view of it. I went all over the admiral's ship about a week before they sailed, and we thought them in wonderfully good order considering they were in port.

I expect you to do a good deal next term among the Warblers; but perhaps you have most of the Cambridge rarities about Thetford. I mean Grasshopper W., Reed W., Tree Sparrow, &c.—poor things, I dare say they are not sorry that Julian has taken his degree, though I am sure that his slaughtering propensities were often exaggerated. Pray favour me with another letter soon, and believe me yours most sincerely,

A. G. MORE.

Two more letters to Mr. Newton follow. That of May 15th contains an early version of his cherished westerly-migration theory.

RYDE, *April 22nd*, 1855.

MY DEAR NEWTON,—You will perhaps not have forgotten what I told you about a friend of mine who thinks he has got hold of a third example of Bartram's Sandpiper, and I should very much like that you should stand sponsor to the bird in question. At any rate, the point is worth inquiry. Should the specimen turn out to be rightly so called, I

hope you will think proper to make due announcement in the "Zoolo-gist." It would be almost too malicious to suggest what a fine opportunity you would thus have of telling your little story, how you found the former specimen all but condemned to the Trinity Hall cook!

You will see I am addressing you at Cambridge, taking it for granted that you are once more located in the classic shades of Magdalene. I hope you will have a pleasant term of it. At all events there will be none of that pinching cold that we experienced last term, and I dare say the Nightingales are to be heard with you about the Botanic Garden. Here they have not shown themselves as yet. Neither has a single Swallow been noticed.

Have you been elected one of the illustrious "Rays" yet? I think I must have been extinguished by this time; as you know, I volunteered to resign to make room. I hope you will remind Babington of your existence by calling on him early.

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RYDE, *May 15th*, 1855.

MY DEAR NEWTON,—I hope you will be able to sympathise with me on the unfortunate result\* of ——'s first attempt at Ornithology, while at the same time I am not sorry for the opportunity you have afforded me of expressing to you my very best thanks for your most generous and disinterested offer which, however, I never could have thought of accepting. The event can make no difference in my appreciation of your kindness, while I can only regret I have not really the opportunity of leaving a "genuine" Bartram in your hands.

This case only shows how unsafe it is to place any reliance in an unscientific person. . . . I was indeed surprised to hear your verdict.

I was very much amused at your jest about the "voluminous train" of the Long-tailed Duck. No doubt your conjecture is correct. Newman, who delights in orderly Systems of Nature, could never admit anything so irregular to disturb the harmony of the List. I have done but little about the Penguin, as I only saw my friend for a few minutes a week ago. He tells me, however, that the skin was picked up from some small vessel in Australia, and that the sailors do not think it worth while to bring home the eggs, preferring to *eat* them when they can find them. Hence, I fear there is not much to be made out of this; but I will make yet further inquiries if you like, and get a rough description of the bird, as I do not know the species of this genus at all.

A Hoopoe occurred here about the end of March. I think the Isle of Wight is a sure find for them every year, and doubtless some might breed were they not systematically shot down. It is curious they seem to prefer certain spots: for instance, at Sea View, near here, they appear about the same haunts. The autumn, too, often affords

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\* The supposed "Bartram" turned out to be a Greenshank.

specimens; but I think these last belong to the Western Movement,\* which I believe takes place from the centre of the European continent each year, whether because the birds understand the secret of a maritime climate (and coast insects?), or to avoid crossing the Alps. I should like very much to hear what you know on this point, and whether the small migrant warblers are ever seen crossing the Alps.

What shocking neglect is shown in the loss of Ross's Gull! But how often does it not happen that the most valuable collections are perfectly lost or buried, when presented to some half-ignorant half-lazy public body. Witness the splendid collection of Swainson's birds, now lying boxed up, perhaps moth-eaten, in the Cambridge Geological Museum.

The weather is still cold here: trees scarcely out, and, as you remark, the sheep have been badly off till quite lately, when the grass at last began to grow. Pray excuse this incoherent scrawl, and believe me your sincere friend,

A. G. MORE.

In June a move was made to Tunbridge Wells, and here he passed the summer very happily, between sugaring, fern-hunting, general botanizing, shell-collecting, and correspondence—the last chiefly with his friend H. Evans. "Sit down forthwith," begins one of Mr. Evans' letters, "and write me a full programme of the sports and amusements to be had in Galway. I mean to be at Outrehead (can't spell it) in about three days from this in the pursuit principally of fishing. Sea-trout, if abundant, will appease me without salmon, the season for which is, I suppose, about over—your lucubration to be addressed to me at the Outrahead Post Office." Across which is written, "Try the seals—A. G. M." And "try the seals" Mr. Evans did, with results which delighted his correspondent perhaps even more than himself. But of that more hereafter.

The chief interest at Tunbridge Wells was its botany, to which, for a district so much visited, remarkably little attention had been paid; and a special attraction to one fresh from the Isle of Wight was the presence, within easy reach, of the celebrated "beech-hangers," characteristic of the Chalk Downs of the English mainland, but absent from those across the Solent. The following memo-

\* A fact confirmed, in this (amongst others) particular instance of the Hoopoe, in the British Association's "Report on the Migration of Birds," issued in 1896.



randa of a drive, chiefly across the Downs, to the neighbourhood of Sevenoaks, is from his Journal of Sept. 20th :—

“Sept. 20, 1855. Excursion to Morantscourt (called Madanscut) Hill, near Sevenoaks, Kent.

“On our way noticed *Colias edusa* (clouded yellow butterfly) twice, once between Tunbridge and Riverhead, and again beyond Sevenoaks.

“We left Riverhill at about 11.30, and, following the road, made a first halt at the bridge. Here in a hedge, grew *Mentha sylvestris* (horse mint), and on the bridge *Asplenium ruta-muraria* (wall-rue). Looking over the parapet for aquatics, we discerned something very like *Anacharis* (water-thyme), as indeed it proved on gathering, and a sad plague it is become to the miller, having completely filled the still water that feeds the wheel. Here it is quite as dense as in the Cam, and the miller assured us he had only noticed it within the last five months: *i.e.* the amazing growth must have mainly taken place this one season. In the rapid, clear water of the brook below the mill, the plant was also quite at home, though not in nearly such abundance, but scattered about, growing with *Potamogeton crispus* and *Zannichellia* (pond-weeds). *Fumaria capreolata* (ramping fumitory), and a garden escape were noticed close by; *Ballota* (horehound) with white flowers; *Glyceria plicata* and *G. aquatica* (aquatic grasses) above the mill. Proceeding along the road I found, on a heap of rubbish, a good lot of *Poa compressa* (flat-stemmed grass), as we neared the chalk, and I also found it again in the cutting on the chalk itself. Is it calcareous?

“Soon *Crepis biennis* (rough hawks-beard), *Picris*, *Gentiana amarella* (felwort), and *Cichorium* (succory) spoke of the chalk; and here may as well come in the whole list that we saw more or less abundantly:—*Bromus erectus* (upright brome-grass), *Asperula cynanchica* (quinancy-wort), *Viola hirta* (hairy violet) plenty, *Pastinaca* (wild parsnep), *Viburnum lantana* (wayfaring tree), *Chlora* (yellow-wort), *Reseda lutea* (wild mignonette), *Rosa tomentosa* (woolly-leaved dog-rose), *Helianthemum* (rock-rose), *Clematis*, *Galeopsis ladanum* (red hemp-nettle),

*Clinopodium vulgare* (basil), *Anthyllis* (lady-fingers), *Hippocrepis* (horse-shoe vetch), *Hypericum hirsutum* (hairy St. John's wort), *Lithospermum officinale* (gromwell), *Inula conyza* (ploughman's spikenard), *Centaurea scabiosa* (greater knapweed), *Orchis pyramidalis*, *Habenaria chlorantha* (greater butterfly orchis), *Poterium* (lesser burnet), *Pyrus aria* (white beam-tree), *Carduus acaulis* (ground-thistle), *C. nutans* (musk-thistle)—all of which we found more or less about the edges of the road.

“Having proceeded nearly right over to the other side of the hill, we turned back, exploring the Fir (&c.) Copse on the high slope, but with small success. We then struck the steepest part of the upper Beech Hanger, where a most characteristic feature was very noticeable. No plant flourished under the baneful shade except *Cephalanthera grandiflora* (white helleborine), which was in profusion, all in seed. A few plants of *Mercurialis perennis* (dog's mercury) existed in a clearing, as well as *Prenanthes* (wall-lettice) near the edge; but within, dry leaves, moss, and fragments of chalk formed the subsoil, out of which rose the clear smooth trunks of the beeches, springing at a very acute angle. The climbing here was quite severe. As usual, numerous shells were clinging to the bark; *Clausilia nigricans*, and a larger species; a few *Helix lapicida*, which was in plenty, dead, at the roots. I looked long for *H. obvolvata*, which should occur in this county, but in vain; neither could we find the edible snail, but the weather was perhaps too dry.

“Crossing through the pines at top of the hill, we came out upon the Great Chalk-pit, and clambered down the rugged sides of the crater, where of course the calcarians were abundant; *Origanum* (marjoram) and *Echium* (viper's bugloss) particularly, all in dried-up state from their arid situation. One *Polyommatus adonis* ('Adonis' blue butterfly) was flitting about, but escaped our hats. *Orchis pyramidalis* was plentiful here; so was *Ononis arvensis* (rest-harrow). Emerging from the Chalk-pit we turned right up the hill, excessively steep, but with varied vegetation, not all beech. Near the top we took the left through some hazels, and a clearing, where the *Phyteuma*

was sought again in vain ; but most others of the usual plants were growing here.

“ Next we reached a corn-field, now stubble, where *Linaria elatine* (fluellin), *L. spuria* and *L. minor* (toad-flaxes), *Anagallis cœrulea* (blue pimpernel), and *Acinos* (basil thyme) were characteristic. Here occurred the winged var. of *Polygonum aviculare* (knot-grass), lots of *Fumaria officinalis* (common fumitory), but none of the other three calcarians—and a covey of Partridges. Skirting the copse we noticed a venerable and very fine *Cerasus avium* (tree cherry), *Euonymus* (spindle-tree), and *Cynoglossum* (hound’s tongue) ; this made one seek *Atropa* (deadly nightshade), but no find ; and then we passed once more by the edge of the great Chalk-pit to the road by which we had come.”

The botanical outcome of this and similar expeditions was incorporated in a Paper on “ Some Uncommon Plants observed at or near Tunbridge Wells,” which he was now preparing, and finished before the end of the year.

“ After a stay here of five months, we left for town (London), Oct. 25th.”

## CHAPTER XI.

## VISIT TO LONDON.

[NOV. 1855.]

THE visit to London, which extended over November, was in some sense an epoch in his life, since it brought him the acquaintance of so many leading men of science, and especially that of the two eminent zoologists, William Yarrell and Thomas Bell.

“November 2nd. Friday—an unlucky day in popular estimation, but to me ‘*albi lapidis*,’ since I found myself one morning in converse with Bell, and in chat with Yarrell. To Dr. Bell Salter I owe it—no slight debt, when added to my friendship with Babington, also first opened by his introduction. Early breakfast, early start, and by the spell of omnibus I found myself landed near the Bank, and following up the scent, begging my way in old Broadstreet. By thus anticipating the vexed spirits,\* I found Mr. Bell disengaged and the torture-relieving chamber empty. Enters a gentleman of winning aspect, courteous demeanour, and gentle tone of voice; a kindly spirit looks through his eye. We launched at once into seal-hunting, quadrupedal questions, Evans’s humorous letters and sporting adventures. . . . I was delighted with the man and his reception of a young aspirant. Ecce, I shall dine at the Linnæan Club, the focus and warm hearth of science.”

“After leaving Mr. Bell’s, . . . walk to London Bridge, past the not-mournful shades into a steamer, *inde* Westminster Bridge receives the interested traveller; cross the James Park gravelling; down Pall Mall, up St. James-street, till I discovered in an unpretending quiet corner house in Ryde-street the abode of concentrated British Ornithology—the residence Yarrellian. Two minutes, and

\* Mr. Bell was a dentist.

he was at liberty ; a comfortable, stout, happy little man all in black. Discourse touching Birds and Bird-hunters, . . . at last, the theory (of Migration of Birds) as based upon the Isothermals. Granted in part, encouraged in part, but with many, many difficulties. Surveys not sufficient ; endless labour ; strong cases against it ; but a fine project, though wild. With the greatest kindness and affability Mr. Y. offered the free and unrestricted use of his most perfect library for my purpose. How few would have been so generous, and on a first visit ! . . . In some instances he told me there is a strange movement from the 'pole' when species from both Continents are scattered as it were abnormally, either caught up in a whirl of circular storm, or altogether thrown out of their reckoning. Thus occur at about the same time the White-winged Crossbill of America and that of Europe on our ground. (The Esquimaux Curlew, if rightly named, may be another instance.—A. G. M.) The fact being that the migratory impulse becomes so strong upon them that move they must, and by some error in calculation lose themselves, alighting then on the first met (and southern) land.

"I however should give more to temperature and to bird instinct to avail itself of that. Feeling their way from the rigorous and dry (soon to be snow-swept) plain of the central Continent, they pass along to a more genial clime, skirting the great mountain ridges, following shores, valleys (river-courses ?) towards the maritime climate of the softening ocean-influence. And the Gulf Stream, we know its influence as a great thermal. Why do we map its course, and yet bind down the movements of Birds so strictly North and South, denying them consequently the free exercise of those instincts which were intended for their well-being ? It is to prefer the straight degrees of latitude to the Isothermal curves."\*

\* The Theory of Bird Migration, here referred to, is one which he never elaborated in print, though for many years he lost no opportunity of collecting facts seeming to bear upon it. The "Remarks on the Migration of Birds," which he contributed to the "Zoologist" in 1859, drew attention to some of the hitherto little-observed facts on which his theory was based ; and he certainly appears to have been one of the earliest naturalists to have been struck with the *westerly* course followed by so many autumnal migrants across Europe and Asia.

A few days later he had the pleasure of meeting both the great men simultaneously at the Linnæan Club dinner.

“November 6th. The crown of one’s ambition (*le comble de mes désirs scientifiques*). Sat at the Linnæan Club on the right-hand of the President, backed on the other side by the kindness of Mr. Yarrell, who accosted me in the most friendly manner. Bell was himself intensified; a model of urbanity, combined with a self-reliant, composed presence as befits the Linnæan President of twenty years sitting at the head of the Club. . . . Thence to the Linnæan with Mr. Bell, where I heard Mr. Gosse speak on the Water Spider, &c.”

A permanent result of the friendship thus formed with Mr. Bell was his election to the Fellowship of the Linnæan Society—thus (in anticipation) referred to in his Journal :

“November 10th. Called at 7, New Broad-street: not long waiting; Mr. James Salter received me, and we sat in famous chat for half-an-hour; and then I had the great pleasure of seeing Mr. Bell too, more kind than ever, and he would soon spoil me. Received my little notes in a most flattering manner, and will propose for the Linnæan next time. *Futurus F.L.S.* What a weight of responsibility; what a check upon rash opinion or printing loosely!”

On the same day “Yarrell gave me more than an hour, and promised me the most valuable use of his experience. The more I see him the more I like him.” He was able to see a good deal of the great ornithologist—more of the man, indeed, than of his book, which was in such request at the British Museum Library that, out of three occasions on which he asked for it there, it was only once to be had.

His list of rare plants found at Tunbridge Wells was now completed and given to the “*Phytologist*.” For the better determination of the varieties of Ferns collected in that neighbourhood, he had already forwarded a number of them during the summer to Mr. Newman, a circumstance which led to his now making acquaintance with that most versatile of naturalists, then editor of the “*Zoologist*,” but best known perhaps at the present day through his books on British Ferns, Butterflies, and Moths, and, to some

extent, "The Letters of Rusticus." There was, however, another "Fern-authority" in London in the person of Mr. Thomas Moore, F.L.S., of Chelsea; and to him also a large assortment of Tunbridge Wells specimens was conveyed. Both the "pteridologists" were most attentive, and discussed his ferns at considerable length. Indeed he was almost startled at the number of varieties which Mr. Moore—a thorough-going "splitter"—detected in his set, naming as *vars.* what, to him, had appeared nothing but stunted specimens; "and I am sure (he adds) I overlooked many such at Tunbridge Wells." On the other hand, a letter of introduction to Sir W. Hooker brought him into contact with the opposite "*ultra* lumping, perhaps best school," to which both Sir William and his son, Dr. Hooker, decidedly adhered. "Evidently," he writes after a conversation with the latter at Kew, on November 16, "it is the result of a wide scope of study to make a man dislike and careless of species critically treated." And in theory he always remained a moderate "lumper," though in practice he delighted in "critical species." At this period also began his friendship with Mr. J. F. Syme (afterwards Boswell). Some entomological evenings too were spent with Mr. Stainton, at Lewisham. Had they only got on the subject of the new moth, *Miana expolita*, of which Mr. Stainton must now have had some named specimens in his cabinet, the date of that insect's discovery as an Irish species would probably have been anticipated by three years.

Two more extracts from his London diary may be given in conclusion.

"November 20. British Museum Library and Yarrell's Birds at 10 o'clock. Called on Mr. Syme who most liberally set me up in Batrachian *Ranunculi*. He comes near to my notion that there is but one marine species, *i.e.* *confusus* + *baudotii* + *marinus* + *tripartitus*, perhaps. Then, he says, as I do, *trichophyllus* and *peltatus* are but forms of *aquatilis* and pass into it. . . . Submerged leaves of *tripartitus* are just like those of *trichophyllus*, but this may arise from fresh *v.* brackish water."

"At 8 o'clock repaired to Linnæan Society's Rooms,

and while I was taking off my coat in walked Mr. Bell, and to my intense surprise *ipse* Babington. Ray Club flourishes; Dons are becoming associate members; *inde* it has a chance of degenerating into a sociable don half naturalist set; and where are the undergraduates to go to? . . . Met Dr. Hooker, Mr. Yarrell, Mr. Syme, Pamplin,\* J. Salter, &c. A most interesting short Paper from Bell on the Diving Spider. He had seen the animal collect and carry down the air: does not believe in (nor does Babington) the foraging for oxygen—too ‘oxynous’ a notion—still, may not the oxygen, if really collected (as Mr. Gosse said he had seen it to be), be used to restore the balance of the gases, since the spider must use up some oxygen in breathing, and therefore foul the air more or less.”

“December 2nd (Sunday). . . . Rested most of the day, as by this time, what with one kind and another of exertion, I have pretty much used up the vigour which I had most certainly brought away from the fine bracing autumnal air of Tunbridge Wells. Hence I look to Castle Taylor with more the feeling of a boy to the holidays and rest from work than anything else. Lucky fellow that I am to have such friends and such a second home.”

\* Publisher of the “Phytologist,” &c.



## CHAPTER XII.

## FOURTH VISIT TO IRELAND.

[1856.]

LEAVING London on December 3rd, he proceeded at once to Ireland to spend the winter at Castle Taylor. Hard work was laid aside for rest and sport; and most refreshing was the change, after a foggy November beside the Thames, to the free and bracing atmosphere of the Atlantic. Tired of ink and paper he entered scarcely anything in the accustomed note-book—not even recording the Wheatear (mentioned three years later in the “Zoologist”) which surprised him on the Royal Canal, as he travelled from Dublin to Galway, on December 4th. His few notes tell little more than that he stayed at Castle Taylor the winter through, and saw the flight of the early Brimstone Butterfly (a rarity in Ireland) over the familiar ground of Kilmacduagh, on the 1st of March, 1856.

In January, however, he wrote from Castle Taylor a long letter to Mr. E. Newton:—

CASTLE TAYLOR, ARDRAHAN.

*January 10th, 1856.*

MY DEAR NEWTON,—A meek reply on all I can venture on, when you have treated me so much better than I deserved. Certainly I am angry, too, but my ire is kindled against that Dr. ——— who not only embezzled your letter, whereby I am sure I lost a lot of interesting news, but who ventured to keep it so long when he well knew 'twas not for him. . . .

I feel somewhat ashamed, too, that I did not write to you before this, especially as I found so much scientific amusement in London; but I trust you will make some allowance for a press of occupation while in town, and a constant devotion to the gun since I have been in this house. By this I don't mean that the sport is very first rate this year, for I am very much disappointed to find the Snipes much scarcer this winter than they used to be during the three *summers* which I have spent in Ireland. In places where ten brace were to be bagged without

difficulty in winter you may now see only two or three birds; and the most curious part of the affair is that the Jack Snipes are more numerous of the two. In these parts the scarcity is generally attributed to the great frost of last winter, which is said to have all but exterminated them, and harrowing stories are told of sundry Snipes being found in porches of houses, in sheds, and even in one case actually probing for food in a stable bucket. I presume you will agree that this starvation is likely enough to have taken place and thinned them down; but is it not very curious the Jacks should have suffered so much less, and does it show the Jack to be a native of a higher north latitude where he may get more hardened to cold?

Woodcocks are not very plentiful, nothing to last winter, which was a remarkable season. Do these, again, bear cold better than the Snipe, I wonder? I have had one or two tolerable days of Partridge-shooting; that is, they lie pretty well in this country when you do find them, but usually there are only about two coveys known to frequent your beat, and the queer nature of the ground makes it perfectly uncertain where you may find them.

The Woodcock battues are great fun. I have attended three of them. About six guns are employed, and eight or ten beaters who give tongue most gallantly, and then the glorious uncertainty at the cry of "Mark," whether your side or your neighbour's is to be favoured; and then the splendid misses that often occur, so that I have seen a bird escape six barrels. It generally results this year in eight or ten or twelve brace, but this is considered much below the average.

What an interesting bird the cock is! I never saw one till this winter; and I cannot help thinking that for all the easy, airy gliding of his flight he must go very fast indeed when once the steam is fairly up. It is a pity the copses here contain no Pheasants, except in a few favoured spots. What a delightful mixture the shooting would then be.

I have been doing my best to ascertain something about the Irish hare, and I do not know whether it is generally known, but the creature in hard weather turns completely white,\* even on quite low mountains (hills rather). This surely ought to settle the question of its being identical with the Scotch Alpine hare, a fact which I found Professor Bell by no means inclined to admit as quite ascertained yet.

As regards my stay in London, I am sure you will feel very great contempt for me when I tell you that I never once went to the Zoological Gardens, and only twice to the British Museum. There were, in fact, so many different people to visit, for you know my tastes are somewhat loose and general, so that what with a botanist one day and a birdman the next, and various necessary calls and business, I found my three weeks very soon used up.

I had great luck in getting an introduction to Bell and Yarrell, and I cannot speak too highly of either of them. They are such capital

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\* The account given him of the completeness of this animal's colour-change seems to have been a little overdrawn.

genial old fellows that it is impossible not to fall in love with them at once. Yarrell was especially kind to me, and I used to go very often and pay him a morning visit. The first volume of his third edition is already printed, and he showed me the proofs and figures of the new birds. . . . Do you know Bell has persuaded me into the Linnæan Society? So you see I have got promotion from the Ray. I hope you will soon do the same thing. To be sure the expense is rather a consideration, but you get your three letters much cheaper than the B. A. after all.

The other day here I saw six great Wild Swans fly past quite close, not sixty yards off. It was the first time I ever saw any, and I cannot tell you what a beautiful sight it was, to watch them coming on, on, on, never turning right or left, nor seeming to take notice of man or beast, as if impelled by some mysterious destiny. I must say that as they swept past me, gloriously white under a brilliant sun, the old fable of their being inhabited by the souls of the blest came vividly across me. I never saw anything in birds so majestic. Two were slightly touched with brown, the rest adults.

No doubt, a rifle-ball might have been used with effect, but I felt as if an attempt on their lives would quite have marred the interest of the rencontre.

By-the-by, do you know that H. Evans has been enacting a second Gordon Cumming in Connemara? I believe that he is now generally known as the seal-slayer, and the success he met with was something unknown before to the oldest inhabitant. At last he got quite tired of killing the small seals of 5 or 6 feet, and would only care for the great monsters of 8 or 10 feet,\* and 3 or 4 cwt., with jaws like a tiger's. You may imagine the pleasurable adventure he once had by hauling a wounded monster of this kind into his boat, which was no sooner done than the passenger revived, and began to leap and roar and snap at everything before him, so that the crew had the greatest difficulty in saving their lives and limbs. I have read before of such an occurrence, but in this instance I should think the superior size of the seal must have considerably heightened the interest of the parties concerned.

I am very glad to hear you are elected into the Ray. One evening while I was in London I met Babington at the Linnæan, and he told me that the Society was flourishing extremely, and quite a superior style of men being elected as Associates; so that I hope you are duly aware of the far higher honour of being elected a member than it used to be in my time. . . . I am glad to hear you have a fellow-ornithologist at Cambridge. I forget whether you ever went to see Salvin at Trinity

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\* One of Mr. Evans' letters (dated November 17th, 1855) supplies the needed clue to the above large estimate. After Mr. Evans had left Connemara, a seal of his shooting was washed ashore, of which he writes:—"The length of the brute, I am assured by my landlord, who saw a man who took the measure, was 9 feet 8 inches." It will be safe to deduct 12 inches from this.

Hall. He seemed to possess some good eggs, but you know I am no connoisseur of that department. I am very glad to hear you are getting on so well in the *sterna*. We are now just off to skate, after three nights of very hard frost. I hope you may get a chance on the Cam when you go up. It was very good of you to take the trouble of writing after me a second time. Pray let me hear again."

The spring was spent at Cheltenham; and in June the Mores again settled at Vectis Lodge, Bembridge, which now continued to be their home until 1862. This six years' residence at Bembridge was the period of his closest attention to critical botany, as well as most of his work at the natural history of the Isle of Wight. But the magnetism of that larger Island which he already called his "second home" had been, if possible, intensified by his recent visit there; and it was now that, in the "Zoologist," "Hesperus" called on his brother "naturalists and sportsmen that like something larger than gnats or diatoms for a quarry," to "turn their attention westward" to a little-explored land.

His zoological friends were at this time chiefly of the type thus apostrophized. Two more letters to Mr. Newton must not be omitted. The Irish Hare sadly perplexes him.

VECTIS LODGE, BEMBRIDGE,

June 26th, 1856.

MY DEAR NEWTON,—When I look at the date of your last long letter, and then find that something like three whole months have elapsed since I received it, you may suppose that I feel inclined to begin in a very penitent and humble mood, and so I do; but I still hope (as usually happens in such cases) to be able to satisfy you it has not altogether been my own fault.

You will see by the dating of this that my family have once more returned to the Isle of Wight, and we are only just settling down into our former residence, which has been unlet during the whole time of our absence, so that what with papering, painting, and brick and mortar, I can assure you we are most fully occupied. I left Ireland at the end of March, and after spending a few days in Wales, joined my people at Cheltenham, where I received your interesting communication about the Great Bustard. What a treat it must have been for you to follow so hotly on the trail of your favourite bird, and one too which I think you told me was all but lost in England. I do rejoice to hear it escaped, at least if it was not the same that came into Yarrell's hands about that time. Do you not think these birds were certainly winter visitors? and if so, ornithologists may still hope for an occasional specimen on

British soil. If I remember rightly the Little Bustard occurs not very uncommonly about the south-west corner of England during the winter, and if he can fly so far, why should not his relative also favour us now and then?

Regarding the skulls of the Irish Hare and the Eagles' eggs, you will see that your letter came too late for me to attend to your request this year, but as I shall probably be back again at Castle Taylor before long, I will make a point to look after a pair. But as to Eagles, I fear the localities are too far away from Castle Taylor for me to be able to look after them on the spot; and the worst of it is that the wholesale poisonings of vermin that have lately been practised in Connemara have nearly extirpated the birds there. Still I will do what I can to make inquiries next year.

The Hare is now very nearly proved to be identical with the "Scandinavian," and I am very glad to think that such is the case, as it seemed highly improbable that a large mammal like that should be found peculiar to Ireland; its position becomes very interesting now, as we shall have to explain his passage from Scandinavia into Ireland without leaving any of his race in Scotland. There is a specimen of the real Scandinavian H. in Zoological Gardens.

We stayed about a couple of months in Cheltenham, and a wofully dull place I found it too, with its fashionable balls and hot dusty streets; a watering-place is scarcely likely to be a favourite with anyone fond of Natural History and the country. We came down to Ryde about the end of May, and since then there has been such work, house-hunting and driving about, that you are almost the first correspondent I have found time to write to. I went up to London too on the 3rd of June, and was admitted to the Linnæan Society. I hope you will soon join when you have done with the "Ray."

This is a pleasant, quiet, sea-side village, with a small harbour, and a certain extent of mud flats, rather attractive to the Sandpiper tribe, so that, with a small sailing boat and a heavy single gun, I have rather good fun occasionally; and I hope that some day, when we are a little more settled, you may be prevailed upon to pay us a visit. September is of course the best month for Waders; but in the winter Loon-shooting, varied with a look after Brent Geese, is rather amusing too. I have just made acquaintance with C. A. Bury, the ornithologist, who is now living at Sandown within a walk of this, and I like him extremely. He is a fine frank manly fellow, and with a splendid eye, full of life and fun. . . . I cannot give you any news in the bird-way, since I have scarcely entered a wood yet; but I would wish to call your prompt attention to the "fact" (?) of all birds' eggs this year being curiously varied from the ordinary colour. Should your attention not have been called to this before, pray look out, as I believe there is some truth in this curious story; at least, when I asked Bury he pulled out his drawers, and found some of this year's taking fully confirmed the theory.

As we have a seven years' lease of our present house, I can hardly

have the face to ask for a letter soon, after my own delay ; but I shall be delighted to hear of your doings this spring whenever you can spare me an hour.

By-the-way amongst other odds and ends which I discovered the other day is a skull, in tolerable condition, of the Snowy Owl ; and so, if you as a craniologist care to have it, I shall be most happy to make it over to your collection.

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BEMBRIDGE, *October 19th*, 1856.

MY DEAR NEWTON,—It is not often that an order like yours for a Cormorant could be executed at short notice, for during our many years' residence here I do not remember ever getting a fair chance of a shot, nor have the boatmen brought one in. But mark how favoured you are ! Mr. Newton, the ornithologist, has only to mention his want, and lo ! the wariest of the wary is shot the very next day.

On Thursday I went out for a sail. It was blowing quite a fresh breeze, and you may be sure that when I saw a pair of these " Isle of Wight (or more aptly Old Nick's) parsons " fishing in the harbour, I remembered your request and put down a couple of ounces of No. 3 in the bare hope of getting within range. I had a long chase after one fellow, and could not approach him, but presently in a small bay I found his companion fishing close to the shore, and no great way off ; so with the wind right aft I bore down at full speed straight upon him. The bird became uneasy and flurried ; he first swam one way, and when the boat edged off so as to head him would turn back and try swimming the other way, so that he lost time, and my boat being very swift was down upon him in no time and penned him in between the land on both sides, and the boat to windward ; thus he was compelled to rise quite close and passed about forty yards off, when I had the pleasure of dropping the shot right into his beam, but he only seemed a little shaken until he had flown some way, when he took to the water and began to dive ; then I felt sure of my friend, and when I got up to him had only to lift him into the boat. The parcel was sent off this morning, and if his high *game* flavour does not excite the cupidity or curiosity of the railway officials, I hope you will receive the bird safely about Tuesday next. Please tell me what sex it is ? I thought female from its size. You will, no doubt, notice the faint indication of the breeding plumage just appearing on the thighs. The Divers never show any marks of theirs, even in February, with us.

You were a little late in mentioning the Bat. Generally and in the summer I can get the Serotine any evening, but I was out yesterday and did not see one : they have not been so plentiful this year, but you shall have the first I can get hold of.

I asked Evans about the hare-skulls for you. He has just returned from Ireland, and if he has not forgotten his promise you will probably be able to place this cranium in your collection.

I very stupidly forgot to put the Snowy Owl's head in the matting, but, perhaps, after all, it might have been smashed. I tied up the Cormorant's throat to stop the bleeding, and I hope he will arrive in good condition for dissection. His digestive apparatus, according to M'Gillivray's method, might form a very curious specimen when blown-up and varnished.

Many thanks for your news about ornithological matters. Poor old Yarrell will be a great loss to the science. It might be as well to inquire who is to be named as referee on doubtful points now that he is gone. Whom should you recommend as a first-rate authority well acquainted with the *lore* as well as the *practice* of Ornithology? The last time I saw Mr. Yarrell was at the Linnæan in June, when he seemed in his usual health, quite a vigorous old age, and I hoped to have seen him there for many years to come.

The Osprey visited us also this autumn. I saw and watched one for half-an-hour or more at the mouth of our harbour about six weeks ago, but perhaps I may have told you already. The Sandpiper tribe have been moderately plentiful, but none in good plumage, and scarcely an adult bird except among the Dunlins. I have not seen a single Godwit—in fact this bird is very rare here—but Greenshanks, Redshanks, Grey Plover, Knots, have appeared in even greater numbers than usual.

The most curious occurrence was perhaps that of the Gray Phalarope which Mr. Bury shot in *September* in a marsh ditch. Is not this early? Does it betoken severe weather in the North?

This morning brought me a letter from Julian of Emmanuel; he is now living at Coblenz on the Rhine, where he appears to have got on famously in the society of the place, where, no doubt, his sporting talents have done much in his favour. His clerical condition has not prevented his joining in deer and boar hunts, and the hero of the Cambridge Fens has planted more than one rifle-ball in red and other deer as successfully as he once bored daylight through a cow's ear at Cambridge. You must remember that story.

He reports a great deficiency of small birds—in fact, for miles you will scarcely meet a Tomtit. Raptores are more plentiful. He is about to take a chaplaincy in Brittany, which ought to be a famous country for a naturalist. I think its field sports are much above the average of such things in France.

What you say about Tristram's collecting in Norway suggests the question, does the Great Snipe always breed so far north as to be the associate of Bar-tail Godwit? I thought it was an eastern bird rather than northern, say from the interior and north of Russia. Your very sincere friend,

A. G. MORE.

The visit of the Osprey, above alluded to, was to him a grand ornithological event, and a full account of it is entered in his Journal. The date is September 10th.

Returning from a sail, no gun on board, I spied near the stump of the outer boom (of Brading Harbour), on a bit of sand left dry, some dark objects which I soon made out to be good-sized Tringæ, of a singularly plump and stumpy appearance; and as the water rose upon the sand they would hop and jump in the most amusing india-rubber fashion, keeping all the time close together, and never moving further than just clear of the water. I carried the boat in as far as possible, and then stood up and shouted; still they remained without taking the least notice. Under the circumstances I thought that there was a chance of getting back in time, and so hastened to run home and fetch the gun, with which I ran down and poled up as hard as I could to the boom, where the water had meanwhile risen so as just to cover the little sand-bank where I had left my friends sitting and hopping about.

But as I neared the boom, there was another glorious sight: for some large brown bird was resting on the top; not a Cormorant—not black enough nor heavy enough for that—not a Gull or Gannet—for they do not perch—but a large strong Raptor of some sort. I shoved on, and within 150 yards my friend arose (and with him from under his feet the little Tringæ), and showed the broad wing, the whitish chin of the Osprey. But he took care to give me a wide berth. The little bevy of birds wheeled twice, and then came overhead; a large bird led them on (a Bar-tail Godwit I suspect); he kept out of reach, but the others paid toll of one dead, and one that was picked up far up the harbour. Meanwhile the *great* bird wheeled, and flying high made for the harbour, and “Spit”; but just as he was nearly over Prior’s I saw him make a sudden turn, a plunge or drop through the air; then he checked himself, and then, again, he fell like a Gannet or a Tern, splashing the water up all round. He had spied a mullet no doubt, but I think missed his hold, as he kept wheeling round, and sometimes flew swiftly, and then would sail or shoot along on his outspread wings. However, he kept hanging about until some Gulls came out and mobbed him with the most clamorous outcry, while his broad wing and stouter frame kept him conspicuous among the herd of Herring and Common Gulls. To the young of the former he bears great resemblance, and I might not have noticed him if it had not been for the “perch.”

Only once afterwards (on May 2nd, 1859) did he meet with the “Fish-Hawk”; and his account of the second occurrence (also at Brading Harbour) may as well be quoted here:—

At Carpenter’s Creek saw a large dark Hawk, hovering like a Kestrel, as we thought above the flock of Titterels which had just settled upon the mud-bank; but on approaching more closely it became clear the bird was poised over the water at the shallowest part of the inlet, though with an east wind it was everywhere very turbid. Presently the great Hawk swerved, and wheeling to leeward came much closer, and



again hovered above the water, then white with waves. Several times we saw him drop his great talons, and clutch at the air in anticipation, and lowering himself at the same time make ready for the plunge. The breadth of wing, the dark colour, and as he came nearer the white head, the *white* breast, and even the barred tail were distinctly seen, and we knew the Osprey. Drifting down the wind we had approached so closely that already oars were laid by, and guns grasped for the chance of so grand a prize, when two Crows rapidly came on the scene, and, like the Gulls on a similar occasion, began to hustle the Hawk, and soon drove him from his fishing. The last we saw of him was as, encompassed by a cloud of Rooks, he swept over Nunwell, and disappeared in the direction of Ashe.

These two occurrences of the Osprey at Bembridge are recorded in the "Zoologist" (1860), as well as in Venable's "Guide to the Isle of Wight."

In botany, the best discovery made during this year was that of *Bartsia viscosa* (Marsh eye-bright), new to the Isle of Wight.

## CHAPTER XIII.

## EXPLORATION NEAR HOME.

[1857.]

THE next year (1857) passed over very quietly, the days being, in fact, almost wholly devoted to studying botany in the Isle of Wight, while the summer nights were largely dedicated to entomology. There were, however, certain seasons when it was out of the question to neglect the birds: particularly the periods of spring and autumn passage.

“May 8th. Determined to try for some *Grallæ*, so set off with the rising tide. On rowing across to Carpenter’s Creek, I soon caught sight of the Whimbrels, but, as the wind was driving the boat nicely along shore, I thought to make sure of not passing anything else, and on nearing the point, there sure enough was a most remarkable bird—black and white; black beneath, white-headed, and light-backed. How lovely he looked in the bright sun, running along the grassy water-side. A prize indeed: I suspected already, the Grey Plover in summer plumage. The boat drove on before the wind, I crouching low, when, just as within-gunshot, he ran and was hidden behind a rising bit of ground. I sprang up—so did he. Instantly bang, and away he went, wild and in vigorous flight. How I watched him, and then lost sight of him toward Gravelly! What an eager row across! What anxiety when a countryman walked along and stopped close to the spot; methought he had picked up the bird! Nearer, and I descry a dark object on the shingle; it moves—it is he! I drop the oars, and crouch close, with the gun just ready over the bow. Presently, the bird got restless and ran to the top of the gravel, where he reared himself up—a magnificent sight—clear against the sky. Now is the time: bang, and he gives one last leap into the air—he is

mine. I sat down and revelled in his beauty. In the height of plumage—a glorious capture!”

It will appear with sufficient plainness in the course of this memoir that, with all his keen delight in the obtaining of a rare specimen—the sportsman’s delight in the chase, as well as the naturalist’s joy in the prize—he had a passionate horror of wanton bird-slaughter. The persecution by “cockney-sportsmen” and “tourist egg-stealers” of decreasing or local resident species—of the Peregrine, the Chough, the Shag, the Puffin—annually awakened his indignation; that of the Falcon in particular he protested against on almost every opportunity. Every movement for the protection of our rarer species possessed his sympathy. But the collection of specimens he always held to be indispensable to a student of nature.

Observations of the habits of birds often gave him as much satisfaction as success with his gun, and whether botanizing by day, or moth-hunting by night, his eyes were open for facts ornithological. One July evening, “We had been out sugaring the trees for *Noctuæ*, and finding but scanty sport at the bait, we turned attention to the cricket-like or whirring note of some creature that seemed to remain quite unscared close under our feet; and for want of something to do, we set about trying to discover his whereabouts. It was not very easy to make one’s way through the brambles and long grass, but certainly our little friend took small notice of our approach, and kept up his serenade till we felt quite sure he must be in a particular bush; but after peering most anxiously through and through we could find no trace of the performer. However, the bush was duly stirred, and certainly a small bird flew out; and presently the note recommenced among some brambles a few yards further off; but here it was impossible to follow. However, on again passing the spot in another half-hour (this would be about 10 o’clock), there was still the same chirring note, and in the identical bush, too. So this time we determined to go about it very cautiously, and without noise stole up, one on each side, so as to hem in the little chirper. This time he kept singing till we were within a yard of his retreat, and then,

the one who held the lantern spied out a little dusky bird, piping away most cheerily; and, by *keeping the bull's-eye steadily upon him*, he suffered us to get almost to lay our hand upon him before he moved away and was once more lost in the thicket. Such is my only experience of *seeing* the Grasshopper Warbler, but his note had often been remarked in the same wood."

Another July day an expedition was made to Wootton, chiefly to seek the diminutive quaking grass, *Briza minor*. Growing among oats, the pretty little grass was "only to be discovered by kneeling down and parting the corn with our hands." While here, say his Journal, "I saw a Red-backed Shrike carrying a burden it could hardly support, and, shouting to the bird, it dropped a young hedge-sparrow nearly fit to fly that had been killed by pressure across the nape of the neck, by which the Shrike was conveying him. So small a bird carrying so large a prey was a most interesting sight."

The longest botanical excursions made in 1857 were all taken during July—his best discovery being that of *Calamagrostis lanceolata* (the lesser reed), gathered in the alder thicket, at Knighton, on July 11th. The locality was one known to him before, but long unvisited, and now yielded more than one surprise. In the mill-dam, *Zannichellia palustris*, "all full of the shell *Valvata piscinalis*," formed "nearly as close a mass as I have seen *Anacharis*." Before entering the alder thicket was "an awkward ditch, but, after crossing it, such a sight! Such beds and masses of *Lastræa thelypteris*! and beautifully dry underfoot—quite a botanical treat!"

It was one of those happy moments on which his memory loved to dwell.

"I snatched a reed, thinking it a little too early for *Epigejos*, bagged three or four specimens in hope more than with any certainty of its being a good thing. Its paler foliage, narrower leaves, looser, lighter panicle, gradually brought the conviction it was *Arundo calamagrostis*, and so it was. New to the Isle of Wight: the prize of the day. Not expected or looked for, just stumbled upon as was *Bartsia viscosa*: the *Ranunculus*

lenormandi (found three days previously at Pan Common) was, on the contrary, sought for deliberately.

“Sitting down on the soft fronds of *Thelypteris*, growing here as thick as corn in the field, we had leisure to survey this interesting locality.

“Here and there the tall and gorgeous panicles of *Lysimachia vulgaris* (yellow loose-strife) towered above the matted undergrowth of *Carex* and fern, amongst which *Galium uliginosum* (marsh bed-straw) tangled its weakly stems, while *Orchis latifolia* (marsh orchis), and *Pedicularis palustris* (greater red-rattle) were no inappropriate companions; and the great Sedge raised its huge hassocks, entwining its long leaves and stems with the alder bushes; and half hidden by these were the clumps of *Osmunda*, scarcely to be distinguished from young ash trees in the distance; and under these giants of their tribe nestled the delicately-fragile lady fern.”

A week after this he visited, for the first time (July 18th), the celebrated part of the Island called “The Undercliff,” which lies between the southern Chalk Downs and the sea.

Differing much in its climate, scenery, and character from the rest of the Isle of Wight, the Undercliff is a most attractive district for the botanist to visit. About a dozen species of plants not found elsewhere in the Isle are gathered within its somewhat narrow limits; one indeed, the curious *Arum italicum*, or Italian wake-robin, had then\* the reputation of possessing no other locality in Britain; while several others are species distinguished by special rarity and beauty. In fact, on a first visit it was thought advisable to “carry a list of the species most worth looking after”—an unusual precaution with him, whose memory seldom needed to be supplemented on these minutiae. On passing the Land-slip—or eastern extremity of the Undercliff—“The abundance of lime-loving plants was apparent enough. *Lathyrus sylvestris* (wild everlasting pea) is a very prominent feature even to the non-botanist, as it is quite a striking plant from its size and gaily-coloured flowers. *Polyommatus albus* (the Bedford blue butterfly)

\* *Arum italicum* also occurs in the West of Cornwall.

was flitting, as at Castle Taylor, from bush to bush among the hazel. Clematis everywhere. The great thistle disappointed me for height, being not a yard high, but some primordial heads measured even  $3\frac{1}{2}$  inches in diameter. They are very handsome, and appear to be much sought after, as I found many, and indeed most of them, on our second visit, had been cut off, whether for curiosities or for eating? Close to the thistle were just one or two bushes of *Rosa rubiginosa*, whose deep-red flowers attracted notice. I believe here decidedly wild, and why so scarce in the Island I do not know. I should have expected this rose (rather than *micrantha*) to grow in the Chalk pits in many places, and yet Bromfield would never have overlooked its deep-red flowers when in bloom. The Bembridge locality is less certainly natural. . . . I had almost given up *Inula helenium*, but we found it at the very end of the Landslip among bushes close to the footpath, and under a wall: not nearly so natural a locality as where I found it this spring at Luccombe, amongst the roughest wild ground to the north of the Chine. *Artemisia absinthium* is abundant here, as it is one of the most striking and common species all along the Undercliff. After lunch I proceeded to Steephill to visit *Arum italicum*, which the gardener showed me.

“To find the ‘poverty-weed’—the great object of my walk—we examined the corn above Steephill, with no success till, on following the edge of a field towards St. Laurence, I first picked a small bit not in flower, and then about half a dozen plants in good order; but for the whole way along the corn bordering the cliff’s crest, I did not find more than one plant, which shows the weed is no longer abundant here. I descended on St. Laurence’s Church, and was not long in finding *Geranium rotundifolium*, and with it *Silybum marianum*, which the old woman asserted to be the ‘sovereignest thing for salves and ointment you knows on.’ . . . I left the road again to follow the path through Pelham Wood, a beautiful wild place. A tiny bit of *Melampyrum* near the gate; but at the other end, just where the path comes out upon the Down, there was quite an abundance

of this beautiful weed, growing on the bushy bank to the left above the path; and here at last I filled the vasculum."

The Undercliff was again visited on July 23rd, during a driving-tour round the Island as one of a small party rather social than botanical.

"Nothing new was noticed as far as Ventnor, except the poppy, which comes up in the middle of the place anywhere and by the cliffs. Beyond St. Laurence's Church along the new road, I fancied I saw a single leaf of hellebore, but I do not know the right spot. The ground towards Mirables was quite carpeted with ivy, amongst which the harts-tongue fern grows most luxuriantly. Before tea, F. and I strolled from the Sandrock down towards the shore, and were lucky enough to find the *Astragalus glycyphyllus* [liquorice] without much difficulty. I did not expect to find it of so straggling and trailing a habit; when on the open grass it clings close to the soil, and so might escape notice; otherwise it is a striking plant, and quite at home in a rough rocky bushy field half way from Sandown, towards the *Cyperus*. *Cyperus* was not yet in flower, only the heads were just forming; the great mass inside the enclosure was recently cut down, for what purpose I do not know. *Juncus obtusiflorus* accompanied it, as well as *Mentha rotundifolia* higher up the stream. The rush looks very different from any other I know, and is easily discerned by the smaller flowers of a paler colour than most. On ascending the cliff we saw *Centranthus ruber* (red valerian), everywhere establishing itself, but generally there are some foreign shrubs no great way off. Still the *Centranthus* might well pass for a native to a stranger. In the corn above no *Melampyrum*. When about to return we were so lucky as to meet with Miss Kirkpatrick, who showed us the single plant of *Salvia pratensis*. It would pass were it not that the ground was ploughed up and sown with grass some years ago; and I gathered *Silene inflata* (bladder campion) close to it, an obvious sign of tillage. The one plant too renders the locality of doubtful value. Miss K. showed us a very good collection of seaweeds well dried,

and comprising a large number almost entirely from that part of the coast.

“The cliff *Arenaria* (*rubra pinguis*) abounds on the friable soil of the ledges of the cliff. Its seeds are tuberculated, and have none of them a wing—not even a thickened margin. I believe *Pruni* are also plentiful, but whether *P. insititia* (Bullace) or not, I am not certain.

“July 24. As we approached Kingston, the sand bore *Agrostis setacea*, *Rosa spinosissima* (Burnet-rose), heath, *Hieracium umbellatum*, and by the road-side a white variety of *Erythræa centaurium* (centaury), with *Filago spathulata* and *Silene anglica*. At Brighstone, *Gastrium* was noticed, as well as an *Orobanche* in the hedge, probably major.

“The same evening we proceeded to the Needles, and saw them, with the foundation of the new lighthouse on one of them. The birds had, with the exception of some few Herring Gulls, all hatched off, and were not visible; but I went and smelt an unmistakable flavour of Cormorant at the edge of the high cliff near the pig-sty. The Falcons are said to be still here. The Shag is here too, but very scarce. Two young Cormorants had been taken the day previous. The cliffs are certainly very fine, but, as usual, do not seem at first so much higher than Whitecliff. The only plants noticed this evening were *Parietaria* (pellitory-of-the-wall) and *Marrubium* (white horehound).

“July 25. Ascended the Down from the Hotel end, and noticed, amongst the short grass, a stunted vegetation, *Centaurea nigra* (knapweed), *Betonica* (wood betony) &c., and along the cliff *Arenaria rubra* again, and *Marrubium*, on which Mr. Bond finds the Scarce Plume (moth), but I was very unsuccessful in trying to find the stock and sea-radish, neither of which did I see, nor of course *Orobanche picridis*. On returning I saw some varieties of *Erythræa* (? *littoralis* or *centaurium*), and met Mr. Bond, who took me to his lodgings, and showed me no end of good things—*Agrotis lunigera* (‘crescent dart moth’) just out, and the nest and eggs of the Woodchat, taken at Freshwater.”

“That Woodchat” was destined to give him some trouble at a subsequent date.



## CHAPTER XIV.

## BOTANICAL WORK.

[1858.]

FROM pursuing zoology and botany together, he was apt to be struck with differences in the modes of treatment applied in these two departments of Natural History. Mr. Watson's method in botany appeared to him worth applying to the domain of the zoologist also, and in combination with his entomological friend, Mr. Thomas Boyd, he resolved on its experimental application to the butterflies of Great Britain. The result was an essay which appeared in the "Zoologist" for April, 1858, and which, with a prefatory note by Mr. W. F. Kirby, is reprinted as an Appendix to the present memoir. As Mr. Kirby points out, the publication of this article led to a correspondence between him and Mr. More, which extended over several years previously to their meeting one another in Dublin.

At the same time he made what he calls in his Journal his "first attempt at reviewing":—an elaborate analysis of that part of De Candolle's "Géographie Botanique Raisonnée," which treats of the Naturalized Plants of Great Britain. This appeared (unsigned\*) in the "Phytologist" for June. But the greater part of the summer was devoted to an arduous piece of work which he had undertaken for the Isle of Wight Philosophical and Scientific

\* But easily traceable to its author, even apart from the mention of it in his Journal. The special reference to Ireland (excluded from De Candolle's range), and particularly to the *Sisyrinchium anceps* ("blue-eyed grass" of Canada) found at Woodford, county Galway, is scarcely more characteristic of the writer than is the following passage, containing one of those ornithological allusions in which, in the midst of a botanical study, he loved to indulge:—

"The absence from the list (of aliens) of such plants as grow in saline situations on the coast is worthy of attention, and seems to disprove any recent transport by marine currents; and in the same way the pappus of the *Compositæ* and

Society." This, as first designed, was the cataloguing of Dr. Bromfield's Herbarium (Miss Bromfield's gift to the Society's Museum at Ryde); but following the same plan afterwards adopted with the Birds in the Dublin Museum, he resolved on making it a complete List of the known Flowering Plants and Ferns of the Island: a project which entailed the verification wherever practicable of at least one recorded locality for each of the rarer plants.

The Undercliff was still to him much of a *terra incognita*; and towards the end of May he spent two days here with Mr. A. J. Hambrough, the discoverer of *Arum italicum*, who showed him that celebrated plant growing in his grounds at Steepphill. But above all he was desirous of seeing the *Helleborus fœtidus*, said to grow wild near Steepphill, and of verifying its claim to rank among the Island's indigenous plants.

"May 27. I went to search the cornfields above Steepphill. They teem with weeds; and soon I met with *Adonis* (pheasant's-eye) in some quantity; *Fumaria officinalis*, *Euphorbia platyphylla*, and over Pelham woods a few pieces of *Melampyrum* (the purple cow-wheat), just showing the purple head. At St. Laurence, *Geranium rotundifolium* was in great perfection, and very pretty. The leaves of *Carduus marianus* (milk-thistle) were conspicuous under the church-yard wall. To seek the hellebore, I descended by the slanting path just under the church, which leads to the newly-cut road, peering through every gate and hedge-bank, but to no purpose. From this point I followed the new road until Woolverton Farm, which I reached by another slanting lane. I looked into a field or two here, but again unsuccessfully. *Chenopodium bonus-Henricus* grows here.

Returning some little way, I explored carefully the

*Valerianaceæ*, on which so much stress is usually laid, has not greatly raised their number above the proportion found amongst the indigenous plants. Still less is thought of the influence of birds in carrying seeds to any distance, or across an arm of the sea; thus, the hypothesis that the seeds of *Cotoneaster vulgaris* were deposited on the Orme's Head by some Redwing or Fieldfare migrating from Norway is dismissed as highly improbable."

Years previously, passing the Orme's Head by rail (November 15th, 1854), his Journal mentions how he "conjectured where the *Cotoneaster* might grow."

bushy banks which run across the cornfield above the road, as well as another road joining the new and old roads, but here, again, no hellebore. So, back to the path leading up to the church; but I remembered to have seen a leaf last year hanging from the bank out of a copse by the road just below the church. Hither I made my way, and soon found many plants of hellebore (though none flowered); but with them such overpowering evidence of introduction that it makes one doubt the whole set of Isle of Wight localities. Here grows a foreign *Hypericum*, many *Syringas*, and other cultivated trees, and a curious umbelliferous pot-herb. There are steps too, and walks now overgrown, evidently an old pleasure-ground, attached perhaps to the old Priory of Woolverton. The new road is cut right through the head-quarters of the hellebore, and the lower part must have been included in the same pleasure-ground. Alas for the fine 'indigenous' hellebore! On my return I saw wallflowers growing half wild, at top of my friend Fisher's garden, on the chalk.

"May 28. The return walk home. On the ascent of the valley behind St. Boniface the butterflies *Cinxia* and *Agestis*\* were flying about. *Orchis ustulata*, a few plants only, occurred, and among the crumbled flint *Vicia angustifolia*. On reaching the summit a true heath vegetation is found; most species are characteristic of a sandy subsoil. . . . The smooth variety of the *Cerastium* (triviale) was growing in the wheel tracks and by the edge of the road mixed, as on Pan Common, with the ordinary form. I did not find any *C. tetrandrum* until reaching the place where gravel has been dug above Luccombe. Here too it was my great pleasure to detect the Dartford Warbler, flirting his great long tail on the spray of a furze-bush; and the two birds kept for a long time calling to each other 'chay cha cha,' something like a subdued version of the White-throat's call. They were quite tame, and continued creeping among the furze more like mice than birds for some time, only ceasing when I beat the bush, but they then

\* The "Glanville Fritillary" and "Brown Argus"—the former one of the rarest and most local of British butterflies.

could not be turned out. Their shape is between a long-tail Tit and a Whitethroat, and the tail is often flirted up. On the Chalk Down, towards Cowpit Cliff Copse, into which I next descended, the most interesting plant is *Pyrus aria* (white beam tree), truly wild in the crevices of the rock, and probably the beech is so too below. From out the ivy-clad crevices I started a white owl that looked most bewildered in the full daylight, appropriate as he was to the spot.

“Galeoldolon (yellow weasel-snout) and *Prenanthes* (wall-lettuce) and abundance of nettles grow here. Now are these latter aborigines? And if not, what of the beech? I must see if any foreign trees occur in the wood. *Allium ursinum* (garlic) grows here, though not a root of it is to be found in Apse Wood so near to it. A similar instance is the occurrence of anemone in the strip of copse close to Centurion’s, yet not reaching the copse itself. Near Apse Farm I gathered *Scirpus setaceus*, and in the wood found nothing remarkable. In the wet willow-bed, before you come to Ninham’s Heath, *Carex lævigata*, *remota*, and *paniculata* were noticed, and in its locality *Luzula borrieri*\* all over the copse (no ripe seeds).

“Ninham’s Heath is a good spot for plants. I soon found *Vicia angustifolia* (narrow-leaved vetch), *Erodium cicutarium* (hemlock stork’s-bill), *Cerastium tetrandrum* (four-cleft mouse-ear), *C. semidecandrum* (little mouse-ear), *Festuca tenuifolia* (a variety of sheep’s fescue grass) whose leaves, but for their want of glaucous colour, are so like *Agrostis setacea*, *Filago minima* (least cudweed), *Myosotis collina* (early scorpion grass), *Aira præcox* (early hair grass), &c. In the willow-bed, near Apse Heath, *Equisetum sylvaticum* (wood horse-tail), and the heath is covered with *Agrostis setacea*. Near the Lodge Gate *Carex muricata*. At Winford the *Lactuca* (lettuce) much dilapidated from being browsed, by boys (?) or donkeys (?); scarce a chance of obtaining a flowering head. However it is, I believe, not *scariola* but *virosa*. Cheli-

\* A wood-rush, so named by Dr. Bromfield, but afterwards pronounced a barren form of *Luzula pilosa*.

donium (great celandine) is very plentiful near Newchurch, where I gathered *Vicia angustifolia* again, and in a hedge-bank *Fedia olitoria* (lamb's lettuce). On Ashey Down the *Festuca* is not so fine-leaved as on Wroxall, Ninham, Royal Heath, and Pan."

This summer Mr. Newbould visited him. They botanized together round Bembridge, and Mr. Newbould added a new species, *Papaver lecoqii*, to the catalogue of Isle of Wight plants. This poppy had not until now been discriminated by British botanists from the better known form of *P. dubium*, and it was Mr. Newbould who first drew attention to its occurrence in England. A close student of the French botanists, and (in his friend's phrase) "a real Rad of a splitter," Mr. Newbould had set his heart on getting More to take up "critical species" as hotly as himself; and at parting presented him with the new (3rd) edition of Boreau's "*Flore du Centre de la France*"—a gift curiously inscribed "From his much obliged W. W. N." The present and the persuasions which accompanied it had all the effect desired; but it was not till the season of 1858 was over that time could be found for other botanical work than the cataloguing of the island's Flora.

That sedge with the somewhat unconscionably long name, *Carex Boeninghauseni*, was the cause of some of his most arduous hunts. He found it at Newchurch, while searching there for *C. axillaris*. But the main object was to discover *Boeninghauseni* at Quarr Copse, since that was the locality for which Dr. Bromfield had recorded it eight years before his death. The week after finding it at Newchurch, a day devoted to a final exploration of Quarr is chronicled as follows:—

"Quarr Copse. June 30. To try for the third time for *Carex Boeninghauseni*. Walking quickly to Binstead I first secured *C. axillaris* growing in the hedge close to the new quarry. It was in very fine condition, stems about a yard high, accompanied by *C. remota* and *C. divulsa*. *Pyrus torminalis* (service-tree) was in young fruit as if three weeks past flower. I followed the path to nearly the Abbey wall, and then turned down to the right by

a disused small path until I emerged on the shore. So far, no likely ground; and the brushwood so thick as to impede one's progress even along the path. *Vicia tetrasperma* (smooth tare), *Hypericum androsæmum* (St. John's wort), and *Carex remota* grew by the pathside. I then turned back close to the stream, and made my way into the jungle of rushes and sedges which I had in previous years searched. Here the bushes are less thick, and in the open spaces the ground is covered by a dense growth of rank marsh vegetation: in most cases these open parts are very near to the stream-side, and are only up a part of the sloping bank. At once appeared lots of *Carex remota*; *C. vulpina* in immense profusion; *C. sylvatica*, *C. panicea*, and *C. glauca*; and at last one very large and fine tuft of *C. axillaris*—not *boenninghauseniana*. This was close to the stream, not more than 150 yards from the shore. I believe very nearly, if not exactly, the place indicated for *boenningh*. Near it *C. divulsa* again, and plenty of *remota*, but no more *C. axillaris*, and not a sign of *C. boenningh*. anywhere in this part of the thicket, which I most carefully explored from nearly the walls to the shore, and as high up as the bushes would let me. Along the north shore I tried again among the slipped clay wherever it was damp, but could find scarce a *Carex* except *sylvatica* and *glauca*. Here again, the bushes are almost impenetrable, but I do not think the spot about here is at all so likely as that near the stream. It is hard to reconcile Bromfield's account of the locality and the abundance of the plant with my experience. I believe the stream-side jungle to be the right spot, yet here is no abundance of *axillaris* or *boenningh*.; but in a cursory glance around, the large plants of *C. remota* look just like *axillaris*, and a person gathering *axillaris* in one spot might conclude the other plants to belong to the species. Dr. Bromfield's description agrees with my plant of *axillaris*, and I believe that species only grows at Quarr, and near Ryde, while *Boenninghauseniana* grows at Newchurch."

For the time being it did not seem as if any further light could be thrown on those *Carices*. But as a curious

instance of his pertinacity in dogging a subject, the following letter, elicited from Mr. Newbould in October, 1860, is quoted here:—

MY DEAR MORE,—I find in Herb. Kew ex Herb. Bromf. “*Carex boeninghausiana*? sive *C. axillaris*, west part of Copse, Norton, Freshwater, June 29th, 1849.” The specimen is young, but it looks like what I should have called *C. axillaris* if I had seen it without a label. I also find from Bromfield’s Herb. “*C. axillaris*, Parsonage, Lynch, Newchurch, June 3rd, 1843.” This is also young, but I think *C. boeninghausiana*. I do not speak positively, as I have not very much acquaintance with these, and especially the latter *Carex*; but if I had seen the plants named as you would name them, I should not think of expressing the least doubt. [Perhaps Dr. Bromfield has paid too much attention to the length of the bracts.] I find from the MS. that Bromfield, when he first gathered the Quarr-wood plant, considered it *C. axillaris*, and afterwards transferred it to *C. Boeningh*. I am glad you have asked me to look into this matter, for the search has led me to find an interleaved copy of Bromfield’s papers in the “*Phytologist*” with his MS. notes, which I hope you will come and see.

Meanwhile the catalogue of Vectian plants which, when fairly sifted, comprised about 950 species, was completed in the autumn, and printed by the beginning of the following spring, forming the main part of the Report issued for 1858 by the Isle of Wight Philosophical Society.

In the same Report, the Society had to record their sense of the great loss sustained in the death of their late Treasurer, Dr. T. Bell Salter: a loss acutely felt by many, and not least, it may well be imagined, by one who from the time of his earliest efforts in the study of plants had owed so much to the kindly encouragement of that excellent botanist and friend.

## CHAPTER XV.

## "FIRST YEAR OF CRITICAL BOTANY."

[1859.]

TO Mr. Newbould's visit of the preceding summer he ascribes the impulse which made 1859 his "first year of critical work at botany"—work which now, for some years, so engrossed him that he would occasionally speak of himself as if he had quite dropped out of the ornithological pale. Nevertheless, the period was really one of increased activity in bird-study too, and he was perhaps never further from becoming a mere botanist than when doing the hardest botanical work.

No sooner was the cataloguing of Dr. Bromfield's Herbarium off his hands, than a paper on the Migration of Birds was begun. This was finished in April, and appeared in the "Zoologist" for May. Originally suggested by reflection on the frequent winter visits of the Black Redstart, it was intended chiefly to draw attention to the *westward* immigration of birds, in autumn and winter, to Great Britain, evidenced by the occurrence here, at that season, of many species which, in Western Europe, scarcely go north of our own latitude to breed.

On such a subject his attentive study of Irish natural history yielded him a copious mass of illustration, on which he freely drew, emphasizing the fact that it was in winter that Ireland had received, as visitors, the Spotted Eagle, Spoonbill, Avocet, Stilt, Ibis, Whiskered and Black Terns, White's Thrush, Gold-vented Thrush, Spotted Cuckoo, &c.—the last-named two being African birds, and none of the group in any sense refugees from the north; while Cornwall was a similar instance of a western district not seldom used as a winter resort by birds whose summer range included just the south-eastern corner of England. The suggestion—years previously talked over



with Yarrell—that the line of autumnal migration might lie, “to a great extent, at right angles to the isotherms of winter temperature,” was tentatively put forward in this essay, which he hoped some day to follow up by a much more elaborate one. But as time went by, he gradually let “that isocheimonal matter” drop.

It was at this time that his correspondence with Professor Babington, from an occasional interchange of letters, became regular and frequent. Quite a trivial incident served to place it on a new footing. On May 4th, Professor Babington wrote to thank him for a copy of the new “Catalogue of the Plants of the Isle of Wight,” and in doing so asked him for a few growing plants (when in flower) of *Cerastium tetrandrum* and *C. semidecandrum*, the petals of which Mr. Newbould and he wished to examine. The plants were sent—they grew abundantly on St. Helen’s Spit, and from their early-flowering habit had long been favourite “old season-marks”—and some letters followed discussing the petals, the great question being whether those of *C. semidecandrum* were distinguishable by absence of ribs. Professor Babington at first was inclined to think they were so. But, on June 7th, he wrote to his friend at Bembridge: “You have shown successfully that there are ribs on the petals of all our smaller species, and I am much obliged to you for so doing.” From this date More had, as he briefly puts it in his Journal, “gained the confidence of C. C. B.”

In June he spent some days at Thames Ditton with Mr. H. C. Watson.

The rest of the year was spent at home, except that towards the end of August, he enjoyed a short excursion, in the company of a few friends, to the Channel Islands. Their plans had included a visit to the coast of Brittany; but stormy weather prevailed, and they got no further than Guernsey, where, after a stay of four days (August 30th–Sept. 2nd), it was deemed advisable, on the first abatement of the gale, to return to England. In the four days spent in Guernsey, a good number of maritime and Sarnian plants were collected. The caves yielded *Asplenium lanceolatum*; the sandy shores, *Polygonum mariti-*

num and *Euphorbia peplis*; the short turf of the common, *Herniaria ciliata*; several bits of waste ground, *Gnaphalium luteo-album*. *Lagurus ovatus* abounded; *Centaurea isnardi*—peculiar to Guernsey of “British” islands—was gathered at Vazon Bay, where also in the borders of the reed-beds was found *Carex punctata*. The sight of “*Cyperus longus* in every wet meadow,” was delightful to a botanist from the Isle of Wight, where the same plant struggled under conditions so severe to maintain its foothold. *Papaver lecoqii* is also among the forty-five species named in his notes as observed in Guernsey—not as a rarity, but because he had for some time been engaged in correspondence with Professor Babington and Mr. Newbould, on the subject of the proper distinctive marks of this poppy.

But the group of plants at which he was now working with the greatest zest was the *Lepigona*. In his Journal of the tour round the Isle of Wight, it may be remembered that he described\* with some minuteness a sandwort, which he then called “*Arenaria rubra pinguis*,” found on cliffs, near Niton, and at the Needles. This was in July, 1857; and that he had not, in the meantime, forgotten the peculiarities of the little plant is proved by an entry in his Journal of a visit to Ventnor, on August 28th, 1858:—“Along shore, in the afternoon, I saw the same *Arenaria rubra pinguis* which I had gathered at Niton, and curiously enough almost every seed-vessel was occupied by a fat white beetle larva.” Also on October 18th, he made a note of the same plant growing at Scratchell’s Bay; but having now ceased to believe in its being a form of *Arenaria rubra*,† he called it dubiously *Spergularia rupestris*.

*Spergularia rupestris* was a species up to that time marked in the “London Catalogue” (5th edition, 1857) as peculiar to the Channel Islands, so that its discovery in the Isle of Wight, making it a genuine British plant, was a matter of great interest. It was not, however, until three months after his visit to Guernsey that, comparing his Scratchell’s Bay sandwort with some Sarnian speci-

\* Page 94.

† *Lepigonum rubrum*.

mens, he made them out clearly identical. It is very questionable, at the same time, whether the trip to the Channel Islands had any connexion with the matter; for the *Spergularia rupestris*, or *Lepigonum rupicola* (Rock Sandwort), does not seem to have been among the plants he gathered there. It was at the meeting of the Thirsk Botanical Exchange Club, held on January 15th, 1860, that the discovery of this now well-known sandwort in the Isle of Wight was announced, in the Report of the Curator, Mr. J. G. Baker.

The addition of this species to the British Flora was after all only the minor half of his work at the "*Lepigonum*" group, of which, till that period, all our native forms were commonly referred to the two species, *rubrum* and *marinum*. A short paper, showing the occurrence of four distinct indigenous species, resulted from the careful examination on which he now entered, and the merits of this article are shown by the acknowledgments made to it in Mr. Syme's edition of "*English Botany*": which also quotes his descriptions (in Thirsk Report, 1861) of the *Violas*, *reichenbachiana* and *riviniana*.

It ought to be added that the thoroughness with which he worked out this little group was in great measure due to the liberal help of his Cambridge friends, Professor Babington and Mr. Newbould, but for whom some of the best Continental descriptions would not have been accessible to him. For instance, Mr. Babington had what was probably the only copy in England (sent him by the Scandinavian botanist, Fries), of Kindberg's "*Symbolæ ad Synopsis Generis Lepigonorum*," with the aid of which he had himself contemplated setting to disentangle the British species; by his consent, Mr. Newbould copied out all that he believed could be useful from this source of information, and placed the results at the disposal of Mr. More. Mr. Newbould would never, if he could help it, admit the value of his own assistance, and protested against all acknowledgments either in correspondence or print. "I am very much amused," he writes (Dec. 15th, 1859), "at your thinking I can enlighten you on the subject of *Lepigonum*, when it is quite plain that your opinion on the

subject is worth ten times as much as mine." Again (Jan., 1860), "What made you believe I had set you right about *Spergularia*? I thought I had only said my mind was not made up on the matter." (Jan. 19th, 1860). "I like the beginning of your Paper, but why do you lug me in?" (Jan. 28th, 1860). "About the MS. Preface [to another paper], nothing occurs to me, except that you do not call yourself F. L. S., and that you seem anxious to lug me into it." And in effect, Mr. Newbould certainly "lugged himself" out of it on more than one occasion.

He now (winter of 1859-60) corresponded almost weekly with Mr. J. G. Baker, who highly appreciated his researches among the Isle of Wight plants, writing (on February 1st), "You are really making so many discoveries this season that you quite put the rest of us who are interested in British plants to shame." Mr. Baker at the January meeting of the Thirsk Society gave an account of some of these "discoveries," including that of the *Lepigonum rupicola*, and of an *Arenaria* believed to be identical with the *A. lloydii* of Jordan; also reporting that Mr. More's parcel of plants for distribution included "a series of beautiful examples of *Batrachian Ranunculi*" and a series of *Cerastium pumilum* from Bembridge Down, the latter being referred to as "this long-lost species which no doubt most of our members will be very glad to have." The Report also mentioned, as a feature of interest in Mr. More's parcel, a grass from the Isle of Wight named "*Festuca pseudo-myurus* var. *maritima*." But this appears in the published account (in the "*Phytologist*") only because a letter requesting the contrary was too late to stay the printer.

The grass referred to was a *Festuca* he had noticed towards the close of the previous summer growing abundantly on St. Helen's Spit—that favourite little stretch of sands whose botany had so busied him as a beginner, and which still remained one of his happiest hunting-fields. The time of year was late for working at grasses; but still enough was observed to show differences from all the described British *Vulpia*æ, and though in his Exchange-Club parcel he labelled it a variety (adopting as Professor

Babington laughingly assured him, "a most safe way of keeping it out of notice"), he at once suspected it ought to rank as a species. But here again the usual difficulty cropped up—how to get descriptions of the less-known European species with which to compare it. When he first wrote to Professor Babington about it (in October, 1859), he had consulted all the Continental books accessible to him, including M. Lloyd's "Flore de l'Ouest de la France"; and this last-named book had really given him the clue, though it was long before he was able to prove it so; for M. Lloyd had also described (but meagrely) a maritime form of *Festuca pseudo myurus*, and mentioned as a synonym for it "F. ambigua, Le Gall." From Professor Babington's letter (November 12th, 1859), in which he says, "I have not been able to find the description of F. ambigua, Le Gall," it is evident that this clue, though a slight one, was from the first followed up as far as seemed immediately practicable. But the very name of Le Gall's book—the "Flore de Morbihan"—was so little known among either botanists or booksellers that a whole year elapsed before the description was traced. Meanwhile, about the end of January, he adopted the view that the grass was probably that known as *Festuca broteri*; and though, by Professor Babington's judicious advice, he refrained from as yet publishing it so in a scientific journal, he used that name in the "Outlines of Isle of Wight Natural History," which went to press in the first week of May. The spring of this year was a backward one, and it was not till June that he had an opportunity of studying fresh flowering specimens, with the result that on June 25th he wrote to Mr. Newbould (now settled in London) that he was now convinced the plant was not *Festuca broteri*. Mr. Newbould (June 26th) replied that he had just that morning arrived at the same conclusion, after a careful inspection of the solitary specimen of *F. broteri* in the Herbarium at Kew. In fact, so far as Mr. Newbould's most industrious researches in the herbaria went, everything tended to strengthen the idea of a "new species," and even a name, "*Festuca helenensis*," was under discussion. But still Le Gall had not been found. In July, Mr. Newbould wrote

even doubting whether his book had been printed; but in September it was ascertained to be in existence; in October it was obtained, and on the 30th of that month Mr. More wrote to inform Professor Babington that he had no longer any doubt of the identity of his plant with Le Gall's *Festuca ambigua*—an identification in which Professor Babington, on reading the description, quite agreed. *Festuca ambigua* therefore took its place in the British Flora. || It made a fourth to the little trio of species (*Matthiola incana*, *Calamintha sylvatica*, and *Arum italicum*), which were then believed to be limited in Britain to the Isle of Wight.

## CHAPTER XVI.

## FRESH STIMULUS TO ORNITHOLOGY.

[1860.]

A PAPER on "Rare Birds observed in the Isle of Wight," which he contributed to the February number of the "Zoologist," is notable chiefly as having led to the starting of his long correspondence and friendship with Mr. Alfred Newton.

These were the early days of the "British Ornithologists' Union" and their famous magazine the "Ibis," whose founders being nearly all Cambridge men comprised several old acquaintances of his University days, and among them Mr. Edward Newton, his friendship with whom began, as we saw, in 1855, and had largely paved the way towards that with his brother.

He certainly felt unusual pleasure when, a few days after the appearance of his paper in the "Zoologist," he received a long letter from Mr. Alfred Newton, expressing the friendliest interest in both his recent ornithological efforts, and at the same time freely discussing some of the views maintained in the later of them, particularly the admission of a certain supposed "Northern Puffin," or "Mormon glacialis," into the list of stragglers to the Isle of Wight.

His reply bears date February 8th, 1860:—

DEAR SIR,—First let me thank you for your kind letter. It is very cheering to the country-living and solitary naturalist to find a sympathizing hand extended in so friendly a manner as yours. I hope that you will let me look upon this renewed correspondence with Elveden as an omen for future success in Ornithology, no less than as a pledge that you have forgiven my want of zeal on behalf of that venerable bird the Ibis, whose priest and interpreter we know "hails" from Elveden. And let not that priest too hastily set me down as a heretic. . . . Whenever I find leisure to elaborate that isocheimonal matter, and some of the

other points too I hope to attempt, you may be sure that I shall knock at your door, perhaps with a longer and better yarn. So is the Ibis appeased? It has long been in my mind to make you this confession. Indeed I charged a friend, who finds Grey Shrikes' eggs not perhaps in a *mare's nest*, but in that of Collurio, to make you this apology. I can only hope he was more punctual in delivering that message than he appears to be in recanting his heresy. Surely the High Priest ought to excommunicate the delinquent unless he do reparation to the poor butcher-bird, who I hear has been complaining loudly to his Norwegian friends. Would that poor Wolley were there, to bring over the message. Indeed we can all sympathize most deeply in your loss of so excellent a friend, so accomplished an ornithologist, and so eloquent a writer. It may be long before we meet with such talents so well combined again. As you say, such a loss should draw us old Cantabs more closely together. You must of course give the poor dear fellow a full obituary notice. Do let it be well done, and I will warrant that will not be the least interesting article in this year's "Ibis." Thanks for the news of your brother Edward, whose friendship I was lucky enough to cultivate at Cambridge. It makes me sadly envious though of the lucky ornithologists who can gratify all their tastes in such glorious fields. You know, I dare say, that I have been overmuch addicted to Flora rather than to Ibis lately. I have in preparation—(1) a new pocket Flora of the Isle of Wight; (2) a critical supplement also to the celebrated Flora Vectensis of Dr. Bromfield; (3) a Fauna Vectensis for a new Guide Book; besides whipping up my old friends the birds. So that there is ample work cut out here for the next two or three summers. Then for the migration once more (D.V.). Will you kindly consent to assist me with your advice as to the points briefly alluded to in my "Migration Paper"? Indeed any criticism will be most "thankfully received and acknowledged." Don't be afraid of hitting too hard, or in a tender place. I am too fond of a hit myself to care at all about that. *Stet veritas* should be our motto, and then who cares for criticism. I never felt more pleased than when you wrote so fully, and yet in so friendly a manner, with knowledge so far superior to mine, about "that Puffin." Thank you extremely for your most liberal offer of specimens of heads; they would doubtless be of the greatest service. But as F. Bond has *the* specimen, I should almost think the *capita mortuorum* might be more useful to him. I have sent on to him all the information you so liberally furnished, and hope to get his answer soon. He had named his bird in the British Museum; not that this can decide the question, nor even the specific value, but will I hope justify the publishing of the Bird.

From this time Mr. Newton and he corresponded regularly, and his old love of Birds seemed to assert its sway more strongly than ever. Indeed very few days elapsed before Mr. Newton found himself applying, not the spur, but the curb to the zeal of his "convert." Grieved at



“the sad fate which befell three Peregrine Falcons trapped on the nest at Freshwater,” he drew up an indignant protest, which he first headed, “The Ban of Hesperus,” and forwarded to Mr. Newton (February 10th), hoping he would deem it “worthy of the ‘Ibis.’” “The evil (he wrote) is so crying and so likely to be repeated that no words can be too strong to hurl at the offenders.” “I am sure you will not think the language too high-flown when you think how rare the Peregrine is fast becoming, and with what interest we ornithers regard and love him.”

The protest, however, seemed to Mr. Newton too passionate for the “Ibis.” It was then retouched, and sent in a somewhat altered form, and with a new heading, to the “Zoologist,” but declined by Mr. Newman also; and so remained in the obscurity which perhaps scientifically it deserved. But he kept the manuscript; and it is too characteristic of the writer (zealous sportsman and collector though he was) to be omitted here.

#### “ON UNNECESSARY DESTRUCTION OF BIRDS.

“The ‘Zoologist’ has more than once raised its voice (to some purpose we would fain believe) against the wanton destruction of scarce birds.

“At this season it is hoped that a few words of remonstrance may be allowed, especially as regards the practice of destroying birds at their nests, or shooting a pair when they show a disposition to breed. For instance, had those two pairs of Woodchats fallen to some shooter, whether ignorant or not, there would have been lost the opportunity of recording a far more interesting fact in the nest and eggs taken recently at Freshwater. So it is very much to be wished that those who, this May, chance to see Hoopoes, Pastors, Orioles, &c., would think twice before they shoot—they will be the happier for it afterwards.

“Whether it be done in mere thoughtlessness, or that the desire of possessing (or being known as the shooter of) a rare species, outbalances, at the moment, every better feeling: so often is the pleasure of success embittered by the pang of regret that follows, so often does the shooter

reproach himself afterwards with having stilled for ever a glorious creature whose life gave pleasure to many more than could its death, that I am sure it is not upon a true ornithologist the call of mercy needs to be impressed.

“We who watch birds in the spirit of ornithology, love them too ; and if specimens are indispensable, they are taken sparingly, not from mere taste for killing. It is true that the ‘priest’ must sometimes take the sacrificial knife, but if *he* must nerve his arm for slaughter, surely that is no reason why murder should become general.

“It is a sad pity that so many begin the study of Birds by indiscriminately shooting down everything they come across. It almost seems as if such persons made ornithology a pretext to glut a taste for blood, of which they would otherwise be ashamed.

“It must have struck most people that of many birds we have no other record than their death. How many epitaphs of the poor Hoopoe are there not chronicled ? And if any tender-hearted person should ask, ‘wherefore were they slain?’ a novel explanation is suggested by a remark of Mr. E. C. Taylor, who, writing in the ‘Ibis’ of the birds of Egypt, mentions that ‘his party found the Hoopoe very good eating.’ However, we can hardly believe the taste for Hoopoe-flesh is general in England ; though collectors of birds are (like entomologists) often supposed to ‘eat what they catch.’

“No : in England it is the love of what is falsely called sport ; and the unfortunate rage for British-killed specimens of the so-called British species that does the mischief. As if a Hoopoe on his travels were worth any thing more than one obtained at his head-quarters.

“In Italy it is the actual consumption of every kind of bird that has led to that scarcity which is remarked by every traveller.

“Let me quote an illustration of each :—

“First, from Thompson’s ‘Birds of Ireland’ (Preface to the 3rd volume). How fared the harmless Terns at Lambay, an island off the Dublin coast ? ‘An officer laid a wager he would shoot 500 birds in the day, and went to the island with every requisite for his murderous

purpose. Servants were constantly employed loading his guns, and filling hampers with the slain; but long ere the sun had set, his object was accomplished and his bet won. Five hundred birds at this season may be reckoned equivalent to twice or thrice as many according to the number of young they would have respectively produced.' And 'such' (concludes Mr. Thompson) 'is an instance of what, on a smaller scale, is being commonly enacted.' We wish we could believe the Terns at the Farne Islands, off Northumberland, suffered from none but ornithologists' guns. And be it remembered there is no skill required to bring down a Tern. The bird is killed on the wing about as easily as a fowl standing at a barn-door.

"But in Italy, and in the countries affected by the proceedings of the Italian bird-destroyers, who intercept the migratory species 'en route,' and hold, as it were, a seasonal battue or carnival of slaughter; it is here that the diminution of insectivorous birds has become a serious evil, so much so that laws have been, in some places, enacted for the protection of the little warblers, and others, who rid the agriculturist of so many of his enemies in the shape of grubs and blights. This course has been adopted in some parts of Germany, and we believe also in one of the United States of America. The question of the advantage or disadvantage of encouraging Sparrows has been discussed at length several times in this country, with the conclusion that we derive, from their visits to our fields and gardens, more benefit than harm: they both keep down insect pests and also check the growth of weeds by devouring the seeds. But it is allowed that a moderate thinning of these birds is, at seed-time, advisable.

"Now for the welcome which awaits our little friends in Italy. To quote from a most interesting work, F. von Tschudi's 'Alps,' the following eloquent passage occurs at page 80 of the French version:—

"'Thousands of birds enliven our fields and forests, nest with us, and peaceably spend the winter in our country; but few live to return to the valley where they were born, to the bush or rock which sheltered them in infancy. Some perish exhausted by the fatigues of their journey: others

and far more become the prey of Hawks; but it is man's pursuit which destroys most. It is in Italy above all that the taste for sport has degenerated into a reckless passion which has become universal.

“Not only Woodcocks are taken; not only Quails, Pigeons, and other kinds of game: but they pursue ruthlessly, on their passage, the Swallows which in our country every one protects, the Fly-catchers and Redstarts so pretty, the Nightingales, and every species of warbler. In this country every inhabitant, old and young, merchant, mechanic, priest, and noble, equipped with traps, nets, guns, with Hawks and Owls' (to attract the attention of the smaller birds), 'carries on against birds a war to the knife. On the shores of Lago Maggiore there are taken every year 60,000 singing birds. At Bergamo, Verona, Chiavenna, Brescia, it is by millions they are destroyed; yet these are in great proportion little birds which with us nobody would think of molesting, but which, quite the reverse, are protected for their sweet song. This is the reason why Italy, herself the land of music and song, is so poor in singing birds, as is also the Canton Tessin, where for many years the sport has been practised in the Italian fashion, so that even a Sparrow has become a rarity: 1500 birds have fallen to the share of one man.

“The effect of this wholesale bird-hunting is felt in Germany, not herself guiltless in the matter, since at Halle and some other places, Larks, and *even Swallows* are sent to the spit.’

“Far be it from Englishmen ever to have conceived such gastronomic intentions. Alas! that Swallows should, even in this country, be sometimes shot as a trial of skill (where indeed no skill is required). But, as was said before, it is the taste for what is wrongly esteemed sport, and the unscientific collectors whether of birds or eggs that do the harm.

“In conclusion, I would quote the words of a friend of mine, who has thus embodied the tale of what he hears befell some Falcons last year. Though his appeal is perhaps somewhat too passionate, I am confident his words will awaken an echo in the breasts of nearly all British

naturalists; and if the murderous hand can but be stayed the protest will not have been in vain:—

“Not far from where I live extends a long line of magnificent cliffs, the glory of our Island, visited in summer by hundreds of travellers who find, most of them, the highest pleasure in surveying the grand precipice, with its clamorous tenants, the sea-birds of various kinds.

“Alas! that some should think it sport, forsooth, to play the butcher’s part, and shed, *with no scientific object*, the blood of innocent Puffins at their nests! As if that were worthy of a man! As if such Cockneys did not deserve, at each shot, to burst their barrels about their ears; and so to shed blood less innocent perhaps than that against which their guns were pointed.

“Often and often have I reverted to that beloved spot. In calm to watch the glimmering wavelets that seemed quietly to whisper peace; while from afar rose the cheerful cries of Gulls at play, and the voice of the Mallard, preening his azure shoulders beneath an April’s sun. Why bring murder here? In storm, when the waves furiously lash the cliffs, and none can stand against the gale, to see the gallant Peregrine spring from some ledge, and shoot obliquely upwards—brave rider of the blast! Who would bring murder here?

“And yet not very long since (so the story goes), traps—yes, miserable gins—were set within the nest, and took both parents; then one of another pair. How the fingers should have been wrung that set those snares! What! Falcons sold for some miserable pittance to grace the shelf of a Cockney! Falcons, erewhile worth an Earl’s ransom, betrayed to citizens for shillings! Gamekeepers too are overhard upon them. Sad avarice, to grudge an occasional Pigeon or rabbit, to weigh even a few Partridges against that noble bird, each feather from whose pinion is worth a hecatomb of Pheasants.

“Shame to silence that voice whose ringing cry thrills through the heart as it is borne re-echoing round the precipice! May the Vulture of Prometheus gnaw that wretch, who for gain, or for spite, or for paltry selfish ends, could slay the Falcon on his eyrie! *at least where the bird is*

scarce. May that vengeful cry long pursue his dreams !  
 May each feather of the victim speed a shaft of remorse !  
 Alas for the martyred Falcons ! alas for the glory of our  
 cliffs ! shorn of their chief attraction in such loss !

“To the rescue, ye bird-lovers. Proclaim it ! Cry it  
 through the land, “*Woe to the Falcon-Slayer !*”

“O spare, ye that would be our friends ! spare old, spare  
 young, spare nest !

“Away, you selfish egg-hoarders ! What use do you  
 make of those empty barren shells ? What pleasure do  
 they afford to you or to your friends ? Think that from  
 each of those withered graves, so prematurely useless,  
 might have flown a princely bird ; or, at worst, have been  
 reared the falconer’s pride, “*Attila*” or “*Camilla*,” un-  
 matched in speed.

“Set your faces then against the pernicious practice.  
 Turn unlovingly from him that offers to entrap ! You may  
 be sure he is a haunted man. Don’t you see it in that evil  
 eye ? sure sign of a hardened conscience. Avoid him with  
 a malison, not undeserved we think ; and thus the race of  
 Falcons may not become extinct. Shall we who boast  
 our descent from rover Vikings and from invading Nor-  
 mans—shall we not try to save the Peregrine ?”

For so passionate a person “*Hesperus*” took his rebuff  
 philosophically :—

*February 17th, 1860.*

MY DEAR NEWTON,—Many thanks for your long and most wel-  
 come letter. Don’t suppose that I felt in the least hurt at a refusal  
 at once so reasonable and courteous as yours. It is a pleasure  
 to deal with anyone who speaks so frankly. Now to work. As you  
 want reasons, let me try and find them ; and if you think me a  
 sadly obstinate fellow, pray remember I come of the old, once regal  
 house of the *Scottish Mores*, who were proverbial for sticking to their  
 errors. . . . Now why did I appeal to the passions ? Designedly ; and  
 as the only way in which I could hope to reach the delinquents. What  
 would reasoning do with such people as can hardly be expected to  
 reason much themselves ? And how would reason prevail to shake  
 one atom the murderous intention of Mr. Villikins, whom I meet  
 walking down to the river-side at Richmond to try his skill on the poor  
 Swallows ? Will he not reply, “Sir, my gun was made to shoot with !  
 Birds, to be shot at ; and *me* to enjoy me’s-self !”—so, if he did not  
 proceed to maledict my interfering eyes, I should be lucky. But I

address the audience, the bystanders; I beseech their indignation, and they *hoot* him; they pelt him with well-deserved sods and stones—as I do my best to pelt him with hardish *words*. It is not you, my dear Newton, whom I can possibly blame. The Priest slays his victims with the sacred knife with dignity and unblamed. *He* need not run a murdering "muck," as do the uninitiated. But when twenty collections are begun as a sort of toy, to be presently thrown aside, after having woefully reduced the number of rare birds, then do you not think the case calls for interference?

As to Master Peregrine stooping to conies. Well, of course, we know he usually fells his flying victim like a true sportsman. But—truth must be told. Around a small stone land-mark, not a foot high, I pick up "casts" filled with fur and rabbit bones.\* Casts, as I imagine, too large for the Kestrel, and at a spot close to the edge of the cliff, where, last week, I saw the Falcon, and since have (to my great joy) seen the pair. Neither are Kestrels much seen about *our cliffs* in winter. Nor have I seen any other hawk there of late. Then I turn to M'Gillivray (a trustworthy man, surely), and he especially mentions rabbits as the occasional prey of the Falcon. Then I find Mr. Peregrine does not object to taking a *pot-shot* at young Squabs, out of the rock-birds' nests. So evidently takes other besides a flying quarry. Can you rebut this? All the same, I am infinitely obliged to you for that criticism, which I should have equally made myself until within the last few weeks.

"Isocheimonal" migration, I had written at full length to answer the very objection you make about the *Sylvia galactotes*, but I thought it best to compress the paper, and insist (to begin with) upon *one mainspring*.

Taking the autumnal restlessness of the broods for granted, I think their scattering irregularly westward, at a period when the weather is *still fine*, not unreasonable: when you come to the next law I conceive I see that they will fly to meet the prevailing wind, which blows from a milder climate, and from the temperate water of the Atlantic.

Nor did I intend it to be supposed the birds halt, many of them with us; but that they sweep round the N.W. angle of Europe, then naturally southward. Can you help me to any papers touching upon birds (warblers, &c.), flying over the mountain snows or not? I think they follow the passes like other travellers, and do not ascend high, even where there is no snow. Above all, I am endeavouring to trace the difference between the route followed in *spring*, and that followed in *autumn*, which we know are mostly different: and I think I have found out why. Many thanks for what you have so kindly told me. Any assistance will be most thankfully acknowledged: one man cannot do all.

I will, if you please, avail myself hereafter, when in London, of your

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\* Mr. Newton suggested in reply to this that the "casts" described might have been those of the Raven.

kind offer of Puffin-heads. Bond says he matched the identical bird in the Museum, with G. R. Gray to back him. From this I do not see we can appeal, but Mr. Bond says the different ages of the two are not yet understood. Have you ever tried for a "Muckle-bill" Puffin in the north of Scotland? I am glad to hear you believe in Brunnich's Guillemot. I did not exactly mean to dispute its specific value, not knowing the bird sufficiently. . . . How lucky you ornithers are, not to be bothered with twice as many false species as there are real ones. Have you read Darwin's book? I am at work reviewing it. . . . Please remember me most kindly to your brother Edward, and tell him of our becoming acquainted, and what hopes you have of converting the "botanist."

In several later letters there were bantering references to the fate of slighted "Hesperus"; only one aspect of the matter was too serious for joke:—

(*June 21st, 1860.*) I withdrew the appeal against Falcon-slaying, thinking the season is too far advanced for it to be of any use this year. I am sorry to tell you the pair of Falcons which build at Freshwater have again been destroyed. Both birds were trapped on the nest. And I think I told you the Bembridge pair were shot long ago: so that there will soon be an end of them!



## CHAPTER XVII.

## A BUSY YEAR.

[1860.]

HIS hands, as he told Mr. Newton, were pretty full. He had been commissioned by his friend the Rev. E. Venables, of Bonchurch, to write the natural history part of that gentleman's "Guide to the Isle of Wight," and only the first four months of the year could be allowed for its preparation. During the same time he was busy at many other Papers, besides the contemplated "Pocket Flora" and "Supplement to Flora Vectensis." He had begun reviewing for the "Annals of Natural History," as well as for the "Phytologist"; and to the latter magazine he was this year nearly the most frequent, and, in Professor Babington's words, "the best, the very best, contributor." Mr. Babington here referred chiefly to a series of articles he wrote at the instance of Mr. Newbould, who, in a letter dated February 14, asked him, "Could you not translate, for the March or April 'Phytologist,' all that Boreau says on pp. 152 and 354, about *Erophila* (*Draba verna*), and even add his detailed descriptions? This would set several persons to work, who otherwise would be idle at this time of the year. This might also be followed or accompanied by a similar notice of the plants included under *Viola odorata*, &c., and the later flowering plants similarly treated would come on well later in the year." In accordance with this suggestion, the article, "Look after *Draba verna*," was written for the March "Phytologist," and was followed by "*Viola hirta* and *V. odorata*," "Which is *Ranunculus heterophyllus*?", "See to the Chickweeds," "British *Lepigona*," and "Remarks on the *Violæ* of the Coast Sand-hills," published respectively in the April, May, June, July, and October numbers. "I want to thank you for what you have done for *Draba*: it is exactly the

sort of paper I wished for," Mr. Newbould wrote to him in March, and in April, "The last two numbers (of the 'Phytologist'), thanks to you, were what they ought to be."

He was not forgetful meanwhile of the land where lay his "second home." There were signs of increased botanical activity in Ireland. Dr. Moore and Mr. Babington had contributed two important papers to the "Proceedings" of the "Dublin University Zoological and Botanical Association," both indicating a current of thought in the direction of an Irish Cybele.

Part of the impulse to the new movement had indeed originally been given by himself; for Dr. Moore, in his paper, explained that it was "an article in the 'Phytologist' for June, 1858," which had drawn his attention to the need for more systematic study of the *distribution* of Irish plants, particularly those whose claims to rank as indigenous were still unsettled. There is no difficulty in identifying that "article in the 'Phytologist' for June, 1858." It is Mr. More's anonymously contributed abstract of De Candolle's "Naturalized Plants." In it, he had raised the question, how far might the principles of De Candolle's book favour the indigenousness of certain Irish rarities, specially instancing the American *Sisyrinchium anceps*, found at Woodford, and at that time nowhere else in Europe.

Dr. Moore's paper, which gave hitherto unpublished localities for a number of rare species, was read on the 21st of January, 1859, and was quickly followed, on the 18th of February, by Professor Babington's "Hints towards a Cybele Hibernica." In this article were laid down the boundaries of the twelve "provinces," afterwards adopted [under the name of "districts"] by the joint authors of the "Cybele"; and botanists were urged to form "carefully prepared lists of all the indigenous plants found in each." Especial pains would be necessary "to avoid the errors resulting from two causes: first, the wish which many collectors have to swell their lists by including in them all the plants that they can find, without considering if the species is likely to be indigenous in the place where they have observed it; and secondly, the mistakes often made

in the nomenclature of little known or what are called critical plants."

Professor Babington added a striking illustration of one of the difficulties with which the investigation of Irish botany was still hampered :—

I may remark that there are in my herbarium specimens of three heaths, given to me by a person who marked with his own hand upon the labels the exact spots where he said he had gathered them, but which, after having myself carefully examined the places (situated in the south of Ireland), I came to the conclusion never grew there; and I am informed that, although many years have passed since the event occurred, no one else has succeeded in discovering them in that part of the kingdom.

The nearly coincident appearance of these two articles seemed of good augury for the wishes of Cybelizers; and Mr. More now put together what unpublished notes he still had on Irish botany, comprising the results of his stay at Loughall in the spring of 1854, his visit to Hollymount, and tour in Clare in the summer of the same year, and some additional particulars and corrections as to the Flora of Castle Taylor. "May the accomplishment of a 'Cybele Hibernica' be the hope and the effort of every Irish botanist," were the words with which he concluded his summary. He took even more than his usual pains in the preparation of this paper,\* and in sending it in MS. to Mr. Newbould, begged him to criticise it "as severely as possible," after which it was also subjected to Mr. Babington's censorship before being forwarded to Dublin, to be read at the Zoological and Botanical Association meeting on the 18th of May.

One passage in the paper always remained a matter of standing controversy between Mr. Babington and himself, the Professor stoutly repudiating the notion of "my leek" being other than an indigenous species. The opinion broached in the following paragraph was, however, always maintained by Mr. More :—

May not even *Allium babingtonii*, spite of its high flavour, have been cultivated by the ancestors of the present inhabitants of Aran

\* "Localities for some Rare Plants observed in Ireland, with Remarks on the Distribution of others."—*Nat. Hist. Review.*

and of the west coast of Ireland, just as *Allium ampeloprasum* is still grown in the west of France? And though my friend Mr. D. Moore has gallantly stood up as a champion for *Narcissus biflorus*, I hope he will forgive my urging, on the other side, that Lloyd, in the west of France, does not allot it a place among the indigenous plants of his district. Possibly the "holy men of old," who founded the numerous churches in the Isles of Aran, had better taste in flowers than in vegetables, if they cultivated *Narcissus biflorus* for its beauty, and *Allium babingtonii* as the leek best suited for their omelettes. Certes! a very little of it would go a long way.

Though they failed to agree about the Leek, the strength of Professor Babington's influence is peculiarly visible in Mr. More's botanical writings of this period, and most of all so, perhaps, in those in which the views (and still more the *methods*) of the "splitting" and "lumping" schools were contrasted. He had never, in theory, belonged to the "splitting" section, but used to envy the "lucky bird-men," who were "not bothered with twice as many false species as true ones." But it seemed to him one thing to disbelieve in the minuter "splits" as species, and quite another to shirk the study of them. In the articles "Chickweeds" and "Viola hirta and *V. odorata*" he dwelt on this distinction, putting the case for the splitters entirely from the practical, as opposed to the doctrinal aspect. Whether right or wrong in their opinions, they were advancing the study of British plants. And so, in practice, he took the side on which, at that time, Professor Babington stood very nearly alone among English botanists of the first rank. An unpublished paper he wrote this summer contains the following bit of imaginary dialogue between a "Liberal" (Babingtonian) and a "Conservative" (Benthamite) botanist.

[ *Enter two figures equipped with tin boxes. One carries in hand "Bentham," the other Babington's "Manual." It is to be noticed that the latter has far the larger vasculum.* ]

*Liberal Botanist.* Well met! I am very glad of the opportunity of doing a little field-work together. You come, I hear from Kew.

*Conservative.* Yes, indeed, and I wish I could see you there a little oftener. What splendid series there are of foreign specimens! You would soon attain a greater appreciation of the value of species; one

shading into another by such gradual links that cannot be seen in so small a series as the English Flora.

*Liberal.* Stay, are you quite sure you know the species you are talking about? For instance, I am told that you consider all the small chickweeds, or 'kerasts' as you call them, to belong to one kind.

*Conserv.* That's true enough. See, here are some on this bank: pray, tell me how many? Here's a tall one; there a stunted: all the same I do assure you, my dear sir.

*Lib.* I suppose you found that out by cultivating them at Kew, didn't you? I hear there are great facilities there for that sort of work.

*Conserv.* Oh no! We are quite satisfied at Kew without cultivation; and so would you be, looking at matters from a broader point of view.

*Lib.* But see, my dear friend! here is a perennial; that other is a little annual; time of flowering a month different; petals as unlike as possible: I wish they were as big as trees, and you would give them warrant fast enough.

*Conserv.* Let's look! Well, I'm half-doubtful after all: in fact I never looked so closely at such common things.

*Lib.* Ah! I'll soon convert you. See this bramble!

*Conserv.* Yes, it is the blackberry.

*Lib.* Ay, one of the forty, if you please.

*Conserv.* What! Can a man so waste his time and patience?

*Lib.* Sir! I follow my bent, you yours. How many species do you suppose you can claim acquaintance with?

*Conserv.* Some 4000, from Europe and elsewhere.

*Lib.* And yet are so ignorant of the productions of your own country? It seems to me you are apt to overlook differences.

*Conserv.* As I think, you mince species so small, there is no finding a sieve fine enough to catch them!

*Lib.* Not I, but the Frenchmen do; and I endeavour to steer a course between the two.

*Conserv.* But, you know, this close investigation will not answer for a general or geographical botanist; nor for a beginner.

*Lib.* I don't wish to be thought a mere "species-man" any more than you do: only I do like to have an *accurate knowledge* to depend upon.

*Conserv.* But don't you see to what this tends? You are fast becoming too abstruse for the beginner; there will be no more young hands to join your side.

*Lib.* On the contrary, I expect to have many deserters from your side of the border.

*Conserv.* We are *sure* of all the beginners.

*Lib.* Well then, had we not better make an agreement?—you to train the incipient, and I will give finishing-lessons to any who care to go beyond a mere smattering.

*Conserv.* I beg to observe they get quite as thorough knowledge at our hands, *and* more philosophical views.

*Lib.* Only, I am afraid they will lose altogether any idea of the distinction of species.

*Conserv.* With you, they will learn to call mere varieties by that name, but how *shall* we distinguish a species?

*Lib.* Cultivate, cultivate, cultivate! and all that can be proved *one* shall have my hearty concurrence.

If in one respect the Benthamites were too "conservative," they merited rather the contrary reproach for their attempt to revolutionize the old English plant-names, as in the above-quoted instance of calling the mouse-ear chickweeds, "Cerasts." In a review of Bentham's "Handbook," he protested against this disfigurement of the language; and the passage, in several respects a characteristic one, was dictated by a thoroughly "conservative" love on his part for our *real* English names ("true sons of the soil like the plants themselves," as he calls them elsewhere) as opposed to the spurious and artificial ones which those who would banish Latin from botanical nomenclature have no alternative but to resort to.

The English names are, many of them, of the author's own and his friends' coining. We think this innovation has led in many instances to a needless sacrificing of the older Celtic and Saxon terms, and to too free an importation of hybrid Latinisms. With regard to a complete system of English generic and specific names, we cannot hope or wish to see it adopted. In their present form the specific names remind one of poor M'Gillivray's proposition of dubbing some of our birds afresh after the same strict fashion, "Raven Crow," "Daw Crow," "Rook Crow," &c., but we have never met with an ornither who had adopted this nomenclature. Besides, we suspect Mr. Bentham's English names are full as difficult to learn as the Latin, without the advantages which the latter give us of following a plant into the foreign Floras.

Besides Bentham's "Handbook," which he reviewed both for the "Phytologist" and for the "Annals," the books on which he expended most pains this year were Watson's "Cybele Britannica" and the first volume of the "Ibis." If his review of the former was, as was gently hinted to him by some of his correspondents, a trifle long, he could, at least, urge in extenuation of the fault, "it was rather a pet subject of mine"; and this was quite as true of the other

(the "Ibis" review) in which he dwelt lovingly on the fascinations of Bird-study, its close connexion with the "sporting instincts of an Englishman," and the adventurous zeal of its votaries, braving indifferently "the sun of Africa, or snows of Lapland, or pestilent tropic marsh." One sentence in this review describes his ideal ornithologist:—

He should be a kind of scientific gipsy—a brown-faced, hardy, out-of-doors man; a quick shot; a dauntless climber; an earnest student; a practical bird-stuffer, with a dash of the author; and if to this is added a warm feeling for the beauties of Nature in all her forms, we envy the man who is such, and commend him especially to the worshippers of "Ibis" as a worthy fellow-craftsman.

Both these reviews appeared in the "Annals of Natural History."\* Besides his work for this magazine, he began a review of *the* book of the season, Darwin's "Origin of Species"; and some correspondence on Darwinism and the current criticisms of it, passed between him and Mr. Watson; but this article was never finished; indeed the subject, though fascinating, did not suit him; nor after the first six months of 1860 does he seem ever to have contemplated taking part in the great Darwinian controversy.

In fact by the beginning of May he had thoroughly overworked himself, and "fell into the doctor's hands" just as the "Guide to the Isle of Wight" reached those of the printer. Towards the end of the month he was well enough to pay a few days' visit to London, chiefly for the sake of meeting Mr. Newton, and of being introduced to a gathering of "Ibisites" held on the 29th. But immediately after this his health again gave way. He had to cease from work, and, sorely against his will, to give up all hope of going to Oxford for the meeting of the British Association on the 27th of June. Mr. Newton, Mr. Babington, Mr. Newbould, and many of his friends, were to be there: moreover, the B.O.U. were to hold their annual meeting, the agenda of which included the election of a new member to fill the gap which Wolley's death had too early left

\* Some of his reviews are signed "A.," others "G." Another "A." besides himself contributed articles to the "Phytologist" this year; and a review of the "Ibis" (vol. i.) which appeared in the "Zoologist," not written by him, was also signed "A."

in their ranks, and he had gratefully accepted Mr. Newton's "flattering proposal" to nominate him for the vacancy. But his absence from the "Feast of Science" weakened his chances; and Mr. R. F. Tomes, who had lately contributed to the "Ibis" an article on "White's Thrush," was elected to the coveted place. He succeeded in his next candidature four and a-half years afterwards.

The "Guide to the Isle of Wight" came out in July, and he had the satisfaction of seeing the "Natural History" very favourably noticed by both botanists and zoologists. True, doubts were thrown on some of its details, and it would have been strange if these had altogether escaped the critical reviewer, considering in how short a time the book had been written: even while it was printing, errors as to both birds and plants had come to his knowledge too late for correction, and a list of lepidoptera had reached him containing sixteen additional moths whose insertion was then impossible. But perhaps what troubled him most (though at a later date) were two cases of mistaken identity among those little-studied animals the Bats; and it is characteristic of his scrupulousness in such matters that the last note he ever contributed to a scientific journal was a correction of one of these.\*

Mr. Newbould, on receipt of a copy, wrote warmly—"I quite believe it the best specimen of guide-book natural history I have ever seen in the English language." Calmer, no doubt, was the praise of the "Ibis" reviewer. "Mr. More's treatment of the subject affords a favourable contrast to the carelessness exhibited in the natural history chapters in most hand-books." But possibly these are only two ways of saying the same thing.

\* Supposed occurrence of *Vespertilio murinus* in England. Correction of an error.—"Zool." (3) xviii., p. 148, 1894.



## CHAPTER XVIII.

## PROJECTING A "BIRD CYBELE."

[1860.]

HE was now embarked on a new project which, after years of work, he brought to a successful issue—the application of Watson's system to the birds. The idea of it was first broached in the course of a letter to Mr. Newton, written on March 31st, 1860—shortly after he had received for review the first volume of the "Ibis."

MY DEAR NEWTON—The critic commences his task upon the title-page. How would not your motto\* be improved by removing the word '*sacram*,' which, from its placing, weakens the line. I hope it was not a Rugby man wrote it, as we were never allowed to use adjectives at the end of a hexameter; far less to spoil a terse couplet with another needless adjective *incolumes*. How do you know you would be safe in Egypt under the mighty bird? And, why not rather leave out the brag? and say, "where flies the bird, there follow *must* we"; and don't forget the fine old practice of augury: those "*οιωνοπολων οχ' αριστοι*" were sure the fathers and founders of the noble craft. Give them their due. How do you like my version?—

Ibimus, augurium venerantes Ibis: illuc  
Ibis ubi ducit pergit et augur iter.

Ibis ubi dux est et eodem pergit haruspex:  
Ibis, et est nobis quisque sequendus avis.

Or would *ovum* come in for the "egggers," thus—

*Est rapiendum ovum, quisque sequendus avis.*

You will not fail to observe this is all a little exuberance of chaff caused by the delight at having the worthy bird under my survey. Now to business. You have indeed discussed capitally the egg-question; and of course taken as a scientific study it is absolutely essential, quite fundamental; but do tell me why you attach any higher interest to finding the nesting-haunts of such birds as have, once or twice, alighted in England than in hunting up any other

\* Ibimus indomiti venerantes Ibis: illuc  
Ibis ubi ducit pergit et augur iter.

species? Are you speaking only of the desiderata of *English cabinets* or of desiderata to the science?

I cannot well appreciate (no doubt from being a botanist) why there should be more interest in finding the nest of Swallow-tailed Kite than of any other American bird; or does its having once visited Britain make it our *duty* to take peculiar charge of his *oviculum*? I was immensely amused with that article; you have, my dear Newton, whipped up your eggs in such a pleasant light fashion that I don't think "Hesperus" himself could have in his heart to attack.

Talking of breeding-haunts brings me to a scheme I have long entertained of tracing out the breeding-quarters of our British birds according to *Watson's Provinces*, used by him for the plants. If you are not acquainted with the book, or with my paper on the Butterflies so treated, I will try and explain. What I want you to do is to give me your advice, and say may I reckon upon your great experience to help me in the "compilation," it is nothing more—and would the other Ibisites lend a hand too? Had I better write a letter to the "Ibis" about it, explaining and inviting help.

Yours very sincerely,

A. G. MORE.

He received an encouraging answer, and as soon as it was possible to undertake any fresh work returned to the subject:—

June 21st, 1860.

MY DEAR NEWTON—I hope you will kindly make allowances for a depressed state of health which has for the last three weeks prevented me from attending properly to any kind of work, and owing to which, correspondence has fallen sadly into arrears. I often felt that I owed you a letter, if it were only to express to you again the very great pleasure it gave me to make your acquaintance with that of the other votaries of "Ibis," and to thank you for the kind manner in which you introduced me to the fraternity. I have not forgotten the promise I made of attempting something in the way of a Paper; and I think it would not be a bad plan for me to commence collecting the materials for a systematic sketch of the nesting-range of birds in Britain, as a first step towards working out the migration afterwards. I have not yet given much attention to the Russian writer, but I do not think he has brought out any general law of importance, though his plan is very neat and valuable, if the different authorities who supplied the original data were sufficiently trustworthy. It seems to me a great deal of care is necessary, in this kind of observation, to distinguish between the arrival of the first few stragglers and that of the main body. How, for instance, can there be any guarantee that there were not, at some points, the forerunners only noted, in another the main body only?

And this, I fancy, would interfere very much with a correct outline of the simultaneous advance.

If you approve of my present scheme I shall be glad to commence operations by writing to different quarters for information; but here I feel, more than ever, that it is *you*, not I, who ought to undertake this; since naturally the best information will come from experienced egg-collectors, among whom you have so great acquaintance, and I hardly any. Still if you wish me to attempt the "Cybele" of our British birds, it would be of the greatest service if you will kindly help me, in the first instance, to a list of the species which you think can fairly be trusted to nest, either occasionally or regularly, upon British soil; and then I might be collecting what information I can, until you have a little less work upon your hands, and sufficient time to turn to your notes and specimens, as I feel sure you will be the largest contributor.

In case you may not have Mr. Watson's work at hand, I enclose you a tracing of his eighteen districts, by which the range of each species is indicated, *e.g.* the nightingale's might be given as

Prov.	1	2	3	4	5	*	*	8	9?	10
Auth.	Ro	Kx	Fr	Nn	R			Hw	H	T

with the authority shown in each case by initials.

It would be very desirable to trace the north and south limits by counties across Great Britain, if that should be possible; but I do not know whether the information would be forthcoming. . . . Pray excuse the repetition and prosiness of this letter. I am writing with a miserable headache, only I must not put off any longer. I have no chance of meeting you at Oxford.—Yours,

A. G. M.

(*November 1st, 1860.*) I am ashamed to think that you should have anticipated me. . . . I am as anxious as you are yourself to see the projected Paper under way; but pray do not hurry me. The statistical table which I have commenced requires a deal of time, if it is to be tolerably complete; and if I have not yet made much progress, it is because I have had my hands quite full of other matters; and then I am obliged to knock off, and rest occasionally from not being quite an able-bodied labourer. My health has been very much against work all this year, and so I cannot do nearly what I could wish.

(*December 15th, 1860.*) I daresay you have discovered ere this, that, as far as mental activity is concerned, I am unfortunate enough to partake of the nature or habits of the "mudfish" or of the snail; that is, in the summer I am torpid, and it is only the bracing autumn weather (or you will say the late floods) which rouse me again into activity. Pray don't scold me another time for delay and procrastination, want of zeal, and all that. I can assure you

the reproach cuts deeply enough when it comes from myself, far more when heard from another. However I am happy to tell you I have done a great deal the last month. Two or three reviews, three or four papers on botany, and a good share of one volume of my new Flora. The "Bird Distribution" is, I trust, fairly under way; and I am in correspondence with Mr. Watson as to the best means of showing the range in a manner at once concise, and yet satisfactory and complete. I have sent out applications to Knox, Eyton, Tomes, &c., and divide the birds into four classes—(1) Nesting regularly; (2) Nesting occasionally; (3) Nested in former times; (4) Doubtful cases. I do not see how any more simple subdivision could be adopted.

And on January 9th, 1861, he reports having "set the ball going at last."

MY DEAR NEWTON,—A happy new year to you, and may the *Ootheca*\* be safely hatched in the course of 1861. I trust you have considered whether it would be possible to collect all Wolley's scattered papers, especially the foreign ones, for a reprint, in the form of an appendix. I do believe they would be very interesting and valuable. Few of those who knew him are likely (do you think?) to know where to look. At least do give us a complete list of his papers in chronological order.

Many thanks for your last. It is clear, however, that you are not an adept in snail economy, for my "malacological" friends assure me that the summer heat and drought produce just the same effect as the cold, and this "æstivation" is as complete a shutting up and suspense of faculties as the hybernation of cold countries. I believe, too, the very same thing takes place in the vegetable world, and there is a period of rest for plants during excessive drought.

I have had several most satisfactory replies as to nesting birds. . . . Thank you for your promise of mentioning my plan to Mr. Powys. I will write to him as soon as I have a spare list, but all are out now, so you see I have set the ball going at last.

Now for the "Formula." Don't let me trouble you at once if you are busy, for I believe this requires most serious deliberation—(1) as to space to be allowed; (2) as to details to be hoped for. I enclose you a proof page I lately received from Mr. Watson to show you what he proposes to do with the plants. Of course our "formula" must be much shorter, nor could details be obtained to work out Watson's 112 districts. But I hope, and Mr. Watson thinks, the 38 "sub-provinces" might be tried. You will see a sketch of the proposed "Bird Formula" on the back of the page. For shortness I have thought the

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\* Mr. Newton's "*Ootheca Wolleyana*," published in 1864.

authorities of all very common species might be omitted altogether; still this would make the work a little unsymmetrical. . . .

I hope you are working at the new edition of Yarrell. Do tell me how that is getting on. There must be great room for additions and corrections. You have quite mystified me as to the "Little Laughing Goose" (or "Smiling" goose are we to call him?), the *Anser finmarchicus*.\* Do you consider the bird a true species or a sub-species (*i.e.* a permanent variety)? I daresay it was my own obtuseness in reading the article, but I did not feel sure which is your view. I see you have not included the Pink-footed Goose among the British nesting birds. Yet M'Gillivray distinctly states it breeds in Harris and Uist. Is some mistake suspected?

May I offer to a priest of Ibis some venerable *relics* of which I have just become possessed. The bones are warranted genuine, and might work marvels in proper hands.

Lot 1. Sternum of *Pastor roseus*.†

Lot 2. Sternum of male Peregrine (a plague on the wretch who shot him).

Lot 3. Sternum of female Peregrine (I can't bear the sight of it).

Lot 4. Sternum of Hen Harrier, female.

Lot 5. Sternum of Northern Diver and Little Auk. Skull of Snowy Owl, perfect, but somewhat encrusted with lime.

All and any of them are perfectly at your service if you care to accept of them. I regret the cross-bones in front of some of the sterna are gone or imperfect.—Yours very sincerely,

A. G. MORE.

The "main business" of this letter was the Bird-Formula, which was enclosed for Mr. Newton's approval. Mr. Newton, in reply, chaffed him unmercifully on this device. It "reminded him of the Okenian mysticism," was "as difficult of comprehension as the language of Mineralogy." "You say, 'if the names were abbreviated it would make the reading too harsh'—but, excuse me, have you not already abbreviated your formula until it approaches the Abracadabra of Magic. This, of course, is only for ourselves, but how is an uneducated person like me to understand

„     4     \*     6     „  
       Nn    O    Rt    ?

Picture to yourself the frame of mind in which —— will sit down to fill up a sheet with such cabalistic symbols,

\* Alluding to an article by Mr. Newton in the "Ibis" for October, 1860.

† Rose-coloured Starling.

and imagine, if you can, the hopeless despair with which he will rise from the task."

BEMBRIDGE, Jan. 25th, 1861.

MY DEAR NEWTON,—Your letter was immense fun, but I am not going to believe that a man of your genius was half so mystified as you pretend to be. A writer who expressed to a very shade his degree of belief in the specific distinctness of the "Smiling" goose is not likely to be taken in by a little bit of formula of the A B C-adâbra description. Now don't put on an air of injured innocence; if you did not take the meaning of my Christmas riddle, it was only because I forgot to send the key. I am very sorry to have given you so much trouble; but then, as you observe, I quite forgot that a course of Cybele and Cybelizing has rendered these symbols so simple to myself that I took it for granted you could read Mr. Watson's page at once.

Do not suppose I ever intended to submit the grand Arcanum to any eyes except those of my chief consulting adviser. All I ask from different quarters is simply the county list, marked with "Reg"(ular), "Occ"(asional), and "Hist"(orical), and with a few localities or details for the scarcer species.

When a sufficient number of these county lists has come in, I propose to work them up into the "mystical structure" which will show the main features and general point of the whole results. Now supposing Great Britain divided into 18 large districts (or parcels of counties), and these again into 38 smaller districts, as you may say France is divided into "provinces" and "departments"—let us assign a numeral to each, *e.g.*, Roman figures to the large sub-divisions, Arabic figures to the small. A bird (*x*) is ascertained to nest in the southern parts of England, in provinces I., II., III., IV., V., VIII. Now to vouch for the authenticity of the record, I know of only two ways; one is to put an abbreviated name of the observer (as a syllable follows a specific name) under each numeral, thus—

Accipiter Falco.

Provinces,	.	I.	II.	III.	et IV.	&c., &c.
Authorities,	.	Ro	Kx	Rs	Nw	

which, being interpreted, would be read "nests in the south-west corner of England (Peninsula Province, I.), in the south (Channel Province, II.), in the S.E. corner of England (Thames Province, III.): the authority for Province I. being Rodd, for II. Knox, for III. Rogers," &c., &c. But I should prefer to give the names in full, both of counties and of observers, using small numerals to separate the *counties* into *their* several groups:—1. Cornwall (Rodd), Devon (Gatcombe); 2. Somerset (Smith); 3. Hampshire (Williams), &c., so that *nobody can* be puzzled in reading the paragraph, and yet the figures will be available for generalizing. Now, if you do not comprehend my mystery, I am worse than a conjuror. Yet will I gladly send you a map with

the districts laid down upon it, both great and small, sooner than that you, who have so kindly and so repeatedly helped me, should not follow out the scheme thoroughly: the "father confessor" must comprehend everything when his advice is asked.

Of course, the above was fuller than was needed, but as an exposition of a long-cherished scheme it is scarcely out of place here.

By April 3rd data had been received from seventeen of the twenty-five sub-provinces of England and Wales. Scotland had yet sent few returns; but south of the border "the principal blanks now" were south and north Wales, Cheshire and Lancashire, and the Lake District. In fact the second stage of the inquiry had been fully entered upon.

## CHAPTER XIX.

## THE BIRD-DISTRIBUTION INQUIRY.

[1861.]

“OH, what a plague you are ! You know, my dear More, I like the birds awfully ; but unless someone would come and put away my other occupations, I can't stick to them. Just listen !”—began a correspondent, who, after grumbling through a sheet or two of notepaper, fell to answering the following series of interrogatories founded upon his county list :

*Hobby.* From what you say I incline to mark “occ.” Do you see them mostly in midsummer ? Was it a woody place or among rocks you found the nest ?

*Buzzard.* Is it on cliffs or in woods ?

*Marsh Harrier.* Does it nest now every year ?

*Hen Harrier.* Does this deserve to be called a regular nester ?

*Montagu's Harrier.* Does this breed regularly, do you think, at — ? Can you say is it a summer visitor ?

*Honey Buzzard.* Was the nest taken ? And the birds made quite sure of ? How many times has it bred, at a guess ?

*Red-back Shrike.* Said to be rare in— ; is this the case with you ? Does it nest regularly ?

*Pied Flycatcher.* Do I understand you to say you took the eggs with your own hands ?

*Dipper* is marked as breeding only occasionally in (adjacent district). Can it be regular with you ? Rare, of course ?

*Whinchat.* Is not this bird rare ?

*Grasshopper Warbler.* Do you consider it safely “reg” ?

*Reed Warbler.* Is this bird scarce or local with you ? Have you taken the nest ?

*Nightingale.* Is this scarce ?

*Lesser Whitethroat.* Is it “reg” ? and is it local ? Have you obtained the eggs ?

*Gray Wagtail.* Do you mean it is a common bird throughout the county during summer ? Or is it local, along hilly streams ?



*Tree Sparrow.* Please say was the nest in a hollow tree, or in a roof? Was it at nesting time you caught the old hen?

*Spotted Woodpeckers.* How am I to mark these? Is it "reg" for both? or "reg" for lesser only? you only say "often seen," not "nest taken"?

*Turtle Dove.* Is this rare or local? Can it be called "reg"?

*Black Grouse.* Where?

*Heron.* Can you name the Heronries for me?

*Woodcock.* "Occ" I suppose.

*Purple Sandpiper.* I am so sorry to hear the egg-holder has "vanished." These eggs (if right) would have driven half our oologists wild with envy. Could you get any details as to the *sort of place* where the egg was laid? Above all, *does or did no other Sandpiper breed at the place?*

*Spotted Crake.* Would you mark it "occ" or "reg"? Absent from you in winter?

*Teal.* Is this to be marked "reg"? Does it nest in *several* localities?

*Brunnich's Guillemot.* Are you quite sure of this bird? Were several shot in midst of breeding season? Egg taken? Identified? and by whom? If you can establish it, this will be a grand addition to the list. The bird is not yet admitted to nest in Britain.

*Arctic Tern.* Is there no other? Does this bird breed on cliffs or on low ground with you, and by the sea? I suppose you got one of the parents to make quite sure, did you not? I am very desirous of distinguishing the range of this bird from that of the Common Tern. I hardly think eggs only could be relied on. What say you?

*Red-legged Partridge.* Would you trust the dealer that the eggs did not come from other parts?

*Long-eared Owl.* Does this *never* breed?

*Ring Dotterel.* Is not this bird's nest found where you report the Rock Sandpiper?

*Golden Plover and Curlew.* Perhaps you have no sufficiently elevated moors?

A sample is here seen of the "sifting" process which he applied to every list whose contents suggested the slightest suspicion of an error. "I am beginning to foresee some of the consequences of a philosophic frame of mind"; he wrote to Mr. Newton (March 7th, 1861), and gave three instances of reports, lately to hand, which had "roused his caution." "Am I not on the high road to reputation as a sceptic? But nevertheless I believe too much care cannot be exercised. Of course I shall not venture on any addition to your list until we are both quite

satisfied of the evidence. Ah! the amount of gentle insinuation, almost of 'blarney,' required to avoid offence!" A few weeks later: "Now I begin to appreciate the kind of experience you have had. Oology must indeed be the school in which to learn caution."

(*April 11th.*) What I wish to do with the Shore-Lark, Redwing, Firecrest, and similar cases is to keep them in a list apart under the title of "species requiring confirmation," or "other birds reported to nest, but whose claims are not fully established." Thus to keep them in a sort of quarantine.

(*April 20th.*) Has it ever occurred to you what a series of duels we shall have to fight with the champions of the "excluded species"? (I am all for quarantining.) But it is just from this I anticipate the greatest good, because matters will be thoroughly discussed and sifted.

This, however, was looking far ahead. Long before matters could reach the duelling stage there were no fewer than 118 county lists to be "thoroughly discussed and sifted" with the 97 correspondents who had been good enough to supply them.

Not that all these were subjects for searching cross-examination; for the trained ornithologists of England and Scotland, almost to a man, gave their best aid to advance the scheme. Thanks to Mr. Newton's interest, the leading "Ibisites" were among the foremost to contribute; and lists from the shires of Northumberland, Durham, Northampton, Norfolk, Suffolk, Derby, Warwick, Sussex, Surrey, Perth, and Argyle, were furnished respectively by the Rev. H. B. Tristram, Mr. John Hancock, Lord Lilford, Mr. H. Stevenson, Mr. Newton, Mr. Osbert Salvin, Mr. R. F. Tomes, Mr. A. E. Knox, Mr. F. D. Godman, Colonel Drummond Hay, and Captain Powlett Orde. With these appear other names not less well known to the ornithologists' world. The Rev. J. C. Atkinson (of "British Birds' Eggs and Nests") sent a list checked for East Yorkshire. Sir William Jardine sent one for Dumfries. Mr. J. E. Harting contributed for Middlesex. Thomas Edward, the celebrated ornithologist and shoemaker, sent lists for Aberdeen and Banff; and the veteran Charles Waterton supplied one for the neighbourhood of Walton Hall. A list

for the Shetland Islands was furnished by Dr. Saxby, who had lately obtained there the first authenticated British eggs of the Snow Bunting. Mr. Bond drew up lists for Hertfordshire and Middlesex. One of his two authorities for Nottinghamshire was Mr. H. Milner, whom he had first met at Castle Taylor, and had such good reason to remember in connexion with the discovery of *Zygæna minos* in Ireland. To another old acquaintance, Mr. Hugh Reid, (the Doncaster bird-stuffer who got and described the first "British" Bartram's Sandpiper) he was indebted for a list which proved of peculiar interest as yielding probably the *last* instance of the breeding of the Avocet in England. Mr. Reid described how he had been brought "eggs of the Avocet in the flesh" from near the mouth of the Humber about 1845, twenty years later than the date from which this "Lost British Bird" (once so abundant) is generally said to have ceased to breed amongst us.

Still it is not too much to say that, on an average, each list entailed the writing of four or five letters—in many of which some adroitness was necessary to minimise the risk of offence. At least half-a-score of birds which could not be accepted as nesting in Britain, and some whose eggs and breeding haunts were as yet totally unknown, were reported to him from divers counties during the first six months of 1861. But even these mistakes were easier to deal with than others, real or suspected, regarding acknowledged British breeders; for here the hundred questions which arose seemed to range through every degree of doubtfulness. Could the Whimbrel have nested south of the Tweed? or the Cirl Bunting north of the Humber? or the Manx Shearwater off Berwickshire? or Montagu's Harrier in Yorkshire? or the Dartford Warbler in Suffolk? or the Black Redstart in Wales? Then there was raised an exciting question about the Skuas of Caithness. On a large inland moor studded with lakes, one of the few remaining breeding haunts on the Scottish mainland of Richardson's Skua, a few pairs of Buffon's Skuas, distinguished by their longer tails, were reported to have nested for a number of years, intermixed with the other kind.

This, from a little known part of the world, and relating to birds readily confounded, was no easy matter on which to pass judgment. If true, it established the right of a bird hitherto only very doubtfully warranted to a place in the British list. It seemed to be a case for "proof by specimen." But alas! when the ground was again visited in the nesting season of 1861, the Skuas, of whatever species, had been all but exterminated. "A gamekeeper made a point of shooting every bird that attempted to breed on the moor"; and so successful had been his efforts that neither proof nor disproof was, in this instance, obtainable.

Among other cases calling for quarantine was one over which he made rather a wry face; for it was one of his cherished Isle of Wight birds—the Woodchat. "What! rob me of my Woodchat! When the young bird was shot, and bears a white patch in the middle of the wing," he wrote to his "chief consulting adviser," from whom, of course, the slight on the poor bird had come. But as the markings of the immature Shrike did not convince Mr. Newton as to its parentage, the Freshwater "Woodchat" was relegated to the same position as (for example) the Little Bustard, whose only "British" egg was reported to be in the Elveden collection.

He had been sanguine enough to hope to publish an instalment of his paper in the ensuing October. But the many fresh channels of communication which opened up as the summer advanced were a more than sufficient ground for postponement, even if the state of his health had not made it necessary. On May 3rd he wrote to Mr. Newton: "Your speaking of my journey to London drives me to the confession that I have been very unwell lately. I have been now three weeks in doctor's hands, and I fear I shall not be well enough to join your May meeting, much as I should like to meet the "Ibisites" again, and especially to confer with yourself. The spring is always a very trying season to my health, and this year has treated me worse than usual. You know I am never much better than an invalid, but now my strength seems to have completely

left me; and it will take some weeks to set me right again, though I am happy to say I have now taken a turn in the right direction."

And on May 10th: "I rejoice to tell you I hope there is after all a chance of our meeting in London. The doctor has ordered me away from Bembridge, and I expect to go and stop at Turnham Green or Richmond, so I could easily manage to run up to London any day you like to name. I should be glad if you could manage to name an hour in the morning, say 11 or 12 o'clock, as my strength at present hardly holds out the day through. I have many things I wish to talk over with you. I have found the writing out lists takes so much time that I have arranged for printing a hundred or two, but first I should like to ask your advice about excluding some five or six birds whose claims seem very dubious."

To his disappointment, he missed seeing Mr. Newton: the B.O.U. meeting referred to in the letter was held before he left Bembridge. But a long visit (May 15th-June 13th) to Mr. Newbould did much to reinvigorate him. Still working hard at critical botany, he now spent many mornings with his friend among the London Herbaria; but did not miss the opportunities of bird-work afforded him from the vicinity of so many noted ornithologists, libraries, and collections, both of dead and of living birds. There were a "Shrike" question, a "Skua" question, a "Puffin" question, and various others, to investigate in the British Museum; the newest "British" bird, Pallas's Sandgrouse—whose first irruption had occurred in 1859—was to be seen alive in the Zoological Gardens; a few members of the B. O. U., as Mr. Salvin and Mr. F. Godman, were in London, and must be seen and consulted; while introductions to some other ornithologists living at a distance were to be sought for and put to use. Then on leaving Mr. Newbould he spent two days (June 13th-15th) at Thames Ditton with Mr. Watson, and here too the Bird-Cybele was kept in view. Mr. Watson had just had a new map engraved to fit into an octavo page without folding, and "in the most liberal way said I might have copies struck off to illustrate the bird paper whenever I like." "What

say you (he asks Mr. Newton) to having the map dated for the 'Ibis' of next April? as Mr. Watson strongly recommended that plenty of time should be taken; and I do not think I can get in my 300!! circulars in less time. Shall I not be lucky to get even half this number of local lists? . . . I have sent out circulars vigorously all last week."

This was written from Bembridge (July 17th, 1861) after he had had his bird-lists printed. The minute care taken in the preparation even of these—mere private check-lists sent to his correspondents to be marked and returned—may to some extent be inferred from the following letter with which he forwarded a proof for Mr. Newton's correction:—

*June 24th, 1861.*

MY DEAR NEWTON,—Not knowing your present address, nor how long you purpose staying away from home, I am obliged to send the enclosed to Elveden. I hope you will like the form of the list. I have followed your advice in all, except that I have ventured to admit the Great Sedge Warbler, on account of two instances in which the nest was brought in by ignorant persons. One nest came thus into Bond's hands, and I believe the history is quite complete. I hope you will not find many alterations necessary, as I believe the type is set in some peculiar manner which would render the insertion or omission of any one bird a troublesome matter. One or two little things I should like to ask you about. Ought not Redpole to be spelt *Redpoll*? though I see all the books are against me. You will see I have left the Osprey and Black Tern in common type, in the hope they are not really quite extinct. I have been told that the Black-tailed Godwit is thought to have nested this year in Cambridge or Lincoln. I am promised the particulars shortly. Do you think this bird ought to be removed from the "extinct," or rather "historical," section.

I wanted sadly one more bird to make the last column even, but there seemed so little choice among the "condamnés" that it did not seem worth while promoting any of them again. If I had been forced to choose, I think I should have taken the Little Ring Plover. Bond showed me some eggs which Dr. Plomley had sent him, mixed with and as Kentish Plovers; but they are a good bit smaller and differently marked—more streaked and less spotted. Can you tell me anything of the Little Ring Plover? Has it been often obtained since the first occasion, and have you ever seen a British-killed specimen? I suspect the character (as given) of the markings of outer tail feathers is to be obtained in the immature Ring Dotterel. But still Dr. Plomley's eggs seem all right. It seems singular so little atten-

tion has been paid to the bird: surely its nesting or not ought by this time to be beyond doubt.

The other day I saw in M'Gillivray's "Natural History of Deeside" a statement that the Snow Bunting breeds on the Aberdeenshire mountains; and several names are quoted in support of the truth of this. I am going to write to Professor Dickie, at Aberdeen, to see if he can do anything in the way of tracing out some of these people who profess to have seen the bird in the summer. As usual the statement is quite unsatisfactory, no mention being made of a nest, or eggs, or fledgelings. It would be curious to compile a list of birds reported to have nested in Britain, to include Redwing, Fieldfare, &c. I don't know whether the Snow Bunting is in any better predicament.

I have written to Jardine, sending him the table I have drawn up of distribution in Scotch counties, asking him to fill in Dumfries, and any other stray birds he may know of as nesting in other counties. Mr. Shearer has been looking after the Skuas. Unfortunately a wretch of a keeper has nearly exterminated the lot. He has, I fear, only obtained the Richardson's Skua; but his specimen will show. I have a great notion he may have been right about Buffon's. Can you refer me to any book or paper on the birds which *nest* in Holland and Belgium?—other than Deby's? . . . Please let me have the proof back as soon as you can, so that the copies may be struck off. Please say too if you would like any for yourself. I shall take about 200 I think.—Yours,

A. G. MORE.

Enough has been quoted to render unnecessary any apology for concluding this chapter with a paragraph extracted from Mr. Newton's essay "On the possibility of taking an Ornithological Census," which appeared in the "Ibis" for April, 1861 (pp. 190-196). The personal reference will readily be understood.

It is unnecessary in these days, if it ever was otherwise, to show how much light has been thrown upon natural history by an understanding of the geographical distribution of species. Yet our acquaintance with this extensive field of research is very limited. The six great physical regions of the earth's surface have been defined with more or less accuracy, but the details are very far from being filled in. Meritorious efforts have been made to determine the summer range of the Nightingale, and the lines of the Crane's simultaneous arrival. The progressive advance of the Republican Swallow in North America, of the Grey Partridge in Scandinavia, and of the House Sparrow in Siberia, have been recorded. The respective parallelism which obtains in certain families or genera inhabiting the Greater Antilles has been noticed, and a comparison made between the number

of New World and European species which find their way as stragglers to our shores. But little has been ascertained with respect to the distribution of British birds. However, I know that one of my friends, distinguished by his remarkable diligence, has now for some time been employed on this deeply interesting subject; and as I trust that before long he will have made sufficient progress to offer to the public, in these pages, some of his investigations, I will say no more on this head, but turn to what I conceive will prove to be the most important result of such an inquiry as I have indicated.



## CHAPTER XX.

## LETTERS TO MR. A. NEWTON.

[1860-61.]

AMONG the mass of his letters to Mr. Newton, written chiefly on the subject of the Bird-Cybele, are many touching more or less on Migration, Protection of Birds, and sundry other ornithological questions.

*April 9th, 1860.*

MY DEAR NEWTON,—Many thanks for your kindness in replying at once. . . . The review (of "Ibis," vol. I.) has been finished for a week. I have given all pains I could and much time to leave nothing undone. It has gone off to-day to Red Lion Court, and I hope will appear in May (the birdman's month). If you have a chance, will you urge on the printing? Francis, I hear, likes my attempts, and so I shall soon be in for the "Cybele Britannica."

But you shall first have the paper for "Ibis" upon my scheme.

Many thanks, my dear Newton, for your kind promise of your able assistance, and many thanks too for so good-naturedly encouraging me to return to my "meat-diet" again. I have always felt something of a recreant in not having joined the Union (B.O.U.). But . . . I have to invest in a new mainsail to my sailing boat this summer. I wish I could get hold of you to sail with me a few of those long, hot summer days, to see all the yachts, and enjoy the rush of water and the cool breeze. Who would not then be a Merman?

. . . You were kind enough to promise to agitate for me whenever I should publish in the "Field." I have published a letter, but not the "Hesperian"—it is entitled "Game-birds: when in season?"—in the Number now a fortnight old (No. 378, p. 231). Will you support me? I look to naturalists for help rather than from sportsmen; but those who have spoken to me about it seem all agreed that we commence the Partridge Campaign far too early. Do you agree with the "Shooting F.L.S."? being likewise "Another Shooting F.L.S." I hardly fear you will dissent much.

I am sure if you follow up the first shot with a letter, which you will write far more logically and scientifically than I can, we may hope to agitate the subject. Don't trouble to answer until you have more leisure. I have already too much trespassed upon your time lately. But if you agree about the shooting question, as you are a worthy

F.L.S. and ornitho-philos, agitate! agitate! agitate! till we get the poor fledgelings fair play.

Birds of passage are generally late this season. Only Wheatear, Chiffchaff, Willow-Wren, and Redstart have arrived.

Did you ever hear of *this* in the *Northern Diver*? One shot at end of February or early in March had many of the twin round white spots on wing-coverts—no sign of collar—but not a single quill in his wings, which were reduced to the dimensions of a Penguin's. . . . How should they become Penguins just at migration time?—for I see the others flying every day now.—Yours most truly,

A. G. M.

The letter on Partridge-shooting above alluded to appeared in the "Field" for March 24th, 1860, and was as follows:—

SIR,—I hope you may not think the present an inopportune moment to place before the public a few considerations upon a question which, it appears to me, is second to none in importance as regards giving game-birds fair play.

It is sufficiently well known that, in the sister kingdom of Ireland, the partridge-shooting begins on the 20th, instead of the 1st of September; but whether the crops are at all later in Ireland than in Scotland does not seem to have entered into the calculation of the framers of the law. In fact, there can be little doubt that, even in the South of England, great damage is, in late seasons, done to standing corn, and especially to clover, by the reckless inroads of unreflecting sportsmen.

What it is then proposed to suggest as a remedy is simply this:—

(1) To postpone the opening of the grouse-shooting from the 12th of August till the 1st of September throughout Great Britain.

(2) To alter the date of partridge-shooting from the 1st to the middle of September in England; to commence on the 1st of October in Scotland and Ireland.

The reasons for and advantages to be derived from such a plan may be briefly stated as follows:—

1. Parliament (for whose members we all know that grouse were especially made—be it remembered that they exist in Great Britain only of all the world)—Parliament, instead of hurrying over the fag end of the session, will have the fuller leisure for its deliberations. Thus the State will be the gainer.

2. Those who like, or if Parliament should disperse any time before September, its members will be able to get into proper training for their work by a fortnight's hill-climbing and ten hours' walk per diem, for several days before the "season" commences. September has usually finer weather on the hills, and certainly the air is more bracing than in sultry August. Here sportsmen will be the gainers.

3. Who cares to knock down with a gun such chicks as I have often seen brought home by shooters only eager to reckon up the total number of brace? Here the birds will be the gainers.

4. How much game reaches London in good order after travelling through the hot days of August? Are not our friends disgusted rather than pleased with such hampers? Thus friends at home will be the gainers by the alteration.

And so with partridges.

1. Will not "Mr. Briggs" run less risk of apoplexy if he puts off his matutinal rambles through the stubble beneath a broiling sun until the bracing breeze of October comes?

2. Will not the poor little "fledgelings" thank Parliament for giving them time to grow their quills, and so have a fair chance? I have seen birds far too young shot, even after the 20th of September, in Ireland.

3. Will not our volunteers be the better for a real match against difficulties when they follow the strong coveys in October and November, rather than take them at a disadvantage? Fairness is the boast of an Englishman.

4. Will not the "ill-used" farmers grumble out their gratitude for corn untrod and clover duly mowed before the sportsmen can come?

And we should not forget that, if Mr. Gladstone's £1 a month licence be carried, there must be expected a certain increase in the number of sportsmen—none, proportionally, among the birds; so that the latter should be the more carefully guarded.

Should these lines meet the eye of some grouse-shooting legislator, may we hope that he will, at all events, think over the matter, if not inclined to bring it under the notice of Parliament.

A SHOOTING F.L.S.

His review of the first volume of the "Ibis" was warmly commended by Mr. Newton, to whom he replied (May 5th, 1860):—

MY DEAR NEWTON,—The receipt of your letter gave me great pleasure. . . . It is a great satisfaction to know that you approve of what I have done for "the Bird"; I am but quite a beginner at writing, so anything you like must be simply owing to the friendly interpretation you have set upon my effort, and much more to the intrinsic merit of the Journal, which no one can peruse without seeing how well it is going on. All the credit due to me is simply that I gave the numbers an attentive perusal, and had the advantage of a referee at Elveden who kindly helped me to many points of information. . . . I am writing with a sad headache, so you must kindly excuse any little repetition and blunders in this letter; I feel I ought not to lose any

more time in acknowledging the kind expressions contained in your last letter.

Did you read ——'s paper? . . . As far as I can follow his argument, he seems to stand out for migration direct north and south, admitting at the same time that climates are not so bounded. Yet, of course, *climate* must be the great influence upon the movements of birds, in the spring especially.

I have little doubt that the Nightingale, in avoiding the W. and N.W. of England, simply shuns in its nidipetal migration the damp or foggy or rainy climate; and I think it has occurred in Cornwall on the *autumnal* migration when food enters more into the causes of the movement.

Again, is it not rather unphilosophical to resort to the accidents of winds driving birds from their course?—when the same species occur year after year in equally scanty numbers; and when the *autumn* winds usually blow from *the west*. I believe these "wintering summer-visitors" find their way by instinct and not by accident, though, of course, we only feel the outskirts or eddies of the great migratory streams. You will see how much stress I should lay upon the birds working their way against the wind at both periods of migration, because the temperature they are in search of is *brought down to them by the wind*. . . . Yours very sincerely,

A. G. MORE.

Mr. Newton about this time wished to present him with a book, and thought a botanical one would please him best.

BEMBRIDGE,

Tuesday, May 8th, 1860.

MY DEAR NEWTON,—Pray, "herb me no herbs"; they are dry, dry, dusty things, and not to be thought of in comparison with birds. Surely the physician who prescribed a change of diet to such good purpose should be at no loss how to promote his patient's cure.

What guerdon would be more prized than the volume itself of "Ibis," both as a pledge of the kindly feelings which you have expressed on behalf of the fraternity, and as a remembrance of my first success as a reviewer in zoology. Of course you would add a modest little inscription on the title-page, after the style of the botanists, who send their works to each other as "viro celeberrimo, C. C. Babington," &c., &c.; and I promise you it would be the most valued volume on my shelves.\*

\* \* \* \* \*

Your opinion as to the knowledge of species being only preliminary to further studies is exactly my own. It is in fact getting possession first of the *key* only, or learning the mere language before we reach

\* This position was afterwards held by his "Newton's Yarrell."

the literature. How lucky you bird-men are in not being overloaded with false species! Certainly the correction of any error, whether about species' identity or otherwise, is far better service than ten additions; but how much more difficult to achieve! At this moment I have knocked off some fifteen species from the I. W. Flora, and each has cost treble the labour of adding one.

Our Natural History of the Island is gone to press, and I trust will be ready in another month. I shall look forward to sending you a copy, to review if you choose.—Yours,

A. G. M.

August 6th, 1860.

MY DEAR NEWTON,—Really you are the best of correspondents. Here are two letters of yours to be answered at once, and you in the midst of preparation for the "grand tour." I am glad to find that you have already guessed that I should not be able to accompany you. Though there is nothing would give me greater pleasure, and the opportunity is so tempting, it is quite out of my power to join you at present. But perhaps after all, you will have the more leisure from going *solus*, and so science will be the gainer, though, as you remark, a travelling companion may lighten the way. But I do not think your time is likely to hang heavily; when you are once launched into the work you are sure to find in the different collections.

Thank you again for the list of nesting birds\*; it is everything that could be wished for my purpose, and I am extremely obliged to you for taking so much trouble. Only one thing occurs to me; that it might be desirable to distinguish the cases where one or two pairs have certainly bred, from those which are only reported upon bad authority. But I hope you will let me return to the subject when you come back again to England, and when I hope to have some progress to report.

I am truly glad to hear you are to edit the next edition of Yarrell, as I am sure there will be great improvements, no one being better up to the latest discoveries than yourself. I wonder how you are intending to deal with the stragglers. After what is said in your paper on *Hirundo rufula*, I should expect you will be sending some more of them into quarantine for the present until some more instances are recorded.

Don't you think it would be well, when speaking of the general range of each species, to try and distinguish between the countries where the bird is indigenous and those which it visits at any regular or irregular period? It seems to me that all the places, wherever the bird has been found, are just set down without any attempt at arrangement in the present "Yarrell."

Wishing you every success in your investigations, believe me yours very sincerely,

A. G. MORE.

\* A provisional list sent him by Mr. Newton for use in his inquiry into the "Distribution of British Birds in the Nesting Season."

Among the books and pamphlets sent him for review was Mr. Newton's "Hints towards forming Collections of Eggs," published early in 1861. "So I am to be your trumpeter," he writes. "Hurrah! One good turn deserves another; and won't my four dear birds be avenged, and won't I announce your essay as 'a great improvement on the average run of cookery books!' and won't I show you up about those 20,000 eggs of the Wax-wing, which you so naively acknowledge to." (The "four dear birds"—not two pairs of trapped Peregrines—were the Golden Eagle, Crested Titmouse, Great Black Woodpecker, and "Northern Puffin," which an "Ibis" reviewer" considered to have been admitted on hardly sufficient evidence into his Natural History of the Isle of Wight.) In a letter of February 20th, 1861, he refers to this review, which appeared in the "Annals":—

I have corrected the proof to-day. I trust you will like it; and you must not be angry with me for crying "pray spare the poor British birds"; and mind *you* are not included among the reckless egg-collectors, nor are *you* one of the ignoble hoarders, of whom I have found several, utterly ignorant of the birds whose eggs they are so anxious to possess. Ah, you knew I could not suppress my prejudice entirely,\* but what is said I trust is done gently enough. . . . I was so much amused at reading over the notice of your pamphlet in the "Ibis," and which I am inclined to attribute to Tristram. I read it through last night, and again to-day compared it with my own. I notice he has not omitted the caution of "spare the parent as far as possible"; and the whole article shows the hand of an adept. My notice looks like the work of

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\* The reference is to a passage in which, having quoted his author to the effect that "the most satisfactory, and often the simplest, way of identifying the species to which the nest belongs is to obtain one of the parents by shooting, snaring, or trapping," &c., he comments as follows:—

"We implore our readers not to attempt to carry out this practice upon our British nesting birds. Many things are necessary and justifiable in an unexplored country, and when the egg has not yet been traced to its proper parent; but eggs found in Great Britain are mostly too well known to require such measures as this, though exception may very justly be made in the case of a bird not previously known to nest in Britain if it cannot be identified by any other means. Sad havoc has already been made among our scarcest species by reckless egg-collectors. Let us hope that a better spirit now prevails. A knowledge of the birds themselves and of their habits is surely far preferable to a collection of their eggs; and we have noticed that those who are most zealous in furnishing their egg-cabinets are not always the best field-ornithologists. Of course we do not blame those who collect eggs with a really scientific object."

an ignoramus in comparison ; but I have done my best to lay the stress where you wished, on the "auth. and ident.," not upon the implement and preparation—where by-the-by I am all at sea.

Thank you for forwarding your brother's very kind message. It will delight me to hear from him. I often think I partly owe my good luck in making friends with you to our acquaintance at Cambridge. . . . May "Ibis" flourish, and her priesthood, and be the number of her worshippers never less.—Yours,

A. G. MORE.

P.S.—Can the Puffin which visits Shetland in winter be our friend the *Fratercula glacialis*? What a chance to have settled the question of the variety reaching Britain! You will see the Robin entered as a winter visitor. If this be correct—and the bird is unlikely to escape notice in summer—what a grand support to your theory of universal migration! Shall I say also to mine of "Westward Ho"?

The following are some queries on Mr. Newton's provisional list:—

(*March 7th, 1861.*) There are several birds in your list for whose nesting I find no book-authority, nor have they been reported in any list. If it should not be giving you too much trouble, I should be very glad if you will tell me in which counties and on whose word they have been stated to nest, so that I may make inquiries when writing to those counties.

*Little Bustard.*

*Crane.* Are you satisfied the "Cranes" of the ancients were not Herons? Am not I a hopeful disciple?

*Ibis.* Lays capital eggs once in three months; but not to be found in my books as nesting in Britain.

(*Green Sandpiper*, obs.) Do you believe in the "yarn" that it nests "up a tree" in an old crow's nest? Can this be its regular habit?

*Black-winged Stilt.* Where? and on whose authority?

*Pintail Duck.* No locality given in my books.

*Ferruginous Duck.* Where?

*Long-tailed Duck.* Where?

*Red-throated Diver.* Is not this species become "historical"?

(*Ringed Guillemot*, obs.) Reported by one or two correspondents as nesting with the common species. Mr. ———, writing from Caithness, says he has traced it to quite a different egg. Only a variety, is it not, of the common Guillemot? but probably breeding intermixed in small numbers.

*Great Auk.* Did she ever set foot on Scottish soil? or might she not hatch her eggs beneath her flappers, just like the Northern Diver!

*Scops Eared Owl.* Surely Mr. ——— must have made a mistake.

*Woodchat.* What? rob me of my Woodchat! When the young bird was shot, and bears a white patch on the middle of the wing.

*Firecrest.* Does this depend upon Jenyn's cat-captured specimen? I have always felt great doubt as to that species. Was it a shadow of things to come? No Firecrest has since been got at that season.

Am I not improving?

*Grey-headed Wagtail.* I find no locality mentioned in my books.

*White Wagtail.* Reported as remaining all summer. Egg not taken.

*Shore Lark.* Where?

Alas! what a list have I not inflicted upon you! At least do not trouble to answer this except quite at your leisure.

Mr. Newton's idea of taking an "Ornithological Census"—first unfolded in the article from which a paragraph has already been quoted—is referred to in several letters:

(*April 9th, 1861.*) I read your Census Paper with great interest. I admire the philosophic spirit in which you doubt even your former self. But I admire still more the courage with which you propose a general inquisition into game-books. Don't you think too many of the witnesses would cheat their own brothers on *this* point?

But the labour! If it is hard enough to fill in the Chart of Distribution, what will it be to estimate the proportion per acre or per square mile? Truly the results would be extremely valuable, and I believe really useful. Nor is there any bird so likely to afford data as the Partridge. And the difficulties, the uncertainties!—before you can draw up your map of density. (It should be after the fashion of a rainfall map in a physical atlas, should it not?) Your courage, my dear Newton, is far greater than mine if you ever undertake to carry out the plan.

What seems to me the really serious defect is that you propose to take as an example of the "struggle for life" the one bird which, of all others, lives in an artificial and favoured condition. Favoured alike by cultivation and by man himself, how can such an instance be compared with other really *ferae naturae*? Does not the alliance and protection of man far outbalance all other influences? And how will this tell when you come to compare a well-preserved corn country with a district still remaining in pretty much its original condition? Again, are not manors, in many counties, confined to small patches known to be most productive of birds? and then a return from them will not represent the county fairly. My mind recoils before these many sources of uncertainty.

As a means of collecting information, do you not think that it would be well to enrol first a club or association of such as are willing to give



and collect data? I hardly think that without such an organization there would be a sufficiency of witnesses.

Your "diligent" friend thanks you sincerely for the compliment, and for the lift you have given to his scheme. I often think how little would have been accomplished without your constant assistance.

By-the-by, I ought to tell you that Watson has a chapter on what he calls the "Census of Species," his test of frequency being simply the number of districts inhabited by the several species. Thus he places at the head of the list, as commonest, a plant that occurs in, say, 100 out of 112 districts; next come those species which occur in 99, and so on, down to the plants restricted to one district. I think you should notice this in your paper to Linnæan, because *you* lay stress on density, he on range.

Again, April 11th. "I cannot get the idea of your proposed Zoological Census out of my head. The plan seems something so vast. I shall look for your paper to Linnæan with the greatest impatience. . . . Do advocate the tracing out of the distribution of our whole Fauna on *one uniform system* while you are writing on the census (or density of population) question. Would it not be far best to conform to Watson's Provinces, as being judiciously laid down and in use, so as to be able to compare the range of plants and animals? I have often urged this upon Bell and others, as well as in the review of Cybele Britannica in the 'Annals' for July, 1860. Do lend me your support, if you are of the same opinion. I fancy Bell and the old hands think no sufficiently general interest is felt in the matter. (You know, I dare say, that I worked out the Butterfly distribution on Watson's plan.) Yet here (with distribution and census) are just the points which admit of novel inquiries into the well-known branches of our Fauna. What a chance of giving a fresh interest and a useful occupation to the many Field Naturalists, who think they have nothing worth recording.

"I am not sure but what Chaffinches and Yellow Hammers are as plentiful here as any bird. I almost think they exceed the Sparrow in numbers."

His desire for systematic observations on the Migration of Birds, which he lived to take a part in carrying out, appears in a letter dated December 6th, 1861. He was on the point of going up to London to meet the members of the B. O. U.

DEAR NEWTON,—Many thanks for your letter just received. I am looking forward with great pleasure to meeting you on the 10th. I have got hold of the skull of the (?) Golden Eagle, which I will bring up to London. I must confess I have strong doubts myself; but no doubt you and the Jury of Ornithers will be able to speak with certainty. I have written to Bond to try and persuade him to bring his Puffin also at the same time, to see whether any light can be thrown upon it. I wish he would exhibit his Woodchat's nest and eggs, since of course these are very likely to be suspected. Why do you not arrange to go and spend a day at Kingsbury, and overhaul Bond's whole collection? I do believe he could show you some very curious things, he has bestowed so many years on the subject. I need hardly mention the immense benefit your visit to him would confer on myself, since your opinion on the Great Reed Warbler's and other eggs would be of the greatest service towards deciding whether they should be accepted or not. I fancy that Bond's eggs of "Little Ring Plover" are most likely just the same as the one which you saw\* from Mr. —. I am promised the loan of an egg, said to belong to the Pochard, taken in Bucks. I will try and bring it to show you, though I do not know whether an egg is sufficient to make sure of the species.

I am so glad to hear that you are intending to take a turn at migration, and I wish you every success, for the subject is indeed most interesting, and I am sure no one is better able than yourself to do it justice. Pray let us have something more than the proof of *universal* migration. At least I hope you will lay down some systematic plans for taking observations; for hitherto, observations seem to have been made in such a random manner as to lead to no result. The Russian scheme seemed a great step in advance, only I think his iso-flight lines were laid down upon too imperfect a foundation.

Nothing but a series of systematic observations and carefully digested averages for different seasons, contrasted with temperature and winds, would satisfy me; but perhaps you think otherwise. I am afraid Great Britain is far too small a space to give any really valuable results as to migration, and our exceptional and irregular climate is another still greater obstacle. I hope you will succeed in showing us the way. For my own part I cannot hope ever to do much in this line, not having access to sufficient books. Indeed I have often thought the scheme was too grand for one head to accomplish. How would it do to enlist the services of some of the best Continentalists, and to draw up a circular asking for particular information on the most important heads?

I was so glad to see that your brother is going to Madagascar. What a fine chance he will have. I hope he will bring back no end of new things. Hoping to see you soon.—Yours very sincerely,

A. G. MORE.

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\* This egg had been sent by Mr. More for Mr. Newton's opinion, September 27th, 1861. Mr. Newton at once referred it to the common Ringed Plover, of which, however, he already suspected that a smaller race existed in Europe and England, though it had not yet received sub-specific rank.

## CHAPTER XXI.

## A CORRESPONDENCE WITH MR. DARWIN.

[1860-1862.]

AT this time he had an interesting correspondence with Mr. Darwin about orchids. Mr. Darwin, in his study of orchid fertilisation, encountered from the first a troublesome stumbling-block in the Bee Orchis (*Ophrys apifera*). Of the twelve kinds which grew in the neighbourhood of his Kentish home, eleven, in different ways, perfectly fitted his view of the adaptation of their structures to cross-fertilisation by insects. But the "Bee," with a structure as beautiful and complicated as any, alone seemed to be visited by no insect, yet to form seed. Unwilling to think that so highly developed a plant could be quite independent of insect agency, Mr. Darwin became very anxious to have specimens examined in other parts of the country where it was more plentiful than at Down, and therefore, he thought, more likely to attract notice from nectar-seeking insects. This desire led him to consult Mr. Watson, by whose advice Mr. More was applied to.

Mr. Darwin's first letter to Mr. More is dated June 24th, 1860:—

DEAR SIR,—I hope that you will forgive the liberty which I take in writing to you and requesting a favour. Mr. H. C. Watson has given me your address, and has told me that he thought that you would be willing to oblige me. Will you please to read the enclosed; and then you will understand what I *wish observed* with respect to the *bee orchis*. What I especially wish, from information which I have received since publishing the enclosed, is that the state of the pollen-masses should be noted in flowers just beginning to wither, in a district *where the bee orchis is extremely common*. I have been assured that in part of the Isle of Wight, viz. Freshwater Gate, *numbers* occur, almost crowded together. Whether anything of this kind occurs in your vicinity I know not; but if in your power, I should be infinitely obliged for any information. As I am writing I will venture to mention another wish

which I have, namely, to examine *fresh* flowers and buds of the *Aceras*, *Spiranthes*, Marsh *Epipactis*, and any other rare orchis. The point which I wish to examine is itself very curious, but it would take too long space to explain. Could you oblige me by taking the great trouble to send me, in an old tin canister, any of the orchids; it would be a great kindness, but perhaps I am unreasonable to make such a request.

The point which Mr. Darwin here thought would take too much explanation was probably his idea that in some of the orchids mentioned the labella might be irritable. He was quite taken by surprise with the actual arrangement of the first species sent him in response to his application, which happened to be *Epipactis palustris*. "You can hardly imagine (he wrote) what an interesting morning's work you have given me, as the rostellum exhibited a quite new modification of structure"—(August 3rd, 1860). The results of that "interesting morning's work" are set forth at page 99 of Mr. Darwin's book on the "Fertilisation of Orchids," where it may be seen how largely the domestic economy of the flower is thought by the author to depend on a little circumstance described for him from growing specimens by Mr. More—the very delicate hinging of the flap (or "distal portion") of the segment of the flower called the labellum. "So flexible and elastic is the hinge (between the two halves of the labellum) that the weight of even a fly, as Mr. More informs me, depresses the distal portion; but when the weight is removed it instantly springs up to its former and ordinary position, and with its curious medial ridge partly closes the entrance into the flower." The use of this mechanism, Mr. Darwin at once concluded, was to enable an insect readily to crawl in, *via* the yielding labellum, and then, since the door behind it instantly closes, to cause the insect to crawl out another way upwards, and thereby detach the pollen-masses for the benefit of the next flower visited.

It was one thing, however, to have arrived at so clear and satisfactory a *prima facie* hypothesis, and quite another to get its truth confirmed by the insects—as the teaching of three successive summers was to show.

Mr. Darwin was full of eagerness to test his conclu-

sions ("Bee Orchis" seemed quite to have taken a back seat). "I do not know whether the *Epipactis* grows near to your house: if it does, and any object takes you to the place (pray do not for a moment think me so unreasonable as to ask you to go on purpose), would you be so kind as to watch the flowers for a quarter of an hour, and mark whether any insects (and what) visit the flowers. Trifling as this may appear, I believe important in fertilisation. I should suppose they would crawl in by depressing the terminal portion of the labellum, and that when within the flower this terminal portion would resume its former position; and lastly, that the insect in crawling *out* would *not* depress the labellum, but would crawl out at back of flower. An insect crawling out of a *recently opened* flower would, I believe, have portions of the pollen-masses adhering to the back or shoulder. I have seen this in *Listera*. How I should like to watch the *Epipactis*!" "P.S. *If* you should visit the *Epipactis* again, would you gather a few of the lower flowers which have been opened for some time, and have begun to wither a little, and observe whether pollen is well cleared out of anther-case? I have been struck with surprise that in nearly all the lower flowers sent by you, though much of the pollen has been removed, yet a good deal is left wasted within the anthers. I observed something of this kind in *Cephalanthera grandiflora*. But I fear that you will think me an intolerable bore." And again, on August 9th—"In case you visit *Epipactis*, will you make one other trifling observation for me? . . . Would you try whether irritation, with stalk of grass, on the jointed part or on the orange central part, causes any movement, slow or quick? . . . The only chance of seeing insects at work would be the first bright day after this miserable weather, or a bright gleam of few hours in middle of one of our gloomy days."

Unhappily the "miserable weather" of that August continued with scarcely a break. "I concluded that the dreadful weather prevented your visiting *Epipactis*. I suppose it is now (Sept. 5th) too late, but shall be very much obliged for any observations next year."

Next year (1861) the correspondence re-opened in the

first week of March, and again *Epipactis palustris* was the principal topic. "The examination of that species has been one of my greatest treats, which I owe to you," Mr. Darwin wrote (June 2nd, 1861). "I hope that you will be so kind as to observe manner of ingress and egress of insects if you can see any visit the flowers, and whether labellum is irritable. I fear I may be unreasonable, but this subject is a passion with me."

This letter was followed, two days later, by the following memorandum of instructions for watching the plant:—

EPIPACTIS PALUSTRIS.

(1) When an insect visits this flower, does it alight on the labellum? And in entering the flower, does it depress the terminal portion, and does this spring up again after the insect has entered?

(2) Especially when the insect departs, does it crawl back by the Labellum, or does it crawl out at the top of the flower?

(3) If you see one crawl out, please observe whether the yellow pollen-masses are sticking to its head or back: this would occur only in a lately opened flower. Observe whether it enters another flower, and whether it does not there leave the pollen-masses sticking to the stigma, or at least some of the yellow pollen-grains, which would be easily visible.

(4) What kind of insect visits these flowers? If you should see several, please catch one by crushing flower in which it is, and send it.

(5) As the labellum in some foreign orchids is irritable, tickle on calm day with bit of grass the middle part of labellum near the joint of terminal part, and see whether it excites any movement, slow or quick.

If by any extraordinary chance the labellum should be irritable, will you observe carefully what part must be touched?

The concluding questions were readily answered, as Mr. More found no trace of irritability in the tickled flower. But the watch for insects proved disappointing: they would not come. Failing direct observation, Mr. Darwin next asked him (July 7th) to "try a little experiment, viz. to cut off the terminal and moveable division of the labellum in six or eight flowers which had not quite opened, and which therefore could not have been visited by insects; and mark these flowers with little bits of thread; and then see if these set pods as well as the other flowers." "I would not (he added) on any account have

you take much trouble to try this: but if I had the opportunity I should try it for bare chance of its showing that the terminal portion of labellum was of use, as I *suspect*, in guiding and aiding some unknown insect in its proper function of fertilising the flower."

The "little experiment" was tried this year on two flowers only, for nearly all had already expanded. The result is described (in a foot-note) at page 101 of Mr. Darwin's book:—

As it is quite possible that I may have overrated the importance of the peculiar structure of the labellum, I asked Mr. A. G. More to remove the distal portion of the labellum of some flowers before they had expanded, but I was too late in my application. He was able to try only two flowers which were situated near the summit of the spike. These flowers formed seed capsules which were certainly small; but this may have been owing to their position. Unfortunately also these capsules shed most of their seed in being sent to me, so that I could not ascertain whether the seeds were well formed. Of the few seeds which did remain within these two capsules many were shrivelled and bad.

The doubtfulness of these results was the more disappointing, as the book on Orchids was ready to go to press, and was published soon after, in the winter of 1861-2. But still the subject had not lost its fascination for Mr. Darwin, who, in 1862, requested a repetition of the experiment. This time it was tried on nine flowers; and the upshot is best described in Mr. Darwin's letter to Mr. More, Sept. 26th, 1862:—

MY DEAR SIR,—I thank you cordially for the specimens received this morning, and for all the trouble which you have so kindly taken. Putting on one side the three imperfect capsules, six are left, of which the labellum had been removed. In comparison with the five naturally fertilised capsules, two of the mutilated produced as much seed, and seemed to have been fully fertilised; the four others produced very much less seed. So that the result in a *limited* degree supports my belief in use of labellum, but I can now see that a dozen other capsules from mutilated flowers ought to be compared with a dozen naturally fertilised. But this would not be worth your time and trouble.

Further experiments in 1863 were intended. "I am ashamed to say so, but if you are in the Isle of Wight I

should certainly be very glad to see the result of some more trials," Mr. Darwin wrote, Oct. 1st, 1862. But unforeseen circumstances prevented the fulfilment of this wish.

Meanwhile the orchid whose eccentricities had started the correspondence had received a minor, though not inconsiderable, share of attention. About the end of July, 1860, were made the observations on the Bee Ophrys, of which Mr. Darwin in his book gives the following detailed account :—

In the Isle of Wight Mr. A. G. More was so kind as to examine carefully a large number of flowers. He observed that in plants growing singly both pollinia were invariably present. But on taking home several plants from a large number growing in two places, and *selecting plants* which seemed to have had some pollinia removed, he examined 136 flowers : of these 10 had lost both pollinia, and 14 had lost one ; so here there seems at first evidence of the pollinia having been removed by their adhesion to insects ; but then Mr. More found no less than 11 pollinia (not included in the above cases of removal) with their caudicles cut or gnawed through, but with their viscid discs still in their pouches, and this proves that some other animals, not insects, probably slugs, had been at work. Three of the flowers were much gnawed. Two pollinia, which had apparently been thrown out by strong wind, were sticking to the sepals, and three pollinia were found loose in his collecting-box ; so that it is very doubtful whether many or indeed any of the pollinia had been removed by adhesion to insects (pp. 67-8).

On first receipt of these details (August 5th, 1860) Mr. Darwin had taken a more sanguine view of their bearing. "I am infinitely obliged (he wrote) for your most clearly stated observations on the Bee-Orchis. It is now perfectly clear that something removes the pollen-masses far more with you than in this neighbourhood. But I am utterly puzzled about the footstalk being so often cut through. I should suspect snails. I yesterday found thirty-nine flowers, and of them only one pollen-mass in three flowers had been removed, and as these were extremely much withered flowers I am not quite sure of the truth of this. The wind again is a new element of doubt. Your observations will aid me extremely in coming to some conclusion. I hope in a day or two to receive some day-



moths, on the probosces of which I am assured the pollen-masses of the Bee-Orchis still adhere."

"But alas the pollen-masses turned out to belong to *O. pyramidalis*," he added in a subsequent letter (Sept. 5th, 1860). And all through the summer of 1861, Mr. Darwin's references to *Ophrys apifera* are amusingly despondent. (June 2) "If you pass any group of Bee-Orchis, pray glance at a few to see if pollen-masses are removed; but I despair of ever making out this species." (June 17) "You propose to look at Bee again, and very glad I shall be to hear result. But I am convinced this flower will remain an everlasting puzzle to me." (July 17) "I found the other day (near Torquay) a lot of Bee *Ophrys* with flowers nearly all withered, and with the glands of the pollinia *all* in their pouches. All facts point *clearly* to eternal self-fertilisation in this species: yet I cannot swallow the bitter pill."

Of the other two orchids asked for in Mr. Darwin's first letter, *Aceras anthropophora* was not an Isle of Wight species; *Spiranthes autumnalis* was sent in due course, and proved an interesting study. "The *Spiranthes* came in splendid condition (Sept. 5th, 1860), and I send you hearty thanks, for I have had a most interesting day's work, and find new types of structure in rostellum." It would doubtless have given rise to more correspondence, but that Mr. Darwin, the same autumn, himself found the plant at Eastbourne, which enabled him personally to experiment on its economy, as well as (next summer) to give his Bembridge correspondent a caution—"You mention *Spiranthes*: it is no use watching this, for I watched it last autumn at Eastbourne till I was sick."

Throughout the letters there are frequent references to Mr. More's health, which indeed was very precarious during those years, and often interfered sadly with his wish to oblige his correspondent. Mr. Darwin's considerateness is very conspicuous in his many allusions to this subject. "If you are quite well and taking walks, and if you are not utterly sick and weary of me and my requests (begins one letter), I should be very glad of three or four spikes of *Orchis latifolia* and *O. maculata*, with a few of the lower flowers withered.

The point is this, that I find in the Kentish specimens that the *O. latifolia* is far less visited by insects than *O. maculata*, and as some botanists doubt whether they are distinct species, it would be rather curious to show that insects distinguish them. You will see that it is not worth much trouble. I am now writing my paper, and I fancy that the points are sufficiently curious to make you not regret having with so much patience and kindness helped me" (July 17th, 1861).

The Orchid correspondence ended in October, 1862. But years afterwards, when living in Dublin, and practically cut off from field-botany, Mr. More received the following characteristic letter, curiously bearing the same date (June 24th) as Mr. Darwin's first letter to him, and showing that a certain long-pondered and favourite problem still awaited solution:—

DOWN, BECKENHAM, KENT,

June 24th, 1869.

MY DEAR SIR,—I have not heard for some time how your health is: if still weak, pray forgive me for troubling you, and burn this note. But if you are well and inclined to take a little expedition, I should be very grateful if you would endeavour once again on a fine day to observe during half an hour what insects visit *Epipactis palustris*, and especially how they make their entrance into and exit from the flower. This is the point about which I am most curious; and, secondly, the kind of insect (which I should be glad to see and get named), for I have now clearly ascertained that *E. latifolia* is regularly and exclusively fertilised by wasps. The motive for my applying this year is that I have drawn up some notes and corrections for a French translation of my Orchis book, and these notes I shall also publish in English. Pray forgive me for troubling you, and if in your power I believe that you will kindly feel inclined to aid me.—Dear Sir, yours very faithfully,

CHARLES DARWIN.

## CHAPTER XXII.

VISIT TO WATERTON AND LAST YEARS IN THE  
ISLE OF WIGHT.

(DEC. 1861—JAN. 1864.)

TO some of the difficulties encountered in the progress of the Bird Distribution paper he was indebted for a most pleasurable incident—his visit to Charles Waterton.

“It is curious,” he wrote to Mr. Newton (May 3rd, 1861), “what difficulty I have had with Yorkshire.” Especially was information lacking from the western division. “Would you try Waterton?”

Mr. Waterton’s aversion to a suspected “book-naturalist” nearly equalled his well-known antipathies to the House of Hanover and the Brown Rat; so a little tact was always needful in approaching him; but Mr. Newton recommended the trial.

So, after some hesitation, on November 28th, he wrote to Mr. Waterton, requesting a list of birds breeding in the West Riding. For ten days no answer; then, just as he was starting for London (December 9th), to spend a week with Mr. Newbould, and to meet in conference with the members of the B. O. U., came the wished-for letter—and list. Any apprehensions he may have felt as to the veteran’s reception of his advances were quickly disposed of. “I see (wrote Mr. Waterton) that you are fond of birds; and so am I. And I do not say too much when I tell you that I have been after birds and their nests since I was five years old. At this moment I can show what cannot be seen at any house in England. Now, if you can be spared from home, pray come and see me, and I will treat you to your heart’s content. We can lay our heads together, and I will tell you of things relative to birds and to birds’ nests very very interesting to you. Whilst you are at breakfast you shall see Herons, Rooks, Jackdaws,

Carrion Crows, Starlings, Coots, Waterhens, Mallards, Pochards, Teal, Wigeon, Tufted Ducks, and Canada Geese, so unsuspecting of danger that you would fancy the place belonged to them." He was to be prepared for "primitive hours," and was promised "a well-aired bed and a hearty welcome." "You see how free and easy your interesting letter has made me. Pray, do come; you will not repent of your trouble."

From Mr. Newbould's he wrote, suggesting going thence to Walton Hall on the following Sunday (December 15th). Mr. Waterton replied:—

MY DEAR SIR,—You ask for one *line* in answer to your favour received this morning. I send you one *word*—Come.—Very truly yours,

CHARLES WATERTON.

He reached Walton Hall on Sunday evening at 6 o'clock. It was moonlight, and the features of "the large square mansion" from without left an unfading picture on his memory. But within, Waterton's "clear grey wrinkled face," "kindly welcome," "courtesy," and "wonderful vigour of mind," were, above all, impressions never to be forgotten. That evening, as they sat by a roaring fire, they chatted of the "destruction of birds"—a subject on which "Hesperus" and the "Wanderer" were well qualified to fraternise—and of M. Du Chaillu's gorilla-stories, and "the national calamity of yesterday, the death of Prince Albert." Waterton went early to bed, but his guest, before following the wholesome example, took a moonlight walk by himself round the old Hall.

The next two days were given up to a full enjoyment of the charms of Walton Hall. Breakfasting in the grey of the winter morning, they watched the Heron at his fishing and the Coots taking their early splash, and, to confirm his disputed statement that "Carrion Crows *roost in companies* of thirty to forty birds in one of the woods at Walton Hall, Mr. W. pointed them out to me as they were leaving their shelter in the morning." This, by the way, was a circumstance to which he often afterwards referred. As for the place, it was classic ground to him;

for since his boyhood Waterton's Essays (given him at fourteen) had been a favourite book. He seemed to see old friends in "the Owl's tower," "the Starling tower," "the Heronry," "the Magpies," "the plumed willow," "the thunder-struck poplar," "the 500-year-old oaks, where the Buzzard used to nest, where the Jackdaw and Owl nested in one hole." Of Waterton himself, "his scolding me for my return ticket; his love of boating, of resolution, of independence and self-reliance; his contempt for quackery (but implicit faith in his own nostrum of drastic pills, 'which would have saved Prince Albert'; his sympathy with Pan sylvanus or Homo ferus; his appreciation of facts, and distrust of theory; his humours as to Martin Luther" and "Black and Exotic Rats"; with his "concealment of his own inconveniences and sufferings"; all that he saw delighted him. "It was a real treat," he wrote to Mr. Newton. "I enjoyed myself thoroughly, and it will be a remembrance for years. I could fill many pages with all he said and did and showed; but what struck me most was his suspicion of the Book-man, and his constant remark of 'that I have *seen*'; and he cautioned me not to attribute any human feelings or impulse to animals, however like their actions may be to what we might suppose we might do under same circumstances." "In bodily strength I think he is failing a little, though he dared me to climb after him at 80 or 81 (I forget which is his age)."

Unhappily, the visit to Walton Hall, itself so enjoyable, was not paid soon enough to brace his already exhausted strength. Immediately after his return to Bembridge he had a severe illness of six weeks' duration, the result of overwork; and this left him so enfeebled that for nearly two years every effort to return to his work resulted in a speedy return of illness.

"It is only within the last few days that I have been allowed to resume head-work," he tells Mr. Newton (Feb. 24th, 1862). "There is a whole heap of Bird-letters waiting to be answered. I have as yet only taken in hands the most pressing, but there are several evidently good and reliable. . . . If you know anything of the movements of

— and —, will you kindly say whether they are at home or not? I am getting in all returns as hard as I can, so as to draw out a list of all doubtful points and *desiderata*, which I hope to get filled up during the ensuing season. Then for the printer, at last. You will think me very dilatory; but I am sure it is best to wait till one more spring is past.”

More disquieting than the delay to the Bird-paper was the check sustained by the “Supplement to Flora Vectensis,” on which he had now been three years at work. For in May, Vectis Lodge was to be given up, and he was peculiarly anxious to accomplish all he could at the Isle of Wight Flora before shifting to “pastures new.”

He had just at this time been curiously led to a discovery of some interest in British botany, through being sent for examination a plant which had six years previously been gathered in the island.

On November 14th (1861) he received from Mrs. Phillipps (of Reigate, Surrey) a dried specimen of a *Gladiolus*, which that lady had found at Shanklin, near Ventnor, as far back as the summer of 1855. No such plant had hitherto been recorded for the Isle of Wight, but as *Gladiolus imbricatus* was enrolled (in 1856) in the flora of the New Forest, the occurrence of the same species across the Solent did not seem very improbable. However, on receipt of the dried specimen, “careful comparison of the plant with its description” convinced him that it was *not* *G. imbricatus*, but to all appearance belonged to *G. illyricus*, a species having a somewhat different European distribution. That one kind of *Gladiolus* should grow in the Isle of Wight and another in the New Forest seemed, however, highly unlikely; a series of specimens from Lyndhurst was therefore examined, and to his great satisfaction he found these also to conform exactly to the description of *Gladiolus illyricus*. This name therefore, after consultation with Professor Babington, who agreed with him, he proposed as the more correct designation of the English plant, in a paper read to the Linnæan Society, April 3rd, 1862; Mr. Babington making the same change of name in the fifth edition of his Manual, published about this

time. The opportunity which guided him to this rectification of a misnomer was the more singular, since no *Gladiolus* has ever, from that time, been gathered at Shanklin; and not for more than twenty years after Mrs. Phillipps' happy discovery were the next Isle of Wight specimens of this handsome plant lighted upon, among some bracken near Sandown.

He wished now to give more examination to the western coast, and in June spent some time at Freshwater, where he added several plants (*Fumaria muralis*, *Carex teretiuscula*, and *Poa nemoralis*) to the flora of the island. Now too he made his first effort since his illness at Christmas to recommence work for the "Annals of Natural History," writing the review of Babington's Manual (fifth edition) which appeared in the July number. During the greater part of the summer he lodged by himself at Bembridge (for better access to his books), his family having moved to Ryde. He carried on, when his health permitted, an extensive botanical correspondence, taking particular interest in the progress of Mr. G. S. Gibson's "Flora of Essex." But on the whole this "last year at Bembridge" was the most trying period he had gone through, and the long breaks in his correspondence are but too easily accounted for.

His best discovery, however, was made in August. In that month, botanizing beside Newtown Creek, he found, "covering the bottom of the shallow brine-pans at the west mouth," a *Chara*, which on examination proved to be the *Chara alopecuroides* of Delile, a species quite new to Britain. This discovery, after he and Mr. Babington had agreed as to the identification, led to a correspondence with M. J. Gay, of Paris, an authority on European *Characeæ*, and one of the earliest botanists who had studied this species; it appeared that he had "many years since given it the MS. name of *Chara pouzolzii*, in honour of M. Pouzolz, who discovered it in Corsica." M. Gay confirmed the identification of the Isle of Wight plant as *C. alopecuroides*.

The new *Chara* being, in Mr. Babington's opinion, "one of the most interesting additions that had recently

been made to the flora of Britain," it was proposed to make the announcement with becoming prominence in the new magazine, "Seemann's Journal of Botany," which was about to start on its hopeful career in the first month of 1863. An illustration of the plant, "the first ever published," was drawn by Mr. Fitch, and Mr. More was to write an account of his discovery to accompany the plate. Few botanical tasks would have given him greater pleasure; yet when the time came he was so ill as to be quite unable to attempt it, and therefore asked Mr. Babington to perform the office instead. Professor Babington's interesting article "On *Chara alopecuroides* as a native of Britain," with Mr. Fitch's coloured illustration as a frontispiece, appeared in the "Journal of Botany" for July, 1863.

Of the eleven months' interval between the discovery of the *Chara* and its announcement there is little to record. At every turn ill-health hampered his efforts. On the eve of the meeting of the British Association at Cambridge he wrote somewhat despondently to Mr. Newton (September 29th, 1862):—

MY DEAR NEWTON,—Forgive my long silence. I am sorry to tell you that I have been in very poor health all the summer, and this has sadly interfered with both work and correspondence. . . . I hope you will enjoy the meeting of the British Association, which they say is to be a very good one this year. Do let me know how the "Ibis" meeting goes off. The bird-worshippers will no doubt muster well at Cambridge, the original cradle of the fraternity. Alas! how this reminds one of a review\* promised last spring, but which I was really quite unable to perform. I assure you the recollection of this has quite haunted me at times, and perhaps has been one of the reasons why I have so long put off writing. As regards the Bird Cybele, I am afraid there is not much progress to report, though I have usually written two or three letters each week. It seems as if a point had been reached beyond which the advance is very slow.

What I now propose doing is to draw up a systematic list of the desiderata, and send it round on the chance of getting some of the deficiencies filled up. I do not well see what more can be done, unless by some extraordinary good luck a Welsh ornithologist should turn up at the last moment. I have pushed inquiries as far as I can in the

\*

Probably a review of "Ibis," vol. iii.



West of England without being able to hear of anyone who knows the birds of Wales. If you should happen to hear of any trustworthy ornithologist (likely to be able to help) while you are at Cambridge, you will really be doing me a great kindness if you would say a word for me.

In November he felt a bit stronger. He spent a few days with Mr. Babington at Cambridge, "and enjoyed a look at the old place very much," as he also did a visit to another botanical friend, the Rev. H. Harpur-Crewe, at Drayton Beauchamp, in Hertfordshire; after which he went up to London, and by a course of overwork in the British Museum brought on a fresh illness, nearly as severe as that of the previous Christmas.

He had been looking forward with interest to the appearance of the new botanical magazine, which seemed likely to enjoy the support of all the best botanists in England. Since 1860 he had given up contributing original matter to the "Phytologist," though his "Comparative List of British Plants," then begun, continued to be published in that magazine at intervals down to its conclusion in December, 1862. It was now re-issued in pamphlet form, with the addition of a preface. But his renewed illness now debarred him from active support of "Seemann's Journal," and it was partly to avoid the semblance of holding aloof from the new paper that he contributed to the February number a note on "The Unusually Mild Winter," and a *signed* review (the only review in the volume which bears a signature) of Gibson's "Flora of Essex."

The above were the last articles he wrote at Bembridge. He soon after removed to Ryde, where he passed the remainder of the year. Another illness early in the spring was a further discouragement. It was now three years since he had taken the Bird-Distribution subject in hand, and, on April 24th, we find him writing to Mr. Newton:—"I will do my best to be ready by October: indeed, I had always hoped to have finished before this, but I have been so unlucky in health that I must not promise. I am only now just getting better of a severe attack of illness, which has left me very weak, and not fit for much scientific work."

His next letter to Mr. Newton is dated August 3rd. "I am sorry to tell you that a return of illness has prevented my working at Bird-Distribution as hard as I had intended. Thus, I wish to let you know in good time that I see no chance of the paper being ready for the October 'Ibis.'" He hoped it would be "ready for launching in January" (1864). But the New Year came, and the hope was unfulfilled.

## CHAPTER XXIII.

## FIFTH VISIT TO IRELAND.

[1864.]

AND now, once again, he was to try the effect as a health restorative of Irish air. Towards the end of February, 1864, at the invitation of their kind friends in the West, his sister and he crossed over to Ireland, making his fifth visit to that country and to Castle Taylor. The completeness of the change was indescribably refreshing to him. It seemed as if the very sight of that vivid limestone flora, which, as he had long before said in his journal, seemed to smile as a friend wherever he met it, truly bespoke the kindness of the climate to one who loved it so well. Even now, though it was only February, he found, as his scrap of a journal notes, already "one flower of *Gentiana verna*," as it were by way of a welcome.

All through March and part of April they stayed at Castle Taylor. "I rejoice to tell you that I am better in health now than I have been for a long time," he writes to Mr. Newton (March 31st). "We have killed lots of Woodcock, and I have had shot at twelve Wild Swans here" (23rd). On the 24th the Mediterranean Heath, ever one of his favourite Irish plants, was "in beautiful (early) flower"; and the advance of *Sesleria cærulea* from "spikes one inch long," on March 13th, till it was seen "with anthers exerted" on the 8th April, was noticed with special interest among the symptoms of the spring.

But while marking the progress of this and similar limestone-loving species, in a certain "large rocky pasture field west of the Nut-Wood," where in former summers they remembered hunting the remarkable moth *Zygæna minos*, they now noticed something which turned out to be even more remarkable—an inconspicuous but evidently unfamiliar orchidaceous plant. It was not as yet sufficiently

advanced in growth for examination; but (to quote his paper) "It attracted our notice by appearing above ground at a singularly early date, in a locality where we knew that *Orchis mascula* was the only early *Orchis*, and *Orchis mascula* of course it could not be."

However, before the mystery of the little orchid could be unravelled, Mr. More left Castle Taylor to spend some few weeks in Dublin, and while there he took a step which greatly influenced his future life—"proposed an Irish Flora to D. M." Thus in his journal he records the first projection of the "*Cybele Hibernica*," the joint work of himself and Dr. David Moore of Glasnevin. The proposal was not long in being determined on. "Here am I," he writes to Mr. Newton, May 12th, "in Dublin, in a fair way of becoming Hibernian. At least I have engaged myself as partner in a new Irish Flora or *Cybele*, which we hope may be published in about another year; and the explorations requisite to bring about this book will, I believe, detain me on this side of St. George's Channel for the present. I hope in about another week to start for the west of Mayo, a very wild and interesting country, where I shall keep a look-out for birds as well as plants. But I believe it is not very rich in Ornithology. I have found here several of your friends. Dr. Perceval Wright has been especially kind, and it is to him that we are indebted for the prospect of raising the needful £ *s. d.* towards the publication of the Flora. Dr. Carte seems also to take great interest in birds. . . . I am glad to tell you that my health is a great deal better this year, and I am looking forward with great hope to having some results to show for my trip into the far west. I am only waiting for some botanical apparatus which I am expecting from the Isle of Wight, and then too I shall be able to get at my papers again, and must get out the first part of the *Bird-Distribution*."

The curious orchid now came into flower, and "my sister, following up the clue after I had left Castle Taylor, collected and dried several specimens, remarking that the little orchis was something she had never seen before." He was not yet quite ready to start for Mayo, when he

received one of these specimens, and noticed its resemblance to Reichenbach's figure of *Tinea* (or *Neotinea*) *intacta*, a plant of Southern Europe and Northern Africa. But the identification was not to be fixed in a day. Indeed it was thought by at least one botanist to whom the specimen was shown that it might belong to *Habenaria albida*; so that even his hope of adding a new species to the Flora had been considerably damped, when in June, after talking over the matter with his friend Dr. Moore, and coming to no conclusion, he left Dublin to spend the summer botanizing at Foxford, a village on the river Moy, the boundary between Districts 8 and 9 of the intended "*Cybele Hibernica*."

Dr. Moore, however, continued to look into the question of the orchid, and after careful research concluded that it could be none other than *Neotinea intacta*. On June 15th, while still in "some little doubt about the identical species," Dr. Moore wrote a letter to "congratulate Miss More on adding a new plant to the Irish Flora"; and about the same time he forwarded one of her specimens to Dr. Reichenbach, by whom its identification as "indeed *Neotinea intacta*" was confirmed. The addition of this species to the British Flora was announced by Dr. Moore at the next meeting of the Royal Irish Academy, on the 27th of June.

Mr. More's subsequent paper on this plant and its probable geographical affinities was appropriately communicated to the Botanical Society of Edinburgh, among whose "*Transactions*" (March 9th, 1865) it may be considered a kind of supplement to his earlier essay on the "*Flora of Castle Taylor*," read to the same Society just ten years previously. Two papers on the same discovery had already appeared in the "*Journal of Botany*," from the respective pens of Dr. Moore (August, 1864) and Dr. Reichenbach (January, 1865)—the latter accompanied by a coloured plate, representing (as Dr. Moore calls it) "this pretty little plant"—though in the correspondence of its finders it was mentioned as "the very ugly orchis"; and Professor Babington, in acknowledging a specimen for his herbarium, said he "must allow that it had not much beauty of form."

The discovery of *Neotinea intacta* in Ireland brought into temporary prominence a rather curious question on the laws of scientific nomenclature. The earlier name of the genus, *Tinea*, being also the name of a well-known genus of moths, had been changed by Dr. Reichenbach into *Neotinea*. This seemed right to those who had always thought it improper to give identical names to both zoological and botanical genera; but as that doctrine had been dropped by most naturalists, Dr. Reichenbach gave the following explanation, perhaps more diplomatic than scientific, of the change he proposed:—"I am a decided opponent of the view that the same generic name could not be used in both the animal and vegetable kingdom. Notwithstanding, I made the change, because such *generally known* names of animals as *Tinea*, *Bombyx*, *Papilio*, *Scarabæus*, *Bos*, *Equus*, *Rhinoceros*, *Ovis*, *Homo*, &c., cannot be received in botany, where they offend the ear every time they are pronounced."

To ascertain *Neotinea intacta*'s headquarters in Ireland was a pet botanical problem of Mr. More's, which remained unsolved down to 1891, when it was found growing abundantly over quite an extensive part of the Burren limestone.

For the present summer (1864), however, there was no chance of any further information as to the orchid, which was quite past flowering when he proceeded to Mayo, first to visit his friends at Hollymount, and afterwards (as has been mentioned) to Foxford, for the summer.

Here the joys of salmon-fishing, a sport to which he was new, allowed botany to claim only a divided allegiance; but the shores of Loughs Conn and Cullin enriched his herbarium with several good rarities. Perhaps the best result (botanically) of this exploration was the discovery in the latter lake of *Potamogeton filiformis*, a plant of Watson's "Scottish Type," unknown as yet to the flora of Ireland, as also to that of England. Another rare northern Pondweed, *P. praelongus*, was found in the same lake, and in a few others near Foxford. A third rather unexpected prize turned up in the Great Burnet (*Sanguisorba officinalis*), found growing abundantly on

the stony shores of both Conn and Cullin; this being one of the most local of Irish plants, whose only other known stations in the country lie grouped in the north-eastern corner (District 12).

And now, returning to Dublin, he settled down in "3, Botanic View, Glasnevin," to work in earnest at the "Cybele Hibernica."

For this book, as is observed by Mr. Barrington, "Dr. Moore had much of the material already collected; the application of Watson's system to its arrangement was assisted by More, who, in order to be near his friend, came to reside at Glasnevin." The work was arduous, and very dry; but thanks to the physical improvement which Atlantic breezes had wrought in him, he was able to plod away at the book with nearly as great zest as he had lately shown in tackling the salmon and giving chase to the wild swan. A little field-botany was also achieved, and the discovery of *Zostera nana*, new to the Irish Flora, was made on the Dublin coast, near Baldoyle.

The winter's work was, however, interrupted by a return to the Isle of Wight at the end of November, to say good-bye to one of his family who had been ordered abroad. At Ryde he received notice of his election as a member of the B. O. U., for which, as on a former occasion, Mr. Newton had proposed him. He stayed here with his family till the beginning of January. From one point of view this holiday from botany was much needed: for an instalment of that long-incubated Bird-paper had at last gone to press, and during the revision of the proofs at Ryde he could see to those finishing strokes which pressure of botanical work had before prevented. "I am sorry that the corrections are so numerous this time. It is all in consequence of my being so hurried in Dublin. The remainder will be more easy for the printer," he assured Mr. Newton (now editor of the "Ibis"), in returning the proofs. But the editor was as interested in the revision as his contributor, and did all he could to assist it.

*November 30th, 1864.*

MY DEAR NEWTON,—Thank you extremely for your very kind offer to take me in at Magdalene, but I find that my friends here have made

different engagements for me, which will, I fear, prevent my leaving Ryde until the New Year. I must take my chance of finding Babington at home some time in January, and then I shall hope to have the pleasure of seeing you at the same time. I was very glad to find that you think my paper will do. I shall be quite ready for the proof as soon as you like to send it. I have just received notice of my election as a member of the B. O. U. As I am sure that I owe this honour much more to your friendship than to my own merits, I must beg you to accept my best thanks for your kind exertions on my behalf.

(December 6th.) In deference to your "scruples," or "incredulity," shall we say? I have altered the formula for the Goshawk. . . . You will see that I have also made additions, as you wished, in both Eagles, so as to make the account as complete as I can. I still think it will do to leave the formula for the Osprey as it now stands, since it is hard to say in which of the districts the bird is quite extinguished, and the mention made of its being nearly extinct will serve this purpose. I have more difficulty with the Kite. The actual returns would run thus:—

#### KITE.

Prov. (I, II), III-V, VII, VIII, XI, XII, (XIII), XV-XVII.

Subprov. (1-8) (11) 12 (14) 15 (17) 18 19 20 (22, 23) 24 25 (26) 29 (30)  
31 32 34 35.

But I think this would not represent the facts much better than the present form, as the estimate of different observers is so different. . . . Italics being used rather to show the *direction of thinning out* than for mere rarity, I do not think they could be satisfactorily employed in this case, or for the Eagles and Osprey. The addition of "Not in Ireland" is, I believe, important, and I should much like to have inserted throughout some other indication respecting the sister Island, *e.g.* "W. of Ireland," or "S.-E. of Ireland," had I known that the line would admit of it, and if sufficient data had been forthcoming. At all events the "Not in Ireland" will be useful. I am sorry that the printer should be troubled with so many corrections, but I think they will much improve the paper.

(December 15th.) Herewith I return you the corrected proof. You will see that I have remodelled the formula for Marsh Harrier, &c., so as to be more in accordance with your pencil marks. As to the Types, as they relate to Great Britain only, and are borrowed from Watson, we must stick to his terms, though I dare say "Arctic," or "Hyper-Arctic," &c., might better express the Continental range. Luckily, I have got a letter from ———, which places his reported nest in a more dubious light. For the present, I think the story must be dismissed so as not to enter the N<sup>o</sup>. As to the Marsh Harrier, I have ten counties entered as producing the nest occasionally or regularly, so I think the Italics for rarity will do for the districts where it still survives. No doubt, some of the figures might be bracketed for Buzzard, but it is



impossible to draw the line; and perhaps this is of no great consequence in the case of a wide-ranging species which was probably once general. ——— seems sure of the Rough-legged B. I suppose ——— will not approve of being doubted as to Montagu's Harrier. . . . I hope to be in Cambridge with C. C. B. about end of January.

(*December 20th.*) Thank you for showing me the mistake about the Redwing. . . . Unfortunately I am completely cut off from books, so cannot say anything more with regard to Blyth beyond that I believe I found his statement of several nests in Surrey in the first volume of Charlesworth, and that I fancied it was in the same paragraph with the notice of the nest at Barnet. My only note was a reference to "Charlesworth, 1837." . . . I am surprised that you do not find Blyth's statement about the several nests, as I am generally very careful, and not likely to have invented the idea. . . . If you have time will you look up the Sea Eagle in Charlesworth, vol. i., pp. 118 and 440. Is it safely this species and not the Golden?

(*December 28th.*) Herewith I send you the revised "revise." I have gone over it once more, carefully, and have found a few small defects. I hope the Snowy Owl and Redwing are now "cooked" to your fancy. I do not know whether the additional sentences are too long or not, but I tried to make them take up the proper space. It will be easy to strike off a few words at end of Snowy Owl; and will you be kind enough to insert the latitude of its breeding limit *abroad*, for which a space is left? The Scops would be better if I had the exact date of Mr. Hogg's nest, and the reference to the book. I think it is in "Loudon's Magazine," one of the early volumes. I think this record *quite incredible*; still I suppose it must go in. . . . Stanford's Map looks very well, I think. I have marked a few errata on the margin, but I do not think they signify much, and I suppose would be very difficult to put right on a copper plate, if that is the material. I shall hope to see you in Cambridge by the middle or end of next week, and to thank you personally for taking so much trouble with my paper. Your additions are a great improvement. . . . P. S. You will see that the map is not on the right kind of paper for colouring. The ink runs.

After a few days' stay with Professor Babington at Cambridge he returned to Dublin to resume work at "Cybele Hibernica," January, 1865.

## CHAPTER XXIV.

## AT WORK IN IRELAND.

(1865.)

THE idea of permanently settling in Ireland had now become definite with him, and he had made up his mind to try for some Natural History professorship, or other appointment which would enable him to devote himself wholly to the service of science. For years his health had been much in the way of his seeking such responsibilities, but it was a hopeful symptom that the work at "Cybele Hibernica" suffered little interruption from illness. The publication of the Bird-Distribution, begun in January, was continued and concluded in the other parts of the "Ibis" for the same year. His best ornithological and his best botanical work were thus written simultaneously, in 1865. Naturally, this period presents little of incident. The following passages are extracts from letters to Mr. Newton:—

(February 9th.) I have been working hard all the morning, and I rejoice to say that the Land Birds are now quite finished, except nine species, so that you may reckon on the MS. by the beginning of next week. I shall be very glad indeed to have the benefit of your revision before the paper goes to press, and while you have leisure. Your criticisms are always welcome, and to the point; so that I am sure they will be very useful. Can you make out anything about the record of the Ptarmigan in *Wales*? The only books I have seen it in are Thompson's "Birds of *Ireland*" (you see how everything here ends in a Bull) and Graves' "British Birds"; but who is the great originator of the tradition or fable I have not been able to discover. I think it is not Pennant. Another bird which stands in need of your helping hand is *Anthus spipoletta*,\* if you are quite satisfied that the species has been made out. It certainly is a remarkable and unexpected fact to turn up so suddenly. I have not seen anything written of Mr. Hancock's on the subject, nor do I know whether the bird is published or not. Of

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\* The Water-Pipit, added in 1864 to the British list.

course *you* do, Mr. Editor, glancing with eagle-eye from one corner of our favourite science to another.

I am getting rather dry with the work attendant on preparing our book on the Irish Flora. It is very hard work and monotonous; I shall be very glad when it is over, and I can get a run into the country again. We have nothing but damp, fogs, and rain here. You may depend upon me that I will not keep the "Ibis" waiting. I could have finished the writing out by to-morrow, only I have made an engagement to look through a set of plants, so shall not have my own time again until Saturday.

(February 12th.) "The brick" (shall we not rather say "brick-maker") sends you herewith his small brick for your April building. May it be properly ground up by our Editor so as to find a place in the new Temple of Ibis, under the auspices of our able architect and new High Priest (A. N.). Will our Editor kindly see whether he can find out any additional *inland* localities or Welsh localities for the Rock Dove? I could have wished to have given the range of Chough more in detail, but have not sufficiently exact particulars. Did Mr. W. Shakespeare (actor and poet) mistake the Jackdaw for the Chough? \* The poet's eye is apt to be generic rather than specific. Petrel and Shearwater localities much wanted for South Wales, if possible, or for any part of Scotland. I fancy both these breed in several islets and headlands not registered. . . . Surely you are quite right as to the break being better before than after Rasores, only I wished to make three parts do for the details of distribution, and Part IV. (for October) a general summary of results. Afterwards we can see about revised county lists, continental breeding range, partial migration; and in fact the subject is nearly endless. . . . But for the sake of getting revised lists and more information, do you not think that something ought to be done before the next breeding season?

(March 6th.) I am planning an excursion into Donegal for salmon and trout fishing, and a little change from book-work. There I shall be completely cut off from books, so that it may be advisable, Mr. Editor, that (if you wish the proofs to be properly revised) they should be printed off at once for your humble servant to correct *before* he goes into the wild country. By-the-way there "does be Eagles in it," Golden and "t'other" sort. What will your honour wish me to pay for any eggs I can pick up? What is your highest *bid*? And do you know any climber, or ornither, in that county (the S.-W. of it)? I shan't be here, I hope, longer than another week, but of course cannot cut your proofs; so pray enable me to get away by sending them as soon as possible.

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\* Referring, of course, to the well-known passage in *Lear*; but it is now admitted that the term "Chough" was in Shakespeare's day applicable to both species. Prof. Newton and Mr. Harting differ ("Zoologist," 1893) as to which bird was the "Russet-pated Chough" of *A Midsummer-Night's Dream*.

(*Killybegs, Donegal, March 17th.*) I am only waiting for ——'s reply about the Crested Titmouse to send you back the slips. . . . Please allow me to call the *Columba palumbus* by the southern name of *W(ood) P(igeon)*. I cannot agree with you to give it the name of *R(ing) D(ove)*, which I never heard used. English names matter so little, except for convenience, that I think you will readily agree to this.

(*Killybegs, March 26th.*) I hope you will have received safely the corrected proofs, which have been only waiting the chance of ——'s reply. I shall be really sorry if my delay affect the appearance of the April "Ibis," because we all know how very important punctuality is, and all Editors are not so merciful and patient as A. N. Now to business. There is an Eagle's nest near here, reputed impregnable, being on an isolated pinnacle. You know all about Eagles, so pray help a poor "incipient." The chasm is only twenty yards or so. The base of the rock is accessible at *low* water. I propose throwing a small line over (by kite or rocket borrowed from coastguard, or by pistol). Then to draw a hawser after the small line. This will be secured by a double purchase to a small anchor, and hauled taught. Then follows your small friend slung on a ring; and my only doubt is whether there is any risk of the Eagles "mauling" me. If so, I shall sling a double gun, or carry a small pointed walking-stick or gauger's sword. Please tell me as well as you can if Eagles not ravished before are the more fierce? *i.e.* more likely to attack. Next, when (on what *date* in April) shall I try the adventure? Do Eagles long undisturbed breed earlier? and please give any good advice you can to your small brother B. O. U. Please do not print beyond *Passeres* (*i.e.* end of *Crows*), as I may not be back in Dublin in time to write you any fourth instalment before the October number. . . . If you can help me to any friend of (? enemy of) Eagles, or to any bird-man in Donegal, I shall be most thankful, since, if I miss the impregnable, I mean to try some practicable eyrie (and write you an account of the adventure if I succeed).

(*Killybegs, April 18th.*) I enclose you the skin roughly taken from an *Anthus* which I shot here the other day. The birds are not plentiful, and another specimen which I brought home has been carried off by the cat. I am afraid that the tails will hardly do for *A. spipoletta*. . . . I am still making inquiries after the Eagles, and hope to wait on them soon. I am told that there are two easier nests than the "impregnable," and I hope to succeed in taking one or other of them. Thank you for the good advice and instruction.

About this time, unfortunately, he suffered a return of ill health. He was unable to carry out the Eagle-robbing adventure, and was also obliged to decline the chance of a foreign botanical appointment.

(*Killybegs, June 7th.*) Thank you and your brother extremely for your kind thought in putting me in the way of botanical preferment. If I were only strong enough, how I should delight in the chance, and the more so that I could reckon upon so good a neighbour and friend as your brother. But with the experience of the last month here, where I have been quite the invalid, I fear the hot climate would be more than I ought to risk. You know that I have been always a sort of invalid, and I am sure that you will not think me ungrateful. I think I must wait for something in this country. . . . I hope to return soon to Dublin, and will at once turn to the remainder of the Bird-paper.

(*Glasnevin, July 15th.*) I send you by this post a small instalment as far as the end of *Grallatores*. . . . I am desperately pressed for time, or I would not have forwarded such a scribble; but the Dublin folks are hurrying me about the Flora, so that I can only get a stolen hour or two, as it were, for the birds. Please tell me whether the present will suffice for October, and if not I will set to work again on the *Natatores*. But please make large alterations and amendments in the piece now sent, as it was done in a hurry.

(*August 3rd.*) I send you now the remainder of the Bird-distribution, and I suppose it will be best to have it all finished in the October "Ibis," so as to have the whole in one volume. I have made it as short as I could. Will you kindly do justice to your favourite the *Garefowl*, which you will see is only roughly outlined; and I hope you will not think it too much trouble to insert what is necessary about the Norfolk localities for *Pochard* and *Wigeon*. In another week (after the 10th of August), I am going to Wales for a month, and my address will then be "Bryn Tirion, Aber, North Wales," if you should have any proofs for me to correct.

(*Glasnevin, September 12th.*) I now return you the corrected proofs, which I have gone over very carefully. Allow me to thank you once more for your kindness in supplying the omission and for many little alterations which have improved the paper. I see you have altered "Richardson's" (*Skua*) to "Arctic." For my own part I should have liked to have got rid of the ambiguous name "Arctic" altogether, but I am content to leave it if you think there is no fear of confusion, as I believe that *Buffon's S.* has usually been called "Arctic." . . . *Redbreasted Merganser*.—Will you kindly look into *St. John's "Highland Sports,"* p. 290, to see whether he can be quoted for its breeding in *Elginshire*, and make the addition or alteration if required. I am sorry to give you this trouble, but I have hardly any books here. I think it will be better to leave the question of a "summary" until we see what can be done in the way of correction and addition. . . . What I want to do now is to set about collecting some data concerning *Migration*, and for this purpose I should like to have separate copies to send out to the safest correspondents about the beginning of next year, when I hope the botany of Ireland will be finished, and I shall have plenty of time to spare.

## CHAPTER XXV.

## BOTANICAL CORRESPONDENCE.

[1865-1866.]

IN the "dry" work of compiling the "Cybele Hibernica," correspondence with other Irish botanists was not more than (comparatively speaking) an insignificant factor. Yet in itself it was by no means trifling in amount. Many of his letters to Mr. S. A. Stewart, of Belfast, have been preserved, and some of them are too characteristic not to be quoted:—

KILLYBEGS, DONEGAL,

May 25th, 1865.

MY DEAR SIR,—Your letter has only just reached me, having been delayed at Glasnevin. I am extremely obliged to you for a sight of the interesting variety of *Allium ursinum*. I never before heard of its producing yellow flowers, and I think the circumstance very curious. I have just been looking through the marked copy of the *Flora Belfast.*, which you so kindly annotated for me, and I venture to enclose you a few notes which I made concerning some of the scarcer plants. If you could, without much trouble, obtain specimens or additional information respecting a few of them, or any of them, you would be doing us a very kind service; but, at the same time, I would not ask you to take much trouble. If, in the course of the summer, you should fall in with specimens, any rough fragment would be sufficient in most cases, just to make sure if the species is doubted. You have already given us so much valuable help, that I am quite ashamed to trouble you any further. I have been taking a few weeks' holiday, but I hope to return to Dublin very soon. This country is not at all rich in botanical rarities. I believe the northern parts of Donegal are better.—With many thanks, yours sincerely,

A. G. MORE.

GLASNEVIN,

July 25th.

MY DEAR SIR,—I still think your supposed *Ranunculus fluitans* is only a form of pseudo-fluitans; but if you could dry a good specimen with flowers and fruit, I will send it to Professor Babington, and then the question will be settled. Would you think it too much trouble to

set right the localities for the other Batrachian Ranunculi, as I see by a former letter of yours that *R. drouetii*, *baudotii*, and *circinatus* are all three to be expunged from the Flora (and you only sent specimens of "*R. fluitans*" and "*pseudo-fl.*"). Do you consider *Papaver lecoquii* to be more plentiful with you than *P. lamottei*? Here I should say the former is far less abundant of the two. The *Valeriana* which you send seems decidedly to be *V. sambucifolia*, and I think I may say that this is the more frequent, if not the only form found in Ireland. I shall like very much to see a bit of your *Carex axillaris*, as I see that Mr. Tate believes it was rightly named, and yet Dr. Moore fears a mistake. *C. axillaris* appears to be a very scarce plant in Ireland. I should also be very much obliged if you could obtain specimens of—

*Lamium intermedium* (I fear that *L. incisum* has been mistaken for it).

*Polygonum nodosum* (*i.e.* *laxum*).

*Torilis infesta* (I cannot believe that this is native).

*Potamogeton zosterifolius*.

*P. gramineus*.

*Poa procumbens*.

Do you not think that it would save postage if the specimens were to be sent by book-post? I always send mine so, on a narrow strip of cardboard, each attached by a little band or two to its own sheet, and then a cover of coarse paper wrapped round, left open at the ends, and this saves a great many stamps. I called at Miss Maffett's yesterday, but she is away from Dublin at present.—With many thanks, I am, dear sir, yours very truly,

A. G. MORE.

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GLASNEVIN,

August 8th, 1865.

MY DEAR SIR,—I have again to thank you for your kindness in forwarding some very interesting specimens. I am especially glad to have seen the supposed *Torilis infesta*; but I am sorry to say that your specimen is not that species, but seems to me a very luxuriant bit of *Anthriscus vulgaris*. Can you tell me whether it comes from "the Trench, Comber," and whether you are sure it is the same plant as Mr. Tate's "*infesta*"?

Possibly, you sent a different *Ranunculus* to Professor Babington; but he quite agrees with me that the last piece which you sent as "*fluitans*" is only *pseudo-fluitans*. I think that under the circumstances it will be safer to omit *R. fluitans* for the present, and leave the point open till another season. . . . *Lamium intermedium* seems quite right, and I am very glad to have seen it from your locality. I do not find the *Hypericum dubium* in your packet, but I should much like to see a specimen at some future opportunity. I am about to spend a few weeks in North Wales, and I hope that it will do for me to return your specimens when I get back to Glasnevin. I hope also to be able to see Miss

Maffett's collection by that time, and perhaps this will resolve some of the little matters which still remain doubtful. I am sure that I feel greatly obliged to you for your kindness in assisting us. I hope you will enjoy your walking tour.—Believe me, dear sir, yours very truly,

A. G. MORE.

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GLASNEVIN,

September 14th, 1865.

MY DEAR SIR,—I have only just returned from spending a month in North Wales, and I found your packet of plants waiting here. I have not yet had time to examine them as carefully as I should like; and as Dr. Moore is away, I think I had better leave them till he returns. I am extremely obliged to you for the additional localities which you were so obliging as to send in your letter, as well as for the specimens. I should be very glad if you can let me have the *precise localities* for the different Batrachian Ranunculi, now that you have set the names right. I made several corrections in the Belfast Flora from your letter, but I think it will be safer if you will kindly take the trouble to write them down separately. (I think you said that *R. circinatus* was an error: was it *drouetii*?) I regret to say that you are almost the only contributor in the Batrachian Ranunculi!! I cannot find anyone else willing to examine them.—Yours, in haste,

A. G. MORE.

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GLASNEVIN,

October 2nd, 1865.

MY DEAR SIR,—I think we must allow your plant to be the true *R. fluitans* after all, and this I suppose is the only sure Irish locality. Dr. Dickie gives two localities by Lough Neagh, but I suppose they must remain doubtful until refound, there is so much danger of some form of *R. heterophyllus* being mistaken for *fluitans*. I suppose that you have the Flora of Ulster. It is a very useful little Flora, though the critical species are not always worked out.

I now return your specimens with many thanks, and I have to thank you extremely for your great kindness in investigating so many of the doubtful plants for us. You have effected quite a revolution about the Batrachian Ranunculi. This only shows how much caution should be used in naming the critical plants. Unless one is perfectly familiar with them, it is very seldom that anything short of comparison with authenticated specimens is satisfactory. . . . I should be very much obliged if you can spare me a bit of the *R. trichophyllus* with *floating leaves*, as I have never seen them.

On looking over your letter, I see there are still a few points upon which I dare say you can give me a little more definite information.

*Papaver dubium*.—Have you still found only *P. lecoqui*? I think you should have both forms, as I have found them together in Dublin



and Mayo. *P. lamottei* has its leaves less cut, and is usually smaller of the two.

Have you not *Lamium incisum* as well as *L. intermedium*?

It seems curious that you have not *Ranunculus floribundus*.

*Epilobium roseum*; *Erythræa pulchella*; *E. littoralis*. Have you ever met with these?

*Matricaria chamomilla*. I see you speak of this as cultivated in gardens. I thought that only *Anthemis nobilis* was grown for "Camomile tea." *M. chamomilla* I never heard of as cultivated before, but I dare say you are right.

*Valeriana sambucifolia* I do not feel able to distinguish from *V. officinalis*. However, the differences depend more upon the shape of fruit and the stolons than upon the leaves. I do not think they are more than slight varieties of the same species.

*Ranunculus cœnosus* ought to occur in your district. Indeed I see that Dickie gives Moneymore as a locality in his Supplement. At present I do not know of its occurrence further north than Co. Dublin; still I think it will be found all through Ireland. Have you looked for it?

*R. circinatus*. "Lough Neagh" in Flora of Ulster might prove to be correct.

Babington says your *R. fluitans* is not *bachii*.

*Chenopodium polyspermum*. I suppose you have not found this? I am afraid that it must be turned out.

A. G. MORE.

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GLASNEVIN,

October 27th, 1865.

MY DEAR SIR,—I have left your last letter too long unanswered. I have to thank you for a very acceptable addition to my collection in the shape of *Ranunculus trichophyllus* with floating leaves. Thank you for mentioning the doubt about *Myosotis sylvatica*. It would be well to know the name of the collector of the specimen in the British Museum, as, if Templeton, this would throw still more doubt upon the right of including it in the Flora of Ulster. One of the *Hieracia* which you sent, Dr. Moore considers to be *H. strictum*; the other is too imperfect to name, but I do not doubt that you find *H. vulgatum* in the county Down, as it is a not unfrequent species. But these *Hieracia* are very difficult to make out. . . . Your *Erythræa* is nothing more than a small plant of *E. centaurium*. *E. pulchella* branches usually from quite low down in a regularly dichotomous manner, and has not its flowers collected into heads. If you saw *E. pulchella*, I think you would not mistake it. Its flowers are smaller, and star-like from the narrower segments of the corolla. I am surprised to hear that *M. chamomilla* is cultivated in your cottagers' gardens. . . . I have not yet seen Miss Maffett's collection; but I hope to do so shortly, and I expect it will throw some light on the Belfast plants.—With many thanks, yours very truly,

ALEX. G. MORE.

(December 7th.) This morning I have seen Miss Maffett's collection, and with much interest, as there were several scarce species, and specimens that served to throw light on the Belfast flora. I should tell you that "*Poterium sanguisorba*" is *Sanguisorba officinalis*, the latter a far scarcer plant in Ireland, and Miss Maffett's is only the third locality as yet ascertained. The supposed *Medicago denticulata* turns out to be a small bit of *Melilotus*, too young for determination, but probably *M. arvensis*; and, if so, probably introduced in the locality. *Arctium* "majus" is either *A. pubens* (intermedium *now*) or *A. minus*—certainly not majus. The same plant, *Anthriscus vulgaris*, was in the collection named by Mr. Tate, *Torilis infesta*. A *Carex* with name "elongata" is a form of *paniculata*. I send you these details because I think you take some interest in your North Irish flora, and I feel sure that you will be equally interested with myself in seeing errors cleared up. This has unfortunately too often been our task in our late operations, and I think it shows how little dependence can be put in naming a specimen from *description* only. For this I presume is the only explanation of Mr. Tate's numerous errors. Without authentic specimens, or good plates, the best of us are liable to mistakes of name; and how hard it is to set these right can only be known to those who have tried to insist upon correctness and certainty in everything. I rejoice to think that I have had the good fortune of finding a correspondent so obliging and truth-seeking as yourself, and I can hardly sufficiently thank you for the trouble you have so kindly and often taken in assisting our work, and for the candid way in which you have answered all my inquiries.

There still remain two points where I shall be very glad of your help.

Miss Maffett tells me that you have seen *Hottonia palustris* near Downpatrick, and as we have no recent information about this its only Irish station, I should feel greatly obliged if you will kindly tell me what you observed of the plant. Is it plentiful? What *sort* of place? and on which side of Downpatrick does it grow? Does the locality look like a natural one?

Again, as to *Avena pratensis*, would you be able to look at the plant which is preserved in the Belfast Herbarium (Nat. Hist. Society), and copy for me the exact locality given on the label; and is the plant right to your eyes? Is it perfectly glabrous on the *lower sheaths* and leaves? I believe this will be the only authority for its occurrence in Ireland; therefore I wish to be doubly sure. Mr. ——— has told Dr. Dickie that the specimen is rightly named. I should be glad to have your opinion also.

(January 15th, 1866.) I have been too long in replying to your last kind letter; but if you knew the amount of writing which I have to get through, I am sure that you will excuse me. Thank you very much for disposing so well of the miscalled "*Avena pratensis*." It must certainly now be placed in brackets, until someone can rediscover it.

I do not wonder that you have trouble with the Burdocks. They are by no means easily identified so far as my own experience goes, except that the right *A. majus* does look quite different. It has much larger heads than any of the Belfast specimens, and they are collected into a sort of corymb at top of the stem. One of your specimens had a kind of resemblance to this growth; but only because the upper part of the panicle had been broken off. The petioles also of the leaves of *A. majus*, if cut through, appear quite solid, with no hollow or tube in the centre. But I do not much think you will find it at Belfast, as we cannot lay hands upon it at Dublin; the only Irish locality is Clonakilty, Cork. I much doubt whether *A. minus*, *A. pubens* ("intermedium"), and *A. nemorosum* are distinct.

I wrote to Mr. Oulton, and he has satisfactorily confirmed the habitat of *Hottonia* in marshes crossed by the railroad close to Donaghadee. I hope you will be able to look after *Myosotis sylvatica* next season, as the specimens here are not very satisfactory. The *Erythræa* sent is simply *E. centaurium*, so I do not return it. At the same time I must say that I do not believe in *E. latifolia*, which I have seen growing plentifully in the Isle of Wight, and which appears no more than a form of *E. centaurium*; but our Isle of Wight plants had much broader leaves, and flowers often almost sessile on the leaves.

There is one of your plants of which I should very much like to see a specimen. Will you kindly send me a bit of the *Juncus obtusiflorus* from Dundrum Bay, and tell me the locality precisely? Is it north or south end of the Bay, or near any place that could be named? Also, I should like to give the exact station for the very singular form of *Allium ursinum*\* with yellow flowers. Is it plentiful? If you have another specimen of it quite to spare, I should feel very glad to have it, as your former bit was rather crushed by post. *Carex axillaris* I suppose had better be dismissed as a probable error, as you have not succeeded in finding it again. It is exceedingly scarce in Ireland. Dr. Moore has not even seen any specimen. *Juncus obtusiflorus* is also very rare—only known for certain on marshy ground near the coast of Wicklow.

I am now advanced as far as *Carex* in the MS., and hope to begin printing in February.—Thanking you once more most sincerely for your kind help, which has been of very great use to us, I remain, dear sir, yours sincerely,

ALEX. G. MORE.

P.S.—There is a list of Shetland plants by Mr. Tate in the January number of "Journal of Botany." It seems a very good paper, carefully prepared, and will be of service. I think he was too hasty in determining several of the Belfast plants. But, with no herbarium for reliable comparison, we must not blame him too much.

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\* This turned out to have been an escape from cultivation.

His correspondence with Mr. Stewart lasted over the whole thirty years of Mr. More's residence in Ireland. For the present, however, only one other letter will be quoted :

GLASNEVIN,

August 29th, 1866.

MY DEAR SIR,—I have only just returned from North Wales, where I have been spending the last six weeks, so that I trust you will pardon my delay in replying to your letter. Your discovery of *Acorus calamus* is one of the highest interest. It is hard to form an opinion as to whether it should be reckoned native or not. But at all events I see that Watson enters it as native in his Subprovince 21, which includes Lancashire and Cheshire. The Scottish localities are, however, suspected by nearly, if not quite, all our best authorities. I should certainly be inclined to think that the *Hottonia* must have been planted where you have discovered it. So near to Belfast it could hardly have escaped notice. . . . , If you have any doubt remaining about your *Carex buxbaumii*, we shall be very happy to compare it with the original specimens; but I should think you could hardly mistake it, as it is a very distinct plant. It would be well to know whether it still continues to grow on Harbour Island, as I think I have heard that since the water of Lough Neagh has been lowered, the island has become much drier.

I hope that you have received our book ere this, and that you like the way in which it has been brought out. There must, no doubt, be many omissions in a first edition, but I hope that our various contributors will help to fill in the blanks. Please be so kind as to send any additional localities you may find for the scarcer species, as we hope to publish a supplement presently. As a rule we should be glad of any new stations for all plants whose special localities are given—or, at all events for any new stations when only one or two are given in the district; or, if you find a plant in any new county. *Helminthia echioides* is a fine addition indeed to your northern list. Pray accept my very best thanks for your numerous and most valuable contributions to our book, and for the great kindness with which you have so often investigated and cleared up many doubtful points. I trust we shall continue correspondents; and if I can at any time give you the least help I hope you will not hesitate to write.

The mutual esteem of the two botanists never altered. "Mr. More was my kindest friend," Mr. Stewart wrote long afterwards (August, 1897); "our correspondence commenced as soon as I began to take an interest in Irish botany, and in helping me forward he did not consider any pains too great."

## CHAPTER XXVI.

## PRESCRIBED "ANIMAL DIET."

[1866.]

A MEETING of the Dublin Natural History Society, held at the Royal Irish Academy-house on the evening of Friday, February 2nd, 1866, marks the beginning of one of his most intimate ornithological friendships. The writing of the "Cybele" was now practically finished, and an evening's turn at birds was all the more enjoyable as the stress of the botanical work was over. The chair was occupied by his colleague Dr. Moore. The proceedings embraced three papers on zoological subjects, and of these the first was read by Mr. Robert Warren, who reported some occurrences of rare birds on the shores of the River Moy and Killala Bay. Speaking of one of these, the Fulmar Petrel (of which only seven specimens—three recorded by Thompson and four by Mr. Warren himself—were then known to have reached Ireland), Mr. Warren drew attention to the fact that this bird had never yet been obtained on that part of the Irish coast lying nearest to its great breeding-haunt at the island of St. Kilda—viz. the northern coast-line of Antrim, Derry, and Donegal: which seemed curious, in view of the fact that specimens had occurred on the east, the west, and even the south coasts. The paper interested Mr. More, not only from its merits, but because during the summer of 1864 he had spent some months by the Moy, at Foxford, and had therefore some knowledge of the localities referred to. He made a few remarks on the paper, expressing his belief that the absence of records from the northern coast was less due to want of observation than to the character of the coast-line, as the birds would in stormy weather be driven past the exposed shores of Donegal straight into Killala Bay, which, he said, was "open like a funnel to receive them." Mr. Warren and he

had never met until this evening, but a spontaneous friendship at once sprang up between them, and throughout life their feelings towards one another were those of the warmest attachment.

At the same meeting there occurred a discussion on his pet subject, the Migration of Birds, in which he took part, chiefly to urge the need of more systematic observations. "Saunders' News-letter" gives the following summary of his remarks:—

Mr. A. G. More said that this class of observation is one which has not yet been reduced to any system. As regards the direction of the flight of birds, and the influence of climate and prevailing winds, something may be done by registering the lines of simultaneous flight, if a sufficient number of good observers can be found. As to the causes which influence migration, there seems to be this difference between the spring and the autumnal movement, that in the spring the impulse comes from within, being simultaneous with the vernal change of plumage, and is found to be comparatively more sudden and irresistible, so that the birds appear to take a more direct road towards their summer quarters, and when detained captive during the spring they have been known to die from the ungratified desire to migrate. On the other hand, in autumn the impulse comes from without, as the birds may be said to retire under the pressure of external circumstances, and, as might be expected, they seem to travel more slowly at this season than in spring, being gradually driven out by the inclemency of the weather, or a want of food, and this before the change to the winter plumage is completed. This may serve to explain the fact that many birds are observed to follow a different line of flight at the two seasons: if it be supposed that in spring they take a more direct road towards their breeding-quarters, while in autumn they are found to linger by the way, and often follow the course of valleys, rivers, or coasts. Another point to be noticed is the greater regularity of arrival in spring, when most birds keep pretty nearly to the same date, and are found on arrival nearly fully attired in the summer plumage, whereas they return in autumn with less punctuality, and often long before the winter plumage is assumed.

Soon however he saw an opportunity of returning to the "meat diet" on a more extensive scale. On March 7th he wrote his congratulations to Mr. Newton, who had just been elected Professor of Zoology and Comparative Anatomy at Cambridge, and in doing so mentioned his own intended candidature for the office of "first assistant naturalist" in the Royal Dublin Society's Museum.

MY DEAR NEWTON,—I am rejoiced to hear the result of the election to the Z. Chair, and I trust that you may long be spared to enjoy your success, and the very enviable position, in which I am sure you will do much good to N. Science, and I hope especially to our favourite branch.

Pray think now of that Manual of European Ornithology which we are all waiting for, and for which I venture once more to petition.

I am very hard worked just now in printing our Irish flora, and after that is done (but I think you will hardly credit it) I am thinking of taking your oft-repeated advice of an alternation (sandwich fashion) of zoology.

There will soon be open in Dublin an appointment as Assistant Curator of the Dublin Society's Museum, which I am advised to try for. Ornithology and Irish fauna to be my department—but I am up to Insects too. The Director, Dr. Carte (whom I think you know) is a nice, quiet, amiable man, and will make my position pleasant, and perhaps allow of an excursion with the bird-stuffer occasionally. So I am very much tempted to take it.

Will you, then, my dear Professor, send to your faithful "B. O. U." a character, to some such effect as, that I know birds and insects, that Ornithology has always been a favourite pursuit, always have been working at Nat. Hist., wrote Nat. Hist. of the Isle of Wight, and am a fair "Naturalist" generally, and pretty good at species.

Any "puff" would be what I should not ask, nor you give; but if you can make out a strong claim for me, I shall be the better in the way of serving "Ibis."—Yours, my dear Professor, most sincerely,

ALEX. G. MORE.

The "character" was not long in coming, and, with those sent him by Professor Babington and Mr. Bell, completed his set of testimonials. From friends in Dublin he had already learned that his election was probable.

GLASNEVIN,

*March 12th, 1866.*

MY DEAR NEWTON,—Many thanks for your kind warrant: still more for the friendly note which accompanied it. I do not think that I need ask you to do any more for me; because I know that if you meet our friend Dr. Wright in London, you will, I am sure, give me a good character, and I trust that Wright and I may live to work heartily together at the Irish Fauna. Wright is the rising man of science in Dublin, and one of my best friends. He helped us greatly in getting funds for our "Cybele Hibernica." I wish to have him as my firmest ally here.

I have reason to hope that Dr. Carte is willing to have me as his sub.

Of course, *if* you are writing to him, some slight hint in my favour would not be lost ; such as that I would be a pleasant fellow to work with (*if* you think so).

I hope to get a great "innings" at birds.

Of course I shall dismiss botany from my mind altogether, and leave off being a vegetarian. Probably the change to animal diet will invigorate the system ; will it not ?

I am so glad that you won. . . . The favour of the "byrde" and the thanks of A. G. M., may they ever follow you.—Yours very sincerely,

ALEX. G. MORE.

Babington was to beg your strong support in my favour. If he has written, he will be glad to find it done. When *is* Blasius' book to come out ? Is it nearly ready ?

Professor Newton's "kind warrant" was as follows :—

MAGDALENE COLLEGE, CAMBRIDGE,

*March 9th, 1866.*

MY DEAR MORE,—It gives me very great pleasure to recommend you as an exceedingly fit and proper person to fill the office of Assistant Curator to the museum of the Royal Dublin Society.

Long before I knew you personally I had formed a very exalted opinion of your qualifications, from your various contributions to scientific journals ; and your later publications have materially confirmed that opinion.

To the extreme value and originality of your observations on Ornithology and your intimate knowledge of the subject I can bear positive witness, since that is the department of Natural History to which I have hitherto chiefly applied myself, while your diligence as an entomologist has given you a reputation which is a matter of notoriety.

I should consider the Royal Dublin Society most fortunate if it was able to secure the services of so devoted a naturalist as you have proved yourself to be ; and wishing you success in your candidature, I remain, my dear More, yours very truly,

ALFRED NEWTON.

Professor Babington's bears date three days later :—

Mr. A. G. More, F.L.S., is well and intimately known to me. He has long paid much attention to various departments of Natural History, especially Botany and Ornithology. During many years of residence in the Isle of Wight he studied, in addition to those subjects, the local fauna generally. Recently he has been much occupied with the Botany and Ornithology of Ireland. He wrote a long essay on the



Natural History of the Isle of Wight, treating especially upon those two departments.

I believe him to be peculiarly fitted for a place in a large Museum of Natural History, both from his skill in arranging and naming its contents, and also from the exertions that he would make to add to it.

CHARLES C. BABINGTON, M.A.,

*Professor of Botany in the University of Cambridge.*

CAMBRIDGE, *12th March, 1866.*

The third and last was Professor Bell's:—

THE WAKES, SELBORNE,

*March 26th, 1866.*

Understanding that my friend Mr. Alexander G. More is a candidate for the office of Assistant in the Dublin Museum, I beg leave, from long personal knowledge, to recommend him as eminently qualified for the post. Mr. More has all his life been a devoted and successful student of Natural History, is well acquainted in particular with British Zoology, on which many interesting Essays and Papers have emanated from him, whilst his knowledge of collecting and preserving specimens must render him additionally useful in such an office as that which he now seeks. The kindness and urbanity of Mr. More's disposition and manners form another important element in his fitness for a position in which such qualities must be often called into requisition.

THOMAS BELL,

*Late President of the Linnaean Society, Professor  
of Zoology in King's College, London.*

Accompanying Mr. Bell's testimonial came the following cordial letter from the veteran naturalist:—

MY DEAR MR. MORE,—I am very sorry that my hearty compliance with your wish has been so tardily carried out. I have been very much occupied of late, and have unfortunately postponed several other letters which ought to have been written earlier. I now send you a few words of testimonial, and if they could be as efficacious as they are hearty you would soon attain your wish. I have looked through your essay\* with much interest, but am sorry to see that I have omitted to send you a few notes of birds in our neighbourhood, which I will forward to you before long. They are, however, scarcely worth your acceptance. I hope that you will by-and-by obtain a scientific appointment more consonant

\* The essay "On the Distribution of British Birds" ("Ibis," 1865).

with your deservings than that which you are now seeking, and that thus Science and the public may obtain more advantage from your labours than so limited a sphere of usefulness can afford. I write in some haste that I may not lose another post. Believe me, dear Mr. More, yours most sincerely,

THOMAS BELL.

The appointment was not to be made till early in 1867, and it was not until the 28th of August that his letter of application with the three testimonials was forwarded. Meanwhile the printing of the "Cybele Hibernica" kept him busy in Dublin. Anxious, however, that Ireland should not be unnoticed at the forthcoming International Horticultural and Botanical Congress, to be held that spring in London, Dr. Moore and he determined that an essay relating to Irish botany should be contributed to its agenda. There was just time to work up a paper when the suggestion was made, and putting their heads together they wrote one "On the Climate, Flora, and Crops of Ireland." This paper quite served its purpose in directing attention to the "outlying western area" of Europe. Read by Dr. Moore, it raised an interesting discussion over the two characteristic Irish orchids, *Neotinea intacta* and *Spiranthes gemmipara*. Professor Reichenbach made an important speech, especially regarding the latter plant. He rejected both the then current opinions—that of its identity with the North American *Spiranthes cernua*, and the supposed alternative of its being a species peculiar to Ireland; and propounded the apparently improbable (but now accepted) theory of its identity with a still more westerly species than *Spiranthes cernua*—*S. romanzoffiana*, which had lately been found in the Rocky Mountains and on the west coast of America. This information (leaving aside the question which *name* should have priority) was received just in time for incorporation in the text of the "Cybele"; thus the joint authors, by their paper, had come by a last gleaning to improve their book.

In August the book was finished. Of the standard work on the Irish Flora it is unnecessary to say more, except indeed that its completion was a great relief to

one at least of the authors. Glad to shake the dust of the herbaria off his feet, he hurried away to Wales to join his family, who were passing the summer at Bangor, and enjoyed a real holiday. In September, returning to Ireland, he went with his sister for his first visit to the Lakes of Killarney. Only a week this time was spent in that beautiful district, but the impression made on him was such that of the next eighteen summers there were only three during which he did not visit the Irish lake-lands. The best bit of botany accomplished on this occasion was the discovery in the Lower Lake of Callitriche autumnalis (autumnal water starwort), a full degree further south than what had been supposed its southernmost station in the British Isles.

A renewal of bird-correspondence—for he had again begun firing off letters at his old contributors, and was now begging for information as to seasonal increase or decrease of “resident” species—interested him during the next few months in Dublin. Here he now felt himself thoroughly at home, and the reputation which he enjoyed in the scientific circles was already based less on his writings than on the results of personal acquaintance. A little incident of this period was often quietly laughed over in later times. It was at a dinner-party, at which a number of naturalists and other men of science were present. The conversation turned upon an extraordinary phenomenon which had occurred, or been generally noticed, on the afternoon of that very day. It was nothing else than the descent, from the upper regions of the atmosphere, of *a shower of thousands of palm-nuts* upon the streets of Dublin. At least, the streets, after rain, had been discovered to be strewn with the “nuts,” some of which, it was said, had even been seen in the act of descending, either from the sky, or at any rate from the house-tops. They were hard, so hard that a knife could not pierce them, further, at least, than to pare off a slender chip. The meteorological conditions of the higher strata had evidently produced a petrifying effect. To what exact species of palm the nuts belonged had not been ascertained, but that a West Indian tornado had snatched them up into the clouds, which had

just rained them down over Dublin, was, said one of the company, the only tenable belief, and a full and unimpeachable account of this great natural history marvel would appear next day in all the morning papers. While interest was concentrated on the subject, More drew from his pocket a number of specimens, and laying one on his plate easily cut it in two. "They are quite soft," he explained, "after a little *boiling*. Here is the inside section." And the "exact species of palm" was a secret no longer, for there came a general exclamation, "Why, they are oranges!"

A little narrative of his researches into the matter followed. He had traced the oranges to a distillery, whence they had lately been thrown out as useless from too long storage. The rain, by washing them down-hill, had doubtless helped their dispersal. "But how," asked an incredulous gentleman, "could they reach the roofs of the houses?" "Oh, quite easily! I am told that lots of little boys have been using them as catapult-stones."

One of the guests left early, and no account of the great tornado appeared in next morning's papers.

Christmas, 1866, he spent with his family at Leamington (it was a time of great frost, and famous skating); and here, early in January, he received the welcome news of his appointment as "first assistant naturalist" in the Museum of the Royal Dublin Society.

## CHAPTER XXVII.

## SETTLED IN DUBLIN.

[1867.]

IMMEDIATELY, therefore, on his return to Dublin, began his long connection with the Irish Natural History Museum. It was in several respects what may not inappropriately be called a new era in his life, and chiefly so from the opportunities which it put within his reach of meeting, helping, and encouraging those whose tastes led them to the study of Nature. "For twenty years from that date," as is said by one of those who knew him best, "his room (in the museum) was the rendezvous of all naturalists who came to Dublin. Here introductions were made, jealousies dispelled, and friendships initiated and cemented. Every nerve was strained to encourage, stimulate, and assist the younger naturalists. More was their counsellor and guide, and the Natural History of Ireland had in him a most earnest advocate." Among these younger naturalists was, at an early date, the writer of the few words just quoted. Mr. More had not been many months in the Museum, when a young student who occasionally went there "discovered that there was somebody in the place, whose name (Mr. Barrington says) I did not know, but who gave me so much help, and took so great an interest in my inquiries, that I thought him quite the most delightful person I had ever met." Thus were laid the foundations of a most intimate friendship, and Mr. More soon became a frequent visitor to Fassaroe, on Sunday afternoons. Both botany and birds were among the tastes which the friends had in common.

He had spoken to Professor Newton of "dismissing botany from his mind altogether" when he got his "innings at birds"; but it must be admitted that on his occasional opportunities of a country excursion he seldom left the vasculum behind. During the summer of 1867 he took up

as an "off-time" subject the botany of the east coast of Ireland; and one of his first expeditions, about midsummer, was a walk from Wicklow to Greystones, at the beginning of which, while examining a stretch of "short sandy pasture" near Wicklow town, he lighted on one of the coast-loving clovers he had so much missed (as a group) in rambles by the Irish shores—*Trifolium subterraneum*, long familiar as a plant of St. Helen's Spit, which he had now the pleasure of adding to the Flora of Ireland. Other walks, taken in July and August, were, from Arklow to Wicklow, from Malahide to Rush, and from Gormanstown to Drogheda. On the two latter excursions he was much pleased to find at several points the rare snail *Helix pisana*, for which he had unsuccessfully searched near Portmarnock in 1854. He now got it "(1), at the N. end of Portrane sands; (2), on the rabbit warren S. of Rush; (3), a little N. of Gormanstown; and (4), on the sandhills towards Maiden Tower." Between Arklow and Wicklow he set himself to trace the northward ranges, in particular, of *Juncus acutus* and *Equisetum moorei*, and was interested to find that both ended almost at the same point, near Seapoint House.

For his summer holiday he went with his sister to Switzerland, to revisit scenes where his love of nature had been first awakened, and here three delightful weeks (Sept 6th–26th) were spent. From Neufchatel, where the first halt was made, they visited Yvonand, the home of his early boyhood under the roof of M. Germond; and by favour of the new occupants took a minute survey, both inside and outside of the little Swiss manse. Then on to Lucerne, for the ascent of the Rigi (on whose summit, a mile above sea-level, *Colias hyale*, the "clouded sulphur butterfly," was seen disporting itself). From Interlaken, associated with his "first pretty butterfly," a walk was taken to the mill-stream in whose milky waters he had, as a child, narrowly escaped drowning. It was easily identified, and one plant of *Cystopteris fragilis* gathered, "in memoriam," from the brink. On the 17th they reached Lausanne. Here it was decided to stay a week, largely for the sake of the district's well-remembered associations.

But the first excursion taken was to the retired village of St. Loup, near Eclépens, where lived his worthy old tutor, M. Germond. It was twenty-six years since they had bidden one another "un dernier adieu" at Echallens; and the old man, overjoyed to see his favourite pupil again, "gave us a most affectionate welcome, and we spent an hour very happily in talking over all the old reminiscences." "This day has added a year to my life," M. Germond said at parting, and in fact he survived it exactly twelve months. Next day (September 20th) was spent in revisiting Renens. Here more old friends were found, and unforgotten haunts explored again with the deepest interest. The old house and grounds seemed somewhat dwarfed from what they had been imagined, and there were some changes. "The asparagus beds are gone, and also the sweet little round plum-tree near the entrance of the garden." But the woods and the butterflies were fresh and tempting as ever, and the excitement of chasing the latter was not to be resisted. It was a beautiful day, with a touch of coming autumn, for the walnuts were being gathered at Renens; but that night at Lausanne rain and lightning caused suspicions of an approaching change, which were renewed the following evening, and thoughts of Chamounix were reluctantly given up. At Geneva, on the 24th, they met Dr. Moore of Glasnevin, just returned from Spain with his brother, Mr. C. Moore, from Sydney, Australia. Thursday (September 26th) was to be remembered for a call on the great botanist, M. Alphonse de Candolle. It had long been one of Mr. More's ambitions to meet the author of the "*Géographie Botanique Raisonnée*," a book by which he had been permanently influenced. The meeting was cordial, and was followed by a correspondence in later years on various botanical topics. At parting, M. de Candolle presented his photograph, and asked for one in return. At Paris, a few days later, he made acquaintance with M. Boisduval, one of the most versatile and entertaining of naturalists, at once President of the Horse-flesh-eating Association, and owner of the best collection of butterflies in Europe. A three hours' chat with M. Boisduval was immensely enjoyed. The

tour ended with a hurried visit in October to the Isle of Wight.

In the winter of 1867-8 began his correspondence with Mr. J. A. Harvie-Brown. In a letter containing some inquiries for the purposes of his contemplated "Birds of Stirlingshire," Mr. Harvie-Brown mentioned, among other ornithological items, a peculiarly interesting discovery of his own, i. e. of a Woodlark's nest (the first ever known in Scotland), found in Torwood Forest. During the whole remaining period of his correspondence with Mr. More (27 years) he never found another; but Mr. More meanwhile had almost equally curious experience of the capriciousness of the same bird in Ireland. "A list to be marked," in accordance with his usual practice, accompanied his reply to Mr. Harvie-Brown's letter.

(*January 8th, 1868.*) Your letter has just been forwarded to me from the Isle of Wight, and I hasten to thank you for the very interesting items of information which you have so kindly communicated. The discovery of the Woodlark breeding in Scotland is a most important fact; and I do not doubt that your continued observations on the birds of Stirlingshire will lead to a most interesting publication. At the same time, will you pardon my expressing a hope that you will not print quite yet, if you have the prospect of future opportunities of continuing your observations. For my own part, when writing on the birds of the Isle of Wight, I found that a very few seasons brought in a great deal of information which I much regretted came too late. I am sure that a good county Fauna from any part of Scotland will be a very useful and interesting contribution to Science, and I hope that you will be able to carry out your design. . . . If you have sufficient leisure, I should feel extremely obliged if you will kindly consent to help me in a scheme which I have been for some time planning. I am trying to obtain some data on the migration (or partial migration) of birds within Great Britain; and I expect some interesting results if I can obtain a sufficient number of lists from different counties. I should feel extremely obliged if you will kindly be my authority for your county of Stirling, and I hope that you will not find it too much trouble to mark the enclosed blank list on the following plan.

Please, first, to *underline* the names of all the birds which breed in the county.

Next, *after* the name of each of these please to add one of the signs:—

- + for birds more numerous in winter (i. e. about mid-winter) than in summer;
- for the birds which are less numerous in winter;



= when the numbers are about the same at both seasons ;  
o when none remain in winter.

I have already a good number of such lists, but none as yet from Scotland, except from Caithness. I have some idea of asking Mr. Newman to reprint my Paper on Distribution of Birds in the *Zoologist*. Do you think it would be worth while ?

Mr. Harvie-Brown replied :—“ Your paper on the distribution of our birds I consider a most valuable paper, and I really think you ought at once to give it a wider circulation. It, along with your data on the migratory habits of our birds, would form a volume which would be perfectly necessary in every ornithological library. Would it not be a better plan to publish them together in a separate form and not in a periodical ? ” A marked list was also sent, “ hoping these notes and the enclosed list may prove of some little use to you in your scheme, which I shall impatiently await to see completed and published. ”

In several further letters to Mr. Harvie-Brown the re-publication question is still under discussion.

(*January 16th, 1868.*) In time, perhaps, my notes may become sufficient for a separate work, but at present I think that the periodical form gives a better chance of making additions and corrections, and this would be a first object of reprinting in the *Zoologist* ; for a larger circle of readers might make many corrections, which of course must be needed in a first attempt. . . . I hope the attempt at migration statistics may be more novel than the mere localities of the birds, but I find it rather difficult to arrange the results.

(*March 26th.*) I gladly return you the list of birds for any corrections which you may think necessary, although I think it was already so complete that it made me wish for a dozen more like it from other parts of Scotland. Might I ask whether you can recommend me to any trustworthy ornithologist not mentioned in my paper ? I find the present inquiries even *more* requiring caution and accuracy than my former attempt. . . . I have some idea of reprinting the Bird Distribution as you suggest with that of the butterflies, but I think it will be better to wait and see what can be done about Migration, so as to join the two subjects. And there will also be required some summaries and generalizations which I have not yet had time to work out properly. I think, then, that together with a comparison between the animals and plants, there might be enough for a small volume. I have already collected a fair store of materials for the Land Mollusca ; and I think it would be desirable to have all the different subjects brought together.

The plan here outlined was not lost sight of for twenty years, and Mr. Harvie-Brown seldom missed an opportunity of urging its completion. But the difficulty of obtaining reliable information from all parts of the country, on a question so incapable of direct test as that of seasonal increase or decrease, in the end proved insurmountable, and the results were never published.

## CHAPTER XXVIII.

## BOTANY AND DREDGING.

[1868.]

IN the spring he had a rather prolonged attack of ill-health, and a visit to Killarney on sick-leave (May 7th to 18th) was not productive of much botany, though it afforded him his first sight (on May 8th) of the beautiful *Pinguicula grandiflora* in flower. But as the summer advanced he found time for a few short runs down the east coast, and one of these resulted in a very unexpected and pleasing addition to the Irish flora.

In the year 1837 the Rev. George Edwards Smith had first discovered as a British plant *Scirpus parvulus*, a minute club-rush about one inch high, which he found growing on a Hampshire mud-flat. Since that date Mr. Smith had again sought it, but without success; nor had any other botanist, during the thirty years which had elapsed since the day of its discovery, found a trace of the species, there or elsewhere, in Britain. It had come to be treated as extinct, or non-British, in all the principal Floras, except Professor Babington's. But its re-discovery was a favourite dream among Hampshire botanists, of whom Dr. Bromfield had been especially diligent in his search; and Mr. More's interest in the long-fruitless quest is shown by a passage in his "Natural History of the Isle of Wight," where, speaking of the botany of the Newtown marshes, he says (p. 67):—

A careful search in the salt marshes of Newtown, and especially of Yarmouth, will very probably prove the lost *Scirpus parvulus* a native of the island as well as of the opposite coast. So inconspicuous a plant is very likely to be overlooked among the rank vegetation and sea-rushes, in whose company it is said to flourish.

It may be remembered that his own last important

addition to the Flora of the Isle of Wight (that of *Chara alopecuroides*) was made while searching the Newtown salt-pans in August, 1862, when doubtless, as on previous occasions, his eye was on the alert for signs of "the lost *Scirpus parvulus*." Indeed, a month before he had been in correspondence about it with a friend then visiting Lymington.\*

It was therefore with a sense of real delight that, towards evening on July 4th, 1868, after following the Ovoca river to the sea, and reaching "the muddy shallows which are overflowed at high water," he saw on these something herbaceous growing "quite by itself, . . . giving a pale green tint to their surface, and forming dense beds of tiny green tufted stems, about an inch high, its slender rhizomes interlaced and buried deeply in the mud"; and knew at a glance that he had found *Scirpus parvulus*. His diary record of that day's excursion is indeed a brief one: "Ovoca and to Arklow—*Scirpus parvulus*" is all it says. But in later years, in chat with a botanical friend, he would sometimes ask, "What plant did it give you the greatest pleasure to find?" And on the same question being put in turn to himself, the answer, without hesitation, was "*Scirpus parvulus*."

Very curiously, within the next few years *Scirpus parvulus* disappeared almost as completely from Mr. More's locality as it had done from Mr. Smith's. It was sought time after time, by himself as well as by other botanists who had been to the spot and gathered it shortly after its first discovery; but not a trace of "the lost *Scirpus parvulus*" could be detected. At Lymington (Rev. Mr. Smith's station) it has never been re-found; but in 1893 Mr. R. M. Barrington discovered it growing once more plentifully at Arklow.

Another of his east coast expeditions is remarkable, as having led him into an error of the very kind he most disliked. On June 14th he visited Kiltannel sandhills, Co. Wexford, for the purpose of seeing the *Hippophae*, or Sea-Buckthorn, described by a correspondent as growing there

\* As appears from a letter in which the Rev. T. Salwey describes the reputed locality, and refers to the fruitlessness of his search there, dated July 14th, 1862.

plentifully, and as being reputed wild. Suspecting, nevertheless, that it was probably introduced, as in similar stations near Dublin, he walked along the sand-hills from Courtown to Kiltannel, and there found the Sea-Buckthorn growing far more vigorously than he had anticipated, though accompanied, as he noted, here and there by sycamores, and in one place at least by clematis. He traced it northwards for more than a mile, and at last, quite converted from his attitude of suspicion, ventured on recording the species as native: the note in which he did so appearing in the same number of the "Journal of Botany"\* with the announcement of the discovery of *Scirpus parvulus*. Conclusive evidence, however, soon reached him, showing that the *Hippophae* had, as a matter of fact, been freely planted in successive colonies for a number of years. The record, therefore had to be withdrawn; and, as his second note in the "Journal of Botany," says, "the present instance may serve as a caution against deciding too hastily in favour of any plant being indigenous, even when it presents every appearance of being perfectly wild." †

In July he went on a dredging expedition for the Museum, with Mr. W. Andrews, then Chairman of the Royal Dublin Society's Natural History Committee. Their operations were to be conducted off the Kerry coast, from Dingle, where they arrived on the evening of Saturday, July 25th, and remained a fortnight. Rough weather prevailing the whole time, sadly interfered with the dredging, and they seldom got beyond the limits of the harbour. As usual with him when on exploration, he carried a small pocket-book for natural history notes. But the diary of a dredging expedition is dry, and from no point of view very interesting reading; for even the scientific results are not brought out, in the lower groups, till after later examination. The first day's work (in Dingle Harbour) yielded some twenty species of fishes, as well as some rare crabs and shrimps and ascidians. "Note the bright brassy green colour of Deep-nosed Pipe-fish" is a characteristic jotting. Then three days followed, which were quite too rough for the water, and all that could be done was to

\* August, 1868.

† "Journal of Botany," November, 1868.

fish the Rock-pools and turn over the stones. But "Rock Pigeons flying about," "a fine male Hen Harrier close to Dingle," and "five Ravens flying together in the Coomb looking to Brandon," were sights to rejoice the eye. On the fifth day they again tried the water.

(July 31st.) Light wind, west. Sailed out about 10½ to Ventry Harbour, and dredged with both dredges, net and canvas, on a sandy bottom. The first dredge came up full of *Ophiurus*, two species; Hermit Crabs, two or three small Soles, young of Wrasse, a few Worm Pipe-fish, *Aporrhais pes-pelecani*, two or three specimens of an orange-coloured sponge, Common Prawn, and a few dead and broken shells; a fine Swimming Crab (*Portunus marmoreus*), some Spider Crabs, young Gobies, &c. Afterwards tried one haul on gravelly bottom outside Ventry Harbour and got scarcely anything.

On August 1st "the chief capture of the day was a living specimen of *Caryophyllea Smithii* (a rare coral) attached to a stone taken up at the mouth of the harbour; and a fine set of *Comatula rosacea*, young and old, were taken up at the same place, the young stalked specimens all attached to a large *Laminaria*, and the zoophytes upon it." The 2nd (Sunday) was "a very fine bright day," and a beautiful drive took him to Castle Gregory by Connor Hill, where grew "by the roadside, under a damp rock, *Sibthorpia europæa*." On Monday they drove to Ferriter's Cove, and found the tide too high. "There is here a curious raised beach, forming a stratum seven or eight feet above present high water, and containing recent shells cemented together, as is also the calcareous sand above them. Where exposed their brescia forms a hard and nearly solid mass, but on digging in for six or eight inches we found it quite soft and friable. Returned by head of Smerwick Harbour, over a wide sandy beach, which overlies a bog. The peat is left bare at low water, and in one of the holes we found a number of sprats." Some of the sprats thus obtained were added to the Museum collection.

On Tuesday (August 4th) a search "along both sides of the mouth of the harbour in the rock-pools and caves" produced "a few Chitons under the stones, Prawns and Hippolyte in net, Sponges on the sea-grass, Blennies and

Shannies in the rock-pools, . . . *Xantho rivulosa* and *X. florida*, and *Blennius Montagui*, new to Ireland.’

This last was the best discovery of the expedition. “Montagu’s Blenny (*Blennius galerita*, as he would have called it had books been accessible at Dingle) is a fish whose only previous records on the British coast were from Devonshire and Cornwall, and whose capture in Dingle Bay thus “illustrates the great analogy between the south-west of England and the west of Ireland, whose flora as well as fauna are very similar.” The next day an attempt was made at open-sea dredging. “Sailed out to the Blasquet Islands and dredged to the southward of the Great B. From the head-wind, did not reach our ground till 4.30 o’clock. First tried the sandy bottom. Shelly sand, in about twenty-five fathoms. The dredge brought up very little. Two or three *Spatangus purpureus*, a few Hermit Crabs, a few shells living, but most of them dead, a very fine *Pectunculus glycymeris*, some tunicaries coated with sand, and shells. Tried next the dredge with canvas; it came up full of shelly sand, but no animals at all. Then had two hauls on the foul or rocky ground. Both times the dredge fouled, and we broke the grapnel. On the second trial the large dredge having been caught by a rock came up quite ripped open across both sides of the bag, and only contained a small piece of ‘coral.’”

This ended the dredging. Next to Montagu’s Blenny, perhaps the best prize was a rare shrimp, *Hippolyte viridis*, new to the Irish Crustacean list. A climb up Brandon, on Thursday, August 6th, afforded the two naturalists the sight of a curious optical phenomenon:—

Standing on the ridge above the eastern precipice, all the white mist had gathered below us to leeward and was packed in the gulf beneath, while it was quite clear on the western side. The sun was then shining brightly (about 5.30 or 6 o’clock) and threw our shadows on to the mist beneath, where they appeared not as figures but as haloes or parhelia, consisting of three rainbows within each other, and surrounding the apex of an indistinct pyramidal form. On whirling my stick around it was clearly seen, and as we moved the same haloes kept following, and when we stood close together still each saw only one (his own) rainbow.

One botanical mission he found time for on the way home. He got out at Millstreet, spent a night there, and at 5.30 on the following morning (August 8) started to examine the shores of Gurthaveha Lake. It was not quite two years since Gurthaveha had risen into botanical fame, through the announcement that *Eriophorum alpinum*, a cotton-grass otherwise unknown to Ireland, had been gathered beside it. Whether the record could be verified or not was a question which could not be let sleep. Hence his visit to Gurthaveha Lake. "Gloun-na-flickran Rocks, over the lake looking east, is best locality," runs the note in his pocket-book, "bounded on south side by dark rugged limestone and fissured rocks, whose clefts of 300 feet form deep shady cavities. On north side a lower ridge sloping down, to west end of lake, where is the outlet. Stony borders. A sort of rough road runs along north side and a ruined boat-house at east end."

Rocks above Gurthaveha Lake:—*Asplenium viride*, *Cystopteris*, *Polypodium Phegopteris*, *P. vulgare*, *Polystichum aculeatum*, *Aspl. ruta-muraria*, *A. Adiantum-nigrum*, *A. Trichomanes*, *Hymenophyllum Wilsoni*, *Solidago cambrica*, *Asperula odorata*, *Hedera*, *Valeriana officinalis*, *Saxifraga Geum* and *umbrosa*, *Hieracium anglicum*, *Androsæmum*, *Rubus idæus*, *Pinguicula grandiflora*, *Isoetes* and *Lobelia*, *Littorella*, *Myriophyllum alterniflorum*: could only find *Scirpus cæspitosus* with little woolly heads.

The above notes embody in brief the fruits of his long search, which pretty well convinced him that no "alpine cotton-grass" grew by Gurthaveha: though it was not till the locality had again been carefully examined by Dr. Moore that they drew attention to the probable inaccuracy of the record. On the evening of August 8th he returned to Dublin.

His love of botany would seem to have rather increased than diminished during these years, and his summer holiday, taken in the following September, was chiefly devoted to it. Most of the time was spent at Braemar and other places in the Eastern Highlands. On the slopes of Lochnagar he found himself in quite a naturalist's paradise, and long walks over mountain and moor, with generally some botanical object in view, were his almost daily



delight. *Trientalis europæa*, *Linnæa borealis*, *Juncus balticus*, and other prizes of the north, were quickly added to his collection. The ptarmigan in their mottled summer dress, so like the grey granite of their environment, presented one of the prettiest studies in protective colour. A long day spent in the vicinity of Loch Callater was perhaps the most enjoyable of all. Having walked to "Break-neck Fall," as the cascade at the head of Glen Callater is named, "there (says the journal of his companion) we performed wonderful climbing feats, and got a great number of rare and new plants. We lunched at a giddy height, and then mounted higher still, almost to the head of the Fall, to botanize, Alexander being particularly anxious I should see and gather for myself some beautiful plants of the Holly Fern. We descended again to the little stream that runs out of Loch Kander, and among some broken *débris* and loose stones found an abundance of *P. Lonchitis* in rare luxuriance, the fronds being as large as some we saw at the Griessbach last year." Then they went on up the stream to Loch Kander, a "little deep dark lake" at the base of Lochnagar; and here, while exploring likely nooks for *Polypodium alpestre*, saw two magnificent eagles wheeling above the precipitous cliffs. Great was the excitement when one of the birds was seen to drop a feather. With an eager scramble, he gained the spot where he had marked it fall, and laid a triumphant hand upon the trophy—for the moment nearly as great a prize as a new alpine plant.

Thanks to the liberality of Professor Dickie, of Aberdeen, who accompanied some of his excursions, he brought back to Ireland for the Museum a specimen of the very rare deep-sea Coral, *Oculina prolifera*, of which it was said that only four other specimens existed in Britain: one in the British Museum, one in the Aberdeen College Museum, one in the Botanical Department at Marischal College, and one in Dr. Dickie's private collection.

## CHAPTER XXIX.

## SILKWORM EXPERIMENTS.

[1869.]

ABOUT this time the attention of the Royal Dublin Society was being directed to a practical question from which it was hoped that some benefit would accrue to Irish industry. This was the feasibility of cultivating silkworms in Ireland. The mulberry silkworm was out of the question, as its food-plant will not thrive in the country; but hopes were entertained with regard to two other species, the Ailanthus silkworm (*Bombyx cynthia*), and the silkworm of Japan, which bears the quaint scientific name of *Bombyx Yama-mai*. Mr. W. F. Kirby had lately succeeded in rearing the former in the neighbourhood of Dublin, through all its stages from egg to perfect moth; but his moths emerged in the ungenial month of November, only to die off, leaving no progeny. This, added to the fact of their food-plant (*Ailanthus glandulosa*) being a foreign tree, which would need to be introduced on a large scale before an industry could be founded, was sufficiently discouraging to the prospect of successfully acclimatizing *Bombyx cynthia*. It therefore seemed better worth while to consider the case of *B. Yama-mai*.

The larva of this insect feeds on the oak, which seems at first an important recommendation; while it was also urged in its favour that the Irish and Japanese climates exhibit many points of similarity. Yet in fact the difficulties were as great in this as in the other case; for, in the first place, the eggs of *Yama-mai* hatch out in early spring before the oaks are in leaf; and in the second place, larvæ reared indoors on forced oak leaves were found to die as soon as they had attained full growth, without so much as forming cocoons in which to pupate: thus showing themselves even less adapted to the new environment than the *Ailanthus* silkworms had proved in Mr. Kirby's hands.

It was determined however to give the Japanese insect a trial under the Royal Dublin Society's auspices, and Mr. More was given charge of the experiments, which were carried out in the spring of 1869, partly at Glasnevin, and partly in Mr. Herbert's demesne at Muckross, Killarney. As far as possible the plan adopted was to keep the larvæ in the open air. As soon as the earliest oaks in the Botanic Garden began to leaf, a number of young silkworms were taken from the cool frame and hung in small bags on the trees: most of these however were mysteriously abstracted, and greater interest attached to the colony at Killarney, where, it was thought, the features in which the Irish approaches the Japanese climate attain their maximum. On May 11th Mr. More went to Muckross with a quantity of eggs imported from Paris; but these nearly all proved barren, and the experiment would have ended prematurely had it not been found possible to get a supply from Dr. Wallace's establishment at Colchester, which, when they arrived, were hatching at the rate of fifty per day. The larvæ of this last lot were thus placed out of doors from the first. So, at the start, everything promised well, and the silkworms took most kindly to the situation. "Each morning, after allowing the newly hatched worms about half-an-hour to drink from a plate of glass sprinkled with water, I swept them gently into two small net-bags, containing each about twenty-five larvæ; and then, with the assistance of Mr. Counihan, the obliging gardener at Muckross, these small bags were pinned to the tenderest leaves on the under side of a bough, which was then enclosed in a large bag. The young larvæ soon made their way out of the small bags, and by the next morning were generally to be seen scattered and feeding upon the newest leaves. . . . In this manner about a dozen colonies of the silkworms were established upon different oak-trees in the most sheltered and shady places that could be found; and at the time when I left Killarney, on the 19th of May, they seemed to be doing well, although a few of the more weakly worms had died."\*

\* From Mr. More's Report in the "Journal of the Royal Dublin Society," vol. v., pp. 486-9.

The weather towards the end of May turned harsh, and the silkworms in the open air suffered considerably from this cause; but still they prospered better than those which, for purposes of comparison, had been kept under a frame. Of these last, all but three out of a total of fifty-six died before July 14th, by which date most of those reared in the open, both at Killarney and in the Botanic Garden, were still alive, and seemed to be thriving. But now, one by one, they began to drop off. In August those at Killarney were dying rapidly, only two living to produce cocoons, which both perished before reaching the pupa state; while at Glasnevin a solitary silkworm spun a cocoon, only to die, like the two at Killarney, without completing its change.

So ended the experiments of the Royal Dublin Society with *Bombyx yama-maï*. The silkworms fed in the open air had to some extent justified the trial given them, by making a better fight for their existence than those kept under frames. Nevertheless, the net result was to practically abolish all hope of converting Ireland into a silk-producing country.

While attending to the silkworms at Killarney, Mr. More found a wished-for opportunity of studying that rare and little-known mollusc *Limnæa involuta*. This water-snail is peculiar not only to Ireland, but (so far as is known) to a single Irish lake, Lough Crincaum, which lies 800 feet above sea-level on Cromaglaun mountain. Its discovery in 1832 had been one of the most notable early zoological exploits of W. H. Harvey. "'Tis a lovely little shell," Harvey then wrote of it with natural pride: and though thirty-six years had since elapsed, it was still as "a lovely little *shell*" that *Limnæa involuta* was principally known. The lonely little mountain lake beyond whose limits it declined to travel was sufficiently remote from the ordinary route even of systematic collectors; and though, from time to time, conchologists did visit Lough Crincaum for the sake of adding this rare shell to the contents of their cabinets, the animal which inhabits the shell had, in its living state, remained totally unstudied. As a not unnatural consequence, it had come to be erroneously classified

through the unsafe practice which its own discoverer had always condemned,\* of judging generic characters by the shell; and had been grouped with its supposed near relation, *L. glutinosa*, in the sub-genus *Amphipeplea*. The similarity of shell on which this grouping was based is certainly close, for Harvey himself relates that when he first found his shell he thought he was gathering *L. glutinosa*.

Before returning to Dublin, Mr. More now visited Lough Crincaum, and made a successful search for "Harvey's water-snail," of which he collected a number of live specimens to be kept under observation in a glass bowl. Then after some ten days' study of his captives, he was in a position to write the first published description of "the animal of *Limnæa involuta*." In doing so he demolished the idea of its belonging to the sub-genus *Amphipeplea*, in which (as the name denotes) part of the mantle of the mollusc, when protruded, is thrown back so as to enfold the outside of the shell. He found "no appearance of any outer lobe or expansion of the animal covering the outside of the shell as in *Amphipeplea glutinosa*. The mantle in *Limnæa involuta* is not developed to any greater extent than in any other allied species, such as *L. peregra* and *L. auricularia*; and the external surface of the shell remains at all times uncovered, whether the animal is expanded or not."† The question may seem a simple one to have remained for so many years unsettled, but the observation required some patience.

For years afterwards, when visiting Killarney, where he went nearly every spring, he made a point of returning to the little lake on Cromaglaun, and invariably carried back to his room in the museum a few live specimens of *Limnæa involuta*, whose affinity with the species *peregra*

\* In a letter, dated January, 1831, a year before his discovery of *Limnæa involuta*, Harvey wrote:—"I do not feel competent to write on the genera or families of univalve shells, as I know so few of their animals; and from those I do know I am convinced that no system in accordance with nature can be established, when the generic characters are taken exclusively from the shells." The case of his own water-snail conspicuously illustrates the wisdom of this remark.

† "Annals of Natural History" (4), vol. iv., p. 46.

and auricularia could thus be studied by his visitors as well as by himself. One of these, Mr. E. Waller, at last thought the affinity with *Limnæa peregra* so close as to make Harvey's snail a mere variety of the latter; and the grounds for this opinion, after Mr. Waller's death, formed the matter of some further notes contributed by Mr. More to the "Zoologist" on the same interesting little mollusc.

## CHAPTER XXX.

## FIRST VISIT TO ROUNDSTONE.

[1869.]

IN July he went on an expedition to Roundstone, where he spent a month dredging and collecting. He had long looked forward to visiting this part of Connemara, which, in spite of its remoteness and difficulty of access—having no railway station within fifty miles—boasted an almost unrivalled record in the chronicles of Irish natural history. For Roundstone was emphatically the land of discovery. Here was the place where *Erica mediterranea* had been first detected as an Irish heath by Dr. Mackay in 1830; where also the heath named in Dr. Mackay's honour, *Erica mackaiana*, had been discovered by the local self-taught naturalist William M'Calla; where, unless some singular mistake had been committed, a third remarkable heath, *Erica ciliaris*, had twice been gathered on Irish soil by botanists visiting Connemara; where the delicate lake-plant, *Naias flexilis*, discovered by Professor Oliver in 1850, had still its only known locality in the British Islands; where M'Calla had found those remarkable "nullipores" unknown elsewhere in British waters, *Lithothamnion fasciculatum* and *Lithothamnion agariciforme*; where Professor Harvey, to his delight, had obtained the equally interesting alga, *Peysonellia borealis*, new as a species to science and as a genus to Britain. Among the crustacea and other forms of marine life Roundstone had also proved fertile in rarities; in fact the vicinity of the little fishing hamlet was, as it still is, a happy hunting-ground to explorers in nearly every section of biology.

But apart from its general celebrity, Roundstone possessed one other association which greatly increased its attractiveness to Mr. More. No part of the correspondence of his early years had been more carefully treasured

than were those "humorous letters" of Mr. Henry Evans, naturalist and sportsman, which had formed one of the topics of his conversation with Bell, on the "lucky Friday" of their first meeting in 1855. Many of these letters are dated from Roundstone, and contain lively descriptions of the writer's experiences in pursuit of the "big game" of that part of the Irish coast, the *Halichærus grypus*, or Great Grey Seal. Roundstone and seal-hunting had ever since, in Mr. More's mind, been inseparably associated, and he now eagerly looked forward to the chance of shooting one of these fine animals for the museum.

He was not destined, however, to fall in with any seals until some time after his arrival at Roundstone. Cruising in Roundstone and Bertraghbuy Bays and to some of the neighbouring islands, he accumulated great stores of sponges and algæ, shells, ascidians, urchins, starfish, crustacea, &c., and noted down for use on future occasions all that he could glean from a veteran "sun-fish hunter" about the pursuit of that huge monster, the Basking Shark, among the westernmost islands. His best success was with the Ascidians, a group in which he had long taken an interest, and of which more than twenty species were now collected. In shore-pools on the interesting little isle of Saint Macdara he was pleased to again fall in with his old friend Montagu's blenny, the fish which he had found a year ago at Dingle. Here too were "Shannies of a beautiful mottled green and white, like the granite on which they live"; and a rare shrimp, *Athanas nitescens*, of which only one Irish specimen is known to have been previously collected.\*

The flora of Saint Macdara included the Primrose, which he found still in flower on the 27th of July. Some botany was also done on the mainland when the weather was either too rough or too calm for the hooker. With characteristic avidity to discover which was Professor

\* Thompson records one specimen found in Clare in 1840. This record had escaped Mr. More's notice when he wrote ("Zool." (3), xiii., p. 236): "I do not think that this pretty little crustacean, so like a miniature lobster, has yet been recorded as Irish."



Oliver's original locality for *Naias flexilis*, he searched many of the little lakes near Roundstone, besides that in which Dr. Moore was known to have afterwards found it. In this last, but nowhere else, he got the *Naias*; and though Creg-duff, as it is called, is somewhat nearer Roundstone than accords with Professor Oliver's description of his locality, the conclusion seemed at last to be fairly warranted that here was the plant's original and only ascertained Irish station. But *Naias flexilis* was not the only prize now obtained at Creg-duff. Beside the lake was growing, in some quantity, a grass not quite like any he had seen before. It was, as he at once guessed, a new addition to the flora of Ireland, *Aira uliginosa*. This species was not, at the time, known to botanists as actually growing in any part of the British Islands; but specimens preserved in herbaria proved at least its former occurrence in the east of Scotland; and the question "does it grow there still?" was asked in the current (sixth) edition of Babington's Manual. Mr. Baker, also, on the strength of the same facts, had endeavoured, in the Journal of Botany, to instigate a search for the lost British grass. But its turning up here in the wilds of Connemara was a botanical surprise. A few weeks later (in September) an equally unexpected discovery of the same grass in the south of England was made by Mr. H. C. Watson, at Fleetpond, Hants.

The exploration of Creg-duff took place on the 25th of July. On the 28th, when a dead calm stopped the hooker, he hurried off to another spot of at least equal botanical interest, the hill of Craigga-more, between Roundstone and Clifden, where *Erica ciliaris* was recorded as having been gathered, once in 1846 by Mr. J. F. Bergin, and again in 1852 by Professor J. H. Balfour and a party of his pupils, but of which other botanists, Mr. Babington included, had been unable to find the least trace. His search for this heath was entirely unsuccessful. "I walked (he writes) all round the hill, commencing on the left (east) side, following its low grounds. Everywhere *Erica mackayi*, but I could not see *E. ciliaris*. On flat spongy bogs, on low sloping banks, on hillocks amid the spongy

ground, and especially along the south shore of the lake to the westward, grew *Erica mackayi*, scarcely yet in flower." From that day the importance of having a thoroughly exhaustive search made for *Erica ciliaris*, whose claim to be an Irish plant rests solely on the Craigga-more records, was deeply impressed upon him.

But all this time there were no seals. Not till the last day of July, when he paid his first visit to Kilkieran Bay, some ten miles south-east of Roundstone, was he gratified with a sight of the wished-for game. In the afternoon of that day "I went up the harbour with two men in a small sailing boat, and soon saw a large seal (grey) give one or two rolls in a calm spot and then go under, 150 yards off. Another, on a rock 120 yards distant, wriggled off before we could get nearer. Showers of rain; landed and looked round an islet; landed again on a bit of the mainland; no seals there. But nearly at head of creek saw a seal sitting on a very low rock, often turning its white face towards us. Landed at back of the islet and tried to stalk up to within eighty yards, the nearest possible; but the seal was down wind and must have heard us, or seen the boatman, as it went off. Wind now right ahead, and strong; we were obliged to sleep at head of creek. Three seals seen, and not a shot fired."

The little port into which he had been driven for the night was Kilbrickan. Here, in the morning, he found the wind still very high. He bathed, and took a "lesson in Irish, under the sunny side of a house, sheltering from the squalls"; then "off for a dead heat in a sea all white—and heavy squalls falling now and then from the high hills. Perfectly drenched all of us, and the rifle: saw a fine Rone-More (this is the fourth) *rolling* himself among the breakers—a sign of storm; fired at a whitish seal on Evans Rock near oyster-bed—shot two inches too high. This shot was fired in a rolling boat, from shoulder, seventy yards. The beast grinned at me between two rocks, but I let his body open before I fired. Mem., to shoot low in future. . . . Another, or the same Rone More we saw yesterday, was seen swimming here; this makes six." That night was spent at Kilkieran, and next day he returned to

Roundstone. "A lovely drive home past Ballinahinch; all the Binboola Pins in full view—a glorious day with chilly wind. Shot a gosling Merganser with ball, just below Ballinahinch Bridge. Went to botanize, and found Naias again. To bed at 10, very tired."

"I have a bad cold caught in that pookaun from the spray and rain," he writes next morning (Aug. 3rd), and the early part of the day being very rainy he did not go dredging, but "practised rifle-shooting (with good success); wrote, and arranged specimens; fished in Lough Creg-duff (fish sulky, though a fine breeze was blowing, and soft); called at monastery; to bed at 11—bad night, as if overworked." Next day, "up and saw sun rise on Twelve Pins; wrote many letters; *Aira uliginosa* to London and Syme; skinned the gosling Merganser; called on Mr. —; dined with Dr. —; called with doctor at the monastery: saw Brother — and my friend Brother —, the blue-eyed kindly monk. Mem. to send 'Cybele Hibernica.' A lovely evening; clear, soft, and bright; the hills perfect; air like Isle of Wight. Very sleepy."

It was now a fortnight since he had come to Roundstone, and his great wish to obtain a seal was unaccomplished. Next day he purposed another expedition to Kilkieran, and tired as he had been on the Wednesday night, on Thursday (August 5th), "woke before dawn, and started at 4¼ for Urrisbeg; reached top at 5," and made a list of the plants growing there; then hurried down and embarked for Kilkieran Bay. "Passed the monastery at 10.40; landed at Macdara for lunch; then on to Mason Isle, where I saw one root of *Inula elecampane*, *Senecio jacobæa*, rayless; pond full of *Hippuris*; *Raphanus maritimus*; *Eryngium* very large. A raised beach at east end, eight feet high, and with a kind of rude chamber containing (human) bones, topped with ten inches of solidifying shells and layers of periwinkles, &c." Mweenish and other islands were visited, and a "shallow sandy ford" between one of them and the mainland was explored as "a very likely looking place," but "kelp-boats are now everywhere; no seal was seen, and we landed shortly after sunset (at 8) at

Kilkieran Quay. Both F.\* and self were utterly done up with the fatigue of the long day and the early rising."

How intently his mind was now bent on securing success is shown by the opening of next day's journal :—

(*Friday, August 6th*). Our plan is to take inside Kilkieran Bay to-day. Then, Birmore and Corrig-na-mackan on Saturday; if sufficiently fine, possibly to Eagle Rock. The Skiard Rocks on Tuesday. This to be the end, as there is too much weed-cutting at Carig-a-Laughaun rocks (which is otherwise a tip-top locality). If I am well and strong enough, and weather permits, I hope this plan will get a seal (*Hali-chærus*). It is now quite calm, and all my plans may fail; but courage and care may yet do it. *Nil desperandum*.

(A) With Kilkieran we may take Casheen and Coonawilleen coming out at Kiggaul Bay; or try Greatman's Bay.

(B) Corrig-na-mackan Rocks are best done from Kilkieran.

(C) The Skiard and Duagoodle from Roundstone in hooker.

Four days wanted will, with a rest on Sunday, bring us to Tuesday, supposing weather fine. Then to Aran.

*Sic*, man proposes.

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\* Mr. W. Frazer, F.R.C.S.I., had joined him at Roundstone.

## CHAPTER XXXI.

## "RONE-MORE."

[AUG. 1869.]

HE had been up at dawn to secure the best boatman, enjoyed a dip in the sea, and breakfasted at sunrise. Starting at 6, on a beautiful calm morning, he at once saw a seal basking on a sunny rock, and after some careful stalking, got within 100 yards, shot at and hit him; but the animal was only wounded, and made its escape. After that "a Grey Seal playing in a bay" was seen, beyond range. This creature soon took alarm, and dived at sight of the boat; and though after some patient manœuvring he got near enough to take two shots, as it momentarily showed its head above water, its wariness was too great; and by this time the noise had put the seals of the adjacent coves so much on their guard that little more sport was to be hoped for.

"Only in the very furthest creek did we see any more seals. Three were then seen on rocks close to each other—two grey, one black. I took a 100-yards shot at a grey fellow on a rock: bullet struck rock 4 inches too low. Next stalked up to and pegged away at a swimming black head, 50 yards: when, to my great delight, I heard the thud, saw the body float—a struggle, and then he sank, spouting blood; the whole water was crimsoned."

The creek in which he thus bagged his first seal was the same (Kilbrickan) at whose head he had been storm-bound on the night of July 31st. So here, putting in at the well-known haven, he awaited the ebb of the tide to secure his prey. It measured 5 feet 8 inches, and was "fat and plump, and a most beautiful skin, supposed to be 'rising 3,' *i.e.* two years old." Next day it was sent by sea to Galway, and in the evening its slayer, housed in

Kilkieran police barracks, composed the obituary of his victim in the shape of the following:—

LAMENT FOR RONE-MORE.

Rone-More is borne to Galway,  
 Roll'd in his bloody shroud,  
 And all Kilkieran's wild haven  
 Mourns wrapt in mist and cloud ;  
 For never more on rock or shore  
 That dark head shall we see ;  
 Rone-More, he was the stoutest seal  
 That swam the waters free.

More-Beg came down from Dublin,  
 A mighty oath he swore,  
 That without head of Rone  
 He would return no more.  
 Well has he kept his promise,  
 And proud is he to-day,  
 As in solemn march the mighty dead  
 Is borne along the quay.

More-Beg sailed in from Roundstone,  
 His rifle in his hand ;  
 The golden sun was setting  
 Along the yellow strand,  
 Athwart the lonely islands  
 That fringe our western shore.  
 Rone-More ! swift death is with him !  
 Thy doom is nigh, Rone-More !

Rone-More ! Rone-More ! beware him !  
 Beware his stealthy tread !  
 His step is on the war-path !  
 A price is on thy head !  
 Behind the seaweed crouching,  
 His hand is nerved to slay !  
 Alas ! Rone-More ! swim not so near !  
 Hide deep thy head to-day !

Alas ! Rone-More ! Thy mother  
 No more shall welcome thee,  
 Rolling her eyes in fondness  
 Thy dappled hide to see.  
 Slain is the stoutest swimmer  
 That swam Kilkieran's Bay :  
 Rolled in his shroud, Rone-More so proud  
 Is borne a helpless prey.

Slain is the stoutest swimmer  
That ever breasted tide :  
Too wide is now that narrow sheet  
For all his youthful pride !  
And ye who go to Dublin,  
Ye there may chance to see  
The heroes of my story—  
Rone-More, More-Beg, and me.

The Rone of this ballad seems to have been really an unusually large Rone-Beg (*Phoca vitulina*). *Halichærus grypus* had not yet fallen to his rifle. Meanwhile a change in the weather prevented further pursuit of seals—"in truth (he writes) it is only sunny and calm days which suit the sport." The Carrig-na-mackan expedition was given up, and he returned to Roundstone by car. Kilkieran Bay lies almost opposite the Aran Isles, which he was to visit if possible ; but Aran was also impracticable for the present, and for nearly a week he remained at Roundstone, botanizing and overhauling the contents of the rock-pools when it was too rough to dredge. He again searched Craigg-a-more, as fruitlessly as ever, for *Erica ciliaris*, and another day took a boat to Carig-a-lauchaun and Hen Rock, supposed to be haunts of seals, where however no seals at all were seen.

At last bright weather smiled again, and on Friday (August 13th) he returned once more to Kilkieran, hoping yet to secure a *Halichærus* before crossing thence to Aran. Sailing along the coast, and dipping into likely creeks, they kept a good look out for seals, with little success, on the way to Kilkieran. "I saw a small seal (he says) near the Police-Barrack of Carna, and made a bad stalk of it, the canoe being carried out by a strong wind into full view at 120 yards." He fired, but without success, and saw no more seals that day.

For a whole week from this date he remained at Kilkieran, still in quest of Rone-More—a pursuit deserving to be styled "sport" in the strictest sense, since the odds, without any doubt, were immensely in favour of the seal. On Saturday, which seemed a favourable day, "fine and somewhat sultry, with light wind," he saw altogether ten

seals, but got shots at only two, of which he killed one—"a very shy and lively Rone-Beg." On Monday he set out on a long-projected excursion. "Started at 10.40, one hour before high water, for the rocks called Carrig-namackan, to look for big seals." He had heard much of the fame of these rocks, which lie out, far from land, in the Atlantic, as a haunt of the Halichærus. After five hours at sea he "landed, through dangerous surf, on Carrig-namackan," to find "Beta maritima of gigantic size," and a few other common maritime plants. "Only these eight species," he says, noting their names as methodically as if he had gone there to find them. On Tuesday, after visiting the local school in the forenoon, and noting that he had "found the reading and writing good," he adds:—"Next tried for an hour for a shot at the dome-headed old Bull, sitting in a chink of a rock up to my middle in water. At last fired at 150 yards at his swimming head—a very near shave." A few other shots were obtained the same day, but no seals were bagged. On Wednesday he had no better success, though eight seals were stalked or shot at; and on Thursday he notes:—"Seals very wild in the bay." "Shot at a head at 100 yards: a fair shot, but the head ducked as the bullet left the rifle. This was fired from boat. Then a shot from a rock, after an unsuccessful stalk."

His arrangements had now all been made to start for Aran on the following morning. He had been a week at Kilkieran, and the only success obtained had been in the dredging, among whose most recent results he was pleased to find at last the rare shell, *Tellina balaustina*, scarcely expected at Kilkieran, which had disappointed him by not turning up in Bertraghbuy Bay, its reputed locality.

So on Friday, August 20th, he started for Aran, carrying with him the happiest memories of his life on the Connemara shore, where he had formed many friendships. It was disappointing, nevertheless, that all his carefully laid plans for securing the Great Grey Seal had been so completely baffled by the animal's wary nature; for this was his farewell to the haunts of Rone-More, except, indeed, for one (as it may have seemed) "forlorn hope."



About half-way in his course to Aran lay the desolate islet known as Eagle Rock, which, being even more remote and difficult of access than Carrig-na-mackan, he had hitherto let alone. It was however reputed to be a seal-rock, and to-day it was to be tried.

"At 10.15 we started. Wind light, S.S.W.; were off Dinish at 12.15, against a lee spring-tide. After a few tacks we reached Eagle Rock. Asking for information, we were told that there was a large seal then often seen there, and that he was seen there yesterday.

"Luffing up close to the Western Rock we (Old Ash) saw *his* head. He kept always close to the breakers, and only once left them to range up 200 or 300 yards along the island. He soon turned back to the breakers, and then he kept on showing his head close to the breaking wave.

"Soon I got a shot at eighty yards, and shot over a wee bit, because the gun hung fire as the hand was rising. Soon he showed again, after we had luffed and drawn up as close as we could to the breakers. His head rose once more amid the white spray. The second shot was fired. I heard the ball crash into his skull; and he jumped up and rolled for one moment, and then sank. The blood rose immediately, reddening the white foam of the breakers, and we felt sure of him.

"Coyne and I in the canoe went over him with the spear, but could not see him at all. Another boat was nearly dashed to pieces on the breaker rock; and it took an hour before he was fished up. The blood had then ceased to run.

"He weighs  $3\frac{1}{2}$  cwt. Measures 8 feet. Rone-More Thorang!—the biggest Bull on the coast. Has frequented the rock for six or seven or ten years.

"His eye is clear lilac-brown, with very small oval blue-black pupil and a white ring round the lilac iodine-brown of the iris: from white to white  $1\frac{1}{2}$  inches across. His longest whisker four inches.

"While the seal was being raised I caught some little medusoid, like a purple tadpole at end of a jelly-sac."

(And here follows in the note-book an outline drawing

of the "little medusoid," which, he soon found, was *Salpa spinosa*—an addition to the oceanic mollusca of Irish waters.)

So, with the big seal on board at last, they went on in triumph to Aran, where the Saturday and Sunday were spent. But with such a cargo as Rone-More in charge, no time could be wasted. On Monday he took leave of Aran's "great open rounded bays, with caves overhung, and re-echoing with the great dash of the rollers." "Left Aran Harbour in our small glothiogue at a quarter before 11. . . . About half-past 3 landed at Claddagh. Great scramble among the fishermen. Procession formed, and seal conveyed at last safely to the station."

Few, but characteristic, are the notes (occupying one page of his little pocket-book) of the twenty-four hours spent in Galway. "Tuesday, Aug. 24th. To Prof. King and the College. Mr. Noon, Galway, will send up seals' heads and paws, and help me about the Sunfish. To the Salmon Weir. Saw Mr. M. and Mr. T., who kindly promised to help me about *Salmo gallivensis*, which is said to occur in May. Returned to Dublin by the 4 afternoon train. I now weigh 8 stone 8 lbs., *i.e.* 12 lbs. less than last winter."

He carried back a huge store of still unsifted dredgings, skins, plants, and other prizes, to Dublin; but uppermost in his mind was still "the old solitary bull of Eagle Rock," and this chapter may conclude with the lay in which he vented his delight at the fall of "Rone-More Thorang."

THE JOYS OF ROUNDSTONE; OR, THE SEAL-HUNTER'S  
RETURN.

Hurrah for the joys of Roundstone!  
Hurrah for the boundless sea!  
Hurrah for the rolling waters,  
The Atlantic breezes free!

Hurrah for Carrig-a-mackan,  
Lashed evermore with foam!  
'Tis there the grey old Seal-King  
So long has made his home.

Away to Dungle's rock, so wild,  
 Who in danger oft would be!  
 And if we fail, and if we drown,  
 It shall be known in Roundstone town,  
 That Skiard must be our pillar-stone  
 Far seen across the sea.

And where the sun throws shadows long  
 Adown the evening wave,  
 Yon rocks are our inheritance,  
 They'll watch and guard our grave.

Hurrah for our watery war-path!  
 Hurrah for our fearless crew!  
 Hurrah for the deadly rifle  
 From which swift death oft flew!

Hurrah for Mongan,\* following sure,  
 Like a sleuth-hound on his prey!  
 This is his hour of triumph:  
 He has tasted blood to-day.

To-day the Atlantic breakers  
 Rolled red round Eagle Rock,  
 While our wild shouts of victory  
 Out-rang the waves' loud shock.

For slain is the stoutest swimmer  
 That swam Kilkieran's Bay!  
 Slain is Rone-More, the big Rone-More,  
 Whom we so often tracked before;  
 But, he is slain to-day!

That Great Grey Bull, so cunning,  
 With a head like a big old Bear,  
 Who amid the thundering breakers  
 Too long had held his lair.

And yet he fell at last, and so  
 Shall fall another Rone,  
 And we'll bear the spoils of Ocean  
 Again into Roundstone.

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\* His head-boatman, Thomas Mongan, of Roundstone.

## CHAPTER XXXII.

## A CANDIDATURE.

[1869.]

HIS only preserved letter of this year's date is one to Dr. Carte, written at Holyhead, as he was starting for his summer holiday, and contains a reference to the big seal, of which a photograph had been taken.

*September 3rd, 1869.*

DEAR DR. CARTE,—I was very sorry to leave without shaking hands and receiving your last instructions ; but the truth is that I had such a sharp attack of "English" (or Irish) cholera that I had to lie up for three days, and I have been obliged to rest here for the night as I am quite weak. I hope that you will kindly write me a few lines to ——, Tunbridge Wells. I trust that —— will carefully lock up my dredgings, as I do not wish anyone to examine them until I have time to go through them more carefully myself. I know there are some fine things among them. I am going to spend a few days at Llanberis with my friend Professor Babington, then on to Tunbridge Wells, and after that to Switzerland. Have you got Mr. (Professor) King's paper, in quarto, on the Eozoon? because he wished me to try and get him some specimens, and I cannot do it so well unless I have a copy or two of his larger paper ; —— has mislaid mine and his own copy, and if you could spare yours I think it might help me. The photographer had rubbed out the figures in one of the photographs, and that is certainly the best figure of the seal. If you like me to make use of a few copies for the museum, I am sure I could do some business for you in Switzerland and Italy, where they never see the Halichærus.

He was detained longer in England than he had expected, and now made his latest addition to the English flora, that of *Callitriche obtusangula*. Previously known only as a French plant, this "water-starwort," like the grass *Festuca ambigua*, owed its first recognition as a "species" to the botanist Le Gall, who described it in his "Flore de Morbihan" (1852). Having now the opportunity

of examining dried specimens of this critical form in the British Museum, Mr. More recognised them as agreeing with some unnamed plants in his own herbarium, which he had gathered in the Isle of Wight as long ago as 1860, and was thus enabled to record the form as British.

A short tour in Switzerland was taken towards the end of September, and at Geneva he again visited M. Alphonse de Candolle. A eulogistic notice of "*Cybele Hibernica*" from M. de Candolle's pen soon afterwards appeared, and was thought well calculated to further a candidature which Mr. More's friends were at the time strongly pressing upon him.

The candidature referred to was for the Chair of Botany in the Royal College of Science for Ireland. In many respects the position would have been a very attractive one, but great difficulty was found in prevailing on him to apply for it. His devotion to botany had certainly not relaxed during the three years for which he had held his position in the Museum. Each summer he had made an addition to the flora of Ireland,\* sufficient evidence that his thoughts of abjuring "vegetarianism" had been the merest dream. But he felt extreme diffidence at the thought of delivering lectures, having, as he protested, never spoken in public. When induced to become a candidate, he quickly received a series of testimonials which show the hyper-sensitiveness of this objection: Dr. Syme and other botanists making special mention of his "great facility in imparting information in a lucid manner," a gift which, in fact, all his friends knew him to possess in a very marked degree, and which, in combination with that "critically exact knowledge" emphasised by Mr. Watson, leaves little else to be desired in a scientific lecturer.

The testimonials, as arranged by him for forwarding to the Council, are printed below. They comprise two which had been sent him some years earlier—in 1865, when he thought of competing for the Chair of Natural History in the Queen's College, Galway—as well as an extract from M. de Candolle's review of the "*Cybele Hibernica*":—

\* *Trifolium subterraneum*, 1867; *Scirpus parvulus*, 1868; *Aira uliginosa*, 1869.

(From C. C. Babington, M.A., F.R.S., &c., Professor of Botany in the University of Cambridge.)

CAMBRIDGE, *October 11th, 1869.*

Mr. A. G. More having informed me that he is a candidate for a Lectureship in Botany, I have much pleasure in stating my belief that he is well qualified for such an office, and likely to be an efficient teacher of that science. I have been long acquainted with him, and had ample opportunity of judging concerning his knowledge of Botany, both privately and also from his published works.

CHARLES C. BABINGTON.

(From the late W. H. Harvey, M.D., F.R.S., &c., Professor of Botany in the University of Dublin.)

ARCACHON, FRANCE, *April 10th, 1865.*

MY DEAR MR. MORE,—In compliance with your request that I should certify to your fitness to fill the post of a public lecturer on Botany, I have no hesitation in saying that I consider your knowledge of the principles of the science amply sufficient to render you a useful teacher, while your extensive and accurate acquaintance with British plants in their places of growth will enable you not only to make your lectures more interesting and instructive to your pupils, but also to instil into them a taste for specific botany—a branch so frequently neglected by modern professors.—I remain, dear Mr. More, yours very truly,

W. H. HARVEY.

(From J. H. Balfour, M.D., F.R.S., &c., Regius Professor of Botany in the University of Edinburgh.)

EDINBURGH, *October 20th, 1869.*

Mr. A. G. More has been long known to me as an enthusiastic and zealous botanist. He has done much to elucidate the Flora of Ireland, as shown in the work entitled "Cybele Hibernica." He is an accurate and careful observer, and a lucid and clear writer. I believe him to be well qualified for the situation of Professor of Botany to the Royal College of Science in Dublin, and have much pleasure in recommending him to the electors.

J. H. BALFOUR.

(From G. Dickie, A.M., M.D., F.L.S., &c., Professor of Botany in the University of Aberdeen).

ABERDEEN, *September 27th, 1869.*

Mr. A. G. More has for several years been known to me as a very zealous botanist. From his writings as well as from personal knowledge I have formed a high opinion of his great accuracy in the branch to which he has been specially directing his attention. I feel assured that he would efficiently and conscientiously discharge the duties of the office for which he is a candidate.

G. DICKIE.

(From Hewitt C. Watson, F.L.S., &c., Author of "Cybele Britannica.")

THAMES DITTON, *November 1st, 1869.*

Understanding that Mr. A. G. More is likely to become a candidate for an Academical Chair of Botany, I am happy to give my testimony to his high attainments in that department of knowledge, which have been long known to me through his published writings as well as by frequent correspondence and personal acquaintanceship. Mr. More has acquired a critically exact knowledge of British plants, which is fortunately also combined with a wider knowledge of the science of botany in its more philosophical branches. His special attention to the botany of Ireland is amply shown by the "Cybele Hibernica," and by his discovery of plants there which had previously remained unknown to the botanists of Ireland.

HEWITT C. WATSON.

(From John T. Boswell Syme, F.L.S., &c., Author of "Third Edition of English Botany." Lecturer on Botany at Westminster Hospital, London.)

LONDON, *10th June, 1865.*

I have been acquainted with Mr. A. G. More for many years, and have had ample opportunities of judging of his botanical attainments, which are of a high order. I have frequently been indebted to his acumen for the solution of difficulties which occurred to me while writing the descriptions of British Plants for the "Third Edition of English Botany." Mr. More has contributed several able papers to the "Phytologist," and furnished descriptions of some of the plants included in the "Supplement to English Botany." He is now engaged along with Dr. Moore in preparing a "Cybele Hibernica," which will prove a valuable addition to our knowledge of Irish plants. I believe Mr. More to be eminently qualified for the duties of Professor of Natural History, as in addition to the requisite knowledge, he has great facility

in imparting information in a lucid manner, and during our long intercourse I have ever found him most courteous and obliging in doing so.

JOHN T. BOSWELL SYME.

(From D. Moore, PH.D., F.L.S., &c., Director of the Royal Botanic Gardens, Glasnevin, Dublin.)

GLASNEVIN, 4th Nov., 1869.

Understanding that Mr. A. G. More intends offering himself as a candidate for the office of Professor of Botany in the Royal College of Science, Dublin, I have to state that I have known him during a considerable number of years. He is a most zealous and excellent field-botanist, who has worked assiduously at the plants of the British Isles, with which he is now well acquainted. When preparing our work on the geographical distribution of plants in Ireland (*Cybele Hibernica*), Mr. More was my colleague, and took even more than his full share in that work. His appointment to the Chair he now seeks would no doubt be much for the advantage of the Irish flora and Irish botany.

D. MOORE.

(From J. G. Baker, F.L.S., &c., Assistant in the Royal Herbarium, Kew, Author of the Floras of Durham, Yorkshire, &c.)

KEW, 18th October, 1869,

GENTLEMEN,—Mr. A. G. More has been known for the last dozen years as one of the most energetic and critical investigators of the botany of Britain. For many years I have had the management of the only club in existence for the distribution of dried specimens of British plants, and in connexion with this I have corresponded with him regularly, and received from him large supplies of specimens from time to time, and have therefore had a full opportunity of estimating his zeal for and his knowledge of the Science. I am only doing him bare justice in speaking most favourably of his diligence and accuracy. We owe to Mr. More a large proportion of the most interesting additions which have been made to the British flora of late years, but above all, Science owes him a debt for "*Cybele Hibernica*." From the position of Ireland it is of great importance that geographical botanists should know what species it possesses and how they are dispersed; and in this work all the so widely scattered details which are known are gathered together and sifted and arranged in a masterly manner. Much still remains to be done, and I know no one more likely than Mr. More to do it, and to do it well, and I should be very glad to see one of the few official positions in connexion with botany in Ireland filled by one who has done so much already to promote our knowledge of the plants of the island.—Yours obediently,

J. G. BAKER.



(From W. Carruthers, Esq., Botanical Department, British Museum.)

BRITISH MUSEUM, *28th Oct., 1869.*

MY DEAR SIR,—I have much pleasure in bearing my testimony to your eminence as a scientific botanist. Your publications on the botany of the Isle of Wight and of Ireland, and the various memoirs published by you in the “*Journal of Botany*” and in the “*Journal of the Linnæan Society*” fully establish this. I have had, however, the pleasure of your acquaintance for several years, and have had ample opportunities of observing for myself while you were prosecuting your investigations in the Herbarium here your extensive acquaintance with the science, and your facility for communicating information. I confidently anticipate your success as a public teacher of botany.—I am, my dear sir, yours most sincerely,

WILLIAM CARRUTHERS.

(From Henry Trimen, M.B., Lond., F.L.S., Assistant in the Botanical Department, British Museum; Lecturer in Botany at St. Mary's Hospital, London.)

BRITISH MUSEUM, *October 16th, 1869.*

MY DEAR MORE,—I feel great pleasure in giving my testimony to your qualifications as a botanist. I know that you possess a thorough critical knowledge of the Flora of the British Isles, and that as a practical investigator you hold a prominent position. The “*Cybele Hibernica*” which you elaborated in conjunction with Dr. Moore of Glasnevin shows how diligent and careful are your habits of research; and whilst it has laid all working British botanists under an obligation to you, should especially commend you to (those of) Ireland. Besides this, your acquirements in general Natural Science, especially in Ornithology and Entomology, are by no means to be overlooked, and will preserve you from holding narrow and partial views. I know that you have the power of communicating your knowledge to others with ease, either in conversation or writing: the botanical part of “*Venables' Guide to the Isle of Wight*” is a sufficient testimony to the latter, and though I have never had the pleasure of hearing you lecture, I consider your qualifications quite those requisite for such work, and have little doubt that you will make a teacher as efficient as popular.—With best wishes for your success, believe me to be yours faithfully,

HENRY TRIMEN.

(Extract from a Review of "Cybele Hibernica" in the "Bibliothèque universelle" (Archives des Sciences) November, 1869, by Alphonse de Candolle.)

La publication de la première partie d'un supplément de la "Cybele Britannica" de M. H. C. Watson nous engage à dire quelques mots de l'ouvrage analogue publié en 1866 par MM. D. Moore et Alex. G. More, sur la distribution géographique des plantes d'Irlande. Le titre de "Contributions" est plus modeste qu'il ne convient à un ouvrage aussi bien travaillé. Sans doute les auteurs ont voulu dire que les documents n'étaient pas encore suffisants, et qu'on aurait plus tard (il faut espérer par leurs soins) un résumé complet de la géographie botanique irlandaise; cependant le volume actuel est déjà une excellente base pour la comparaison des flores de l'Europe occidentale, et il serait bien à désirer qu'on eût des ouvrages de cette nature relatifs à la France, l'Allemagne, l'Italie, et autres pays suffisamment explorés. Le plan d'une "Cybele" n'est pas celui d'une "Flore." C'est un génie d'ouvrage imaginé par M. Watson, dans lequel, au lieu de répéter les caractères des espèces qui sont dans toutes les Flores, on indique d'une manière détaillée et méthodique les faits concernant la distribution géographique. Le pays est divisé en districts ou provinces d'une étendue à peu près égale, et la présence ou l'absence de chaque espèce de chacune de ces divisions, ainsi que les limites extrêmes en latitude et altitude, sont données d'après les flores locales, et les herbiers, aussi clairement que possible, avec les notes ou discussions qui peuvent se présenter pour telle ou telle espèce. En un mot, la partie descriptive supposée connue, les circonstances géographiques et topographiques sont données avec les preuves à l'appui.

L'ouvrage de MM. D. Moore et Alex. G. More répond très bien à ces desiderata, et si, comme nous avons lieu de la croire, la rédaction même en est due surtout à M. Alex. G. More, elle lui fait honneur, car le texte et les tableaux sont très clairs, faciles à consulter, et excellents comme termes de comparaison avec la "Cybele Britannica" de M. Watson, &c.

ALPHONSE DE CANDOLLE.

What effect these testimonials might have had cannot be said. When they had all been copied and posted, and it only remained to await the result, his scruples returned. "Perhaps," he said, "I should not be equal to speaking in public," and he wrote a second letter withdrawing his application. He never again became candidate for a Professorship.

## CHAPTER XXXIII.

## UNEVENTFUL YEARS.

[1870-1.]

BOTANY continued to hold a foremost place in his thoughts, and a memorandum which he drafted about this time shows that he entertained hopes of inducing the Royal Dublin Society to supplement its zoological work by authorizing a more complete botanical exploration of Ireland than private enterprise could accomplish.

Mr. A. G. More is at present attached to the Royal Dublin Society's Museum in the capacity of assistant. He has for many years taken great interest in the Flora of Ireland, and was the active partner in bringing together, arranging, and publishing the materials of the "*Cybele Hibernica*."

The distribution of plants in Ireland being still very imperfectly known, Mr. More is anxious to devote his time for the next few years to a thorough exploration of the botany of Ireland, and he would refer to the above-named book as showing how many interesting points remain for investigation.

Ireland possesses a peculiar interest, both as an insular flora and as the western outlying portion of the European Continent, and, from the curious and irregular manner in which many of the plants run out westward, affords the most promising field of observation left within the limits of the British Isles.

At present nothing really definite is known of the range in height attained by the different plants; while a comparison drawn between the several mountain groups would no doubt afford most interesting results.

Another fruitful field of inquiry is to be sought in noting the variations which have been produced by peculiar climate and conditions. These forms might with advantage be contrasted with the continental varieties, especially those of the west of France; and it would be Mr. More's especial object to form for the Society a complete series of Irish plants, which might eventually be deposited with the Admiral Jones's Lichens, lately acquired by the Society, so as to form a National Collection.

Under these circumstances Mr. More asks that for this purpose he

should retain his present appointment in the Museum of the Royal Dublin Society, with special leave to undertake the exploration of the Irish Flora, under the auspices of the Society, with a moderate allowance for travelling expenses.

Mr. More would of course send in from time to time a detailed Report of his observations, in such a form as might be suitable for publication in the Society's "Proceedings."

Though botany would be the first object, Mr. More would be willing to collect zoological specimens at the same time, and by this means the Society would acquire a large number of specimens suitable for exchange, as well as complete the series in the Museum.

Nothing came of this proposal, and the year 1870 passed by with peculiarly little of incident. A few botanizing excursions—one to Wicklow, at Easter, in company with Mr. W. Thistleton Dyer, and another to the summit of Lugnaquilla, on the 2nd of May—broke the monotony of his indoor life in the Museum. In September a holiday tour in Kerry and North Wales was also largely devoted to botany, and especially to noting the altitudes attained by plants on the mountains of those regions, as calculated from the aneroid. The ascent of Snowdon for this purpose on September 30th afforded him the rare pleasure of seeing a pair of Golden Eagles, one of which, as he records in the "Zoologist," he "watched for more than an hour, circling and soaring round the precipitous rocks of Glyder Vawr." He spent Christmas with his family at Park Villa, Ryde; and before returning to Ireland visited London for a few days' ornithological work, reporting progress in the following letter to his "Chief" in Dublin:—

*January 5th, 1871.*

DEAR DOCTOR CARTE,—I came up to London on Monday, and have been very busy since. I have been twice to the Zoological Society, and spent nearly the whole day yesterday in examining the unnamed birds with Jules Verreaux, who, being excluded from Paris, is now working in London. He very kindly assisted me, and has labelled the greater part of them. Another day's work will finish the whole lot. . . . Yesterday I saw Professor Newton, and I hope that he will be able to help you in the matter of the Dodo bones. It is quite hopeless to get a skull, but there is a good cast of it to be obtained from Copenhagen, and Newton can supply at any rate some of the missing vertebræ. To-day I am going to take your letter to Mr. Bartlett at the Gardens, and in the evening I am to meet Mr. Sharpe, and look at some birds.

The British Museum is at present absolutely closed for cleaning, and though I got in on Tuesday it was impossible to do anything, as all the covers were pulled down, so that the specimens were invisible. It will be opened on Monday next; and as I think it would be a great pity to leave London without looking round, I hope that you will approve of my staying here two more days than I intended, so as to be able to work in the Museum on Monday and Tuesday, and then return by the night mail on Tuesday next. Mr. Kirby's letter reached me safely, and I will call for the books which he mentions.—Yours very sincerely,

A. G. MORE.

This was a year of greater activity in the zoological department. In July he went on a dredging expedition to Castletown-Berehaven, a locality of much interest to naturalists, to the exploration of which he evidently looked forward with relish.

CASTLETOWN BEREHAVEN, *July 4th.*

DEAR DOCTOR CARTE,—I arrived here this afternoon, and have engaged a boat to dredge to-morrow. Weather looks fine, and the barometer is rising. I was fortunate in meeting a clergyman from Ardroom (north side of this peninsula), who is to take me in when I have done with Bantry Bay. Thus I hope to try Kenmare Bay as well. It has never yet been fairly tried, and perhaps may yield some novelties. It rained hard all Saturday and all Sunday. I was "pounded" for Sunday at Killarney, there being no car that day. But here I am at last, fresh and hopeful, as far as my money will go.—Yours,

A. G. M.

He had a successful fortnight's dredging, and many of the more delicate star-fish ("Brittle-stars," "Sand-stars," "Feather-stars," &c.) now shown in the Invertebrate collection in the Museum, may be seen from the labels to have been taken on this expedition. Owing to the fineness of the weather nearly all his time at Castletown-Berehaven was spent on the water. But he could not quit the locality without having seen its great botanical prize, *Spiranthes romanzoffiana*, at that time known nowhere else in Europe; and his diary of Sunday, July 9th, mentions "a walk with Dr. Armstrong round the edge of Tralahan Cove. Saw plenty of the orchid in nearly full flower. Other orchids are nearly past; grows in rather boggy, moist, and often

heathy pastures, extending from Paixley's Wood up to nearly the town of Castletown." The next day was his last at Castletown, and after dredging the whole day he mentions some disappointment at getting "no medusæ," but many Echinodermata were landed, and "flocks of Shearwaters kept skimming about." At Ardgroom some stormy days, when the boatmen refused to go out, left him leisure for a little exploration on land, and for discovering a new station for *Carex punctata*. On the whole however, the dredging at Ardgroom proved fairly productive, and when added to the results from the south side of the peninsula, yielded a handsome collection. Several specimens turned up of that strange creature the *Amphioxus lanceolatus*, the lowest in organization of all fishes (if indeed it deserves to be called a fish at all); and he was glad to get at Ardgroom also the *Salmo estuarius*, or silvery-scaled variety of the common trout, which Dr. Günther had described as sometimes found in salt water, but to which little attention had yet been paid.

The Ascidiæ collected on this expedition somewhat disappointed him by turning out to belong almost exclusively to three species—a very different result from the goodly number brought home from Kilkieran and Roundstone in 1869. A gratifying tribute to his researches in this group had lately been paid him by Mr. Albany Hancock, to whom he had sent for determination (along with others) an Ascidian "cast ashore on the North Bull on October 23rd, 1870," which Mr. Hancock named *Ascidia morei*: writing (June 10th, 1871) "A. morei is new, and I beg to dedicate it to yourself in remembrance of your numerous interesting discoveries."

He had a practical object in view in attending the meeting of the British Association held in the following month at Edinburgh (August 2nd–9th), for he hoped to secure a grant in aid of the further prosecution of Irish zoological research. To stimulate interest in this subject, he took to Scotland all the marine animals collected on the Berehaven expedition, and exhibited them in the zoological section, where he also read a paper inviting attention

to the "Brown Trout in salt water," showing specimens from Kerry, and mentioning the occurrence of the variety in other estuaries of the western Irish coast; while in the botanical section he exhibited the Irish-American orchid, *Spiranthes romanzoffiana*, and read a communication on the result of his fruitless hunt for *Eriophorum alpinum* by Gurthaveha Lake. No doubt these four subjects were selected partly with a view to keeping the West of Ireland prominently before the meeting as an interesting field for research. However, he only succeeded in getting his proposed grant approved of in the Natural History section, and was disappointed in the final result.

BRITISH ASSOCIATION, EDINBURGH,

*August 9th, 1871.*

DEAR DR. CARTE,—I am sorry to say that adverse influences have prevailed, and *we have lost* our proposed *grant*; though it was carried in the Committee of Section D, it did not pass the general Committee of Recommendations. As in Dublin, the multiplicity of masters makes things more difficult. . . . Your sincere A. D. C., and will be with you on Saturday.

This short visit to Scotland was followed by a second in September, when he stayed two days (19th and 20th) at Donipace, the residence of Mr. Harvie-Brown; made acquaintance (23rd) with Dr. Saxby; and spent the day before his return to Ireland (September 25th) at Balmuto with Dr. Boswell.

In the interval between these two visits to Scotland he had been on a fresh expedition to the west coast, the result of a thirteen-day's sick leave, which he spent at Roundstone. The entries in his journal, short as they are, tell their own tale. "Salmon at the bridge," "Sea-birds on the shore," "Craigga-more," "After the seals behind Inishnee," "To beaches and rabbits," "To Skiard Rocks and Kilkieran," "Up to head of Kilkieran," "Corrig-a-Mahon and Eagle Rock," "From Aran to Glasnevin,"—these are the principal headings, so far as his diary goes. But a shelf in the Dublin Museum, on which stand a number of bottles con-

taining sea-worms of various kinds,\* and labelled "Galway, 1871," is perhaps the best memorial of his second visit to Roundstone.

There is, however, a stray note among his papers, evidently of this date, which shows that other organisms besides marine Annelida occasionally claimed part of his attention. It is headed

*Musha-Musha!*

In the West of Ireland it is not uncommon to hear the expression "Moosha-Moosha," and if the inquiring traveller asks the meaning of these words it is very difficult to obtain any explanation. It seems as if it were a kind of fetish, or secret, and the local equivalent of the Arabic "Allah-il-Allah," the French saying "Soyez tranquille," or the Lotus-Eater's "Let us alone."

Let us alone! Just think how commonly such a phrase is heard in school and in street. Let us alone! Let us sleep! Let us rest! Let us die! In Connemara this principle of Moosha-Moosha is carried out in its fullest extent in many various fashions.

In the morning the carman (sleeping sweetly after his over-night whiskey, or without it) when called by his wife says "Moosha-Moosha," and lies on snugly dozing for another hour or two; while his neighbours, not getting up most likely, are doing exactly the same thing as himself, and are carrying out, consciously or not, the acknowledged and received practice of Moosha-Moosha.

Another version of the same words is, "Well-well." "Well" is the sentinel's cry, watching over some post of danger. Is it so in Connemara? Shall I tell you of the beggars I met, who said always "Moosha-Moosha"? Of the people who saw me walking (and I hope not disturbing them) at VII. A.M. on the streets of Roundstone, always saying "Moosha-Moosha"? I have not yet reached the extreme profundities of this mysterious word.

But the lazy loiterer after cattle, the unemployed, the people who neither wish to nor try to be anything else, or care about *Workers'* industries—these are the people who say all day long, Moosha-Moosha,—Allah-il-Allah.

- 
- |   |                        |                          |
|---|------------------------|--------------------------|
| * | Terebellides straemii. | Sthenelais boa.          |
|   | Leontes dumerillii.    | Phyllodoce groenlandica. |
|   | Lycidice ninetta.      | Harmothoe imbricata.     |
|   | Onuphis sicula.        | Lepidonotus squamatus.   |
|   | Glycera capitata.      | Carinella annulata.      |



## CHAPTER XXXIV.

## ACHILL AND INISHKEA.

(1872-1873.)

HIS long-interrupted "Supplement to the Flora Vectensis" had at last been completed and published in the Journal of Botany in 1871; and the "First Supplement to the Cybele Hibernica" quickly followed (June, 1872). He now looked forward to a fresh renewal of bird-work, and among his projects for the summer of 1872, he tells Mr. Harvie-Brown, was a search for the Roseate Tern. "The bird-stuffers tell me (he writes) that the bird has become much scarcer than it used to be." The bird-stuffers were indeed but too accurate, and the beautiful Roseate Tern, whatever it may have been in 1872, is now computed a "lost Irish bird." But he did not accomplish this quest, which would have taken him to islands of the eastern coast. Again he went to the West, to explore the shores of Mayo north of Clew Bay. He now paid his first visit to Achill, where he took some botanical expeditions with Mr. W. Pike, was shown a few plants of his favourite Mediterranean Heath, and shot a seal; and on Friday, Aug. 23rd, touched at the small island of Inishkea, afterwards strangely connected with his story. In September, with his sister and a few friends, he enjoyed a tour in Switzerland, visited Berne, Zurich, Chur, Andermatt, the Eggischorn, Lausanne, and Geneva, and hunted butterflies, as of old, in the Alpine forests; and in the winter he settled down again to ornithology.

He had now been nine years a resident in Ireland, and had every reason to congratulate himself on the comparatively excellent health he had enjoyed during that period. The tenth year was distinguished by an unfortunate occurrence, from the effects of which, it is believed, he never recovered; and a touch of Fate's "irony" is not lacking

from the arrangement of scene and circumstances for the one untoward adventure of his life.

On June 24th, 1873, he started with his friend Mr. J. F. Dillon (now Sir John Dillon) of Lismullen for a dredging and collecting expedition to Achill and the adjacent coasts. One of their great objects was to secure a Basking Shark. The weather proved singularly bad, so that work at sea was conducted only under the greatest difficulties. But his note-book contains many memoranda of matters to be looked after on shore, *e. g.* "Remains of whale are with Rev. Mr. Potterton of Lismore: Mr. — has a large piece of palate; Mrs. —, in Belmullet, has also pieces of palate." Local details of this kind, assiduously picked up *en route*, were pretty certain, sooner or later, to be turned to account. And though, throughout this expedition, misadventures from stress of weather and kindred causes were of almost daily occurrence, the roughing process really exhilarated him, and he was perhaps never more in love than now with the storm-beaten precipices of the Atlantic sea-board and their hosts of feathered life.

Especially was he charmed with Achill, whom he thus apostrophises in verse:—

Sound of Achill! Isle of Achill!  
 Girded evermore in cloud:  
 Shore whereon the fierce Atlantic  
 Surf is ever beating loud.

Achill! we have climbed thy mountains,  
 And have paced thy sands,  
 And have loved thy cliffs so tall  
 Better than other lands.

We have surveyed, with trembling eye,  
 Doega's awful wall,  
 And heard, from Keem's recesses,  
 The angry Eagle's call.

Where Craughan towers proudly  
 Above the western tide,  
 And drinks the evening brightness  
 Along his purpled side;

Where the bright Sun uprising  
 Gilds Slieve More with his joy,  
 Half-lighting the close-crowded hills  
 Of distant Ballycroy :

Around whose cliff the Raven croaks,  
 And the screaming Falcons call ;  
 And the gentle Gulls, in their robes so white,  
 We have loved them one and all.

Ah ! who can tell the dear delight,  
 On a bright fair summer's morning,  
 To seek the Seal on the yellow strand,  
 All toil and danger scorning !

He on a rock, stretched high and dry,  
 Careless, no watch is keeping :  
 Till the rifle-ball, with its shrill swift call,  
 Shall awake the monster sleeping ;

And the giant Bull on board we 'll pull,  
 Though our crazy old boat is leaking,  
 And we 'll bear him away, a noble prey,  
 And a prize well worth the seeking.

Then farewell, ye hills of Achill,  
 Ye shores of Achill dear,  
 Ye rocks, storm-swept in thunder,  
 Ye waters blue and clear ;

And when another summer comes,  
 With its sunshine and its joy,  
 Again we 'll sail to Achill,  
 Again to Ballycroy.

It was sometimes easier to bid Achill "Farewell" than to leave her, as he found on June 27th when setting out for Belmullet.

"Friday. Quite a gale of wind. Left the Sound at 8½, jibing the cutter in a dangerous manner. In a squall, split the storm-jib all in pieces, and took shelter under Bull's-mouth, when we were taken ashore to the C. G. station. Thence to Colony in a storm of wind and rain, only too glad to find shelter at the Dugort Hotel."

Next day he found that the "ill wind" had not been absolutely unprofitable. "June 28, Saturday. Hard gale

in the early morning, drove back one boat which had started to meet us. While waiting, heard of a dead seal washed ashore, whose skeleton was secured from the fishermen after the skin and blubber had been removed. It was a fine middle-aged *Halichærus grypus*, measuring over 7 feet, and estimated at  $2\frac{1}{2}$  cwt. or more—'20 stone.' Left Dugort about 5.10 p.m., and had a lovely sail up Broadhaven Bay to Belmullet, where we found good quarters at Mr. Murphy's hotel." The skeleton of the *Halichaerus* here mentioned is still an object of interest in the museum.

The sea still proved impracticable for dredging, and an excursion taken early next week to view the celebrated "Stags of Broadhaven" occupied a longer day than the visitors had reckoned on.

"June 30. Monday. Sailed at  $10\frac{1}{2}$  with a fine breeze. Met a heavy roll outside. Trusting to the captain that we should easily get back, we ran down before the wind and round the "Stags" of Broadhaven. Saw no Gannets on the rock; only a few sheep placed there by Mr. ——. After beating against a lee tide for  $2\frac{1}{2}$  hours, bore away for Portacloy, where there is a narrow sandy strand and snug creek well sheltered from the S. W. Lunched on broiled mackerel at the C. G. With a guide made our way to ——, where the owner of the corragh declined to row us home, thence to the Sandy Point, passing a tumular graveyard, whence after firing six shots we were conveyed across the Ferry, and hospitably received by the clergyman, after which we walked across the bogs, in the dead of night, as far as ——, where through a window we observed Mr. —— leaping from his bed, and followed by an alarming figure of a female in night habiliments, who however only lighted her dudeen and re-established herself in the family bed. Entering, we found the cows (4), calves (3), hens (several), brooding hen under the bed, and the pony turned out on the mountain. After  $\frac{3}{4}$  hour the pony was captured, and brought into the house, where he nearly kicked D., and at last we started on bags of hay for seats,—the night drive crossed a flow-bog which had burst across the road some years ago—and reached Belmullet at 2 a.m. for dinner."

The night whose somewhat fatiguing adventures form the subject of this extract was followed by a long day's dredging in Broadhaven Bay; and here the finest prize of the expedition turned up, in the shape of the huge marine worm *Chætopterus insignis*—its first recorded occurrence in Irish waters.

On Wednesday (July 2nd) he again dredged in Broadhaven, but "got caught in a gale and had some difficulty in getting back to the Island." Next morning "blew a gale of wind and with squalls, so that our captain refused to sail"; and Friday<sup>was</sup> "again too rough for our captain,—so drove with Mr. Carey to see the Cliffs and old Fort or barrier wall of Dun-na-moe, opposite Eagle Island. It is on a small scale very like Dun-Aengus in Aran (Mem., Cæsar Otway describes it). Choughs, Rock Doves, and Gannets seen. Called on Mr. Potterton, who gave me the whale snout and some baleen for the R. D. S." Next day "Yacht still aground, so took a corragh and dredged in Blacksod Bay with no great success, . . . and got home drenched." A drive "to see the slipped or burst bog" on Sunday concluded the Erris exploration.

"Monday, July 7th. Weary of waiting for fine weather tried to board our yacht, but were actually driven back, as the sea broke right on the bow of our corragh. So took car to Geasall with Mr. Carey. Thence crossed Tullaghan Ferry, and walked to Cleary's Hotel at Ballycroy. Drove thence to the ferry at Cleggan, where we could not get the ferry-man to turn up, though we fired lots of shots and shouted all in vain for an hour. Repulsed from Mr. —, we returned at 12, to sleep (two together) in Cleary's Coffee-room on the sofa."

They succeeded next day in regaining Achill, and spent a week in comparative quietude: botanized, fished for sea-trout, and one day "rowed to the Seal-caves, and captured a young shag."

On the 16th of July, they sailed together to visit the lonely island of Inishkea, about 8 miles north of Achill. At the present time, Inishkea is perhaps chiefly remarkable for her ruined church and shell-mound, and in calm summer weather is often visited by tourists from Achill,

for the enjoyment of a day's pleasure on the water ; but a different interest once attached to her, and her notoriety as a smuggling depôt is well if not regretfully remembered. There was moreover another institution at Inishkea, regarding which almost as much reticence was advisable as in the case of the contraband industry ; and even now it is said to be unwise for him who touches at Inishkea to evince curiosity concerning a mysterious being called the " Neve-ogue."

But stories about the Neve-ogue had got abroad, and been seized on as proofs of the benightedness of the western Irish. The inhabitants of the island were represented as preserving, with great care, an image—once probably the figure-head of a ship, perhaps a relic of the Invincible Armada—which they believed to possess power over storms, and which, from time to time, they sought to propitiate with gifts of red flannel, wrapping each successive offering round it, till, according to one narrator, the " Neve-ogue" was too distended in bulk to be enclasped by a man's arms. Other particulars, still less flattering to the islanders, were occasionally added ; and a letter headed " Idolatry in the 19th century," of which the Neve-ogue was the theme, had lately appeared in print. Common belief ascribed the authorship of this epistle to visitors from Achill. One effect of the outcry forthwith raised was the prompt demolition of the Neve-ogue, which, whatever may have been the truth about the homage formerly paid it, was now treated with scant ceremony, being seized by the priest and thrown into the sea. But the islanders were none the less fiercely indignant at the language which (they were assured) had been applied to them by the writer of the letter, and a bad situation prevailed at Inishkea.

It was a further unfortunate circumstance that on July 16th the principal inhabitant or " king of Inishkea" was away from home. In his absence, the very fact which would otherwise have insured a friendly reception (*i. e.* Mr. More's having been to Inishkea the year before) sufficed to create suspicion and even hostility. For then, as now, he had come from Achill. What more natural than

to infer (as was actually done) that he was the writer of the offensive letter, returning to concoct materials for another!

Meanwhile, not dreaming of these gathering perils, the two naturalists quietly walked over the island, botanized, inspected the shell-mound, and made some pencil sketches, one representing the stone cross, and another the ruined church, which is supposed to be of great antiquity. They then returned to the village, and Mr. Dillon, going on a mission of exploration to one end, left Mr. More alone with the rods and guns at the other.

Whether or not such opportunity had been watched for cannot be said; but in a few minutes a group of angry islanders were round Mr. More, and before he could gather the meaning of the situation, a blow from a heavy piece of timber had stretched him on the ground. He was stunned; and the assailants, leaving him unconscious, ran off towards the shore.

Frequently, in later years, Mr. More avowed the belief that he owed the preservation of his life at this juncture in no small degree to the promptitude and resolution of his friend Sir John Dillon, who, as he returned through the village, saw the people hastening to the shore, and was horrified to find his companion lying on the ground. Further molestation was plainly promised; for a crowd gathered near the harbour, and when Mr. More, with his friend's assistance, was able to walk towards the boat, a shower of stones assailed them. Verbal remonstrance was useless, and Mr. Dillon raised his breech-loader, warned the people that he meant to protect his comrade, and shot two sea-gulls by way of illustration. The effect of the poor birds' fate was instantaneous. The islanders, who had never seen a breech-loader before, were filled with amazement, and needed no further warning.

Still, the adventures of the day were not over. His journal, after briefly mentioning that on this date he "sailed to Inishkea, got drawings of ruin, and was lynched," proceeds: "And returned in a gale of wind, to anchor at 12 of night under Slieve More. Sat in cabin till daylight, and wind abating were at last landed at grey

dawn in a downpour of rain." Such exposure cannot, under the circumstances, have failed to aggravate the harm already done; though, after a few hours' repose on shore, he went fishing in Keel River, and for the next fortnight continued his outdoor occupations, unwilling to concede that he felt the worse for his adventure. On shelves in the Natural History Museum are a number of bottles containing several different species of parasites\* found on the sunfish, and labelled "Achill, 1873." His diary records his dissecting this sunfish, and finding its parasites, on Saturday, July 26th, ten days after the affair at Inishkea.

He was now alone, Mr. Dillon having been obliged to leave Achill on the 18th. But on the 29th a welcome visitor arrived in the person of Mr. R. M. Barrington, who stayed a few days, and noticed how far from satisfactory his friend's health really was. Mr. Barrington, on leaving Achill, lost no time in making Mr. Robert Warren aware of the truth, with the result that on August 6th (to quote the diary): "On return (from fishing) I found my friend R. Warren come to meet me and take me back to Moyview for a visit." To Moyview he went, and had scarcely arrived when the threatened illness fell upon him.

\* *Tristoma coccinea*, *Lepophtheirus nordmanni*, *Cecrops latreillii*, *Echthrogaleus orthagoricus*, &c.



## CHAPTER XXXV.

## THIRD VISIT TO ROUNDSTONE.

[1874.]

HIS illness at Mr. Warren's house proved a severe one, and the closing months of the year were a period of much anxiety to his friends. When well enough to leave Moyview, he went for further rest and change to Llanberis, and subsequently, in October, being still unfit for Museum-work, enjoyed a short tour in Switzerland, visiting Lausanne, Diableret, Aigle, &c. But he was still far from well when he returned to Dublin. From this time onward his intervals of ill-health were much more frequent than before, and he was never again equal to the same degree of sustained activity as in former summers.

He paid his third visit to Roundstone during the earlier part of his holiday in 1874, and discovered a new locality for *Erica mackaiana*, interesting as being the second in Ireland. But the principal event of this summer was a "field-day" with Professor J. H. Balfour, spent in an organized hunt for another heath—the lost *Erica ciliaris*.

This heath had grown into a serious puzzle. The latest searcher of Craigga-more had been Professor Babington, who in 1873 revisited Roundstone, but met with no better success in seeking *Erica ciliaris* than had befallen all other botanists since 1852. So an opportunity of accompanying Dr. Balfour himself to the spot where he believed that he and his party had gathered it in the summer of that year was too good a chance to be missed.

The expedition came off during the latter part of August, the other members of the party being Professor Dickson, of Glasgow University, and the Rev. A. Norman. Rather strangely, there is not a fragment of journal left by Mr. More relating to the period of this tour. But, although its results were inconclusive, he always

attached a considerable importance to them, and several of his letters to Professor Babington bear on the subject.

DUBLIN, *October 17th, 1874.*

DEAR BABINGTON,—I daresay that you have heard from Mr. Balfour about our unsuccessful search for *Erica ciliaris*. But, at any rate, there is no harm in telling you that Balfour came down to Roundstone on purpose while I was staying there last August, and, with Professor Dickson and the Rev. A. M. Norman (a very good Zoologist, and also knows British plants, and has seen *E. ciliaris* growing in Dorset), we searched for one whole long morning examining every bit of ground that seemed likely, but could not find a trace of the heath; and Dr. Balfour could not even feel *quite sure* of any particular place being the right one, so that it seems we are as far off as ever from settling that disputed question.

I found the Naias again, but only sparingly, and at the old place.

Altogether I was three weeks in Roundstone, and several of the people were speaking of your visit the year before. I think *Allium babingtonii* is becoming scarcer than it used to be, for I did not see any of it this time. After leaving Roundstone I spent three weeks at Malvern with my people, who have been staying there most of the summer. I did not go to Belfast,\* preferring the rest and change of country life.—With very kind regards to Mrs. Babington, yours very sincerely,

A. G. MORE.

P.S.—The old specimens of *Erica ciliaris* in Trinity College are labelled as from near Craiggamore.

The failure to rediscover the heath does not appear to have at all shaken Dr. Balfour's belief that his specimens of *Erica ciliaris* had certainly been gathered somewhere between Roundstone and Clifden in 1852, and differences of opinion on this question, so important to Irish botanists, will doubtless for a long time prevail, unless the plant itself should be re-discovered. But the conclusion which Mr. More felt himself compelled to adopt was that Dr. Balfour's recollection was at fault on this point, and that some mistake and mislabelling of specimens must have occurred in 1852. He seems to have been a good deal impressed with the unlikely character of the ground (Ballinaboy, near Clifden) which Professor Balfour selected in preference to Craiggamore. In 1878, after twice again visiting Roundstone, he

\* To the British Association.

writes another letter on the subject, going rather more fully into details :—

DUBLIN, *February 23rd, 1878.*

DEAR BABINGTON,—I was very glad to see your handwriting, as it seems a long time since we exchanged letters. I still believe that there must have been some mistake made in labelling the specimens in Edinburgh, and that probably only *E. mackaii* was gathered. At any rate, neither you, nor Moore, nor I, nor Balfour himself, can find *E. ciliaris*.

Mr. Bergin has been dead for many years, and I once questioned his widow about the heath. She said that M'Calla took Mr. Bergin to show him (*one plant*, I think she seemed to say) growing on a stream close to or in the very village of Roundstone itself.

Now, the current tradition was that Bergin alighted from a car while driving near Craiggamore, and stumbled upon *Erica ciliaris* close to the road itself, having stepped across a bank or wall. This was in 1846, and as I think M'Calla was with him, I always thought he had perhaps played a trick upon Bergin.

At any rate the plant *at Roundstone* looks very suspicious.

Several specimens were sent to Mackay, and I never doubted that the alleged locality was close to Craiggamore hill, and I thought a little way from thence westward to Clifden. . . .

Now, when we drove with Balfour searching for *E. ciliaris*, he got down to try the very place I had fixed upon, and another not far from it, both of these being much nearer to Craiggamore than to the inlet of salt-water close to Clifden, which he chose at last, and which does not seem at all a likely spot, nor did it strike me then as having been much altered. In fact, I felt quite sure it was the wrong spot, and on the first day Balfour did not recognize\* this place at all.

Still, it would be very strange if a trick was played in 1846, and afterwards a wholesale mislabelling took place with the same plant. We must look again this autumn, and I think it would be well to bring the history of the lost plant before the Association, and set some half-dozen good botanists to look after it. The kind of place is a sort of bank of peat, rising a little above the surrounding flat bog. You will easily imagine what sort of information might be elicited by leading questions put to the present occupier of the ground!

I believe I have some specimens left of the *E. mackaiana* from near Carna.

After his sixth and last visit to Roundstone he had still the same report to make. "I have never been able to find a trace of *Erica ciliaris*," he writes on February 19th,

\* In another letter he says, perhaps with stricter accuracy, "did not at all seem inclined to adopt it as the right spot, but we kept searching all the way back towards Craiggamore."

1879. The heath, what ever may be the facts of its history, could not now be found anywhere in Ireland, and was excluded from the Irish plants in the next edition (1881) of Professor Babington's Manual. Besides Craigga-more and Ballinaboy, a third Irish locality had once been assigned to it; but to the story of its discovery there certain details had afterwards been added, which made the acceptance of the record impossible. Of all plants, *Erica ciliaris* would perhaps be, to Irish botanists, the most appropriate emblem of caution.

If Craigga-more had its mystery, so had Carig-a-lau-chaun. Among the "quadrupedal questions" talked over with Bell in November, 1855, was one which had since become as chronic as that relating to *Erica ciliaris*. This was the question of the occurrence, on the Irish coast, of *Phoca grœnlandica*, the Harp or Greenland Seal.

On September 25th, 1855, Mr. Henry Evans, then at Roundstone, had vented in a letter to More his disgust at the loss of a strangely marked seal, shot on a rock "at a place called Corrie-ga-la-hon—as far as can be expressed by an English pen,"—which, though badly wounded, had contrived to struggle into the water and disappear. On reading the description of this animal, "like a white cow spotted with large patches of black," More had forwarded a drawing and description of the harp seal to his correspondent. "Truly (ran the reply) you are a great artist. The instant your picture met my eye, I mentally exclaimed, 'That is my fellow'." And Mr. Evans never wavered from the faith that "his fellow" was indeed a harp seal.

At that time the harp seal, now admitted to be a visitor—though a very rare one—to the English and Scottish coasts, was scarcely accorded a place among British seals at all. Two seals killed in the Severn in 1836 had been identified by Bell as harps, but his opinion was not universally subscribed to; and these appear to have been so far the only recorded instances. So, if Mr. Evans was right, he could scarcely have got (or lost) a greater prize.

But anxiously as the resurgence of its carcass was awaited, "the ever-to-be-lamented lost harp" remained in the depths of the sea. The species therefore could not be

added with certainty to the Irish fauna, though, on the strength of Mr. Evans' clear recollection of the "well-defined black saddle upon the white body," a sort of half-admission is accorded to it.\*

But every visit paid by Mr. More to Roundstone was the signal for fresh exhortations to look after the Harp: and the quest of the "saddle-back" kept him constantly on the alert for peculiarly coloured seals. Once indeed at Kilkieran,† he was himself doubtful whether a seal of which he obtained a good view was not a genuine harp seal, though he thought it more probably only a young *Halichærus*. He never however obtained a specimen of the coveted rarity, which to the present day, like *Erica ciliaris*, awaits rediscovery at Roundstone.

\* Lydekker ("British Mammals," p. 158): "A seal, shot in county Galway about the year 1856, is considered to indicate the right of this species to be included in the list of Irish Mammals." See also Bell ("British Quadrupeds," 2nd edit., p. 254). It was on the 24th or 25th of September, 1855, that Mr. Evans shot his supposed harp seal.

† August 14, 1869.

## CHAPTER XXXVI.

## INISH-BOFIN.

[1875.]

THE capture of a gigantic marine monster off one of the islands of Connemara, in April, 1875, recalled his attention to a spot he had often wished to visit. In his early correspondence (in 1855) with Mr. Henry Evans, a subject only second in interest to the seals of Roundstone was the great "sunfish," as big as a boat, of which Mr. Evans told him the Galway people spoke, and which was evidently different from the ordinary sunfish (*Orthogoriscus mola*), though as to what it was, neither of the correspondents could arrive at any opinion. He had since learned that this so-called sunfish was the great Basking Shark; and the isle of Inish-bofin had since the date of his first visit to Roundstone been peculiarly associated (through the stories then told him) with the hunting of this giant fish.

However, it was no basking shark, but a huge cuttlefish, with tentacles thirty feet long, that met its death at the hands of some Bofin fishermen on Monday, April 26th, 1875. An account of the capture, which appeared in a Galway newspaper, and was afterwards reproduced in the "Zoologist," reads more like a passage from one of the voyages of Sindbad than a bit of Natural History from the Irish coast.

On Monday last the crew of a curragh, consisting of three men, met with a strange adventure north-west of Boffin Island, Connemara. . . . Having shot their spilletts (or long lines) in the morning, the crew of the curragh observed to seaward a great floating mass surrounded by gulls; they pulled out, believing it to be a wreck, but, to their great astonishment, found it to be a cuttlefish, of enormous proportions, and lying perfectly still, as if basking on the surface of the water. . . . The cuttle is much prized as a bait for coarse fish, and, their wonder

somewhat over, the crew resolved to secure at least a portion of the prize. Considering the great size of the monster, and knowing the crushing and holding power of its arms, open hostility could not be resorted to, and the fishermen shaped their tactics differently. Paddling up with caution, a single arm was suddenly seized and lopped off. The cuttle, hitherto at rest, became dangerously active now, and set out to sea at full speed in a cloud of spray, rushing through the water at a tremendous speed. The canoe immediately gave chase, and was up again with the enemy after three quarters of a mile. Hanging on rear of the fish, a single arm was attacked in turn, while it took all the skill of the men to keep out of the deadly clutch of the suckers. The battle thus continued for two hours, and while direct conflict was avoided, the animal was gradually being deprived of its offensive weapons. Five miles out on the open Atlantic, in their frail canvas craft, the bowman still slashed away, holding on boldly by the stranger, and steadily cutting down his powers. By this time the prize was partially subdued, and the curragh closed in fairly with the monster. The polished sides of the canoe afforded slender means of grasp, and such as remained of the ten great arms slashed round through air and water in most dangerous but unavailing fashion. The trunk of the fish lay alongside, fully as long as the canoe, while, in its extremity, the animal emitted successive jets of fluid which darkened the sea for fathoms round. The head at last was severed from the body, which was unmanageable from its great weight, and sank like lead to the bottom of the sea. The remaining portions were stowed away and carried ashore, to the utter amazement of the islanders. . . . Of the portions of the mollusk taken ashore, two of the great arms are intact, and measure 8 feet each in length and 15 inches round the base. The two tentacles attain a length of 30 feet. The mandibles are about 4 inches across, hooked just like the beak of an enormous parrot, with a very curious tongue. The head, devoid of all appendages, weighs about 6 stone, and the eyes were about 15 inches in diameter.

The fragments of the great animal which were rescued from destruction by the writer of the above, Sergeant O'Connor, of the Royal Irish Constabulary, and which may still be seen in the Dublin Museum, were a valuable prize, for no such monster was known to have been seen on the Irish coast before. But the interest now aroused in the great Squid led to the unearthing of some quaint old tracts, which showed that a gigantic creature of the same tribe had been stranded on the shore of Kerry in the reign of Charles the Second. Both "*Dinoteuthis proboscideus*" (the name Mr. More provisionally bestowed on the Kerry

monster), and "Architeuthis dux" (to which species he referred the Bofin animal) were made the subjects of articles which he contributed to the "Zoologist" this summer.

His old wish to visit Bofin was certainly revived by these occurrences. The Royal Irish Academy had voted him a grant towards the examination of the Flora of the West, and seeing that Inish-bofin had recently yielded a fine botanical discovery in *Helianthemum guttatum*, he decided on that island as his field for 1875.

The earlier weeks of his holiday, however, were spent with his sister in the Engadine; and perhaps none of his visits to Switzerland was more thoroughly enjoyed than this, which proved to be the last. At Pontresina he answered a letter received from Mr. R. M. Barrington, about the intended Bofin expedition.

PONTRESINA, ENGADINE, *July 17.*

DEAR BARRINGTON,—I was very glad to receive your letter, and there is no one whom I would sooner join in an expedition to Bofin than yourself. I have promised D. Moore, and am in a manner pledged to the R.I.A. to do something with their grant, so that I have taken only a one month's ticket for Switzerland, and must be back in London on the 5th of August. Thence I propose to go on, as fast as I can, straight to Bofin Island, where I have no doubt that we may spend a pleasant and interesting ten days. . . . I shall be very glad, indeed, to reckon upon your welcome company, in case you should not come to Swiss-land. If the weather should permit I should try to visit Shark and Clare Islands, and go back *viâ* Westport. I scarcely think I shall sleep more than one night in Dublin, but will let you know in good time. I fancy about 7th August will be the date.

I do so wish that you were here to share with me all the pleasure of the continual new finds of all sorts of glorious plants. We trample under foot such a lot of alpinas as would half stock the Botanic Garden. Every day turns up so many new species that my stock of drying paper is quite filled already, though we have not ascended any high peaks as yet. The best ground we have seen was on the top of the Albula Pass, near the "Devil's Valley" (7000 feet). Plenty of Primulas, Soldanella, Gentians, Androsace, &c. The air is pleasantly cool and fresh, when the sun shines, but we have met with a great deal of rain and cloud, so that at present it requires warm winter clothing. If you do come, this would be the very place for you. Just under high mountains of the Bernina group, glacier close by, and a capital place for you to qualify for the Alpine Club.



Kirby sent me a copy of the Gorilla Article,\* and I think it very well turned out. There is a novelty, is there not, in giving a leader on our poor relation? Was it not a pity to leave out about the supposed white gorilla? . . . It is curious about the separation of sexes in the H.-a. Bat.† Do you think the female kind congregate for gossip or other purposes? No birds here, but Wheatears, Alpine Choughs, Sparrows, Woodpeckers, and *marmots*. Will you give my kind remembrances to your father, and tell him this is the most interesting part of Switz I have yet seen.

It was at the close of a long day's butterfly hunting (July 13) in the Val de Fain that, sitting down to rest, he had his first and only opportunity of seeing the Swiss Marmot in its native home. A shrill whistle advised him of its presence. "Oh, do sit very still, and we shall see the marmots appear," he exclaimed; and by-and-by one, then another, popped up, until quite a group of the pretty animals were frisking about, within a few yards of their well-pleased observers.

He was equally pleased with Samaden, gathered *Lychnis flos-jovis* in Val Bevers, and "all sorts of treasures" at the top of Piz Padella (*Dianthus glacialis*, *Saxifraga stenopetala*, *Ranunculus parnassifolia*, *Eritrichium nanum*, and *Arenaria recurva* among the number), but lost his "favourite botanical digger" in the Maloya Pass, while exploring a supposed locality for *Woodsia*, where an Eagle was seen, but no sign of the fern. On the 26th, when they left Samaden, a fine but (to some nervous fellow-travellers) rather trying day was spent, going by banquette to Chur, through the high Julier Pass.‡ "Descent (from top of the Pass) through a barren wilderness of stony peaks to Mühlen, where the scenery changes to spruce and larch firs (no Arollas). The scenery very fine. Valley gradually opens into a broad expanded green extent of meadow, and corn recommences. *Epipactis rubra* seen by F. Another tall plant (? *Aconite*, very tall) and *Salvia*. Tiefencasten lies in a hole, at junction of three roads

\* Probably an article in a Dublin daily newspaper, relating to the purchase for the Museum, at this time, of the skin of a gorilla, which Mr. More negotiated at Paris.

† "Hairy-armed Bat."

‡ The diary kept during the Swiss tours is only occasionally (as in the following extract) in Mr. More's own handwriting.

(Albula and Julier Passes). Church most romanesquely and brilliantly frescoed outside. From Tiefencasten forth we followed a series of magnificent cliffs and gorges along the Pass-mal. . . . Demon conductor meanwhile, rejoicing in the terrors of his passengers, takes care to point out all the dangers of the road. At the bridge the horrors culminated, and little boys let off stones down the chasm with great effect. Farther on many tunnels and steep precipices, and so into Thusis at 7.15, getting darker. Onwards in the dusk, with glow-worms in the hedges, to Chur, where we were once more lodged in 73 and 4, above the torrents' roar."

By Zurich and the "little town of Zug," they reached Lucerne on Wednesday the 28th. "A pleasant evening cruise on the well-remembered lake of Lucerne. Righi clear and Pilatus well seen with every promise of fine weather. To our old quarters the Cygne." He made the ascent of Pilatus on Friday, enjoyed a splendid view, gathered *Papaver alpinum*, *Ranunculus alpestris*, and other rarities, and met at the top of the mountain some boys from Lausanne, who gave him news of the Germond family. The last three days of the tour were spent at Lausanne; once more he visited Échallens, and the Germonds in their home at St. Loup, and at La Sarraz "became engrossed in hunting butterflies, of which we took several new sorts, and lost our way." This was on Monday, August 2. Next day they left Lausanne for Paris, where he records meeting "Mr. Milne-Edwards, sen.; Mr. Styles, of Long Ditton; M. Hipp. Lucas (entomologist); M. Oustalet (ornithologist); and M. E. Rivier (cave digger)"; regaining London on the 5th, the day the tickets expired.

His return home was followed by an illness of several days at Glasnevin. But on the 15th of August Mr. Barrington and he sailed together to Inish-bofin, and, of course, were not long in making acquaintance with Sergeant O'Connor—the donor of the *Architeuthis*—under whose capable guidance the exploration of the island was carried out. After four days spent in Bofin and Shark they left for Westport, taking midway the little island of Inish-

Turk. A brief note to Professor Babington was sent from Bofin:—

INISH-BOFIN, August 20, 1875.

DEAR BABINGTON,—All has gone off famously here. We have found *Helianthemum guttatum* in plenty; *Spergula arvensis*, with glabrous seeds; several *Rubi*, which I hope to send you presently, if you will kindly examine them. *Elatine hexandra* is here, also *Eriocaulon*, *Centunculus*, *Arundo epigejos*, &c., and the Flora will make a nice Report for the Academy. . . . Have you seen my papers on *Architeuthis* and *Dinoteuthis*? Was it not singular that the “very antient Irish monster” should have lain buried so long? My hooker is waiting at the quay, to sail for Westport, so adieu.

At Westport Mr. Barrington and he separated, the former going to Achill, while Mr. More went north to stay over the Sunday with Mr. Warren at Moyview. On his return to Dublin he again found himself ill—too frequently now the result of any unusual exertion—and on the 28th went for a fortnight’s sick-leave to Malvern, where his family had lately settled. A letter from Malvern (September 2) to Mr. Barrington shows that his thoughts were still in the west:—

DEAR BARRINGTON,—As Van Voorst is about to reprint my “Bird Distribution” Paper from “Ibis,” with additions, I hope that you will kindly consent to help me in your District, viz. IV., same as for Plants. What I want is a complete list of all the birds that *breed* in District IV., with words “Reg” after those that breed regularly every summer; “Occ” after those which only nest at irregular intervals. Please mark also the *rarer* of the regular breeders with an “R” after the “Reg.” If you will kindly do this for me I shall feel greatly obliged, and all acknowledgment shall be duly given, as I did before. I think it will make a useful book. . . . Did you speak to Mr. Pike about sparing or *protecting* Eagles and Peregrines? Does the Twite breed in Achil? Does the Corn Bunting reach Achill in summer?

An expedition into Wales was also taken, in a hope (which proved delusive) of trout-fishing equal to that of the Irish streams. He visited his old botanical friend Mr. Pamplin (once publisher of the “Phytologist”) and from him obtained a list of birds breeding in Merionethshire, for the projected Essay. The expiry of his fortnight, however, found him still in such bad health that on his return to

Dublin a further leave was granted, and his fourth visit (September 17th to October 8th) was paid to Roundstone.

From his Journal it appears that he continued ill at Roundstone, and perhaps did very little Natural History. A composition which he forwarded to the "Galway Express" shows his still active interest in Inish-bofin, and refers to a tragic episode of the year 1873, connected with the pursuit of the basking shark. It was suggested by the knowledge that a sum of money then collected by Mr. Brady (Inspector of Fisheries) for the widows and orphans of the drowned fishermen was now exhausted.

#### THE LAY OF THE BOFIN SHARK-HUNTERS.

[Supposed to be recited on the anniversary of the fatal accident which occurred in 1873, when five brave and industrious fishermen were drowned in following this dangerous pursuit, leaving their widows and orphans to depend for support on the charity of generous neighbours and the compassion of the public.]

We sailed from Westport westwards,  
 A crew of eight stout hands,  
 To hunt the mightiest shark that swims,  
 The mighty shark whose tall black fins  
 Sail slowly past dark Bofin's rocks,  
 Or Achill's sunny strands.

For in Bofin there is wailing,  
 In Shark are bitter tears,  
 Shed for the brave who've fallen  
 In the prime of their early years.

The purple sun is resting  
 Far out on the western tides;  
 All motionless our hooker,  
 As if asleep she rides.

But for us there is no resting,  
 For us there is no sleep,  
 Till we have slain the slayer,  
 That monster of the deep.

The widow's wail is keening  
 Too close upon our ears;  
 The yellow sands are salter,  
 Wet with the widow's tears.

Then away! with the early sunlight,  
 While "vengeance" loud we cry;  
 Away! to Ardillaun's lofty sides,  
 'Tis there our chance we'll try.

Row! row! ye fearless oarsmen,  
 Bend stoutly to your oar;  
 This is our day of vengeance;  
 Hark! to the cheers on shore!

And though our hearts are swelling  
 At the thought of yesterday,  
 'Twill nerve us to remember  
 That the shark is doomed our prey.

We're none too soon; already  
 Yon tall fin I can see;  
 Steady, boys, and silently  
 Close with the enemy.

High in the bow the avenger stands,  
 The spear raised high in his strong hands  
 Which none but he can wield;  
 Beware, thou mighty shark, beware,  
 To him thou soon must yield;  
 For true and deep he has driven his dart  
 Down to the very heart.

Oh, raise not yet the joyful shout;  
 Though red blood through the water spout,  
 'Tis long before we'll wear him out;  
 His strength will last a summer's day,  
 And this, my boys, is no child's play.

'Tis earnest battle now;  
 Ye heard our solemn vow;  
 The widows call,  
 The orphans all

Are waiting on your spear.  
 Vengeance at last is given  
 For the brave who are gone to heaven;  
 Now, widows, dry your tear.

At last, he's dead, that monster strength,  
 That might all strength defy.  
 Ah me! we've slain the slayer;  
 Must we ourselves, then, die?

See, yonder the rising breakers  
 Toss high their mane of foam;  
 Are we, then, lost my comrades,  
 Or may we again see home?

In Bofin, and along the coast,  
 Ye yet may hear their fame,  
 Who slew the tyrant of the sea  
 And won the deathless name.

## CHAPER XXXVII.

## IN IMPAIRED HEALTH.

[1876.]

GRADUALLY his opportunities for field-work lessened, as his health each summer seemed more precarious than the year before; but as yet he had no suspicion of any permanent injury, and continued to plan further exploration, especially among those islands of the wild west coast, his love for which had already cost him so dear. The preparation of his Report on the Flora of Bofin afforded him great interest, and several letters refer to it. Professor Babington determined the brambles, though not without a little pressure, as the troublesome "barren" stems had somehow got mixed.

NAT. HIST. MUSEUM, *Jan. 19th. 1876.*

DEAR BABINGTON,—Many thanks for your letter. I am glad that the parcel has arrived, but I am afraid that I cannot give you any further clue about the barren stems of the Rubi. Another time I will be more careful, but in the hurry and difficulties of our trip I scarcely had time to do more than I did, which was to secure in all cases the barren stem from the same plant. Still I hope you will not find the difficulty of re-uniting them too great, as it will be of so high an interest to know the names in such a remote spot.

I gathered some 300 species in four days, and I hope to print the whole list, and a comparison between the Schist flora of Bofin and the Limestone flora of Aran, which will be very interesting, as Bofin has about 90 species not found in Aran, while Aran yields (on about four times the ground) about 160 species not found in Bofin. So that the contrast is very striking.

I do hope that you will be able to manage the Rubi, for curiously enough *R. cæsius* and *R. saxatilis* are the only two known in Aran, and neither occurs in Boffin. . . . I have an *Isoetes* to send you from a lake in Bofin. It has all the look of, and slender tapering fronds of *echinospora*, but I can't make sure of the seeds.

For the coming summer he thought of exploring Clare Island, which lack of time had prevented in 1875. On

returning in June from his usual few days' stay at Killarney, he wrote to Mr. Barrington propounding the idea.

NAT. HIST. MUSEUM, *June 29th.*

DEAR BARRINGTON,—Here I am again, safely returned from Killarney, and very glad to see you, if you have time to look in. The weather was very fine, too sunny for much fishing, but I got usually about a dozen and a half each day that I went after trout. I did not find anything worth mention in the way of plants. The Bofin paper is in type, and to appear early in July—so Dr. Wright tells me. The *Carex* has not flowered, but is still barely alive. I think it must be *C. stellulata*; at any rate I have made no mention of it in the paper. . . . Ogilby has got hold of a very rare fish, the Fox Shark,\* which I hope we shall be able to secure for the Museum here. I am collecting information about Irish as well as British Bird Distribution, but how can one obtain reliable information from all the quarters of the country? . . . . Could you manage to go with me to Louisburg and explore Clare Island as soon as Kirby comes back—say 10th or 12th of August? It would be great fun. . . . Do you know, or could you get me, the address of the Fishing-tackle shop where Mr. — gets his flies? I want to get a dozen of those black gutta-percha bodies that did so well at Luggala. The same colour answered at Killarney.

The Clare Island project, however, was postponed, and little botany was done this year. On a week's sick leave, in August, he discovered *Nuphar intermedium* (a small flowered variety of the yellow water-lily) at the residence of his friend Mr. F. Battersby, of Cromlyn, Westmeath. Had his health permitted, he thought of going to the British Association Meeting at Glasgow, but towards the end of August he again fell ill, and so spent the first three weeks of the summer holiday quietly in Wales with a few friends. The remaining weeks were spent at Killarney and Caragh. Fishing, rather than botany, occupied him here, and a fragment accidentally preserved among his papers describes, in part, one incident of his stay at Caragh.

It was on a bright morning towards the end of September that we launched our boat on Caragh Lake. The end of the fishing season was approaching, so that we were the more anxious to make the best use of the few days remaining before the commencement of the close season. Autumn is the most enjoyable part of the year in the South-west of

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\* The specimen now in the Museum, presented by Mr. J. D. Ogilby.

Ireland, and this is also the time when trout rise more freely than under the bright sun of summer. Our rower, pilot also, and confidential adviser in our sport is old Corny, a well-known character in these parts. Corny was a promising angler some sixty years ago, and receives a high character for civility and skilfulness from the author of "The Angler in Ireland." He is now a little stiff from age and rheumatism, but as keen as ever in the pursuit of his favourite occupation. Give him the rod, and see with what perfect swing he casts his fly, lightly and surely, scarcely ever failing to hook his fish. Woe to the trout that engages in a single-handed contest with Corny.

To-day he quickly lights his pipe, and settling down to his oars casts round a quiet look of happy confidence, very reassuring to his confederate. And well he may; for a fairer day for angling could not be desired. The wavelets curl merrily in every part of the lake, crested here and there with a narrow ridge of white foam, and break smartly on the pebbles, which line the strand. In the distance northwards, the long range of the Cahir Conree Mountains stand out, not too bright. Close above us the matchless summit of M'Gillicuddy's Reeks and the lesser ranges on the south and west tower sleepily into the clear blue sky, across which the clouds sail steadily under the fresh western breeze. Altogether it is a perfect day.

We had promised to bring back a dish of trout for dinner: so made at once for O'Brien's bank, one of the best parts of the Lake. We had scarcely thrown out for the first cast when my small trout-fly was taken, and the mad rush of something large and black under the boat indicated a salmon. Happily our fish did not go far in his first rush, and gave Corny plenty of time to wind up and stow away the second rod, and we prepared for a struggle which might be expected to last a long time, seeing that a small trout rod of 11 feet and a trout-fly on fine gut are scarcely the tackle with which to tire out a salmon. And a monster was on our line, as we soon saw, when a huge fish which Corny rated at 27lb. jumped clear out of water and fell on his side with a crash that sounded all round the lake. It was too much to expect to kill such a fish, but it became a nice question how long we could maintain our hold. Following our fish as slowly as possible, with an occasional jump to vary the monotony of the sluggish movement of our sulky captive, who had no doubt resided in the lake ever since the previous March, I put all the force I dared upon the gallant little rod, which often bent to the very water under so severe a strain. All to no purpose, for the fish never rose to view, nor could Corny, thirsting for his blood, see any chance of plunging his gaff deep enough to reach him. One hour, two hours, still we held on. We had travelled nearly a mile up and down, and our lazy fish now seemed as if he did not care to exert himself any longer. Happy thought, my monitor from the stern-sheets of the boat handed me some very welcome sandwiches and beer, while old Corny pursued his monotonous course, muttering what I understood to be benedictions in Irish on the "ould tormentor."

After lunch we had a livelier time of it; probably the beer took some



effect, and our fish began to jump occasionally—nay, once he lay on his side after one of these efforts, and we rowed up hoping to gaff him, but he judiciously disappeared just in time to escape the steel. Another incident was the fouling of the reel line, which had to be coiled down upon the bottom boards until the reel could be persuaded to run freely enough, and an anxious moment this was; but our obliging fish was probably himself glad enough to take a little rest, and remained, as if asleep, close under the boat, but deep down.

Here the narrative breaks off, which is what the line also did.

In October (again on sick leave) he made his fifth expedition to Roundstone, and on leaving that favourite locality, revisited, after a long interval of twelve years, his old friends at Castle Taylor. Two days (October 17th and 18th) were spent amid the well-remembered scenes, and a drive was taken “to see Kilmacduagh,” where his exciting hunt after “three brown crows” had taken place twenty-six years ago. He was again on the *qui vive* for notes on the birds of that neighbourhood (of which he had once, long ago, compiled a list); for he was highly desirous of including Ireland in his projected revision of the “Bird Cybele,” and had now made considerable progress in the collection of information from British counties.

But the addition of Ireland to the area added largely to his difficulties; still more so, the wish to include local statistics as to increase or decrease in winter. Above all, the problem how to check estimates on this latter subject, when doubtful of the accuracy of your informant’s judgment. He had not now the abundant leisure which formerly had enabled him, at Bembridge, to draw as it were the measure of each of his ninety-seven correspondents, and sift the grain from the chaff, for purposes of an investigation arduous enough, and yet much less so than his present one. How good soever his health had been, it is doubtful whether the *embarras de richesse* emanating from the “too willing informant” would not, in this inquiry, have proved quite inextricable. With ill-health superadded, it is not wonderful that the investigation was never, on these lines, completed.

## CHAPTER XXXVIII.

## LAST YEARS UNDER ROYAL DUBLIN SOCIETY.

[1877-1878.]

HIS love of Killarney has already been alluded to, and of late, when in Kerry, he had generally spent some time also with Dr. Battersby, of Lake Caragh. To his friendship with Dr. Battersby is due the explosion of a most absurd (though at the same time perfectly excusable) error that had found its way into Irish ornithology.

Among the treasures contained in the Natural History Museum in Kildare-street was a specimen of that handsome bird the Blue Thrush (*Monticola cyanus*) which enjoyed the reputation of having been shot in county Meath. It had been purchased by the Museum from Mr. Richard Glennon, the well-known Dublin bird-stuffer, at whose shop it had been left, freshly killed, with a verbal message from the donor. At a later date, however, some inquiries as to that gentleman's correct name and address resulted in the discovery that his message must have been imperfectly delivered, and his identity could not be traced. The occurrence of the Blue Thrush in Ireland had meanwhile been recorded in the "Zoologist," and consequently noticed in the standard works, though some incredulity was expressed as to such a species having really straggled, unhelped, to the British Isles.

In this doubtful status the bird remained for about ten years, till one day Dr. Battersby, going with Mr. More through the Museum, was struck with surprise at seeing a Blue Thrush among the Irish birds. But when, on inquiry, he learned what was known of its antecedents, his surprise gave way to intense amusement. He was himself the gentleman who had left the bird at Mr. Glennon's. Mr. Glennon being out when he called, he had not thought it necessary to give a full history of the specimen: the fact

being that he had shot it, not in Meath, but in the south of France, whence he had just returned, and where its occurrence needed no explanation.

Though in later years Mr. More had to "turn out a good many birds" from the Irish list, he never met with a more conclusive refutation of an error than this, which he communicated to the "Zoologist" for February, 1880.

Ornithology was not among the main attractions of Killarney and Caragh; botany was here a far richer field; but above all he sought the lakes for the supreme enjoyment of fishing. As an angler scarcely less than as a naturalist, he made it his object to acquire familiarity with all the best localities for Irish freshwater fishes, and during the autumn of 1877 he formed an important friendship, based to a great extent on this hobby. The new friend was the eminent ichthyologist, Dr. Steindachner, of Vienna, who came to Dublin in the course of a tour through the British Islands, to obtain specimens for the purposes of his work on European Salmonidæ. Mr. More accompanied him to Killaloe, Galway, Cong, and Belfast, hoping to be of service in the procuring, at least, of reliable promises of assistance, especially with reference to the Great Trout of Lough Neagh, the Gillaroo, and the Galway sea trout. From Belfast (Oct. 18th) Dr. Steindachner and he went on to Edinburgh, and thence to Loch Leven and Dundee. This expedition was always amongst his most pleasing reminiscences, and Dr. Steindachner's letters to him (usually acknowledgments of specimens sent or promised) show that the feeling was mutual. The following\* has reference to the results of Mr. More's expedition to Galway in August and September, 1878:—

VIENNA, *November 14th, 1878.*

MY DEAR, DEAR FRIEND,—I was delighted to get the last letter with which you honoured me. I venture to ask you to settle with —, as you think best. I think the two Gillaroo, at all events, should be bought, for I want them badly for my work. But how can I thank you, dear friend, for the trouble you yourself have taken? I am looking forward with longing to the arrival of what you so kindly collected for

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\* Translated from the German.

me on your journey, and are going to send me, *Salmo gallivensis*, &c., &c. I have been collecting Salmonidæ the whole year, especially lake-trout, from the Austrian lakes. Unfortunately I shall not be able to complete my work at the Salmonidæ before 1879. Do come next year; I am looking forward so much to seeing you again. I shall be in Vienna the whole of 1879, except May and June.—With a thousand kind remembrances, your sincere friend,

STEINDACHNER.

Dr. Steindachner had already used his influence to secure the election of his friend as honorary member of the Imperial Zoological and Botanical Society of Vienna. Mr. More was never able to visit the Austrian capital; but he had the pleasure of meeting Dr. Steindachner again in 1883, at the "Fisheries" Exhibition in London.

At the close of the year 1877 he paid what proved his last visit to the Isle of Wight. He had never allowed his interest in the old home to drop, and the Natural History part of Jenkinson's "Guide to the Isle of Wight," published in 1876, was from his pen. A few days were now spent at Ryde, and excursions (Dec. 26th–28th) to Bembridge Down, Sandown Bay, and St. Boniface's Down, recalled many an arduous botanical search, or exciting chase with the butterfly-net. He went next (Jan. 2nd, 1878) to London, and three days were given up respectively to South Kensington, the British Museum, and (not least) the dealers.

There was, in 1878, an additional incentive to leave nothing undone towards setting the Irish collections in the best possible order; for the meeting of the British Association was to be held in Dublin, and a natural ambition prevailed that the Museum should be in every way worthy of the notice of the assembled "scientific world." The early months were therefore marked by much activity in every department; and, not inappropriately, the one addition which Mr. More this year made to the Irish Fauna was "discovered" in the Museum itself. This was the white-beaked dolphin (*Delphinus albirostris*), identified from a cast and coloured sketch (preserved in the Museum) of a specimen once captured on the Dublin coast, but which itself seems to have been lost.

The meeting of the British Association began on the

14th of August, and the day following the Presidential Address was marked by a *soirée* given by the Royal Dublin Society, at which the Natural History collections were supposed to be the principal subject of interest. The management of the Museum had lately been transferred from the Society which had so long directed it to the Science and Art Department, South Kensington. But the change was so recent that the Museum might still be regarded as the Royal Dublin Society's collection, and therefore a more suitable time could scarcely have been selected for a review of its contents and condition. Such a review was fortunately provided by Mr. Howard Saunders, whose account of the Museum as it was in 1878, published in the "Field" for August 31st (page 284), is a tribute of no mean worth to the Royal Dublin Society, as well as to the curator and staff. "There can be no doubt (says Mr. Saunders) that the *soirée* at the Royal Dublin Society was a brilliant success; but lest the whirl of dissipation should have caused its frequenters to overlook some of the principal objects of interest in the Natural History Museum, a few remarks upon the more important objects it contains may perhaps be acceptable. I may be wrong; but I fancy that comparatively few are aware of the fine and eminently manageable collection, consisting of typical specimens, and not overloaded with duplicates, which is to be found within the precincts of Kildare-street, or of the great advance which has been made during late years under the superintendence of Dr. A. Carte, aided by his energetic assistant, Mr. A. G. More. . . . It is, indeed, marvellous to see what has been done, with the limited means at disposal, to display the various collections to the best possible advantage."

The various collections are then successively noticed. First come the Fishes:—

Entering the Natural History section from the ethnological gallery, we find, piled upon the lower cases, a collection of Irish fishes, in spirits, which is probably unrivalled, and also a series of foreign species, which can hardly be surpassed, except by that in the British Museum. . . . Amongst the rarer Irish species are *Cottus grœnlandicus*, *Sebastes norvegicus*, *Trichiurus lepturus*, and *Capros aper*,

all from Kerry, collected by Mr. W. Andrews. . . . Then there is Montagu's Blenny, *B. galerita*, a recent addition to the Irish list; *Gobius paganellus*, and that rare species, *Cepola rubescens*, the red-band fish, both from Kerry; the Gillaroo trout, from Lough Melvin; that lowest in organization of all fish, *Amphioxus lanceolatus*, dredged up by Mr. A. G. More in Bantry Bay; and Cole's char (*Salmo colii*), formerly supposed to be confined to the middle lake, Killarney, but recently obtained by Mr. More in Luggala, County Wicklow. In the centre of the room is a fine mounted specimen of *Selache maxima*, the basking shark, harpooned by the fishermen of Connemara, off Inishbofin; it yielded £20 value in oil, and the species appears to be a recognized object of pursuit on that coast.

From the preserved fishes Mr. Saunders passes to the plaster-casts, coloured after a process of Dr. Carte's invention:—

Turning to the cases along the left wall, we find a portion of that magnificent series of plaster casts of fish, which was commenced by the late Dr. Ball, curator of the Museum of Trinity College, and father of the present Astronomer Royal. . . . The casts were, however, left uncoloured, until, under Dr. Carte's superintendence, some twenty years ago, the operation of colouring them after nature was commenced, . . . the result being an admirable reproduction of the natural sheen, especially in those parts which would otherwise be of a dead white. Conspicuous amongst all for gorgeous colouring is the Opah, or king-fish (*Lampris guttatus*), of which there are two specimens, one from Galway and the other from Wexford; the rare *Torpedo nobiliana*, from Dublin Bay, and *Orthogoriscus mola*, the true sunfish, which is annually abundant on the west coast of Ireland, and from its high back-fin must somewhat resemble the basking shark when in the water; indeed some of the fishermen call both these widely differing species by the same name. A portion of these plaster casts are in cases at the top of the principal staircase, near one of the skeletons of the Irish elk, the latter portion containing the freshwater species as well as the marine fish; and such a series I had certainly never seen in my life before, although familiar with all Mr. Frank Buckland has exhibited. It would take up too much time and space if I were to enlarge upon the individual specimens of this unrivalled collection; but it is to be hoped that many members of the British Association visited them with profit.

As might have been expected, a good deal is said of the birds:—

The general collection of birds is rather exceptionally rich in *Parasitidæ*, but the principal interest centres in the local collection of Irish avifauna, in which all the native species are well represented;

whilst for rare visitants the treasures are hardly inferior in value to those of Trinity College. Here is the American Goshawk, obtained by Mr. Massey-Dawson, at Ballinacourte, County Tipperary; the Scops Owl, from the Montgomery collection, captured at Wexford; and amongst the warblers is *Hypolais icterina*, from Dunsinea, County Dublin. . . . I regret to say that the Blue Rock Thrush's antecedents are not satisfactory, and that both it and the Swift Tern (*S. bergii*), whose introduction into the Irish list\* was a practical joke, must be removed from the British list of stragglers; but respecting these birds, full details will shortly be given by a more competent pen than mine. . . . Amongst the Buntings is that rare visitant the Ortolan; and then attention is arrested by the Luggala-killed specimen of the American Kingfisher (*Ceryle alcyon*), and that of the American Purple Martin obtained at Kingstown. There is . . . a specimen of the American Bittern, which has, however, been obtained elsewhere in the British Islands; a fine series of Plovers in different stages of plumage; and an Avocet, a very rare bird in Ireland, mounted in the best style of which even the talented taxidermist of the society, Mr. R. Pride, is capable (indeed it would be difficult to find better mounting than his and that of Mr. Williams of Dame-street); and this excellence is nowhere better displayed than amongst the waders. Amongst the sea-birds, for which the society is largely indebted to Mr. R. Warren of Ballina, there is a good series of Gulls and Terns, comprising many of the Roseate Tern, the Warren Whiskered Tern, and amongst the most recent additions, a beautiful specimen in summer plumage of the White-winged Black Tern, presented by Mr. R. J. Ussher of Cappoquin, being, with the exception of a straggler to America, the most western occurrence on record. Then there is the Noddy (*Anous stolidus*), obtained off the Wexford coast. . . . As curiosities, an albino Puffin and two nearly white Curlews should be mentioned.

Much praise is also bestowed on the collections of Mammalia, of Irish fossils, and of some of the lower Invertebrate families. Rone-More of Eagle Rock receives his tribute of admiration:—

The Irish seals are well represented, and amongst them is a great rarity; indeed, I had never seen a similar example—a *black* variety of *Phoca vitulina*; whilst of the Great Grey Seal (*Halichærus grypus*), there is a magnificent adult male, shot by Mr. A. G. More off the coast of Connemara. This grand beast measured eight feet in length, and weighed three-and-a-half hundred-weight.

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\* Under the name of Ruppell's Tern (*Sterna velox*), this species is recorded in Thompson (vol. iii.), and in Watters (p. 240), as having been shot near Dublin in 1846. In Mr. More's "List of Irish Birds" (1885) it is excluded.

And the great squid, of Bofin, does duty in an entirely novel capacity:—

I turned for a little instruction to the cases containing the Irish Crustacea, for I wanted to know a little more about an animal of which, before leaving home, I had purchased a couple of dozen under the name of "prawn." For the last quarter of an hour I had been engaged in a desultory conversation with a member of the British Association—at least he displayed a pink ticket conspicuously under the band of his note-book—and we searched together for this lost "Irish prawn," which proved to be the "Norway lobster" (*Nephrops norvegicus*), a species bigger than the largest freshwater crayfish (*Astacus fluviatilis*). The name was all very well, but on intimating a desire to know more about this interesting crustacean, especially with regard to its edible qualities, my new acquaintance assured me, in an off-hand manner, that I should find out all about it in Yarrell's "British Fishes." There was not so much as a twinkle in his eye as he said this, but I found it convenient to remove my quarters, and to take shelter behind the jar containing the beak of the rare and gigantic cuttlefish (*Architeuthis dux*), captured off Innisbofin, an account of which appeared in the *Zoologist* a few years since from the pen of Mr. A. G. More.

The Association broke up on Tuesday, August 20th, and he hurried away to Galway, for six weeks' sport and specimen-hunting. For a sixth time he made Roundstone his head-quarters; again searched Craigga-more for *Erica ciliaris*, and again sailed to Corrig-na-mackan "to look for big seals." In September Mr. Howard Saunders also came to Roundstone, and shared in some of his seal-hunts. They made expeditions to Carna and Gowla Bay, and several of the "big beasts" were bagged. Mr. More had also a wish to revisit Inish-bofin, and had sailed from Roundstone to Kilkieran, intending to proceed further, when a terrific gale set in (Sept. 14-15) which utterly disconcerted all his arrangements. On the 14th (after killing a Rone-More early in the day) he returned by car from Kilkieran to Roundstone before the storm had risen to its maximum. But although he had escaped the worst part, the exposure told on him, and for the rest of his stay at Roundstone he was quite an invalid. The seals were now left alone, and the sole events, almost, mentioned in his diary are the sight of three Pomarine Skuas on the sand-hills, the day after the great gale, and a "lecture on



Natural History" which he delivered to a Roundstone audience on the 3rd of October, and which, he records, brought 15s. 4d. "door-money" (given to the poor of Roundstone). On his return to Glasnevin he found himself seriously ill, and so ended the last of his visits to Roundstone. His interest in the locality never faded, and his opinion of it was probably not far different from that which had been communicated to him by Mr. Evans in 1855:—"Roundstone is the nicest place in Ireland." Amongst the inhabitants of Roundstone with whom he maintained a correspondence was the boatman, Thomas Mongan, who had gone with him on most of his seal-hunting excursions, and participated in the triumph over "Rone-More Thorang." The hope of yet obtaining an Irish Harp Seal perhaps contributed one of the many chords which bound him to the favourite Connemara hamlet. But a cause which he could not control prevented his seeing Roundstone again.

## CHAPTER XXXIX.

## INTEREST IN WELSH BOTANY.

[1879-1880.]

AFTER a fortnight's illness he was able to return to work ; but he found the winter and spring which followed unusually trying, and his health had become a cause of great anxiety. A visit to Vienna in 1879 was quite out of the question. He went to Killarney in May, and found it very cold. In June, a sad blank was created in his circle of friends by the death of Dr. Moore. For fifteen years the association between them had been close, and as mentioned in the "Dictionary of National Biography," Dr. Moore's last contribution to botany was "a description of a new species of *Isoetes*\* which he called after his friend More." Dr. Carte was also at this time in rapidly failing health, and the responsibilities of Mr. More's position were thus considerably increased. He spent a part of his summer holiday (July 14—August 2) at Malvern, and later in August went for a few days to Bala. Better for him, no doubt, than the fatiguing recreations of Roundstone was such quiet dredging for aquatic plants as he now enjoyed. But it was becoming daily more obvious that rest was not all he needed. The injuries received six years ago at Inishkea were telling upon him, and constant pain in the hip-joint, sometimes amounting to acute agony, threatened to render him permanently helpless. On the 17th September he underwent an operation. Seventeen days after it (Oct. 4th) he was carried from his bed to a sofa, and on October 6th "walked for first time." Not till the 10th of November was he equal to resuming duty, and even then was far from fully recovered. On Christmas Day he was again unable to leave his bed, and continued so for nearly five weeks. On the 27th of January, 1880, he was "up

\* *Isoetes morei*. See "Journal of Botany" for December, 1878.

and to the Botanic Garden," and on the 25th of February the note is registered in his journal "leg-wound closed and healed."

A year had thus been passed under extremely depressing conditions. Even correspondence, during the autumn and winter of 1879, had been scarcely practicable, except for the few weeks which followed his resumption of Museum duty on the 10th of November. But it is remarkable how quickly he then set about making up for lost time. Messrs. H. and J. Groves were now preparing their "Review of the British Characeæ," which appeared in the *Journal of Botany* for 1880; and his collection, forwarded for their examination, is thus acknowledged in a letter from Mr. H. Groves, dated November 17th, 1879:—

MY-DEAR SIR,—I safely received the splendid set of Charas which you have so obligingly sent me, and am sure they will teach us a great deal about our British species. Your kind letter came to hand this morning, and I shall take advantage (when returning the specimens) of your kind permission to mention two or three forms which you have in duplicate, of which I am anxious to obtain specimens. And I hope I may add a few of our collecting, although I cannot hope to repay you for your kindness in sending the best set of British specimens which I have seen.

On Dec. 16th he writes a characteristic letter to Prof. Babington:—

DEAR BABINGTON,—Will you kindly excuse my troubling you with two specimens. . . . I am getting together what notes I can for the second supplement, but it is discouraging to find how little has been done of late years. We really have so very few field botanists whose reports can be trusted.

I am very anxious to try and trace out a bit of information about the old Irish botanist, Rev. Mr. or Rev. Dr. Heaton, who contributed to How's "*Phytologia*," 1650. It was Newbould who once told me that he had found out he was a Fellow of Clare Coll., Cambridge, but N. cannot now remember where he met with this information. Now, surely there must be a list kept at Clare College of the Fellows, and probably M.A.'s and other degrees, with their dates, and could you, without too much trouble, either make the inquiry or tell me to whom I could write. A friend of mine here who is much given to antiquarian research thinks he has found Heaton's name as holding an Irish deanery, and it would

help to decide the matter if we could only find out from the Clare College records—

1. Was there a Fellow named Heaton about 1640-50?
2. What were his names or initials? And year of taking degree?  
Was he a Revd. or a Dr. (D.D. ?), and did he hold a living in England?

At any rate I am sure you can advise me how to proceed, and whether there is any hope of further information about our earliest Irish Botanist.

Mr. Babington found him the information he wanted. Another Irish botanist, of whom great hopes (too soon frustrated) were entertained by many, is mentioned in his next :—

*March 22, 1880.*

DEAR BABINGTON,—I thought I had sent you the Supplement to “Cyb. Hib.” long ago, but as you do not seem to have received it I am now posting you a copy. I am very glad to hear that you like Mr. Corry. I have never seen him; but I have no doubt he will turn out one of our few reliable botanists. Thank you very much for the information about Heaton. I have scarcely any doubt that he is the Rich. Heaton you mention; and he was made Dean of Clonfert in 1662, *vide* Cotton’s “Fasti Ecclesiæ Hib.” It would be interesting to know, if not giving you too much trouble, his county, and entry at St. John’s. Newbould must have made some mistake about his being a “Fellow of Clare.” There is also one little item in Merrett’s “Pinax” (a book I cannot get in Dublin) to the effect that something is said about Heaton under *Trichomanes ramosum*. Could you kindly look some day in the University Library, as I suppose Merrett’s book must be there.

The wound in my leg is now *quite* healed, and I was getting on famously till this morning, when I have picked up a very severe touch of sciatica, or tic, or some other form of acute rheumatism. With my very kind regards to Mrs. Babington; and again thanking you most sincerely for your most kind letter and sympathy during my illness, yours very sincerely,

A. G. MORE.

His recovery was far less complete than had been hoped. Next day (March 23rd) he was again confined to bed, and for a fortnight after (to April 5th) suffered “sharp and disabling pain” from the old wound, which was not again pronounced healed until the 1st of June.

Nothing perhaps interested him more at this time than Mr. Barrington’s researches into the history of the Squirrel in Ireland. It was just such an inquiry as he delighted in,

involving correspondence in all directions, to ascertain what areas were now inhabited by squirrels, and to account, by credible testimony, for their occurrence in each. Every letter, every fact, was talked over with him. It is no exaggeration to say he took as much interest in the working-up of the subject as if it had been his own: this indeed would be true of many far less useful contributions to science than that which placed beyond doubt the fact that the squirrel is *not* native in Ireland. The paper had been scarcely read (at the Royal Dublin Society, May 19), when he was again agitating about it, to hurry the printing.

When able to bear movement, he went (June 3rd) on sick leave to Killarney, and a wish to renew his acquaintance with the Clare coast (doubtless stimulated by the discovery of *Neotinea intacta* the year before at Ballyvaughan) took him thence to Kilkee, and by short stages northwards to Miltown-Malbay, Lisdoonvarna, and Galway. On the 18th of June he visited the Cliffs of Moher. It was twenty-six years since "*Hesperus*" had before stood on the summit of that stupendous precipice, and been not easily restrained from descending, with a cliffsman's rope round his waist, to the homes of the Kittiwakes. The beautiful birds were there, nesting in their thousands, as of old, in the ledges of the great Cliff, and the invalid must have viewed them with mingled feelings—the old love unchanged, but tempered with the consciousness of change in himself. He found something, however, to say of that day's excursion, for between Lahinch and the Cliffs he found a quantity of the clover *Trifolium maritimum*—a very unexpected discovery in the west of Ireland, of a plant previously noticed only "near glass-works at the North Lots, Dublin," and, of course, with only the slenderest claims to count as indigenous.

He returned to Dublin considerably stronger, and for the next two months was busy at the Museum. Professor Babington had proposed that they should meet in Wales towards the end of August, and make a botanical expedition into Anglesea, to which he looked forward with singular pleasure, for the programme included visits to the haunts of several of the rarest plants in Britain.

A sharp rheumatic attack on the last day of July caused him some apprehension lest the project might be upset, but this passed off after a rest of two days (August 1st and 2nd) spent with Mr. Barrington at Fassaroe. On Monday, Aug. 2nd, Mr. Barrington and he botanized together at the Scalp; and a short note dated from the Museum on Wednesday shows that, while visiting Mackay's old station for *Epilobium angustifolium*, they must have fallen to discussing other less known records for the same handsome plant:—

*August 4th.*

DEAR BARRINGTON,—It is in D'Alton's History of Dublin that it is stated (p. 835)—“A singularly straight avenue through fields of granite thinly disguised with soil, and flowering in July with the *Epilobium angustifolium*, rose-bay willow herb, conducts (from Golden Ball) into Carrickmines.”

The only question about your Squirrel Paper is whether to print it in *Transactions* (4to) or in the (8vo) *Proceedings*, and I think you agreed the *Proceedings* are best, and will be printed more speedily. I will urge Moss to get it done as soon as possible. . . . I have written to Babington offering to bring you to Holyhead about 30th.

On Monday, August 16th:—

DEAR BARRINGTON,—I hope you had a successful day on the mountain. Did you think of *Carex rigida* at the top? Moss has just come back, and says that he will send your Squirrel Paper at once to press, as soon as you send him the map. He says map and MS. must be sent together to the printer; so that I hope you will send him your map at once. It should be such as to fold once only, and open across the two pages without any folding, I think. I enclose for your edification Hart's last bulletin. I think he was about six days altogether,\* but some of them very wet.—In haste, yours,

A. G. MORE.

On Tuesday† I had a delightful bit of bog botany, and gathered *Saxifraga hirculus* in perfection.

A week later he crossed to Wales; and still looking forward to being joined by Mr. Barrington, who, however, was prevented, wrote on August 26th:—

BEDDGELERT, *Thursday.*

DEAR BARRINGTON,—I have just received a note from Mrs. Babington, fixing next Tuesday, the 31st, for our excursion to Holyhead. So

\* Mr. Hart was exploring the Galtee mountains.

† At Lisclougher Bog, Co. Westmeath.

please make your arrangements to cross by the mail on Monday evening, and sleep at the New Hotel. There is a train arriving at Holyhead at 10 A.M. (on Tuesday), by which I suppose we shall arrive, hoping to meet you on the platform. There will be Babington and myself, and I hope a good local botanist from Bangor; so that we shall have a nice day, and I hope you can come.

The "good local botanist from Bangor" was Mr. J. E. Griffith, author (at a later date) of the "Flora of Anglesea and Carnarvon," who on the 31st accompanied them to Holyhead. Here were gathered *Helianthemum breweri*\* and another local plant of even greater interest, the "Cineraria" of Holyhead Mountain, previously supposed identical with the *Cineraria* (or *Senecio*) *campestris* of the English Chalk Downs, but not believed to have been gathered or seen *in situ* for more than half a century, and whose recent re-discovery here by Mr. Griffith soon occasioned great differences of opinion among botanists as to its rightful identity and rank.

From Holyhead the party proceeded to the scene of a still more interesting re-discovery due to Mr. Griffith, and made an expedition to Penrhos-Lligwy. Here, in a little stream, had long grown a plant not known to inhabit another spot in the world—the celebrated "*Potamogeton lanceolatus* of Smith." Owing to the out-of-the-way and "almost inaccessible" nature of the locality, this pond-weed had not, Professor Babington thought, been gathered by any botanist between 1832 and 1879. Moreover, it held rank as the *only* species of plant confined strictly to Great Britain; and, as a further claim to distinction, no one had ever discovered its fruit.

So, hearing that *Potamogeton lanceolatus* had lately been found by Mr. Griffith to be plentiful in its old locality which a new railway also had rendered more approachable, the botanists gladly resolved on going thither. Rather curiously, it so happened that during the same month (August 4th) Mr. Arthur Bennett found the same species in the Fens of Cambridgeshire, so that already Penrhos-Lligwy had been shorn of some of its eminence; but in

\* A variety of *H. guttatum*. The Inish-bofin plant is now referred to the same form.

one sense the Cambridgeshire discovery only added to the perplexity with which the plant was regarded, since there, as in the Welsh brook, the most anxious search, during the summer of 1880, led to no detection of anything like ripe fruit.

The visit to the little stream in which a plant so seldom seen by botanical eyes grew and flowered profusely was a real treat. But, as is told by Mr. Babington, who sent an account of the excursion to the *Journal of Botany*, the search for seed proved vain. They consoled themselves by hoping that they were too early in the season, and that Mr. Griffith, in another month's time, would be more successful.

The day which followed that devoted to *Potamogeton lanceolatus* was occupied in looking up another rarity, the party betaking themselves to the Great Orme's Head, the only British station for *Cotoneaster vulgaris*. Here too they had to be prepared for "absence of fruit," but unhappily no mystery in this instance attached to the phenomenon. The *Cotoneaster* was itself gradually disappearing. Mr. More had previously visited the Head in August, 1865, and had gathered five shoots for his Herbarium—less vigorous by far than those which, twelve years earlier, had come to him in exchange parcels, but hale and lusty in comparison with the best which were now to be seen. Three leaves separately picked off, without any stem, and carefully gummed down on the sheet of paper, accompany the inscription in his Herbarium, "With C. C. B. Scarcely a leaf left. Sept. 1, 1880."

The dying out of such a rarity is to be deplored by everyone, but in his case the regret was special, for this was a plant which, even before he saw it growing, had possessed a marked fascination for him—partly from the difficulty of accounting for its presence in an isolated spot like the Orme's Head, so remote from its native Scandinavian home. There is mention made of it in his *Journal* for November 15th, 1854, that tells how, travelling by rail from Carnarvon to Chester, "I also observed the ledges of limestone strata on the Orme's Head, and conjectured where the *Cotoneaster* might grow"; whilst his review



of De Candolle contains a characteristic reference to the question whether its seed might have been sown "by some Redwing or Fieldfare migrating from Norway." And when in 1865 he paid his first visit to the Head itself, there had been a long and exhaustive search along the ledges, prompted by a hope that some of the less accessible spots might prove to contain hitherto undiscovered patches of Cotoneaster. Now it seemed but too probable that in a short time the solitary spot which it inhabited would know it no more. On his next visit he scarcely dared even to look at the plant; but that was a year later.

Returning to Dublin on September 25th, he had quite a feast of "vegetable food" to ruminate over. Mr. Griffith sent him a fresh supply of the Potamogeton, which continued as great a problem as ever.

*Sept. 30th, 1880.*

MY DEAR SIR,—Thank you very much for so kindly sending the specimens of *Potamogeton lanceolatus*, which I was very glad to see again; but I am sorry to say that I cannot find any mature fruit. The plant must be a very late flowerer, or perhaps does not perfect its seeds. At any rate, all the flowers which I dissected have only furnished quite immature fruit, with the stigma still quite fresh. I shall be curious to hear what Professor Babington will say. At any rate we are very much indebted to you for undertaking so long a journey. Did you have time to trace the plant up stream to the marsh or lake from which it starts? I cannot help thinking that you will find it in some other localities, as there did not seem to be anything peculiar about the little river where you showed us the plant. . . . I had a pleasant holiday, staying at my father's at Malvern, but no more botany since the afternoon we spent on Orme's Head; and here I must not forget to thank you once more for the valuable help you so kindly gave us.

*October 15th, 1880.*

DEAR BABINGTON,—I most carefully examined under microscope the heads of a large number of specimens of *P. lanceolatus* which Mr. Griffith was kind enough to send me at the same time as to you, with the same unsatisfactory results. I could only find the youngest rudiment of fruit, smaller even than the fresh stigma. Mr. Griffith tells me he has some idea of going again at end of this month. Surely it is singular if none of the flowers which we saw in August should be fertile. We have a plant growing in a pan at Glasnevin. I daresay you have looked at the figures of *Cineraria* in Reichenbach, Ic. Erit. There is one there which he calls "var. *procera*," fig. 254, No. 132 of vol. II., which

seems to me exactly like the Holyhead plant. . . . Reichenbach's figure seems quite as large as Griffith's wonderful specimens. I am very glad to hear you are again comfortably settled in Cambridge, and I hope that Mrs. Babington has continued to gain health and strength. I must again tell you how much pleasure both my sister and myself felt to meet you and Mrs. Babington; and with very kind regards I remain, yours very sincerely,

A. G. MORE.

Mr. Griffith made his October excursion, and found, though not a ripe fruit, one considerably more developed than any previously met with. He sent fresh quantities to Dublin and Cambridge, but disappointment still resulted.

*November 6th, 1880.*

MY DEAR SIR,—It is very good of you to take so much trouble about *Potamogeton lanceolatus*, and most interesting to examine specimens gathered so late in the season. I have just been examining some of the flower-heads, and I am still unable to find ripe fruit; but lest I may have made a mistake I have sent on the very same heads to Cambridge, and we shall soon hear what Professor Babington thinks about them. I hope you have taken care to preserve the fruit of which you speak; and it being so rare, it would be worth while mounting on a slide for the microscope.—Again thanking you for your kindness, I remain yours very sincerely,

A. G. MORE.

Professor Babington's verdict did not differ from what he had already predicted. "I fear there is no chance of our learning any more about *P. lanceolatus* this year. The floods have stopped that. It is singular if it never produces fruit either in the Lligwy or Fens: for there is no difference between the plants or their state from those very different localities."

Throughout the winter, correspondence still referred largely to the critical plants of Anglesea. It seems as if *Potamogeton lanceolatus* would pass into a perennial problem. Was it a species, variety, or hybrid? Was there anything like it on the Continent? Did it occur in Ireland? Did it ever mature its fruit? All these questions, in various ways, reacted on each other. But in 1881 Mr. Arthur Bennett "succeeded in getting *nearly* ripe fruit," and this was so unlike the fruit of any other known *Potamogeton* as to greatly strengthen the case for holding it a true endemic

species. A number of continental botanists wrote on the subject to Mr. Bennett, all testifying to its unlikeness from any plant in the European Flora. "By its rarity and sterility," wrote Dr. Nyman, of Stockholm, "may it not be supposed to be an ancient species that is becoming extinct, because the climatic conditions are changed?"

Some fatality seemed to attend the records of *P. lanceolatus* for Ireland, where, on the supposition of its being an ancient species, it might well be expected to occur. It had been doubtfully included in the "*Cybele Hibernica*," on the strength of specimens which afterwards, when submitted to Professor Babington, were referred to another species. In the supplement it was therefore excluded. In 1855 it had also been recorded by Mr. More from Castle Taylor, but this he withdrew as an error in 1860. Thirdly, in 1882 Mr. Bennett again recorded it for Ulster, specimens having been sent him about which there was no mistake—except, as afterwards transpired, as to the place where they had been gathered. But this was sufficient ground for a third erasure of the species. Finally, in 1891, *Potamogeton lanceolatus* of Smith was recorded once again, this time from the county Clare; and notwithstanding the scepticism which its previous history rendered inevitable, definitely took its place as an Irish plant. With this modification, however, it is still considered by botanists the only species peculiar to the flora of Britain.

Corresponding with his botanical friends about the Anglesea rarities, he was consulting Mr. Newton on another Welsh (or partly Welsh) question.

(*October 9th, 1880.*) Will you kindly give me five minutes help about the Ptarmigan? We have only got the 1812 edition of Pennant, so that I cannot trace up his earliest notice of the Ptarmigan as found near Keswick. . . . Could you kindly consult any (earlier) edition of Pennant? Latham (1783) uses the very same words as those in the Pennant of 1812, but always says "as well as in Wales," which, of all people, Pennant should have known. Yet Latham seems the original (and only?) authority for Wales as far as my books go, and then this has been copied over and over again, and Westmoreland added, I suppose, without any fresh information.

His article on the "alleged former occurrence of the

Ptarmigan in Cumberland and Wales" was written towards the close of the year. He had many other bird-questions on his mind, as the following two letters to Mr. Barrington show. When the first was written he had been an invalid for ten days.

IN MY BED, *December 17th, 1880.*

D.B.—Since I saw you, I have had a bad time of it. The old leg-wound has gathered again, has burst, and is now nearly healed up; and I expect to be on my feet again next week. Very many thanks for the parcel of Squirrels. I will send to Mrs. Shawe-Taylor and Lady C. Do bestir yourself about the Woodcock. Ask: (1) Does it breed? (2) Are the breeding birds increasing? (3) How long since is it that they have bred? (4) About how many pairs breed? (5) What is date of eggs being laid? (6) When do they pair? Excuse a Bed-man.—Your affectionate friend,

A. G. MORE.

(7) Do they carry their young?

. . . Do polish off that list of Blasquet plants. Only a short introduction. Reference to W. Andrews and his discoveries. Then the complete list, with a capital R after the scarce plants. Then we can get you another grant—for *Lough Erne* should it be?

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GLASNEVIN, *December 20th.*

DEAR BARRINGTON,—Freke has just looked in, and, if you have a copy to spare, he would, of all things, like a *Squirrel* Essay. When you were here to-day, I quite forgot to tell you I want to take up the distribution of the Quail in Ireland. Will you kindly, in writing to your Woodcock men, ask about the Quail on my behalf? I wish to find out—

Is it increasing or decreasing?

Is it a winter or a summer visitor? Or resident?

I will write on my own account to several quarters, but if you can pick me up some crumbs from your own richer dish of Woodcock I shall be for ever obliged.—Your sincere friend,

A. G. MORE.

He was eighteen days laid up. On the 24th he describes himself as "getting well, fast," and on the following (Christmas) day "dined out at Botanic Garden. Nearly well."

## CHAPTER XL.

## PROMOTION.

[1881.]

THE practice for many years pursued by the Royal Irish Academy of making grants towards the expenses of botanical research afforded him almost constant opportunities of urging renewed exploration on his friends. As has just been seen from a letter to Mr. Barrington, he had begun in December, 1880, to plan out areas for the coming year's work. The two letters which follow, on the same subject, are addressed to Mr. S. A. Stewart:—

*February 10th, 1881.*

DEAR SIR,—If you are disposed to send in an application to the Royal Irish Academy for an additional grant “to complete the botanical (exploration) of Western Fermanagh, and the adjacent borders of County Cavan,” please be so good as to write a letter to that effect, explaining how you were not able to finish your investigations last summer, and that you wish to resume them this year; urging, also, the desirableness of extending your exploration to the neighbouring parts of Cavan, which appeared to you a promising district. I think in this way you have a good chance of £10, for which you had better apply, sending your letter undated to me, till I can feel my way. Have you thought of the list, with corrections, for District 12? And I much wish that you would kindly send me Mr. Carroll's specimens of *Saxifraga hirta*.

*July 16th, 1881.*

DEAR SIR,—I should be glad to know whether you have made any expedition to Fermanagh and Cavan, and what success you have met with. Mr. Barrington has been two or three days on Lough Erne, and he proposes having a second trip a little later in the season. This leads me to ask whether, if you are yourself going again in that direction, you would like to join Mr. Barrington for a few days, since I should think you might examine the western shores together, with advantage. Mr. Hart is working hard at the Reeks, and I believe has made a good list, but I do not think he has found any plant new to

Ireland. Have you seen or heard anything of Mr. Corry lately? If he has the time to spare I think he should apply for a grant to examine Ben Bulbin next year. . . . A new (8th) edition of Babington's Manual has just come out.

Such letters give glimpses of his method of pushing botanical exploration, as from a hidden centre of energy, which too often was his sick-room. The new year found him still only convalescent. "It must have been very grievous to you to be laid aside again when in full and useful work," Professor Babington wrote (Dec. 28th, 1880); "may it please God in his mercy soon to restore you to your former health." A severe attack of bronchitis in February further threw back his progress, and change of air was necessary. He went (Feb. 15th) to Malvern, and afterwards to Bournemouth. Museum business taking him on to London, he had the pleasure, on March 14th, of visiting his old Rugby master, Archbishop Tait, in Lambeth Palace; and a few days were very happily spent with Mr. and Mrs. Babington at Cambridge. His recovery, however, was only partial. The specimens of the Lesser Horse-shoe Bat in the Dublin Museum were probably obtained while on sick-leave, towards the end of April, at Coole Park, near Castle Taylor. The same illness led to his being shown (as described in the "Journal of Botany," vol. xx., p. 8) a quite unexpected new station in Kerry for the remarkable "Canadian grass" (*Sisyrinchium*), whose status in its sole previously known Irish locality, at Woodford, had so long exercised his mind. Such occasional treats in field-natural-history poorly compensated him for the interruption of more serious work; but by the beginning of May he found himself stronger, and the remainder of the year's record was unbroken by any return of illness. In July, with his sister, he visited Llandudno. They went to have another look at Cotoneaster, on the Orme's Head. But the coast was not quite clear. Some boys seemed to be watching; and fearful of betraying the favourite rarity, he hesitated whether he might venture near enough even to see that it survived. Not far from the exact site grew some spikes of the rather rare orchid, *Epipactis ovalis*, which was now in flower. "Let us gather these," he

proposed, and while seemingly intent upon orchid-picking, contrived to straggle near enough for a stolen peep at the real prize. At all events, it was not utterly gone.

On leaving Llandudno he spent a month (July 13th—August 13th) at Malvern, and had been back in Dublin for about six weeks when a sudden but not altogether unexpected crisis occurred at the Museum.

Dr. Carte died on the 25th of September. During great part of the preceding year, rumours of his intention to resign the Curatorship had been widely circulated, so that the question who would succeed him had already been much thought over in many quarters. From the first it was thought among Mr. More's friends incredible that he could be passed over; but the appointment was not in the hands of naturalists, and he himself felt many misgivings during the two months which elapsed before the post was filled. To Professor Newton, whose exertions for him were indefatigable, he more than once expressed his anxiety about the result.

*October 11th.*

MY DEAR NEWTON,—Thank you most sincerely for your very kind testimonial and help. . . . I believe I have some pretty good interest, and the testimonials will be good enough. I have just got a strong one from Sir Victor Brooke. . . . Still so much depends upon what the *Department* of Science and Art may do, that I hope you will not cease to continue your kind efforts on my behalf, and believe me, yours very sincerely,

A. G. MORE.

(*October 27th*). I ought to have written sooner to thank you for your very kind exertions. You have indeed proved yourself a true and faithful friend, and your letter gave me much encouragement, and I am sure your recommendation will carry due weight. My friends here assure me that my chance is a very good one. Still I wish the matter was decided, as this is rather an anxious time for me while waiting. . . . It is very good of you to stand up for me so entirely, and whether I succeed or not you may be sure that I shall not forget all you have done. . . . I quite agree with you that —— is a really good man, but whereas he can afford to wait a little while, this is my last chance. . . . I was very glad to see a fresh number of the "Yarrell." You will surely have to call it "Newton *founded upon* Yarrell," when you come to print the title-page.

On November 22nd, his anxiety was ended :—

MY DEAR NEWTON,—I am delighted to tell you I have just received notice of my appointment as Curator here, and I lose no time in returning you my most sincere and hearty thanks for the great help which you have given me.—Yours very sincerely,

A. G. MORE.

And to Professor Babington he wrote a few days later :—

*November 26th.*

DEAR BABINGTON,—I am sure that you and Mrs. Babington will be very glad to hear of my success in the matter of the Curatorship. I received my appointment a few days since, and I wish to thank you most sincerely and gratefully for your kind help. Newton's undivided support was a tower of strength, and I hope if you see him you will tell him how very much indebted I feel to him for acting in a so thoroughly friendly way. How curious that, of the two things I most wished last spring, one that seemed hopeful turned out all wrong, while my present luck was more than I could quite venture to expect. *Laus Deo.*—With kindest remembrances, and I often think over how good you and Mrs. Babington were to me, your sincere and affectionate friend,

A. G. MORE.

Testimonials in promotion of his candidature had been given him by naturalists of every section, the ornithologists being naturally very strongly represented. From the variety of points of view from which they are written, they compose a series of sketches of which none can here be omitted.

Lord Powerscourt wrote :—

Mr. A. G. More has been assistant to the late Dr. Carte in the Natural History Museum for many years, and has, I believe, had the arrangement and classification of the specimens under his care. The arrangements in the Museum testify to his capability and knowledge of the subjects of which he has had the charge, and seem, as far as one can judge, to point to him as an able successor to the post vacated by the lamented death of Dr. Carte.

Dr. W. E. Steele, the Director of the Science and Art Museum, wrote :—

I have much pleasure in bearing testimony to the admirable manner in which, during a period of fifteen years, Mr. A. G. More has dis-



charged the duties of Assistant in the Natural History Museum. From his knowledge of the collections and his experience as a naturalist, I am satisfied that, if promoted to the post of Curator, vacant by the death of Dr. Carte, he would continue to discharge his duties in a perfectly satisfactory manner.

Dr. Albert Günther wrote:—

MY DEAR MR. MORE,—Although I am prevented by the etiquette of the service from giving you a formal testimonial, I consider it but due to our long friendly scientific intercourse that I should send you a few lines to encourage you to become a candidate for the post which has become vacant through the death of Dr. Carte. Whoever has been in contact with your establishment knows that you have been not merely his assistant, but his right-hand man; and your long experience in the administration and management of the Museum, especially with reference to the Fauna of Ireland, gives you a claim which cannot be readily set aside. I do not think that those on whom the appointment rests will need outside testimony; but if I should be applied to, you may be sure that I shall not fail to testify to your general qualifications, and to the high esteem in which I have always held you.

Dr. P. L. Sclater (8th March, 1881) wrote:—

DEAR DR. MORE,—Hearing that there is some probability of Dr. Carte resigning the office of Curator of the Natural History Department in the Museum of Science and Art at Dublin, I write to express a hope that if such an event takes place you will be selected by the Government as his successor. It is quite certain that as you have now acted as Dr. Carte's assistant for fifteen years, I believe, no one can be better conversant with the duties of the office. On the other grounds also—that is, I mean, from your well-known acquaintance with various branches of zoology and botany—I consider you perfectly qualified for the post, and I trust you may succeed in obtaining it.

Professor Alexander Macalister, of Dublin University, wrote:—

MY DEAR MORE,—Understanding that you are a candidate for the Curatorship of the Natural History Department of the National Museum, I hasten to express my sincere hope that you may be successful. Having known your work in connexion with the Museum for fifteen years, I can speak with confidence as to the ability you have shown in the management and arrangement of the collection which has, I know, been practically in your hands for the last few years, owing to the infirm health of Dr. Carte.

In the department with which I am best acquainted, that of Comparative Anatomy, I know that you have an extensive and practical

acquaintance with the kind of detail required for such a Museum, while in general zoology you have proved your knowledge by the correctness with which you have made identifications of the many species submitted to you. I cannot pass over the mention of another point, viz., the great encouragement which you have always given to our younger naturalists in their studies. I believe it is not too much to say, that of all the practical work which has been done within the last few years in connexion with our Irish Fauna you have been the counsellor and guide to the workers. I therefore on these grounds consider that your appointment would be the most conducive to the best interests of the Museum, and would be hailed with great pleasure by all Irish naturalists.

Professor J. Emerson Reynolds, of Dublin University, wrote :—

I have had the pleasure of knowing Mr. A. G. More for some fifteen years. During part of that time I was officially connected with the Natural History Museum in Kildare-street, Dublin, and therefore had ample opportunities of observing his work as the late Dr. Carte's principal assistant. Mr. More is an excellent officer, thoroughly conversant with all the details of the Museum work, which latterly devolved almost entirely upon him owing to Dr. Carte's failing health. I have no doubt that Mr. More's appointment to the Curatorship of the Museum would not only be generally approved and regarded as fair promotion to an able officer, but would also greatly conduce to the steady development of the Natural History Museum in public utility.

Dr. R. H. Traquair, Keeper of the Natural History Collection in Edinburgh Museum, wrote :—

Mr. A. G. More, first known to science as an accomplished botanist, and, along with the late Dr. Moore, joint author of the well-known "*Cybele Hibernica*," has been for fifteen years senior assistant in the Natural History Department of the Dublin Museum. His long experience of Museum work, and his intimate knowledge of various branches of Zoology, especially Ornithology, and the Marine Fauna of the British and Irish coasts, give him strong claims to the Curatorship of the Natural History collection in that Museum, vacant by the death of Dr. Carte.

The Rev. H. Maxwell Close, Treasurer of the Royal Irish Academy, wrote :—

MY DEAR SIR,—Understanding that you are a candidate for the Curatorship of the Museum of Natural History in Dublin, in the room of our late lamented friend, Dr. Carte, I have much pleasure in declaring my belief, after being acquainted with you ever since you

came to Dublin, that you are, both personally and from your acquirements, eminently suited to fill the above office, with the duties of which you are already familiar. I have much pleasure in testifying to your general knowledge of Natural History; and I would point out that your extensive acquaintance with the Fauna and Flora of Ireland should render you specially well qualified to carry out the objects of the Natural History Department in the Museum of Science and Art, Dublin—which I imagine to be not only the promotion of general instruction in Natural History, but the supplying of information to those requiring it for various particular purposes. I have often had occasion to apply to you for information respecting the Fauna and Flora of Ireland, and thankfully bear witness to the ability and to the cheerful readiness with which you have always afforded it to me.

Professor Newton wrote:—

Having been well acquainted for many years with Mr. A. G. More I have very great pleasure in bearing witness to the assiduity and conscientious accuracy with which during that time he has pursued the study of Natural History. Confining myself to that part of it in which alone I can pretend to speak with any authority, I am sure that in several branches of Zoology his labours have been of a very high value; and especially I must mention his series of papers on the "Distribution of Birds in Great Britain," published in the "Ibis" for 1865. Being then editor of that journal I know the excellent effect it produced on its readers, and I also know that the adoption and working out of the idea were entirely his own—the latter involving an enormous amount of details which were most successfully treated by him.

Mr. A. G. More's fitness for the post he is now seeking is perhaps best testified by the regard which I know from correspondence with many Irish Zoologists is entertained for him by them, and is founded on their experience of his zeal in promoting the study, and of his readiness to aid them in the prosecution of their researches. I have therefore little doubt that if he be promoted to direct the Museum in which he has so long been an assistant, his appointment will not only be regarded with favour by a majority of those that use it, but will contribute greatly to the advancement of the objects for which it was founded.

Professor Babington wrote:—

MY DEAR MORE,—I trust that you will be appointed to the Curatorship of the Natural History Museum at Dublin, which has just become vacant. I have had such good and long-continued opportunity of judging of your fitness for the post that I cannot suppose there can be any candidate with nearly equal claims to your own. If I had any acquaintance with those in whom the appointment rests I would gladly

press your claims by direct application; but, as such is not the case, I hope you will make all the use you can of this letter.

Canon Tristram wrote :—

Mr. A. G. More has long been known to me personally as an accomplished and indefatigable worker in the various branches of Natural History, and he has proved his capability and energy as assistant in the Department, to the Curatorship of which he now aspires. As a fellow-worker with Mr. More in these branches, I am glad of the opportunity of bearing testimony to his merit and ability, and I feel sure that, from the proofs he has already given, his appointment would be most fortunate for the success and advance of the Museum.

Professor King, of Queen's College, Galway, wrote :—

Having for the past forty years had under my charge some important Museums of Natural History, I feel that I ought to understand what is required of anyone holding the office which has become vacant in the Royal Dublin Society through the death of the late Dr. Carte.

It is on this account that I do not hesitate to come forward on the present occasion to express my highest opinion in favour of the qualifications and claims of Mr. A. G. More for the above office, inasmuch as they are not only based on his long services in the Natural History Department of the Society, but on the highly efficient way in which he has managed it, at the same time considerably advancing Irish Zoology and Botany by his writings, and courteously giving his best assistance to all strangers interested in the Natural History of Ireland. As such then, and from a long acquaintance with him, I consider Mr. A. G. More eminently qualified for the office he is now endeavouring to obtain.

Sir Victor Brooke wrote :—

MY DEAR MR. MORE,—I was very sorry to hear of Dr. Carte's death. It will be a matter of very great satisfaction to me and many others if you should be selected to fill the vacant place. Indeed, I know no one more capable of discharging the duties of Naturalist in the Museum than you. Intimately acquainted as you are well known to be with various branches of zoology, and zealous as you have always been in furthering the interests of the Museum, I believe naturalists will be most fortunate should your services be recognized as I think they deserve.

Professor Edward Hull wrote :—

MY DEAR SIR,—As you have informed me that you are a candidate for the office recently held by my lamented friend, the late Dr. Carte,

I cannot decline to offer you my good wishes for your success. I do not of course presume to offer an opinion upon your attainments as a zoologist (as a botanist of high merit you are better known to myself), but I cannot doubt that your long experience as assistant to Dr. Carte, and your intimate acquaintance with the methods of classification and arrangement of specimens adopted by him in the Museum, have given you advantages of which you have made good use, and that if appointed to the office of Curator you will worthily fulfil the duties connected with that office.

Professor A. G. Melville wrote :—

I have great pleasure in bearing testimony to the fitness of Mr. A. G. More for the post of Curator of the Natural History Museum in the National Museum of Dublin, rendered vacant by the death of my much lamented friend Dr. Carte. Mr. More has served loyally under Dr. Carte for fifteen years, and must be well acquainted with the tastes and pursuits of Irish naturalists, and the many gentlemen who resort to the Museum for study, or to see the latest acquisitions to the native Fauna.

That Mr. More is a most distinguished botanist, and has enriched the Irish Flora, is well known. Besides his general knowledge of zoology in its various branches, I can speak especially to his zeal for marine zoology, as I have the pleasure of seeing the results of his numerous dredging excursions in my province.

I sincerely trust that his long services in Dublin, his varied acquirements, and his zeal for imparting his stores of information, may be rewarded by the advance to the Curatorship.

Mr. Osbert Salvin wrote :—

MY DEAR MORE,—I shall indeed be glad to hear that you have been appointed to the post of Curator of the Museum of Natural History in Dublin, rendered vacant by the death of Dr. Carte. Though I have no personal acquaintance with the Museum itself, your industry and enthusiasm I do know, and they cannot fail to have been of such service to that institution as to entitle you to the recognition of them that you seek.

Mr. F. D. Godman wrote :—

MY DEAR MORE,—I have much pleasure in bearing testimony to your fitness in soliciting the appointment you are seeking—the Curatorship of the Natural History Museum of Dublin. I have now known you for upwards of thirty years, during which time you have been a steady worker at natural science, and have acquired a considerable knowledge in various departments of zoology as well as botany, which in my estimation renders you a suitable candidate for the post you seek, and I shall be very glad to hear that you are successful in obtaining it.

Dr. H. Woodward wrote :—

DEAR MR. MORE,—I willingly offer my testimony in your favour as to your thorough fitness for the post of Curator of the Natural History Department of the Science and Art Museum, Dublin.

Having last year made a most careful inspection of your Museum, I am able to speak from actual knowledge of the excellent way in which the work of exhibiting, arranging, and labelling the objects under your care has been carried out.

From long acquaintance with my old and esteemed friend Dr. Carte, deceased, the late director of your Museum, I am fully aware of the large share of work which for many years has devolved upon you, and how well the task has been fulfilled. Dr. Carte frequently spoke of you to me, and always in the highest terms.

I shall learn with the very highest satisfaction of your appointment, and I am sure the feeling will be general that you have by your past services earned honestly the post for which you are now a candidate.

Mr. R. Bowdler Sharpe wrote :—

MY DEAR MORE,—I am very glad to hear that you are a candidate for the post of Curator of the Natural History Museum in Dublin, and I have much pleasure in sending you these few lines to testify to my high appreciation of your writings as an ornithologist. It is only to be regretted that your other duties have prevented you from writing more papers on ornithology, as those which you have published have been of a high order. I have also been much struck with the progress which your collection of birds has made at Dublin during the last few years, and I know that this has been greatly due to the interest you have taken in the Museum.

Mr. J. E. Harting wrote :—

I have known Mr. A. G. More, of Dublin, for nearly twenty years, during which time I have had frequent opportunities, through correspondence and personal interviews, of noting his abilities as a zoologist. With regard to his publications, and more especially to his papers on ornithology, I cannot speak too highly. No one can peruse them without feeling that Mr. More has made himself thoroughly conversant with the subjects on which he has written, while his papers are always characterized by their accuracy of details, showing the conscientious way in which his researches are carried out. From what I know of his qualifications as a practical and practised naturalist, I am sure that if elected to the post of Curator to the Natural History Museum in Dublin Mr. A. G. More would be the right man in the right place.

Mr. H. E. Dresser wrote:—

DEAR MORE,—I am very sorry to hear of Dr. Carte's death, for though I never knew him personally I heard so much of him that I almost seem to have done so.

I am delighted to hear that you are going to offer yourself as a candidate for the post of Curator to the Natural History Museum now vacant by his death, and sincerely trust that you will obtain it, for I know of none more fitted for it than yourself. I have now known you ever since you were appointed Dr. Carte's assistant, nearly fifteen years ago, and can well testify to the zeal and industry with which you have worked at the various branches of zoology, and can of course speak best of you as an ornithologist, knowing you to be a most painstaking and careful worker in that branch.

I am sure that most of our leading zoologists will gladly send you good testimonials, and I feel sure that these must weigh in your favour with the Department of Science and Art.

Mr. William Frazer, F.R.C.S.I., wrote:—

Mr. A. G. More has been a most efficient and valuable officer in our Natural History Museum, and by his long services as Assistant Curator, and his knowledge of the different branches of this extensive department, is highly qualified to succeed Dr. Carte as Curator. His work on the Irish Flora is the best and most reliable book on Irish plants. He has an extensive acquaintance with all our Fauna, and the present state of the collection displayed in the Museum is chiefly due to his labour. I have, from my connexion with committees of management of the Dublin Society, been able to judge of Mr. More's work and of his ability, and would consider the Museum most fortunate if placed under his direction.

## CHAPTER XLI.

## FIRST YEAR AS CURATOR.

[1882.]

“THE place is beginning to feel pleasant, but the cares and plans for the future are a little heavy just at first,” he says, writing to Professor Newton, a month after his appointment to the Curatorship. “I don’t at all intend to die, or retire, for a long time yet. Not until you shall see what a Museum I will make it.” This was reckoning without his enemy; but it was from no lack of enthusiasm that the fulfilment fell short of the hope. “We are going in for an entire reorganization of our native birds,” he writes in another letter (Dec. 2, 1881); and the height of his ambition was to make the National Collection thoroughly representative of every branch of the Fauna of Ireland.

The value to Zoology of such an institution for “focusing” a fauna, in a country like Ireland, where so many rarities are pigeon-holed far apart in private collections, can never be estimated without some knowledge of the unending perplexities and doubts which attend the tracing and authenticating of the numerous isolated specimens. This source of confusion prevails, of course, chiefly in Ornithology. “I believe it might be a good plan to make a list of the *existing specimens* of the specially rare Irish birds,” he had once before (August, 1880) written to Mr. Newton, who had consulted him as to the two Belted Kingfishers killed in 1845 in Ireland. Of these, one was in the Kildare-street Museum, and the other in that of Trinity College. They were both “right and safe”; but it proved a different matter when, in the spirit of his idea about cataloguing existing specimens, he set about endeavouring to verify the rarities in scattered private



collections. Among his earliest experiments in this direction were those with the two scarcer Crakes—the Little and Baillon's Crakes. Of neither of these birds was there an Irish specimen in any of the principal Museums. The Little Crake's claim to inclusion in the Irish fauna rested on three specimens, all preserved in separate collections. Of these, *one* proved on inquiry to be a true Little Crake; another turned out to be only a Spotted Crake, and the third, when received for examination, was found to be a Baillon's Crake. Baillon's Crake had itself previously been twice reported, and both the specimens were, like all the so-called "Little Crakes," in different private collections. Following the trail of the Baillons he was allowed to examine both, and one (it had been already recorded by Thompson) proved right, while the other turned out to be a Spotted Crake.

The Crakes, at any rate, were settled in process of time. It was otherwise with their kinsmen the "Porphyrios"—particularly that mysterious bird which, long ago "found dead in a ditch near Brandon," had ever since reposed in state in a private collection in Kerry. This he never found an opportunity of examining. It has been variously named. Since its first possessor (or at least the first possessor of its corpse) recorded it as *Porphyrio hyacinthinus* (Purple-backed Porphyrio), Mr. W. Andrews, who had seen it, assured Thompson that it was *Ionornis martinica* (*Martinico Gallinule*); and Lord Ventry, who had also seen it, told Mr. More that it seemed identical with a specimen in his (Lord Ventry's) collection, which latter proved to be certainly *Porphyrio smaragnotus* (Green-backed Porphyrio): the bird having thus already three names to its credit, and still awaiting a definite identification.

In the latter half of 1881, he recorded two birds new to the Irish Fauna, or at least not previously included with any certainty: the Iceland Falcon (*Hierofalco islandus*) and the Sooty Shearwater (*Puffinus griseus*). Both were from private collections, the Shearwater having been killed a number of years ago off the coast of Kerry, and the Falcon (of which he obtained a loan for the Museum) shot in 1879 in Mayo. Both were what might be called "critical

species," not unlikely to have occurred at intervals and been confounded, the one with the Great Shearwater (*Puffinus major*), and the other with the Greenland Falcon (*Hierofalco candicans*). Their almost simultaneous addition to the Irish List, under circumstances so similar, was another symptom of the great uncertainty which still reigned in the most popular branch of Irish Natural History.

The "cares and plans for the future" were therefore complex enough; and at this time an article in the "Zoologist," by its Editor (Mr. Harting), drew special attention to the want of "a good modern comprehensive work on the fauna of Ireland." Taking his ground on the hardly deniable proposition that "the standard work of Thompson, published a quarter of a century ago, now stands in need of revision," Mr. Harting urged that the British Association should deal with the matter, and appoint a "committee of specialists," who in three years were "to collect and arrange materials for a practically exhaustive work on Irish Zoology." This article (published Dec. 1881) evidently in part suggested the letter to which the following is a reply:—

SC. & ART MUSEUM, *December 9, 1881.*

DEAR MR. USSHER,—I have read your letter with much interest, and quite agree with you that it is very desirable to try and do something to collect the scattered items relating to the Nat. Hist. of Ireland, but I fear that the plan which you suggest is too comprehensive, and would be difficult to work. Thompson did all his work single-handed, having large means for travelling, and so of conversing with his many correspondents. But his great advantage was that he was so placed as to manage everything himself and keep the management altogether in his own hands. My experience of committees is that there is a deal of talk and little done, and if one member is especially zealous he is sure to be thwarted by some of the others. So that I am afraid any association for exploring the Irish *Fauna* would only end, like the two Nat. Hist. Societies in Dublin have done, in premature dissolution.

I do think that much might be done if local observers, in their own districts, would collect facts and observations, and specimens, and publish their results, from time to time, in the Proceedings of Dublin Society, or in the R. Irish Academy, or in the "Zoologist." In this way the materials would be gathering for a future Fauna. And I most

sincerely hope that you will go on with the Birds and Fishes of your own county, and I need scarcely say how glad I should be if I could be of the least use in helping you to identify specimens. I hope, now that I am appointed Curator, to make Irish Natural History a chief object in this Museum; and I should rejoice to find many more like yourself, diligent field-workers at the subject.

We have not neglected the Light-houses. We have schedules issued since August through the Board of Irish Lights. The Academy have given grants for Botany and Dredging, and Cave-exploration. Another of my friends\* has just applied to be authorized to work out the Entomology of Ulster. You are working in the South, and I hope will soon have something to print. So I believe it will be best to leave each individual to choose his own line, and make his own observations in the district with which he is most familiar. Is not this the surest as it seems the easiest way?

A feeling as though his work for Irish Natural History was still only beginning is as discernible here as in the sanguine tone of his letters to Mr. Newton; but hopefully as the new year opened, it was quickly overcast. On Thursday, January 12th, 1882, he left Glasnevin, where he had lived since the time of first settling in Dublin, to take up his abode in Leinster-road, Rathmines. On Friday, the 13th, he was laid up in bed. This was only a premonitory attack, and was repeated on the 20th. His complaint returned in full violence on the 11th of February, his father's 85th birthday. Ten days in bed, four on a sofa, a fortnight's convalescence indoors, and then a fresh outbreak almost immediately after his return to the Museum kept him an almost continual sufferer to the end of April, when a visit on sick leave to Malvern partly restored him. He returned to Dublin on the 13th of May. In a letter to Mr. Griffith (June 15th) he writes:—"I am sorry to say that I have been in very poor health ever since the early spring, when I had again an abscess in my leg which laid me up for a long time, and I cannot now do more than quite a short walk." This was written only four days before another attack prostrated him afresh. At the beginning of August he went for medical advice to London, returned to Dublin on the 12th, and for the rest of the year was spared renewals of actual illness, but it was now easily seen

\* Mr. W. F. de V. Kane.

that for some time only a most limited sphere of usefulness would be open to him.

His correspondence was rather slack, but the exploration of Irish Botany was going on, and "bulletins" from time to time dropped in with news of the latest success in this or that district. Some of the most interesting letters received during this botanical season were those of Mr. T. H. Corry, with whom he had become acquainted about the beginning of the previous year. In accordance with his suggestion, Mr. Corry had applied for (and obtained) a Royal Irish Academy grant to explore the flora of the Ben Bulben range in county Sligo, and part of the summer of 1882 was devoted to that district, which has since been sadly associated with the young explorer's memory. Before setting out, Mr. Corry wrote from Cambridge (12th June, 1882) on some of the points which he hoped to investigate:—

MY DEAR MORE,—I should have replied to your last letter long since, but since I received it I have had nothing but continual pressure of University work; but now that is over for the present, and I have a little time. Pray excuse my long silence, which was unavoidable. . . . I start for Ben Bulben on the 20th, so would like to know, by return, whether you can give me any further or more exact information about the following plants:—

*Saxifraga nivalis*, in Dickie put down as "moist cliffs on Ben Bulben, about 1800 feet": Mr. J. Wynne quoted in the "Cybele." Dr. Moore, in his report on the Hepaticæ, says "on high rocks between the heads of Glenade and Gleniff." Which locality is nearest the place? Do you know if Dr. Moore ever found it himself, or can you direct me more precisely? *Arabis petræa*: "On Glenade mountain adjoining Ben Bulben," Mr. J. Wynne. Dr. Moore gives the same station for this as I have quoted above for *S. nivalis*. Did he find this plant also, and is the direction I have the most precise? *Alchemilla alpina*: You once told me in a letter that "of late years *A. conjuncta* only has been seen, growing in suspicious localities at the foot of Ben Bulben." *A. conjuncta* has never been published from there, and Babington thinks it a very likely place for it to be introduced. Can you tell me where I am likely to find *A. conjuncta* there? as the question whether the species is *alpina* or *conjuncta* ought to be set at rest.

I intend spending a fortnight on the range, and will pay special attention as directed to the exact upper limits of low plants and lower limits of alpenes; also to *Saxifrages*, *Salices*, and *Hieracia*. I will have two friends with me, both fairly sharp in keeping their eyes open

for plants, so we should not miss much. I shall also go next season, I think, as well. I hope your health has much improved since the spring. Stewart is getting on fairly with Rathlin, from what I hear. I am glad to hear that you are meditating a second edition of the "Cybele," as it will be a splendid thing for us all. Professor Babington has given me the post of Assistant Curator in the Herbarium here lately. . . . Pardon me for bothering you with questions just now, but I wish to make my visit as profitable botanically as possible.

In a later letter (of September 11th) Mr. Corry wrote him an account of this first year's exploration of Ben Bulbin, the full report of which he did not live to make. On such explorers Mr. More was now entirely dependent for his materials for the contemplated new Cybele, but such was the confidence universally felt in his critical sagacity that to further this work to the utmost was among the highest ambitions of all Irish botanists. All thought they were receiving more help than they gave. And undoubtedly it was largely due to him that very few actual errors found their way into reports or papers on Irish botany for a period of over twenty years. He almost invariably saw either the draft or the proof, and on the least suspicion of an erroneous identification would beg to be shown a specimen of the plant before it appeared in print. "Far better sacrifice your best species than print what may be a blunder," was his constant advice, and many a plant has been erased on the strength of it.

Debarred from field-work, he nevertheless made a discovery this year, which enriched Irish zoology with a new species of Shark. Walking through William-street on the 25th of September (the anniversary of Dr. Carte's death), he saw in a fishmonger's shop an unusual-looking delicacy exposed for sale, which on inspection proved to be a specimen of the Spinous Shark (*Echinorhinus spinosus*). It had been captured off Skerries, to the north of Dublin. This shark had never before, so far as was known, been taken in Irish waters, nor was it again met with till, in June, 1885, a specimen turned up on the West coast, and caused considerable commotion among the inhabitants of Galway. The following account, headed "A Sea Monster,"

appeared in the "Daily Express" of Monday, June 29th, 1885:—

GALWAY, *Saturday.*

An extraordinary kind of fish was captured yesterday outside Hag's Head, in Galway Bay, by some Claddagh fishermen who were looking for gurnard. They were compelled to use the halyards to hoist it on board. Being unacquainted with the species, they brought it ashore, where it was visited by thousands of persons. Nobody could form any idea to what family the fish belonged: its like was never before seen on this coast. It is about  $9\frac{1}{2}$  feet long, about 5 feet in girth, and weighs close on 3 cwt. The mouth is like that of a shark, the upper jaw protruding about six inches beyond the lower. In addition to this a long pig-shaped snout extends from the upper jaw about eight inches. The eyes are large, and resemble those of a cow. There are five rows of gills on each side, divided by a layer of grizzly flesh. There are two rows of teeth, one in each jaw. Each tooth is about two inches long, and as thin as a wafer, each tooth lapping over its neighbour. The skin is of a silvery colour, and underneath it is a number of spots known as "buttons." These diminish in size as they near the tail. The tail is fan-shaped; there is no dorsal fin; the buttons are half an inch in diameter at the head, and in the centre of each is a thorn a quarter of an inch long, as sharp as a needle. The same fishermen caught another fish about five feet longer, but it escaped.

"The sea-monster mentioned in this day's 'Express' is a sturgeon: your correspondent's description of the fish is very accurate" remarked a correspondent in the following day's paper. The head and tail of the "monster" were, however, secured for the Museum, and thus verified the second occurrence in Irish waters of the Spinous Shark.

## CHAPTER XLII.

## STIMULATING EXPLORATION.

[1883.]

“I THINK you should be settling about some fresh district to be explored this season, and make your application to the Academy soon,” runs his first preserved letter (dated January 20th) of 1883. It is addressed to Mr. Stewart, who was now, in conjunction with Mr. Corry, planning a work on the Flora of the North-east part of Ulster, and to whom he again writes on February 8th:—

Thank you for the newspaper, and I was much interested in your account of Rathlin. In your report to the R.I.A. you had better repeat something of the kind as an introduction, to make your report less dry. And now about the coming season. To help your intended Flora of Ulster, I think you should do some of the less-known ground in Ulster, and I cannot think of any more likely or less investigated ground than Cavan. I have been in Achill, and I can tell you it has hardly a rare plant. I only recollect *Eriocaulon* and *Erica mediterranea*. Also H. C. Hart has been there and found very little. Erris in Belmullet, the Mullet, and Binghamstown, and round the large lake Garrowmore is a promising district, and you can easily find quarters. If you prefer to leave your own ground, I should say take either Belmullet and Erris, including the Mullet; or the North of Limerick, bordering on the Shannon and its coast, together with the North bit of Kerry down to Tralee. Of this we know scarcely anything, and it would be interesting to find the north limit of the Kerry plants. Either of these two districts, viz. :—

N. Limerick and N. Kerry,

or

Erris and Belmullet,

would be well worth attention; and I know you will not forget the *Potamogetons*. I think I saw *Artemisia maritima* and *Althæa officinalis* near Foynes, from the railway carriage; and if you want a change to southern botany Foynes is the place to start from. . . . Look again carefully at the *Pimpinella*. There is a form of *P. saxifraga* very deceptive, and so like to *magna* it has taken in many botanists. Better write *soon* and put in your application to R.I.A.

Mr. Stewart ultimately pitched on Lough Allen for 1883. Most of the correspondence between him and Mr. More, later in the year, relates to another matter, but a few letters continuing some of the foregoing topics are given here. The original record of *Eriocaulon septangulare* in Rathlin Island, which Mr. Stewart now reported to be erroneous, had in 1866 been considered by the authors of the "Cybele Hibernica" "particularly interesting as connecting the Irish with the Scottish localities."

(October 6th, 1883.) I should not feel any hesitation in referring your specimen to *Pimpinella saxifraga*. It is most variable in the amount of cutting of the leaves, and I have gathered plants quite like yours near Wicklow. Thank you for the short notice of your trip to Rathlin. I hope that you will have your full report ready for an early meeting of the Academy. Please note that it was Barrington who lately visited Tory Island. Hart did both Isles of Aran, and recently Lambay Island, close to Dublin. I shall be curious to hear how you explain the mistake about *Eriocaulon* in Rathlin. What other plant could be mistaken for it?

(November 22nd, 1883.) Your letter and the MS. of your Paper on Rathlin have safely arrived, and I do not find much to remark, except that in your appendix you should, I think, give *in every case* the authority for each plant, and I should put it in this way:—

(In Dr. Marshall's list)  
(Church Bay: Flor. Ulst.)  
(In Miss Gage's list)  
Etc. etc.

giving any special locality in which the plant has been published as growing, as well as the authority, clearly. I accordingly return the last two pages, so that, if you agree with me, you may insert the few words necessary, which I think will not take you very long. *E.g.*, in the case of *Trifolium arvense*, you should say whether it is Templeton in Flora of Ulster, or Templeton in Flor. Hib. or Templeton M.S. And in case of *Elatine hexandra* it would be desirable to know the authority, and also the special locality, *if given*. And I believe it would be better to explain more about *Eriocaulon*: who recorded it, and your conjecture that it was *Eleocharis* — ? misprint or ? error.

*Lolium temulentum*: it does not appear whether you exclude it as non-occurring or as being only a casual in Rathlin. Is it? Please return the two pages as soon as you can.

(November 23rd, 1883.) Your letter of to-day about *Ulex*. You have put Templeton's remark under the right species, viz. *U. europæus*. But I have inserted the exact words. I have also ventured, with your



sanction, to alter and shorten a few sentences, as I fear the report is rather a long one to print in full.

Please to tell me what is the proper title and reference to Dr. Marshall's paper on Rathlin, for it is not in the Royal Irish Academy, and the short abstract in British Association Report for 1835 contains no plants. . . . So please say where you read it? Another request I have to make is for one page or so of *analysis* of the Rathlin Flora. You have given no summary, such as we always have been accustomed to, and which would give a finish to your preface. So I want you to let me have just a short account of the

Scottish Type—English Type—Atlantic Type—

and otherwise most remarkable plants of Rathlin, of which I suppose the best (*Eriocaulon*) is now to be struck off. A list of all the species belonging to each type, and the mention of any *rarissimæ* is very much wanted, and will, I hope, not give you too much trouble. But please let me have this page, and the other alterations and additions to your appendix, in time for the December meeting of R.I.A.

“What of the hare in Rathlin?” asks the postscript to another letter: the absence of the frog from that outlying fragment of Ireland lending an additional interest to its limited fauna.

But a remoter island which one of his friends visited this summer possessed a fauna whose interest was of no negative kind. Mr. Barrington, in June, made an expedition to explore St. Kilda's, and had explicit instructions from Mr. More to secure and bring back with him a specimen of its Wren. The St. Kilda's Wren, as a “species,” was still unknown to science; but Professor Newton and Mr. More had long entertained the suspicion that the Wren which as early as 1698 had been noticed there might resemble the Faröese form (*Troglodytes borealis*) rather than the common Wren of Britain. Thus Mr. Barrington's expedition was partly botanical, partly ornithological. Its success, however, was confined to the former field. He got 120 species of plants, but no Wren: though (as he afterwards mentioned in the “Zoologist”) “my anxiety to procure one could not be disguised, and, as I passed the houses daily, ‘Dra-an-dhoun,’ the St. Kilda name for the Wren, was frequently heard in the remarks of the natives, who I began to fear had given me that nickname.” This last suspicion was fully confirmed a few years later, when Professor Newton and a party of naturalists, visiting St.

Kilda's, found Mr. Barrington remembered by all the natives by his sobriquet of "the Wren-man."

Mr. Barrington's failure to procure a Wren at St. Kilda's was of little ultimate consequence, at any rate, to the poor bird itself. It was only a year later that Mr. Charles Dixon obtained it, with results which are now but too widely known. "A new species of Wren"—*Troglodytes hirtensis*—believed to be quite peculiar to St. Kilda's, was announced by Mr. Seebohm in the "Zoologist" for August, 1884. There was certainly some inaccuracy in the assertion made not long after by Mr. Dixon, that "although this little Wren was known by Martin nearly 200 years ago, neither he *nor any subsequent naturalist had the least idea* that the bird was different from the Wren inhabiting the rest of the United Kingdom." Still Messrs. Seebohm and Dixon were undeniably the first discoverers of the actual fact of its distinctness—whether specific or varietal matters little now. And then came the dénouement, most briefly and simply told by Mr. W. H. Hudson, in a pamphlet issued by the Society for the Protection of Birds. "No sooner had the news gone abroad that 'lone St. Kilda's isle' possessed one little song-bird of her own—a Wren that differed somewhat from the familiar Wren—than it was invaded by the noble army of collectors, who did not mind its loneliness and distance from the mainland so long as they secured something for their cabinets: and the result of their invasion is that the St. Kilda Wren no longer exists."

It would perhaps have been too inappropriate had "Hesperus" been implicated, however undesignedly, in the death-warrant of St. Kilda's one peculiar bird.

Meanwhile, much better in health than last year, he could enjoy a little botanizing—though without the concomitant of bird-hunting—on his own score, and would sometimes, at the end of the week, cross over to Holyhead and spend a day scrambling on the slopes of its mountain, looking after *Helianthemum breweri*, or exploring the range of the "Cineraria." On the 1st of July he had the satisfaction of finding the latter plant in a number of stations, and, as he told Mr. Babington, "fairly safe from

exterminators." It was the summer of the Fisheries Exhibition, to which he went (July 9th to 23rd) on behalf of the Museum. In London he met some of his oldest botanical friends, including Mr. Newbould, and made acquaintance with a few new ones, of whom one was afterwards among his most valued correspondents—Mr. Arthur Bennett.

He called on Mr. Bennett at Croydon, on Friday, the 20th of July. "You may like to hear of our first meeting," writes Mr. Bennett to Miss More, referring to this occasion. "One evening (it was the year we found *Naias marina* in Norfolk) one of my daughters and myself were just getting ready to go off by the night mail to Norfolk, and I was told a gentleman wished to speak to me. He shook hands, and said:—'Oh, I am A. G. More, from Dublin, and Nicholson of Kew\* said that was all I need say.' Well, he came in and had a chat, and we went off to London together, had tea at the Liverpool-street Station, and he saw us into the train. I said to him:—'Come with us, Mr. More.' He replied:—'I will, if you will engage to find a new British plant.' I said:—'I believe we shall, for I have long thought one would occur in Norfolk, in *Naias marina*.' Strange to say, the next day my daughter did find it, in Heigham Sound, close to Hickling Broad. Directly we got home I sent a specimen off to Mr. More, and wrote:—'Ah, you ought to have come, for here is the new British plant.'"

He visited Mr. Bennett again that winter. Mr. Bennett, in the letter quoted, adds:—"My daughters all remember his visit with pleasure, he was so bright, so witty, and named some of them *Naias minor* and *major*, having their father's hobby of aquatics. I always read his letters to them, and they all felt so sorry for his long illness and suffering. . . . Certainly, he has been much missed in this house."

Taking his holiday at the beginning of August, he proposed to go botanizing with his sister in South Wales, the principal ambition here being to re-discover the long-

\* Mr. More had been to Kew the day before (July 19).

lost *Cyperus longus*, once at least gathered (in 1773) at Whitesand Bay, near St. David's. An exact copy of the label attached to the British Museum specimen, and minutely describing the locality, was sent him by Mr. Britten; and he applied to both Mr. Newbould and Professor Babington for all available information as to this and another great rarity of St. David's—*Genista pilosa*. He narrowly missed having Professor Babington's company on this expedition. "We are going to South Wales next Thursday," Mr. Babington wrote, "and hope to be at Fishguard, on the north coast of Pembrokeshire, on Saturday evening (August 11) for the purpose of attending the Cambrian Archæological Association there during the following week; and then we go to visit the Dean at St. David's. I hope that it may suit you to be at one or other of these places, the former between August 13th and 17th, the latter between the 17th and the middle of the next week. We shall not have much time for Botany." The dates mentioned were, however, a few days too late to allow of a meeting at St. David's.

The search for *Cyperus longus* proved quite unavailing, but in other respects the botanical tour was successful even beyond expectation, *Genista pilosa* being only the second-best prize obtained. For this he had almost given up searching before it was found. The record said, "on the very western extremity of St. David's Head," but frequent examinations of this spot proved fruitless. There was indeed one bit of declivity on which, formerly a good climber, he could not now trust himself, and the thought that it might grow there tantalized him; but a gentleman staying at the same hotel good-naturedly made the descent, and brought up specimens of everything he could find, with the result that nothing rare was obtained. It was on the very last day of their stay at St. David's that, as the brother and sister were walking along the southern slope of the Head (about half-a-mile away from the "western extremity"), they had at last the pleasure of lighting on the *Genista*: "scattered for a hundred yards or two among the heather, close to where the Brake (*Pteris aquilina*) begins to vary the smoothness of the grassy hill." In-

accurate description of the spot had almost prevented the discovery.

But something else turned up on the headland which was quite unlooked for. Down in a small gully, near the old ruined fort, appeared a little plant, with flowers like Thrift, which on nearer inspection proved to be an Allium. "Come and see this onion," he heard his companion call, and hurried to the spot. "Oh, you *have* got a good thing!" he exclaimed on seeing it. The onion was *Allium sibiricum*. It had only one previously known British station, in Cornwall, and its discovery gave him the greatest delight: scarcely *much* tempered by the "suspicion" to which he confessed in the "Journal of Botany" (from the proximity of the old fort), that, as with *Allium babingtonii* in Ireland, we may here have a "relic of very ancient cultivation." This was the prize of the expedition; but both at St. David's and after leaving it, when Pembroke and a few other places were visited, the botany was on the whole highly gratifying, and the more so since opportunities for outdoor research had of late been so rare.

He was at St. David's when one of the most melancholy incidents recorded in the annals of Irish botany occurred—the drowning, in the waters of Lough Gill, during a sudden squall, of Thomas Hughes Corry, and his companion, Mr. C. Dickson. They had reached Sligo together on the evening of August 8th, intending to complete the previous year's exploration of Ben Bulbin, and were drowned about noon on the following day. It was a great shock to all the little circle of Irish botanists. Mr. Barrington, "thunderstruck by seeing Corry's death in the 'Irish Times,'" went at once to Sligo and learned all particulars, of which he wrote Mr. More a full account to Malvern. The news cast a gloom over the summer which had otherwise been so happily spent.

PEMBROKE, *August 20th.*

DEAR BARRINGTON,—I was exceedingly sorry to hear of the sad fatality which has happened to poor Corry. His is indeed a loss not to be replaced among the few who really care for Irish botany, and a most sad end of his career, when everything promised so well. It was very good and right of you to hurry to the spot.

. . . . I have been touring with my sister the last ten days. We went to St. David's, the remote S.W. promontory of S. Wales; but the rock scenery, though interesting, will not compare with the west coast of Ireland. We got two very scarce plants, *Allium sibiricum* and *Genista pilosa*; also *Aira uliginosa*, *Cicendia*, &c. I enclose you a bit of the *Genista*, though I daresay you will have left home by this, and I hope that you will be successful in your Shannon expedition. Better dry any uncommon-looking *Chara*. I expect to be back in Dublin early in September; so I hope you will write and say how you are getting on. There are some fine ruined castles hereabouts, and fine rocks and cliffs.

He was back in Dublin on the 1st of September, and was, for the concluding months of the year, even more than usually busy. His correspondence was incessant, much of it relating to Birds, but more, at this time, to Fishes. Dr. F. Day, Mr. J. D. Ogilby, and Dr. Gunther were his principal ichthyological correspondents. But on no subject was he more intent than upon the interests of Irish botany, and his concern lest any of the fruits of Mr. Corry's labours might be lost appears in his next letter to Mr. Stewart:—

*September 20th, 1883.*

MY DEAR SIR,—I was away in England when I received the sad news of the lamentable death of our friend Mr. Corry. His will indeed be a serious loss to the cause of botany in Ireland, and the object of my present letter is to ask you whether you can tell me about any notes or MS. which he may have left. If his observations made last year on Ben Bulben are sufficiently arranged, I think it would be very desirable to have them published by the Royal Irish Academy; and of course if I could be of any service in editing them, or in bringing them before the Academy, I should be most happy to do all I can.

Again, about the Flora of Derry and Antrim, which I remember you told me was to be ready this winter, and in which I think you were his partner. Has this advanced any considerable way towards completion, and are you in charge of part or all of the MS.? I do think that, in any case, an effort should be made to bring out this; . . . and I think that the publication of his labours would be a very proper tribute to his memory.

Mr. Stewart sent him the Ben Bulben notes, and a sample-sheet of the projected Flora. The former he worked into a Report which he read as Mr. Corry's to the Academy, on the 10th of December. "I have mentioned in the

preface (he tells Mr. Stewart) that he was preparing a Flora of N.E. Ireland." He thus hoped to assist the publication of the latter work, for which he was most anxious. All through November he had kept hammering at the subject.

(*November 5th, 1883.*) I shall be most interested to hear what arrangements you are making about your Flora. Have you materials to give the heights of the plants on Mourne, and also on the mountains of Antrim and Derry? That was a great omission in the Cork Flora.

(*November 12th.*) You will soon have to decide something about size and form. I should say take post 8vo (size of "Belfast Guide"). Latin and English name; . . . kind of place; rarity; time of flowering; three letters for three counties.

D = Down.

A = Antrim.

L = Londonderry.

Omit Donegal altogether. It is only imperfectly known, and should, I think, be left to Hart, who is working at it. Under the three letters the localities can easily be grouped, say from south to N.W. All the prominent or peculiar features can be given in an introduction. . . . A supplement for extinct plants, erroneous records, some notice of Templeton, Dickie, Moore, Tate, and Corry, with a list of separate papers on Ulster plants. This would, I think, be about what is required, and I should be glad to know how far it agrees with your view.

(*November 10th.*) I now enclose you a plan for your Flora, more fully drawn out, as I should like to see it done. . . . What I want you to do is to try and get the *size* and *plan* settled at once. . . . Of course you may depend upon my helping you all I can, and I am sure you will turn out a creditable and useful book. Please write and tell me whether a letter, strongly urging the publication, from me, would do any good. You can send, if you like, your Rathlin report to me; I can hand it to the secretary, being a member of council. And don't forget to look up, in good time, a fresh locality for this year's exploration. What say you to Cavan or Roscommon?

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SCIENCE AND ART MUSEUM,

*November 23rd, 1883.*

DEAR SIR,—Referring to the matter of your last letter, I hope that you will lose no time in bringing under the notice of the family and friends of the late Mr. Thomas H. Corry how desirable it is that some

use should be made of the materials which he had collected for a Flora of North-Eastern Ireland, which he told me it was his intention to publish; and I trust that means may yet be found to carry out this very proper design of his. And knowing that Mr. Corry had already prepared some portion of the manuscript, and that he proposed to join with you as partner in the undertaking, I cannot think of anything more appropriate as a memorial to the botanical talents of our late friend than that his wishes in this respect should be carried out. You are quite at liberty to show this letter, either to Mr. Corry or to anyone in Belfast who may wish to see the undertaking carried out; and I sincerely trust that you may soon be in a position to commence the necessary work for the purpose.—I remain, dear sir, yours very truly,

A. G. MORE,

(*Curator of the Natural History Museum, and, with the late Dr. Moore, Author of the "Cybele Hibernica."*)

He had soon the satisfaction of learning that the publication of the Flora was assured. At the same time he was bestirring himself about the Cybele, and when Museum business took him in December to London, gladly availed himself of Mr. Bennett's friendliness in agreeing to go through the critical Irish Potamogetons with him. His letter of Christmas greeting to Mr. Barrington says something of his hopes and plans for the book, and for the coming year:—

ELLESMERE LODGE, MALVERN,

*December 23rd, 1883.*

DEAR BARRINGTON,—I have got so far on my way to London. Had a very friendly letter from A. Bennett. I think I shall stay here and take a week's holiday before going to London. So please write to me here. I am rather glad that you did not bring ——'s and your own Potamogetons, as I think the two Herbaria of College and Glasnevin will be sufficient for one "meal." And I have left my own set behind. So that, if you like, we can wait until after I have seen Bennett, and then send our two lots together to him by parcel post.

What a dear, kind fellow you are to take all this trouble of going through the College Herb. for the "new Cybele," not "fresh from ocean," as Byron's was. But I hope, yet to come out before fifteen months are past.

Without your help I could not face the task, and I think your name should go on the title-page, as, *assisted by R. M. B.*; and then too you



have so many nice letters after your name that it will greatly glorify that page. You must not write back *nolo episcopari*, but just consent, as you usually do when you are asked to do a sensible thing.

Your application—"For a grant of £15 to yourself and Mr. R. P. Vowell, to complete the explor. of B. B. commenced by the late Thomas Hughes Corry"—should be in the hands of the secretary, R.I.A., before, say, 17th January. And, I hope you will go and talk to him about it. He thinks it an excellent idea.—With your affect. friend's best wishes for Christmas and the coming year, I subscribe myself thine,

A. G. M.

## CHAPTER XLIII.

## CORRESPONDENCE WITH MR. STEWART.

[1884.]

THE first week of the New Year he spent in London in a whirl of visits to museums and naturalists, some for the Dublin Museum, some for the Cybele, and some in the cause of the Irish Lighthouse observations, he and Mr. Barrington having been charged with that branch of the work of the British Association's Migration Committee. He was very anxious to secure plates of coloured illustrations, after Morris's British Birds, for issue to Lighthouse keepers, but this was found impossible. He saw Mr. Bennett, Mr. H. Groves, Mr. Newbould, Sir Joseph Hooker, Mr. Baker, Professor Newton, Mr. Dresser, Prof. Huxley, Mr. Seebohm, Mr. Harting, Dr. Sclater, Mr. Salvin, Mr. F. D. Godman, Mr. Howard Saunders, and Mr. J. T. Carrington. Hurried memoranda of books to be purchased, whereabouts of specimens and manuscripts, references, addresses, scraps of bibliography and antiquarian matter, naturalists' desiderata—"A Catalogue of Irish Plants," "A list of the Plants of Wales," "A Lighthouse Guide," "Catalogue of Irish Vertebrates," "ditto Fishes,"—and such miscellaneous reminders as "Leek at St. Davids (*Allium sibiricum*) to send to Prof. Westwood," "H. E. Dresser wants 'My Father's Sword'\*,", "To write to Sir J. Hooker about Irish distribution of *Hieracium gibsoni*, extended range of *H. tridentatum*, *Ophioglossum* var. *nanum*, *Campanula rotundifolia*, var. *speciosa*, from Boffin Island (*near arctica*; and cf. with *Scheuchzeria*)," &c. &c., crowd about 40 pages of his pocket note-book; and he probably overdid himself, for "Sick Certificate" is nearly the first memorandum entered after his return to Dublin.

\* Some verses by Mr. More, of which a few copies had been printed.

How he could have hoped to bring out the new *Cybele* in the ensuing 15 months is scarcely explicable. The entire reconstruction of the Kildare-street Museum was being planned; and the extra pressure of work in connexion with such a change must have added considerably to the difficulties of the undertaking, which in any case would not have been slight. But if his own botanical work did not make the progress he had anticipated, his interest in that of others was at its usual pitch of activity. A selection is here given from the series of letters written during this period to Mr. S. A. Stewart:—

SCIENCE AND ART MUSEUM, DUBLIN,

*May 14th, 1884.*

DEAR SIR,—I am afraid that I neglected to answer your last letter, which reached me just as I was laid up with a rather severe attack of illness. I should be glad to hear whether you are making any progress towards the publication of the proposed *Flora*. The last plan of which you sent me a sample will no doubt do well enough, . . . and there is no one better able than yourself to undertake it.

Another thing—the time is coming for making grants by the Royal Irish Academy, and I think you would do well to send in your application, say for £15, to examine any district in which you feel interested, or which you think specially requires examination. Mr. Barrington is going to Ben Bulbin with Mr. Vowell, who knows the ground already; and if you are thinking of making your application it should be done at once.

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*May 19th, 1884.*

DEAR SIR,—I was very glad to receive your letter. With regard to the district which you propose examining, Mr. Hart, only last autumn, made a list of the Brandon peninsula, so that that part must be given up. He was also on Croagh Patrick, Nephin, and Mweelrea the year before, and I do not think that the flat country and hilly moors would yield you much of consequence. There are a few lakes near the shore, not far from Louisburg, which I suppose you would make your headquarters.

There will be a meeting about the grants on next Monday, to-day week, so that if you will think it over and can select some other district, I think you would have a better chance of succeeding in your application. Is there no part of Ulster that still requires examination?

What about Cavan?

Or if you desire a more distant field of operations,—would you like the water and shores of Lough Corrib and Lough Mask? and Carra?

There are also the shores of the Shannon estuary below Limerick ; and southern Clare (Fergus River, &c.) requires to be overhauled ; also North Kerry. Meantime I will keep back your letter about the southern shores of Clew Bay, and can hand it in, if you do not change your mind.—Yours very truly,

A. G. MORE.

In the next letter (June 10th), he says :—“ I expect to be in Belfast, with my sister by an early train, and if we can find time, I hope to call upon you about 2 o'clock. Nothing has yet been done about the scientific grants.” This journey to Belfast, on Thursday, June 12th, was part of a ten days' tour which included also visits to Fair Head, the Giant's Causeway, Portrush, and that scene of his botanical explorations of thirty years ago, Loughgall. Here he arrived on the 19th. He had not been to Loughgall since 1854, except once in midwinter for a few days quail and woodcock shooting : and his first act now was to hasten down to the water-side and gather a quantity of the *Cladium mariscus*, which was growing, green and beautiful as ever, by the brink. His valued old friend, the Rev. George Robinson of Tartaraghan, had for a number of years been trying to convince him that he had made a mistake about this plant, and that no *Cladium* grew at Loughgall. So next day, when he went to visit Mr. Robinson, he took with him “ a good bunch,” for the vindication of his character.

On June 21st he returned to Dublin, but another short holiday expedition was taken at the end of the month to Llandudno (June 28th), Bangor (29th), Llanberis (30th), Aber (July 1st) and Menai (2nd). At the last-named spot *Rosa wilsoni* was sought, but without success.

DUBLIN, *July 10th, 1884.*

DEAR SIR,—Your application for £15 to explore Southern Clare and the Shannon estuary passed the two preliminary stages on Monday, and there is no doubt the grant will be confirmed by the Academy. . . . I had intended to write to you some time ago to tell you that I found *Crepis biennis* at Armagh, and also noticed what I have no doubt was the same plant, a little way west of Glenarm, and by the railway east of Dunadry station, going from Antrim towards Lisburn. Here are three localities for what I believe is a weed fast spreading and no doubt introduced with grass and other seeds. Have you ever met with it ?

There is plenty of *Cladium mariscus* along the edges of the Lough-gall Lake, and plenty of flower. It is most abundant just opposite a small copse on the manor side near the boundary wall of Drumilly. I had the satisfaction of taking a good bunch to convince our friend Mr. Robinson that there was no mistake.

I saw from the car, on the beach near Glenarm (east of it) what I took to be *Haloscias scoticum* growing in a good large clump. Do you know if it grows there? We saw *Geranium pratense* near Ballintay, but I do not remember any other rare plant worth mention. . . .

Barrington and Vowell ought to be on Ben Bulbin now, or perhaps they have finished ere this. I hope you will be able to arrange to go to Clare, and we left both sides of Shannon estuary open to you. It ought to be a good place.

*July 28th.*

DEAR SIR,—If you should be going along the Shannon estuary, please remember to look for the true *Ruppia maritima*, with the long twisted peduncles. I think I saw lots of *Althæa* on the south side of the river going down towards Foynes. The creek near Askeaton should be a good locality I suppose. I do not think any qualified botanist has explored the south side of the Shannon estuary, and *that* ought to be the best ground for you to search.

Don't forget the chance there is of—

*Cochlearia anglica,*  
*Statice limonium,*  
*Scirpus parvulus,*

possibly *Spartina*, but I do not much expect this last.

Please send me a post-card to say when you start, in case I may think of anything to write about.

The next few letters relate rather to localities than to actual botany, for Mr. Stewart found himself unable on his first expedition to do more than one side of the river, and took the Clare side, of which Mr. More had least expectations. "I am glad to hear that you were able to carry out a portion of your intended exploration," he writes on August 11th. "I do think that if you should return next year it would be well to work along the south shore of the Shannon estuary. You do not mention having met— . . . He takes great interest in the botany of the county and could tell you about the most promising localities. Did you get to Monmor Bog? . . . Limerick is a county well worth searching, as well as Clare. I never could find out where is Anakirk, the supposed station for *Euphorbia hyberna*,

near Limerick. There is a place called 'Anacotty.'” The query as to “Anakirk” led practically to the verification of K'Eogh's old record, printed in 1736, for the Irish Spurge: the name, as Mr. Stewart conjectured, was a misprint for Rinekirk. The associations of Monmor Bog were less hopeful—consisting as they did of a dubious record of *Alisma natans*, and one that was worse than dubious, of *Erica ciliaris*.

*September 11th, 1884.*

DEAR SIR,—I have no doubt that your Belfast *Ruppia* is the true *maritima*, and that from *Foynes rostellata*, in which latter the main peduncle is only about same length as the pedicels which bear the fruits. Your conjecture about Anakirk being an error instead of Rinekirk is I think likely right; especially as I have lately ascertained that *Euphorbia hyberna* does grow at Adare, very near the place you mention. With regard to *Alisma natans*, I have long ago satisfied myself that it was *Alisma repens* which was gathered on Monmor bog. I hope you found the *Eriocaulon*. I have been spending a week at Kilkee,\* but had no time to visit the bog. I saw *Viola lutea* on the Doon-beg (or Dun-beg) strand, and with it *Asperula cynanchica*. These were the only two plants of interest that I observed.

The next is one of several letters relating to the plan of “Stewart and Corry's” Flora.

*October 11th, 1884.*

DEAR SIR,—I hope you will not think me too critical, in sending you some more notes on the second proof of your sample page. I have put down a few names on the enclosed sheet of paper, which you are to accept or reject as you like. But I think you know the interest I feel in your work, and I should like to see the book as perfect as possible.

\* \* \* \* \*

I suppose you will take the books in regular order of date.

First Templeton.  
Then Irish Flora.

Have you got access to the Irish Flora?

Then Flor. Hib.  
Then Tate, Flor. Belf.  
Then Flor. Ulst.  
Then Cyb. Hib.

Besides these there are two lists of Mackay's, which do not contain much for north of Ireland, but which you ought to look over; and I hope you will make up a list of all books and papers relating to the

\* September 1st to 8th.

flora of N. of Ireland. . . . There is a MS. catalogue of Derry plants by Dr. Moore which, if you like, I can try to borrow for you.

What will you do about Londonderry town and vicinity? Should not that go to Donegal? So as to make the Foyle your boundary?

The "Paper" referred to in the three which follow was Mr. Stewart's Report to the Royal Irish Academy on the botany of Lough Allen and the Slieve-anierin Mountains, explored in 1883, which had been some time delayed pending the determination of the more critical plants. Indeed, the identification of the best of them—*Carex aquatilis*, new to Ireland—did not come to hand till after the new year, Mr. Arthur Bennett having thought it safest to send the plant to Sweden for comparison.

December 31st, 1884.

DEAR SIR.—If you like to send your paper, I shall be very happy to look it over, and it would be as well to send it at once, so that it may be in time for next meeting of the R. I. Acad.

And I think you might put in another application for continuing the Shannon estuary. Suppose you ask for £12 or £10 to examine "The south side of the Shannon estuary and the parts of the counties of Limerick and Kerry adjacent to it," stating that you have done the Clare side.

I am glad that you find Dr. Moore's MS. book will be useful. Please remember to check by his *later* corrections in "*Cybele Hibernica*." The heights will I hope be available in some cases.—With best wishes for the coming year, and that it may see your book completed, I remain yours very truly,

A. G. MORE.

January 7th, 1885.

MY DEAR SIR,—You did not send me any of the new *Carex*, and I shall be very much obliged if you can spare me a specimen, and can send it by post. I think your paper will do without any alteration, and I propose to send it in next Monday. I can make the alteration to *Carex aquatilis* if you like, and I believe the authority you have is as safe as we can wish. But I remember there was some doubt about *Carex aquatilis* when first announced as a British plant, as to whether it is a good species. Don't you think the Irish plant a sub-species more likely?

I have your application safe to send in before the next Science Committee.

Any how your *Carex* is a good find. In haste, yours

A. G. M.

January 10th.

DEAR SIR,—Many thanks for the specimen of *Carex* which arrived yesterday. It seems to agree fairly with some Scottish specimens, and I have also a plant from the Thames side resembling it. It will now be worth while to look up the North of Ireland stations for *Carex acuta* to see what they are.

In any case your *Carex* is a most interesting addition. And I think you should lose no time in sending a short notice to the "Journal of Botany," so as to have it put on record at once—

*Carex aquatilis* in Ireland—

just mentioning as you did to me the circumstances, and by whom identified through A. Bennett. And you had better send the notice at once, or it will be too late for February. I will make the slight alteration as you wish in your paper. It will not be read on Monday next, but the meeting after that.—Yours very truly,

A. G. MORE.

The desired notice was sent, and appeared in the "Journal of Botany" for February, 1885 (p. 49). Not the least interesting "circumstance" of Mr. Stewart's discovery was told in its concluding sentences:—

The discovery of this Sedge is associated in my memory with mournful recollections. It was found on the 9th of August, 1883, the same day, and about the same hour, when two young and ardent naturalists were being drowned, while botanizing on Lough Gill, in the adjoining county of Sligo. The furious gusts of wind and rain which drove me to seek the most sheltered spots, and thus compelled me to meet with this plant, were at the same time doing to death my young friend Corry, with his bright promise of future distinction, and his equally enthusiastic companion, Dickson.



## CHAPTER XLIV.

## SYMPTOMS OF BREAKING DOWN.

[1884-5.]

A short letter to Professor Babington, who had written asking him to send a specimen of *Senecio spathulæfolius*\* to Mr. Backhouse, bears date October 7th, 1884.

DEAR BABINGTON.—I have to-day sent off a fine specimen of *Cineraria spathulifolia* to Mr. J. Backhouse. I was indeed glad to see your handwriting again; it seems such a long time since I had heard from you. I sincerely trust that you are now quite well and strong again. For myself I am just middling. I do not think I have quite recovered from the numerous attacks I had of abscess in my leg; though I am thankful to say that I have not been troubled in that way for the last two years. This summer I had two short trips with my sister, one to the Giant's Causeway and the north coast of Antrim, and then again in September we went together to Kilkee in Clare, which we enjoyed very much. I had some idea of going to Cornwall, but my sister could not be spared sufficiently long.

I suppose you have seen the new edition of "Student's Flora." I am quite surprised at the amount of alteration in the names, for I thought we had nearly reached something like a fixed point.—With very kind remembrances to Mrs. Babington, yours very sincerely,

A. G. MORE.

That short trip to Kilkee—for the first week of September, 1884—was his last visit to the West of Ireland. It was, as he says, thoroughly enjoyed, and perhaps the last day of it (September 7th) the most thoroughly of all. That was the day of the expedition to Dunbeg strand, between Kilkee and Miltown-Malbay, where the two plants were observed which he mentioned to Mr. Stewart (*Viola lutea* and *Asperula cynanchica*). But the principal object of quest on that afternoon was the shell, *Ianthina rotundata*, for which Dunbeg and its vicinity are somewhat celebrated.

\* The Holyhead "*Cineraria*."

Professor Harvey speaks of it in one of his published letters from Miltown-Malbay, dated September 5th, 1861 :—" At the spring tides we have the excitement of looking for a beautiful blue shell called *Ianthina*, which floats on the surface no doubt from thousands of miles distant, coming to us with the waters of the Gulf Stream." It was now about the time of a spring tide (the moon had been full on the 5th), and the brother and sister walked the length of the strand, keeping a vigilant outlook for *Ianthina*. Not a sign of it, though *Verella* and other good shells were gathered in plenty. At last it was time to turn. A long line of wave was rolling towards the shore, a great breaker burst, and receded, and in the space left bare a beautiful blue object glimmered on their sight, a large shell of *Ianthina*, with the animal alive. His delight was great. "I daresay if we look out well we may find another now," he said. It was not *one* other, but many others. Each great wave as it broke on the strand flung *Ianthina* at their feet. A real harvest was gathered, the shells being all remarkably large and perfect; and though the animals died before reaching Dublin, and the dislodgement of their remains was no easy nor savory task, the splendid shells were worth it, and remain to tell the tale. They seem a parting gift from the ocean, thrown to him the last moment he stood by its shore.

His love for that western coast is shown by the constancy with which he so often resought it, while health and strength allowed. The Gannet, taking its great "daily fishing excursion" from the rocks of south Kerry to the northernmost point of Mayo, sees few spots along the sea-board which A. G. More's eye has not also at some time surveyed. One of his letters, written a few days prior to this last visit to the west, is addressed to Mr. J. H. Gurney, the well-known ornithologist and "Ibisite," who, in kindly forwarding it for the purposes of the present memoir, says : "The enclosed letter, which I will ask you to let me have back again, is characteristic of the courteous considerateness always shown by the late Mr. More to his brother naturalists." It is in answer to some inquiries regarding birds of the west coast, and must have recalled to the mind of the writer many of his happiest early tours.

SCIENCE AND ART MUSEUM,

*August 25th, 1884.*

DEAR SIR,—Our friend Mr. R. M. Barrington is absent attending the meeting of the British Association in Canada, and your letter to him has been handed to me.

The only breeding-places for the Gannet are, one on the Skellig Island, off the coast of Kerry, accessible by boat from Dingle or Valencia Island—a large sailing boat would be required; and secondly, on the Bull and Cow rocks, off the extreme S.W. of Cork, accessible from Castletown-Berehaven; or a smaller boat might be obtained from the point *near the Lighthouse*, a good way beyond Castletown.

The Manx Shearwater breeds in the same islets, I believe; and I have seen plenty of Shearwaters on Bantry Bay, outside of Bere Island.

These localities are, I am afraid, too far from Galway to be within reach.

But the Chough is more easily to be seen, as I have met with it in some numbers both in the Island of Aran, in Galway Bay, and at the Cliffs of Moher in Clare—either of these places within a day's journey from Ballinasloe. There is a simple kind of hotel in the Great Island of Aran, to which it is well to carry some provisions of one's own; and good hotel accommodation at Lisdoonvarna, within a couple of hours' drive to the Cliffs of Moher.

The scenery in both places is very interesting, and Guillemots breed in numbers; but I think the Kerry Islands are far the best for sea-fowl, and Choughs also frequent the coast of Kerry. At present you would find plenty of Guillemots, Razorbills, and other sea-fowl on the Bay of Galway, on your way to Aran (where also the Maidenhair Fern is plentiful).

I hope I have answered your queries, and shall be most happy if I can give you any further information.—Yours very truly,

A. G. MORE.

After his return from Clare (September 8th, 1884) he never had more than two or three days consecutively to devote to his favourite studies in the field. Yet natural history mixed itself somehow in all his proceedings. Even a visit at Christmas (December 23rd–27th) to his friends at Cromlyn is associated with a curious bird's nest; and his best botany was henceforth done indoors, and in winter.

“His constant help, without which help an Irish botanist can hardly succeed,” is acknowledged (February 23rd, 1885) in Mr. Hart's next Report to the Royal Irish Academy, on the Flora of S.-W. Donegal, and similar

thanks are tendered in several other papers of about the same date. In looking through Mr. Hart's Donegal plants, his eye had detected two *Carices* of special interest; one, an old friend indeed, but never before discovered in Ireland, *C. Bœnninghauseniana*; the other, his very newest acquaintance—so lately the subject of correspondence with Mr. Stewart, *C. aquatilis*. He mentions the latter in writing again to that botanist (January 31st, 1885). "All, or nearly all, Mr. Hart's *Carices* are now in Bennett's hands. Among them, a good set of *C. rigida*. Another I make out to be *C. aquatilis*, though it had been returned, as yours was, as *acuta*. *C. aquatilis* must descend quite low in some of the Scottish localities. Hart's specimens are not so tall as yours, nor are the *spikes* so long and slender. The bracts are long, numerous, and crowded towards the top." Mr. Bennett confirmed the identification of *Carex aquatilis*. All his botanical friends' Reports to the Academy this winter contained matter of exceptional interest: for Messrs. Barrington and Vowell had brought back from Ben Bulbin a very handsome addition to the Irish Flora, in *Epilobium alsinifolium*.

He was not at the reading of those Essays in whose preparation he had felt such interest. A new complaint, the gout, attacked him early in 1885, and this, added to lumbago and increasing need for general carefulness, kept him from most of the formal Academy meetings, though seldom from a business one at which he could possibly be present. When grants for botanical exploration were to be voted upon, he would always strain a point to be in his place, saying, "There I am of use." His correspondence in the early part of 1885, however, relates even more to birds than to botany. A number of letters to Mr. Barrington (undated, but evidently all written in the opening months of the year) touch chiefly on the observations at light-houses:—

*Wednesday*

[No doubt January 21st, 1885.]

DEAR BARRINGTON,—I have been keeping the house these two days with a bad cold and cough, so that I see I must give up all hope of going out to the Essay Meeting next Tuesday. . . . The meeting for

granting money at R.I.A. will be on Monday next; so I want you, if you have arranged with Vowell about Lough Ree, to write and tell him to send in his application *at once* to the secretary, asking for £10 to investigate the botany of the shores and islands of Lough Ree, a district almost unknown botanically.

Also, have you considered whether you will yourself ask for £15 for migration observation at the lighthouses?

I was looking over last year's report, and it seems to me that the observations want selecting and classifying. As now placed, under the names of birds, no general or leading results come out at all; so that by putting them into convenient shape you will have a fine subject for a report, say next year. Have you considered which are the most important points?

Is it the *dates*, and when most numerous?

Is it the temperature and *direction* of wind? (These might be checked from the weather tables.)

Has *moonlight* anything to do with it? Most come, of course, *by night*.

Is it the places where most birds pass?

Is it the direction of their flight? (But this must be uncertain, if observed *at night*.)

Surely some of these points might be brought out by analysing several years.

But one of the first things would be, I should think, to knock off the majority of wandering waterfowl, Gulls, Gannets, &c., and call the attention of the keepers to the small birds. Surely the so-called "Wrens" must include\* a whole lot of different small birds; and we must ask to have the wings, legs, and tails kept. I should think the Redstarts were probably all Black Redstarts—don't you think so?

I put in Stewart's Leitrim Paper for next Academy meeting on Monday. Yours (Ben Bulben) I hope will be ready for the Council of 2nd February. And could not you make out a bare *list* of the St. Kilda plants for Botanical Society of Edinburgh, reserving details for Dublin Society? A page of introduction, with the list and a few localities, would not take long to draw up. Please look after Vowell, as I have not his address.—Yours,

A. G. M.

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DEAR BARRINGTON,— . . . Dr. Ball, the Astronomer Royal, tells me that he is going round the lighthouses in July. He would like a copy of the Migration Report, and will do his best to encourage the keepers in going on with their work; so I hope you can send or bring him a copy, besides the one for the *Museum*, which I have petitioned for. Money was *recommended* by Science Committee, £10 to you and Vowell, £10 to Hart, £10 to Kane, £10 to Stewart; also £50 recom-

\* In fact, as Mr. R. M. Barrington kindly informs us, the Wren is but rarely obtained from the Lighthouses.

mended for "Cyb. Hib." So now make your arrangements with Vowell,—for three weeks I hope of *camping*, to do Lough Ree properly—at two intervals if you like : one end of June, one beginning of August. Potamogetons, Charas, aquatics of all sorts ; and try if you can find another locality for *Inula salicina*.—Yours,

A. G. M.

DEAR BARRINGTON,—The gout is a thing that lasts many days ; so here I am not able to go in to-day, probably not to-morrow—before end of week, I hope. I have pencilled some notes for you on the enclosed, just for you to take your choice of. The ——— keeper must be wrong about the Manx Shearwater not going on to the land (rock) at all, This remark only makes him seem unobservant. . . . The Chough leg was all right, I believe. Would it not be better to say that birds *striking* are all or mostly *killed*, and not make exceptions, as it were, in favour of Woodcock ? But were all the hundreds of Blackbirds all *killed* ?

At ——— I should have expected the Puffins to go off to fish in the day and return at night to roost at their breeding ledges. I think I have read of their starting out at earliest break of day from their breeding places. How, then, can they return in the morning?—unless he means *seen again passing*. This is worth inquiry. I do not think Dunlins can breed at Innishtrahull. This is worth asking about. Can there be any suitable ground there? . . . The Ducks going N.E. past Aran in winter are only on a *short* flight from the sea, or from Kerry to Connemara. This is not migration, I think. . . . Have you stated or could you next time give the *size*, area in acres, or length and breadth of the different islands on which the lighthouses stand ? The size must much influence the landing and stay of birds.—Yours,

A. G. M.

But what he was now busiest about was his List of Irish Birds. Three letters may be quoted relating to the preparation of what is probably his best-known work :—

February 20th, 1885.

MY DEAR NEWTON,—I am drawing up a list of Irish birds for our Museum, and I wish to ask you to be kind enough to advise me what to do about the Grey Shrike. Our two specimens have *only one wing-bar*, and I suppose Seebohm would call them *L. major*. Now, had I better enter them as *Excubitor* with this remark, or should I adopt the name "*major*," in which case I have no certainty that the two forms both occur in Ireland, although I could hardly turn out the old *Excubitor*. Can you help me over the difficulty ?

A lady friend in Westmeath, Mrs. Battersby, thinks she has made a discovery about the Sedge-Warbler, having taken a nest among reeds (in Meath I think it was) exactly like that figured in Yarrell as the

Reed-Warbler's. The eggs seem all right, and the Reed-Warbler does not breed in Ireland; but have you ever heard of such a nest of the Sedge-Warbler? I was not able to give an answer myself.

I wonder whether the Sooty Shearwater can be a dark form of *P. major* analogous to that found in the Skuas. The two birds which I compared here seemed exactly alike except in colour. I hope that Babington is keeping well this year; and how are you yourself? I sometimes get a little Cambridge news through Professor Macalister, when he comes to Dublin, but it is a long time since I heard from yourself. I suppose the Ornithology article for "Encyclopædia Britannica" must be nearly ready. You were kind enough to give me yours on Birds, and I should much like the other to join to it, if you can spare a copy.\*

[To Mr. S. A. Stewart.] (*February 20th, 1885.*) I have just got ready a list of Irish Birds, and I am much puzzled what to say about the Woodlark. I can only say that I have never seen or heard of an Irish specimen, nor has any come into the hands of Mr. Williams in Dublin. Still there seems very good authority for its not unfrequent occurrence near Belfast. Will you, then, be so kind as to ask Mr. Darragh† (and any others), and tell me what you can hear about it? I should be glad to purchase a *bona fide* Irish specimen for the Museum, if such can be had in Belfast. By the way, is there one in your Museum?

As my list is very nearly ready for the printer, I hope you can give me an answer in the course of a few days. The question is, does the Woodlark stay all the year round and breed in the N.E. of Ireland?

[To the same.] (*February 25th, 1885.*) Thank you very much for the information you have so kindly sent me about the Woodlark. I now have another bird to trouble you about: Crested Titmouse. Mr. ——— says there are specimens in the Belfast Museum, amongst Irish birds. Can you kindly look and see whether there is any label or history to any of them sufficient to establish the birds as Irish. Surely, so great a rarity ought to have been labelled.

It was a simple matter to "lump" the Shrikes and "turn out" the Titmouse; but the Woodlark, which seemed to delight in puzzling ornithologists, proved as unaccountable a creature in Ireland as in Scotland. Of all the birds of Ireland, he sometimes said, the Woodlark had given him

\* He acknowledges it, March 2nd: "Your Ornithology has just arrived, and I feel highly honoured to find my name mentioned." The "mention" is the reference to the "Bird-Cybele,"—"Though contravening our plan, we must, for its great merit, notice here Mr. More's series of papers in the 'Ibis' for 1865."

† The Curator of the Belfast Museum.

the most work. It was recorded by Thompson as resident in six counties (Antrim, Down, Armagh, Dublin, Cork, and Waterford), while Watters added a seventh (Wicklow). But though, from its sweet song, it seemed a likely species to be well-known to the bird-catchers, wherever resident, it appears from Watters' book that even in his time (1853) the Dublin dealers in cage-birds were totally unacquainted with it. In the rural parts of Ireland, its record was now not less hard to trace. From Antrim and Down, Mr. Stewart knew no recent verification. From Armagh, the Rev. G. Robinson (Thompson's original authority for the Woodlark at Tandragee, and also at Rostrevor) could report no later instance than "about thirty-seven years ago." In Waterford and Cork, Mr. Ussher was "not acquainted with the Woodlark": only a few old bird-catchers remembered it. "The species seems to be vanishing from this country with the Quail," Mr. Ussher wrote (February 25th, 1885), but quoted at the same time a letter from Mr. W. Corbet, of Holly Hill, Rathcormack, which mentioned the capture of two in the previous winter. And this reference led ultimately, but not immediately, to the securing of two authentic Irish Woodlarks for the Museum. In the list of Irish Birds (first edition) Mr. More still says, "I have never seen an Irish specimen." And it was not until within the last twelve-month of his thirty-one years' residence in Ireland that the Woodlark was at length fairly reinstated in the list of Irish *breeding* birds, when (in April, 1894) a nest containing an egg and three young Woodlarks was found in the county Wicklow.



## CHAPTER XLV.

## ILLNESS AND RETIREMENT.

[1885-1887.]

IN spite of gout, the spring and early summer of 1885 were busy and happy. Writing to Mr. Griffith, on the 14th of March, he looks forward to fresh field botany. "Now that spring is coming, I hope that if you can arrange to meet me some day in Anglesea, we might gather the rare little grass—*Knappia*—together. That is in the month of May I think." The expedition here spoken of came off a little earlier than he had expected, for it was on Easter Monday, April 6th, that he had the pleasure of showing Mr. Griffith one of the Anglesea rarities,—*Knappia* (or *Mibora*) *minima*—at Llyn Coron, one of its two localities in the island.

On Friday, April 10th, the Foundation Stone of the new Museum Building was laid in Dublin. He was unable, however, to attend the ceremony, for on that day a second attack of gout began; and his recovery from this was soon followed by a visitation of lumbago (April 24th). His List of Birds being now gone to press, he was engaged in a fresh correspondence on Fishes, chiefly with Dr. Day: in one of whose letters (April 27th) is expressed a hope "soon to see your List of Irish Fish." Subsequent illness prevented his drawing up this list, which was meant to be on the same plan as that of the Irish Birds.

His general correspondence was as extensive as ever. Each step in the progress of "*Stewart and Corry's Flora*" was watched with the keenest interest. "Better do your work carefully and slowly than hurry on too fast," runs one letter (March 18th). "It will be the standard Flora for some years to come for your district. The limits of cultivation are very important, and I think you should make a point of ascertaining them. They probably do not exceed

1000 feet anywhere (potatoes, oats, etc.) a little lower than Pteris ; but practically this limit would likely divide your plants into two sets,—those above, and those within the line of cultivation. The limit of cultivation is most important as regards climate, and can be ascertained in *winter*. So I would urge you to write, and get your friends to write, to any likely quarters, and try to ascertain the highest cultivated spots.”

Another correspondent was Mr. J. R. Sheridan, of Achill, who sometimes consulted him about birds, &c., and was always exhorted to do so as freely and frequently as possible. “I am sure you must know, as well I do, the disadvantages and difficulties under which country observers are placed, from having no access to sufficient books and specimens,” he writes to Mr. Sheridan (May 21st). “It is one of the first objects, and duties, of a Museum like ours, to assist all who are interested in Natural History, like yourself ; and I therefore hope that in future you and any friend of yours will not hesitate to communicate with me in any case where you find any difficulties. And, you know that I am only too glad if I can be of any use. The observations made on the habits and life-history of any native species are too valuable to be lost. Only, as a first step, we are bound to make sure of the name and identification.”

“I am now,” he says in the same letter, “preparing a list of Irish Fishes, and should be glad if you can tell me anything. For instance, does the great Basking Shark occur every year off Achill ? When ? And at what distance from land ? Are they more numerous far off at sea ? Does the Short Sunfish, such as we saw on the way to Inishkea, occur every year, or under what conditions ?”

In June a delightful bit of ornithological gossip was brought to him. In the neighbourhood of Powerscourt Waterfall, a lady had found a Redstart's nest ! The news, which seemed almost too good to be true, was first carried to him by the Rev. C. Benson (author of “Our Irish Song-birds”), in whose justly popular little volume is told the sequel,—how, accompanied by Dr. Benson, Mr. More went on the following Saturday to Powerscourt to see

with his own eyes the unprecedented spectacle of Redstarts nesting in Ireland, and was shown both the parent Redstarts, the nest, and the recently-flown family of young birds. It was something not to be forgotten.

The Redstart expedition was on June 27th. The discovery was just too late for publication in the *List of Irish Birds*, which on the same day came from the printer.

*June 28th, 1885.*

MY DEAR NEWTON,—I am sending you a copy of my new *List of Irish Birds*. It is only very short and condensed, but I am gathering materials for something more extended presently. A vertebrate fauna of Ireland probably. You will see that I have felt obliged to turn out a good many birds that have been admitted, as I think, too hastily. . . . I should be grateful if you will kindly give me your opinion of the list, and any suggestion towards its improvement if it reaches a second edition. There is a Labrador Duck in Dublin, which I am very anxious to purchase for the Museum. What would you say would be a fair price to offer?

He was just setting out for his summer holiday; the good opinions which his *List of Irish Birds* was eliciting on every side gave him great satisfaction, and he was full of new projects. Two days before starting he wrote to Mr. Barrington:—

*Thursday Evening.*

DEAR B.,—I am glad to hear that you approve of B. L. Newton writes of it approvingly; and Dr. Günther has asked for two extra copies for the department in the B. M. (British Museum), which looks well. I saw the Redstarts: two parents, etc.; and wrote to "Field" and "Zool." about 'em. If you go to see Anton,—do not forget to ask about Miss Massy, who discovered them, and who leads the life of an ornithophilous bachelor, close to the Waterfall.

I have for some time projected a Catalogue of Irish plants, as you know. But perhaps I am better at planning than carrying out. Still, with every allowance for delay, I mean to print the *Cat.* before winter. Soon, I hope. One difficulty is whether to print in two columns, like *London Cat.*, . . . or to give the columns of Provinces. . . . Please say which you incline to, and write to me at Ellesmere Lodge, Malvern, where I hope to be early next week. I shall be in Bangor, I hope, next Sunday.—Yours,

A. G. M.

He wrote the same day to Professor Newton :—

July 2nd, 1885.

MY DEAR NEWTON,—Thank you very much for your very kind letter. I am sending you a second copy of my list, and shall be most grateful for any notes or criticisms that you may be so kind as to make upon it. . . . Ball seems much pleased with it, and I am now going on with a list of mammals, reptiles, and fishes in same form. Again thanking you, for I think a good deal of your good opinion, I remain, in haste, yours very sincerely,

A. G. MORE.

His plans for the summer were uncertain, but he had hopes of devoting part of it to botany. Mr. Newbould, on July 4th, asks him, "Can't you acquire kudos for yourself by spending a week in the Isle of Man, and making out a list of its plants? Even *Rumex obtusifolius* is not recorded there, and problems relating to Irish botany cannot be solved till what grows there is known, as well as what is wanting." His own thoughts perhaps rather inclined towards the lake district. But scarcely had he reached Malvern when the determination of his movements was found to rest with the doctor. He fell ill, and was ordered to Buxton.

From this date there is little more to record of the course of the year 1885 than that it was a continual struggle with ill health. The end of the holidays found him still an invalid at Buxton, and he remained on sick leave in England till the middle of September. He wrote at least one characteristic letter while at Buxton. In the same number of the "Field" which contained a long article on the Irish Avifauna, written to direct attention to his list of Irish birds, appeared a note on the capture of two Basking Sharks off Achill. At once he writes to Mr. Sheridan :—

BUXTON, 19th July, 1885.

DEAR SIR,—In the "Field" of 18th July, I see an account of the capture of two Basking Sharks in Achill. Now, as the skin of one of these would have been of great value to the Museum, I write to ask whether, in case of another capture, there is any one in Achill who would undertake to remove the skin and send it up, well *salted*, to Dublin. If two or three good skimmers could be set to work, this operation would

not take more than a day. Any men accustomed to butchers' work could do it, and I would pay well for it. Would Mr. — undertake this for me, do you think? or could —? I am so sorry that this fine chance has been lost.

Now, please tell me, is there any part of the gills with the whalebone combs still preserved? If once cut out, these only want drying. But, most especially, I would ask you, kindly to do me the favour to see whether the *clasper* fins of the *male* fish, with their strong white *teeth*, or points, are to be had? If any fisherman has them, or even the *teeth alone*, I want them badly for the Museum.

I hope that you have received the list of Irish birds, which will I hope be useful to you, and I shall be very much obliged if you will jot down at once any notes or observations you may have to make on any of the birds.

Before the year was out he recorded the first addition to his list of Irish birds. Shot during his absence in England, it was in one sense the best of three great rarities added that year to the Irish collection in the Museum. A White's Thrush, presented in January, was the third specimen of its kind known to have occurred in Ireland; a Spinous Shark, whose head and tail were secured in June, was the second; and the Wood Sandpiper, shot in county Wicklow in August, and now presented by Dr. Benson, was the first. Notes on each of these three occurrences were sent by Mr. More to the "Zoologist" for 1885.

He also tried to start an agitation for the naturalization of the grayling in Irish streams. But the breaking-up of all his plans had now set in with irresistible force, and as winter advanced the state of his health became more and more disquieting. He had already, though he little guessed it, left England—where both his parents were still living—for the last time, and had taken his last walk with the companion of his innumerable botanical excursions, when, one afternoon in August, he accompanied her from Buxton to visit the lovely scenery of Chee Tor. The long and painful illness which had threatened him for so many years was visibly approaching, and the concluding words of his journal for 1885 are, "Becoming worse."

It was on his father's 89th birthday (February 11th, 1886) that he found himself too ill to leave his bed—a state

in which he thenceforth continued for more than a whole year. It was a period of intense suffering which little could be done to relieve. "The least touch or movement makes me scream with pain," says one of his pencilled letters (February 21st) to Mr. Barrington; and as the months went by with little alteration, his cause for anxiety became great, the doctors at times holding out but slender hopes of his recovery. Through even the worst period of his illness (March to August, 1886) he still endeavoured to give some attention to natural history. Short notes dictated from his bed, in reply to letters received from Mr. Stewart, bear date April 5th, and May 26th of this year; and on July 19th he wrote with his own hand to Mr. Sheridan about the identification of a fish and of a Gull. But on the whole those six months (during which his father, and likewise his long attached friend Newbould, died) may here be treated as a blank.

He was only very slightly better when early in September, he wrote to inform Professor Babington of his illness, and of his plans for furthering meanwhile the revision of the "Cybele." On September 8th, Professor Babington, in reply, wrote:—"Dear More, your letter received last evening has grieved us very much indeed. It is only a day or two since I remarked that it was a long time since I had heard anything about you. I feared that you might be ill, but had no idea that the illness could be as serious as your letter tells me it is. Happily you can obtain the very best medical advice at Dublin; and as you are told that there is some hope that you may get better, we may hope that it will please God in His goodness to restore you in His good time. . . . I think that you are doing well for the C. H. by getting men who can be trusted to add their information in the interleaved copy. You will then be able to make use of the information obtained whenever it is in your power. A new edition is much wanted."

In November, he was still so far from mending that "six months' leave on half-pay" was granted him, from the 11th of that month. November 24th is the date of the following letter:—

DEAR BARRINGTON.—I know not the specimen. Better send it to Baker. Now is the time to ask Mr. Scully\* to draw up a list of any and all new localities he has found for rare plants in Ireland for "Cybele." Written on *one side of foolscap*. Will you try and persuade him to do this in the slack season? . . . Has Pim† got the interleaved "Cybele" yet? and have you time to take it next yourself? Please write in your autograph next to Hart's, and I must get those of all contributors. I told you — is not to have the vol. back. But it is agreed to be sent to the R. I. Acad.

I had a very bad turn on Monday. . . . I spent an awful night. . . . I am quite well, quite recovered from it, to-day, but have a good deal of pain. I hope Vowell is better. I have not seen him for a long time. Hope you will look in soon. Have written to — to say his plan of *circular* invitation to bird-stuffers will not answer. They must first be taught to know their birds; next, when they do know, they prefer to *keep* their own rarities. Either no results, or an inundation of rubbish, would be the consequence. . . . You know what a lot of "stuff" — collected.

Do make a little inquiry, when next you write to the Tearaght man, about Leach's Petrel. Did he take egg himself? And notice its size *at time*? And does he know *where*? It is not of course very improbable.‡ But there should be a *colony*. . . . I am glad to see Harting doubting the Ruddy Shelldrakes being wild birds.—Yours,

A. G. M.

In December, in several letters to Sir T. F. Brady, and others, he resumed his attempt to agitate for the introduction of the grayling. Letters of this date among his papers also show his solicitude for the collection of birds in the Museum. In recruiting for this department he had always had a strong ally in Mr. Williams, of Dame-street, who enjoyed exceptional opportunities for directing him to the whereabouts of recent rarities, and who this winter sent him several valuable hints, none of which were neglected. "We have received a very fine specimen of the Great Spotted Woodpecker, . . . it might be well to try a coaxing letter asking the bird for the Museum," runs one communication (December 4th, 1886); and one from the bird's owner soon follows (December 10th):—"Dear Sir, I shall be most happy to give the Pied Woodpecker to the Museum, and also any other rare birds I may become possessed of." About the same time, and through the same good offices, he was able to examine an Irish specimen of the

\* Mr. R. W. Scully, F.L.S.

† Mr. Greenwood Pim, F.L.S.

‡ The reference is to the first discovery of the Fork-tailed Petrel nesting in Ireland. See "Zoologist," 1886, pp. 367-8.

true Great Snipe, which was the first he had ever seen. This he found could not be secured for the Museum, as the too facile owner had already promised it to another collector. But it was something to have seen at last "one of the rarest of Irish birds," as he had called it, in a circular printed with a view to eliciting information for the revision of his Bird List. In January, 1887, he again took in hand this subject, and wrote to a number of his ornithological friends. "I was very glad," replies one (Rev. George Robinson), "the other day, to receive your letter. It was so well and pleasantly written that I conclude from it that you must be greatly better of the serious illness which you were suffering from. But now to answer some of your questions." One of the questions related to the Quail—a bird whose cry he had first learned to know in the county Armagh, in the days when he went ornithologizing in Mr. Robinson's company. But times had changed; "the Quail appears to be extinct now in the county of Armagh," is the answer given (January 19th, 1887) to his query. On February 6th he had a more satisfactory item reported by another correspondent (Mr. W. Corbet) that two specimens of the Woodlark had quite lately been taken in county Cork. They are now in the Museum. And in April he was able to see through the press his Guide to the General Collection of Mammals and Birds.

At last, on April 27th, 1887, he was able to leave his bed for a few minutes in the day. He was not yet equal to the achievement recorded on the 29th, when he "sat up for one hour." But among his letters is one bearing the date of his first experiment in sitting up, and written to a Harrow schoolboy, who had recently begun consulting him in his early natural history studies.

*April 27th, 1887.*

DEAR SIR,—Judging from its size, the Owl which you mention in your last letter should be the small Scops Owl, a great rarity. Can this be the same specimen which is recorded as having been taken at Kilmore, Wexford? You will soon find the absolute need of some good book to make out your birds, and if you have not already got it I hope you will soon become possessor of the fourth edition of "Yarrell's British Birds," in four volumes. It costs £4, but is quite indispensable



if you wish to study the subject thoroughly. I began myself when I was at Rugby, and have found the greatest pleasure and interest in birds ever since. . . . Kindly excuse this ill-written letter, which I am writing on my back in bed, and allow me to say that I shall be most happy if I can be of any service to you in the matter of birds, and I hope we may meet some day.—Yours very sincerely,

A. G. MORE.

His long sick-leave, which was to expire on May 11th, was now extended over another 3 months, on the chance of his yet making a good enough recovery to resume the duties of Curator. But such hope (a feeble one from the first) proved vain. Though from the middle of June he was able to go out daily in a Bath chair—where “Flies become troublesome” (July 19th), is his first natural history note—he showed no signs of regaining strength; and on the 10th of August he sent in his letter of resignation.

Apart from the fact that his illness and disablement were the ultimate, though long delayed, result of violence dealt him while on duty for the Museum, it was felt that his services alone gave him a strong claim to favourable and generous treatment; and among the documents forwarded to the Lords of the Treasury with his application for superannuation was the following, entitled:—

MEMORANDA OF THE SERVICES OF MR. A. G. MORE, F.L.S., M.R.I.A.,  
F.R.S.E., AND MEMBER OF THE BRITISH ORNITHOLOGISTS’  
UNION.

Mr. More was educated at Rugby and Cambridge. After leaving Cambridge he became much attached to the study of natural history. In 1860 he published a Fauna and Flora of the Isle of Wight, as part of a Guide-book to the Isle of Wight written by the Rev. Canon Venables. He wrote many notices relating to the birds and plants of the island, and assisted Dr. Boswell in his edition of “English Botany.”

In 1864 he came to Ireland, where he planned and carried out, with the assistance of Dr. Moore, the “Cybele Hibernica,” a chief authority on the botany of Ireland. At the same time he wrote in the “Ibis” an elaborate account of the Distribution of British Birds, and this paper is quoted by all the principal writers on the subject.

In 1867 he was appointed Assistant in the Natural History Museum under the late Dr. Carte, and was in great measure entrusted with the selection, purchase, identification, and arrangement of the specimens, a task which entailed much labour, as the Museum was then being re-organized.

On several occasions he collected for the Museum, and added some rare and interesting species to the Irish Fauna, such as *Architeuthis* (dux or monachus),<sup>1</sup> *Salpa spinosa*,<sup>2</sup> *Chætopterus insignis*,<sup>3</sup> Montagu's Blenny (*Blennius galerita*),<sup>4</sup> Spinous Shark (*Echinorhinus spinosus*),<sup>5</sup> *Hippolyte viridis*,<sup>6</sup> *Athanas nitescens*,<sup>7</sup> Iceland Falcon,<sup>8</sup> Sooty Shearwater (*Puffinus griseus*),<sup>9</sup> Wood Sandpiper (*Totanus glareola*),<sup>10</sup> White-beaked Dolphin (*Delphinus albirostris*),<sup>11</sup> and several very rare Ascidiæ; and was always ready to give assistance to those who showed themselves interested in Irish or foreign natural history.

The collection of Irish birds as left by Mr. More is probably the best series to be found in this or any other Museum, and the spirit collection of Irish fishes is but little inferior to it.

His retirement pension was ultimately fixed at £150, one-third of his salary as curator. It could not be called munificent, but he was glad to have the matter settled. He could now give his mind again unreservedly to his favourite studies, if only health were spared to him; and the sympathy of his brother-naturalists, in his invalid condition, was universal. The words of one may be taken as typical of the feelings of many:—

*September 16th, 1887.*

DEAR MORE,—Your letter of the 7th has grieved us very much. We had confidently hoped to hear that you were very much better, and still venture to hope for an early letter to say that such is now the case. It is our earnest wish that it may please God to give such an amount of health as will enable you to attend to such work as may be given to you—as the “*Cybele Hibernica*” and Stewart and Corry's *Flora*. Both these works will give you pleasant and valuable employment during convalescence, for they neither of them need be hurried. . . . Let us soon have a further account of your health, . . . and say if we can in any way add to your comfort. Oh, that you were nearer to us! My dear wife wrote lately, and so I will only add that she joins with me in most affectionate wishes for you, and that I am yours ever,

CHARLES C. BABINGTON.

<sup>1</sup> 1875.

<sup>2</sup> 1869.

<sup>3</sup> 1873.

<sup>4</sup> 1868.

<sup>5</sup> 1882.

<sup>6</sup> 1868.

<sup>7</sup> Collected in 1869, but mistakenly supposed an addition to the fauna, since it is recorded in Thompson (vol. iv., p. 391).

<sup>8</sup> 1881.

<sup>9</sup> 1881.

<sup>10</sup> 1885.

<sup>11</sup> 1878

## CHAPTER XLVI.

## BOTANY UNDER DIFFICULTIES.

[1887-1889.]

A NEW phase of his life is entered on, as he resigns himself to the occupancy of an invalid's chair, and contemplates with some dismay the restricted area of his field and opportunities for work. He now becomes more than ever the prompter of the undertakings of others. But the activity of his mind first asserts itself in the renewal of several correspondences which his long illness had interrupted; and among the earliest to be renewed was that with Mr. Bennett.

92, LEINSTER-ROAD, DUBLIN,

27th July, 1887.

DEAR SIR,—I have been laid up so long—nearly eighteen months, and nearly all the time in bed—that I have not been able to attend much to botanical matters for the past two years. Now I am obliged to resign my post as Curator of the Natural History Museum, which will be a great loss and disappointment after having enjoyed the long sick leave of eighteen months. This, however, will give me more time for botany, and I hope to return to my old favourite study, with more leisure, and with every hope of bringing out a second edition of “*Cybele Hibernica*,” towards which I have a grant from the Royal Irish Academy.

One object in writing to you to-day is to ask whether you can give me, or beg for me, two or three good and characteristic specimens of *Cenanthe fluviatilis*. It is a plant I do not understand, and I should like to compare English with Irish specimens. You have been so very kind to me already that I feel sure you will be willing to help me in my present crippled condition. Please tell me, do you believe in *C. fluviatilis*? How is it the plant is not known on the Continent?

Have you kept notes of all the localities of Irish *Potamogetons*, and would you be willing to let me have them for my book, with full acknowledgment, of course, to you? I am most troubled with the forms of what I call *polygonifolius*, but I am afraid you would refer some of these to *P. natans*. I mean such as Syme's “*linearis*” from Killarney; the

plant from Ballinahinch, = "pseudo-fluitans" of somebody. The *Kirkii* belongs, I think, to this series. . . .

I have urged several friends to collect some more of the Irish aquatics. We shall hardly find *Naias major*, I fear. By-the-way, how are all your little family?

Grown, I suppose, quite beyond my recollection? At present I cannot say how soon I may be able to travel so far as London, but the doctor tells me I shall some day walk again on my bad leg. At present I can only move in a bath-chair, and am lifted and carried. Disease of the hip-joint is a terribly tedious malady.—Yours very sincerely,

A. G. MORE.

"Thank you very much for your most valuable List of Irish Localities and your Photo. I return you mine, with kind remembrances to your happy family circle, and I hope to spend another evening with you at Croydon when sufficiently recovered:" is the beginning of his next letter (Aug. 2nd), and a fortnight later, "Dear Mr. Bennett, I cannot sufficiently thank you for all your kindness. . . . Only in time, I shall hope to be able to offer you a few Irish *aquatics*, if you want them. I must, in future, collect from a *boat*. Hence, it will be in the *water* line that I shall be engaged chiefly. Will you kindly continue to help me?" Mr. Bennett continued to help him very largely, though he never was well enough to "collect from a boat."

His other letters to botanists at this time show the same set purpose to concentrate attention on "the water line." The following is to Mr. Griffith:—

July 29th, 1887.

DEAR SIR,—I have been laid up now for eighteen months, and cannot yet stand even on crutches. Hip-joint disease has been the cause—a most painful malady. I am just beginning to work a little at botany, towards a new edition of "*Cybele Hibernica*." By the way, have you got our book? or if not I should feel much pleasure if you will let me send you a copy. Please mention if you want it. One of my last days of field botany was with you at Llyn Coron more than two years ago. Since then I have had little but pain and imprisonment to a sick room.

Now I am writing to ask you to do me a kind favour. I want badly four or five good specimens of *Alisma natans*. Can you kindly send me a set to show—(1) the submerged leaves alone; (2) the plant with its

runners; (3) flowering and fruiting specimens, showing the various shapes of floating leaves. Do not think me too greedy; I am trying to settle a critical question about our Irish plants, so that you can help me most effectively. And I think you generally have some specimens dried. Can you at same time say whether *Alisma natans* has the disagreeable *bug-like* smell of *A. repens*, or is it scentless?

The flowers of *A. natans*, are they not *pure* white, with no purplish tinge? Is there any yellow spot at base?

Are you not coming some day to Ireland? When I get better I should have great pleasure in seeing you here, especially as I cannot at present cross to see you in Bangor.—Yours,

A. G. MORE.

In writing to Mr. Stewart, too—whose *Flora* was now all but ready for press—there is an aquatic plant mentioned of which he wants a bit “begged” for him. But of more interest, in the same letter, is the confident expression of his belief in Admiral Jones’ record of *Rubus Chamaemorus*, on the Tyrone mountains, which long afterwards was justified by its re-discovery.

July 16th, 1887.

DEAR SIR,—Many thanks for the slips. They are of great interest to me, and I may fairly tell you that I think your work is right well done. When the time comes I hope to have the pleasure of reviewing your book in “*Journal of Botany*.” On looking over the books and reading your remarks, I must agree with you that the Derry *Epipactis* is more likely *E. ensifolia*. I had no idea that *E. palustris* was so very scarce with you. I wish you could re-discover the broad-leaved form of *Cephalanthera* at Shane’s Castle. Might not —— search for it? Is not he also the right man to look up *Pyrola secunda* and *Rubus Chamaemorus*? I cannot believe that there is any mistake about the latter. Admiral Jones knew the Alpine Scottish *Flora* well. . . . Could you find someone to, or could you yourself, make an investigation of the Lough Neagh aquatics? I have a friend doing famously at Killarney with a *garden rake*, pulling up all the *Potamogetons*, &c. This plan might bring up some *Elatine* *Hydropiper* in fresh places in your district. Could you beg a bit for me from Mr. Lett? In your appendix of excluded I hope you will have two lists—one for errors of name, another for introductions.—Yours truly,

A. G. MORE.

The garden-rake, by the way, had been his own suggestion to his “friend at Killarney” (Mr. R. W. Scully), as the latter states in his “Notes on some Kerry Plants,” published in the “*Journal of Botany*” for February, 1888.

He was greatly concerned over the title-page of the forthcoming "Flora of the North-East," in the draft of which Mr. Stewart, through regard for his deceased partner, scrupled to do himself justice. "I do beg and urge you to put *the late* before Corry's name. . . . Your name should stand first. I feel strongly about this, knowing the immense labour the book has cost you. . . . You have done it, and so far as I have seen you have done it right well," he protests (August 4th), and not content with protesting, calls in the weight of Professor Babington's authority. (Sept. 24th.) "Dear Sir, Babington, whom I have consulted, says that you ought to put *the late* T. H. Corry. So that, I hope, may be considered settled. I never had any doubt about it." The "Flora" (as to whose title his wish was at last acceded to) was published early in 1888.

Meanwhile his health had not improved, and the last month of 1887 was marked by a renewal of severe illness, from the effects of which he suffered for many months afterwards. On the 29th of April (1888) he was once again wheeled out in his chair, and from this time may be said to have made better progress. In June, and again in September, he went for a few weeks to Bray; and a little work at Cybele Hibernica was resumed towards the end of summer. But he felt pathetically the difficulty of keeping "up to date" in knowledge of the new critical forms, cut off, as he was, from the power of collecting and exchanging, and his letters to Mr. Bennett, but for whom he would indeed have been almost stranded, are full of references to this cause of trouble.

*November 13th, 1888.*

DEAR MR. BENNETT,—I can hardly thank you enough for your very kind answer to my letter, and for the beautiful specimens which arrived quite safely yesterday. You are treating me in a very generous way, and I assure you that your kindness is the more appreciated now that I am disabled, and I wish I could find some way of making you some small return. I am doing what I can to urge the collecting of Potamogetons and other aquatics. I hope this year my friend Mr. Scully will have some to send you. He is a good and careful observer, and dries very good specimens. . . . And I hope it will not be very long before you will give us some *plates* as well as text of the Potamogetons. Might not a monograph be published in parts, and the best-known species given first?

February 7th, 1889.

DEAR MR. BENNETT,—Can you kindly tell me how, or help me, to obtain a copy of Lange's Denmark Flora at foreign rate, as advised in "Journal of Botany"? . . . . Mr. Scully's specimens of Potamogeton rather made my *mouth* (is that the name for botanical greed?) *water*, when I saw the lovely examples of various plants from you and Fryer. "Such is luck." He can collect, and I cannot. I don't know whether you would think it proper or praiseworthy to help a non-collector. Apparently I am not to be admitted to the privilege of rejoining the Botanical Exchange Club, which I think rather hard, even on a veteran, when I was a largely contributing member for so many years. I must confess I do not like being, as it were, "disestablished" as well as pensioned, after so many years' interest, and I might say service, in the cause; and especially as, *without specimens*, I shall be left behind the young collectors, whom I do my best to stimulate in Ireland. Again, could you advise me in a friendly manner? I do not see my way to offer payment. But why not offer an exchange of some useful *book* to such as would be willing to help me with specimens? I trust that you and (shall I say the junior "fluviales"?) and Mrs. Bennett are all quite well. I still hope to see you at Croydon before very long.—Yours very truly,

A. G. MORE.

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February 11th, 1889.

DEAR MR. BENNETT,—Many thanks for your very kind letter, received this morning. . . . You are very generous to offer me a share of your own exchange parcel—more than I have any right to accept. But I am very glad to know that you think something might be done by exchanging books. In my younger days of collecting I did as you do: sent away an immense number of specimens each season, and thought nothing of giving to those who were collecting or working at the subject. It is my loss of the power of doing the same now which troubles me, as I cannot get on properly with my new edition of "Cybele" unless I have the specimens at hand to refer to. . . . Now that duties in Museum have ceased to require nearly all my time, I am doing my best to resume my early favourites; so that I feel indeed very grateful to you for so kindly coming to my aid, and now I only request that you will let me commence my exchange of some book with yourself. Hitherto the gain has been altogether on my part. How many Irish plants have not you examined for me and for my friends? How many have you given me when I could send you nothing in return? So now kindly let me hear of some book that would be useful to you in your studies. I owe you this much already. . . . And I wonder have you heard anything of the said discovery of Scheuchzeria at or near Killarney? Mr. Bailey told Mr. Scully that he was going to

announce it in the "Journal of Botany." Can it be true, or another case like *Eriophorum alpinum*? Excuse the length to which this note has run, and hoping you will not refuse a book from me, I remain, yours very sincerely,

A. G. MORE.

*February 18th, 1889.*

DEAR MR. BENNETT,—Don't you think that you might help me out of my difficulty, as I am going to try to help you out of the trap?

Imagine, leaving me to choose the book! I am afraid you are already provided with the standard European Floras and Monographs. It was one of these I was thinking of—Koch, Grenier and Godron, Boreau (Jordan I daresay you do not follow, quite). Also, of British *local* Floras, have you got Ley's West Yorkshire Flora, &c.? After these, I should have to fall back upon some standard poet or prose author; or what else do you place on your shelves? Really, the kindest thing you can do, after agreeing to the wisdom of my suggestion, is yourself to say what would be most useful, and then I can more freely tell you what plants I wish for. I hope and believe this is the best for me to do. Of course you have Lange, and Hartmann, and Fries? And now I repent me of not having accepted your kind offer of ordering Lange for me. Will you allow me to reconsider, and to ask you to send on my order to Denmark? And please name your book as soon as you can.

One other correspondence had also to be renewed, and in the following (to Professor Babington) there is little of botany: though what there is is still of the "fluvial" type.

92, LEINSTER-ROAD, *January 19th, 1889.*

DEAR BABINGTON,—Thank you and Mrs. Babington most sincerely for your kind inquiries. I have indeed to own myself very remiss for not having written to you long ago. Last year, at this time, I was in wretched health and in most depressed spirits, quite unable to attend to or take interest in anything. It was a dreadful time of suffering; but, thank God, this year is opening more hopefully. My sister is now with me in my old lodging, and I hope we shall soon be established in a house of our own in Leinster-road; for it seems better not to separate from all the old interests and advantages of Dublin. We lost our dear old mother now more than eight months ago.\* . . . For myself, the

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\* Family references have as a rule been avoided in this memoir, but it will readily be guessed from the kindness of More's character that he was an affectionate son. His last letter to his father (who died August 24th, 1886) was



leg is now healed, so far as the inflammation of hip-joint is concerned. But I cannot use the limb at all, it remains so tender, and is also rheumatic; so I just limp along on crutches and travel out in a bath-chair. So far I have been out every day, even all through the winter, and am now working regularly, for a short time, in preparing for a second edition of "Cybele."

This reminds me to ask you, how soon may we expect a fresh edition of the "Manual"? Ninth, is it not? For I am sadly troubled about the proposed changes of name, as advocated in the London Catalogue and "Journal of Botany," with probably more still to come in Jackson's Kew List. And, I wish we had some reasonable guide to follow. It is almost impossible to select for oneself among so many alterations, proposed and re-altered again.

The Potamogetons seem a fine field for experiments in this way—are they not?—and are to be all hashed up afresh, for a while: until they settle down again. What is to be done? With kindest remembrances to Mrs. Babington and yourself, your sincere friend,

A. G. MORE.

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written during a most depressing period of his own illness, and the handwriting bears manifest traces of effort:—

*10th August, 1886.*

DEAR PATER,—I am so sorry to hear from Fanny that you have been suffering so much pain, but I am glad that it has been a little less severe during the last few days, and I trust that the improvement will continue. It must be a great privation to you not being able to go about your garden as usual. I have myself felt how tedious it is to be disabled and imprisoned for now six months on my sick bed.

I saw a new Doctor to-day, and I think he takes a little more hopeful view of my case, and that there is still some little prospect of my getting up again, in time; though my case must be a very tedious one.

And now as from one sick room to another, I wish you less pain and more comfort, and especially good sleep at night. With best love from your affectionate son,

A. G. MORE.

## CHAPTER XLVII.

## A CORRESPONDENCE.

[1887-1889.]

HE might well say that he was "doing his best to stimulate the younger botanists," for his letters to beginners would alone fill a large volume. A letter written in April, 1887, to a Harrow boy has already been quoted; and during the two years which followed he wrote, on an average, every fortnight to this correspondent. A beginning once made with birds leads to a gradual introduction of botany, this subject being first mentioned on the approach of a summer vacation.

(*July 26th, 1887.*) When you return I hope that you will take up the birds and other animals in earnest. I shall be always ready and pleased if I can give you any help. . . . I hope that you have learned to skin birds, and to preserve bird-skins simply without wires. It is easily learned, and an immense advantage when you come to travel and collect, as I hope you will. If you have not already got Bell's "British Quadrupeds" it is well worth having, and will be of the greatest help to you. . . . Another book you should have is either Gray's "Land and Freshwater Shells" or some other on this subject. There is one by Harting, I think, and one by Tate. Any one of these would enable you to make out the names of the pretty little land and water shells. . . . If you can manage it, do try and call here on your way through Dublin, as I should be pleased to make your acquaintance. I am always at home at 92, Leinster-road, except when I go out in a bath-chair, about four to six in the afternoon. . . . Do you know anything of botany? There are two plants I want to find out about—the Colchicum, or Meadow Saffron (flowers in autumn like a white or pale crocus), said to be found in meadows along the river Nore, and, likely, Colchicum autumnale, might be found along the Barrow. The other is the Nettle-leaved Bell-flower, Campanula trachelium, which grows along the banks of the river in bushy places, above New Ross. Could you kindly try and look after these two plants? Both should be plentiful and easily seen; in fact, the country people would notice the pale purple "Crocus," and perhaps might have had their cattle suffer from its poisonous qualities.

(August 9th.) I will see about your insects. Did I offer you a copy of our book, "Cybele Hibernica"? It is the best for Irish localities, and you are very welcome if you will accept a copy from me. I think and hope you will become a good naturalist; but do nothing hastily. Collect material, specimens and notes, carefully and critically, for many years, and then you will have good results. A collection is always a pledge of work. Excuse this scrawl, written on my back in bed. Will you send me your photo in exchange? . . . Please send to E. Williams, 2, Dame-street, Dublin, one or *two* specimens of your Black Rat, and he will stuff them for me. Please say they are for me. I am obliged to retire on pension, and give up my Curatorship on Thursday next.

(August 17th.) I hope you have received a copy of "Cybele Hibernica" which I sent you by post. Have you got Hookers' "Students' Flora"? That is an excellent book for making out your plants; costs 10s. 6d. There should be no great difficulty in finding the tall *Campanula* along your river. The point is whether *C. latifolia* grows or not with you. It is much taller usually than *C. trachelium* (the nettle-leaved B. F.). If you find either please send me a full-length plant in flower or seed. Did you see the *Colchicum*? It should grow in low, flat meadows along the river—a great big tuft of broad leaves, or, as you know, a pale crocus-like flower.

(September 17th.) Now about your specimens. You should at once begin to prepare good and satisfactory specimens, such as you can keep all your life, and place in a Herbarium. There is only one way. All the great collections over Europe are so done, and they keep safe and sound for years. The plants are first dried between sheets of porous (*i.e.* unglazed) paper, such as blotting paper or rough grey grocers' paper. The whole secret is to *use plenty of paper* (say six or eight leaves, between the different specimens). Put, say, four to six inches *layers* of paper between boards; then heavy weights on top; and change them every day into fresh, dry paper—no cotton wool, nor anything at all except paper. But you may put a sheet of thin cap paper over and under the delicate specimens, which is to be allowed to remain attached to the plant until dry. When changing, simply let this thin paper adhere to the plant, and do not attempt to remove it; but change, of course, all the rest of the paper. Never mind the *colour*: it is of little importance, and it *will* fade in the end, whatever you do. Usually there are some ladies in a family who will help in changing and in drying the plants. My own sister did a good part of it for me when we lived in the Isle of Wight. Let the *size* be 17 by 11 inches, or thereabouts—same size nearly as the white paper on which you will mount your specimens for keeping them in your Herbarium; and you should poison them with a light wash of corrosive sublimate dissolved in spirits of wine. Begin on the right system and you will never regret it; and this will save your *recommencing*. If you begin wrong you will lose no end of time. I could not put it shorter.

November 1st.

MY DEAR B.-HAMILTON,—First let me thank you for two of the finest hares I have seen: we are still feasting on soup and jugged hare. By-the-way, do get a record kept scrupulously of the weights of both bucks and does. Also, do your hares, at sea-level, ever change to white, even partially, in snowy weather, and how long does the change take in coming on? These will be useful inquiries if you like to take them up. We have two new Irish birds this winter, neither very wonderful—

Gull-billed Tern,\* | Lapland Lark-bunting.

I hope you have got "The Zoologist" and "Journal of Botany." I have not seen them as yet, but I think your notes will be printed. You should begin now to take "The Zoologist" regularly, beginning with the year in which you first contributed. You will often find a note to send to it. I began when at Rugby in 1849—a good while ago, is it not? . . . . A white breast spot and also white paws are often found on the Black Rat. It is no sign of hybridity. . . . . Sea-parrot is the true Puffin. I hope you will next year visit the Saltees. . . . . I do hope that you will keep in mind how desirable it would be to persuade your Harrow football players to learn the Rugby Association as well as their own game. I am much better, . . . . and hope soon to do a little work on Irish Fauna, and "Cybele," new edition.

(November 20th.) I was glad that your two notices† of plants and Black Rat were published. There can be no doubt as to your knowing the Black Rat when you had made it a study. . . . . But you must remember that natural history is so imperfectly studied by people in general that they are no judges, nor could Mr. ——— know how easy it is to tell the Black Rat if once you compare it with the brown; and as I know you intend to become a true naturalist, you must know how we cannot be too careful and scrupulous in any identification. I always felt pleased when anybody told me they were not sure I was right, because this led me to a second scrutiny.

About your hares, I am glad that you will undertake the weight question. . . . . The whiteness is of the highest interest: if on the *plains* in the *south* some do, even partially, change in winter. As a sportsman, could you ascertain anything of the relative speed—which is faster, and how does the running of Irish hares compare with the English? Suppose, after your next coursing meeting, you start the question by a letter to "The Field."

January 1st, 1888.

MY DEAR B.-HAMILTON,—I am sorry to say you are right in your conjecture. I have been so unwell all through last month that I have had to give up all my usual correspondence. . . . . Don't forget about

\* This afterwards proved to have been an error ("Irish Naturalist," vol. I., p. 4).

† Black Rat in Wexford, "Zool." (3), xi. 425, and two notes on Wexford plants in "Journal of Botany," xxv. 348.

the change to white in your hares if there should be any snow, and the weight I know you will attend to. That curious rat with black back and shoulders looks very like a hybrid, and in any case was a great curiosity. I hope it has been preserved. The best book for your purpose of studying the native Flora is *Hooker's Students' Flora*. Hooker and Arnott is quite out of date.

(*February 22nd.*) By all means follow up the Bats. There is no branch offering a better chance of rarities. The Great Horse-shoe B. might turn up in your neighbourhood. . . . I shall be most happy to examine any you can capture.

*March 12th.*

DEAR BARRETT-HAMILTON,—I return you at once the note which you enclosed, and I think it will do very well for "The Field," as a feeler or enquiry. But I should wait and make some more observations on the size and change to winter coat before writing to "The Zoologist." I would suggest your measuring the size of the white patch above the tail in a number of hares, and how far up the legs does the white colour reach, how much of the ears is white, and how far does the amount of white on legs, back, and ears correspond on different specimens? Also, is there more white on young or old, or male or female specimens? You will be able to see, this vacation, whether the white has disappeared in April or not. Being a resident, it is better for you not to send a mere casual note. Better wait and get up a good, pains-taking paper, and put in weights if you like. But speed is more a matter for "The Field," and I hope you will there draw out some other observations. . . . I should offer a reward for any larger Bat that your neighbours can find, barring the Long-eared. . . . So you ought to obtain the Hairy-armed, which is not very unlike the Pipistrelle, only much larger. . . . Ought you not now to prepare lists of your plants, &c., all that you know, and also of those *likely* to be found near New Ross? Practice skinning birds, bats, mice, shrews, &c. See if you have any other kind of Newt besides the common smooth sort. . . . I did not know that Otters eat birds, but in Bell's "British Quadrupeds" it is said to "attack lambs, sucking pigs, and poultry." A note on your experience of its eating ducks would be worth sending to "The Zoologist."

(*April 5th.*) Now is the time to make a good start with *large*, full-sized specimens. It is never worth while to keep small scraps. . . . I hope that you will this year set up a proper drying plant-press, with paper 16 inches long, so as to be able to preserve the whole plant. How are you getting on with your Bat-hunting? The annexed table of extent of wings may perhaps help you, and there remains yet something to be done in measuring the wings. Our books do not agree, and I wish you would take the trouble to measure carefully and exactly the width of males and females separately, of any number of even the commonest

Bats. They will all be adults if you get them at this season. N.B.—Any Bat over 12 inches will be new to Ireland. . . . Look for *V. Daubentonii* in any holes in bridges, or flying over the water. Any Bats from hollow trees are worth attention.

EXTENT OF WING OF BRITISH BATS, BEGINNING WITH THE LARGEST.

	1. Noctule (reddish),	14	inches
	2. Serotine (browner) (broad-nose),	13	„
	3. Great Horse-shoe (nasal appendage),	13	„
	(None of these three are Irish.)		
I	4. Hairy-armed (largest Irish),	10½	„
	5. Bechstein's B.,	10	„
I	6. Natterer's (very rare),	10	„
	7. Barbastelle,	10	„
I	8. Daubenton's B.,	9 to 9½	„
I	9. Long-eared,	9 or 10	„
I	10. Lesser Horse-shoe (local),	8½	„
I	11. Whiskered B. (very rare),	8 to 8½	„
I	12. Pipistrelle (common),	7 to 8¼?	„

(*April 26th.*) The small crucifer was a *Cochlearia* of some kind, I think *C. officinalis*; and this leads me to ask you to look carefully for *C. anglica* along the salt-water muddy creeks in Wexford. It is taller than *officinalis*, and its root-leaves are longer, oblong, *not cordate*, at base. But the ripe fruit is the best character. In *officinalis* it is round, and the dividing dissepiments round also. In *Cochlearia anglica* the fruit is larger, and *oblong*, with a long dissepiment, with the fruit swelling beyond it on each side. Please ask your friends kindly to send me some stems with ripe, full-formed fruit, and a root-leaf or two, and to search earnestly for this very rare Irish plant. In fact, I have only seen one Irish specimen which seemed to be *C. anglica*. . . . *In re* Bats, could not you get a few specimens, while in England, of the rarer kinds, especially the Noctule, the Great Horse-shoe, the Serotine? . . . . I suppose you have some bird-stuffer in Harrow who could skin them.

(*May 13th.*) I am ashamed to have two of your letters to answer. . . . I think the *Cochlearia*, small as it is, is *C. anglica*. Another which Miss Glascott sent me I should certainly refer to *C. anglica*; but I hope Miss G. will send some seed-vessels before long. It is a mistake to dry specimens so early in the season, because all ought to have the fully-formed fruit. For instance, the *Carices* especially require to be in fruit, and all those you have sent to-day are too young. . . . By-the-way, have you any naturalists' club in the school? There are a good many plants to be found round Harrow. . . . And are you collecting the Land Shells? These are easily carried, and take up

very little room. . . . Your small Garlic with rush-like leaves will be *A. vineale*; that with daffodil leaves I should like to see when in flower. You must notice whether it has *one* or *two* valves enclosing the flower-heads, and whether it seems a native or the remains of former cultivation. The flat leaves belong probably to *A. scorodoprasum* or *A. Babingtonii*, both rare plants, but I do not think either is indigenous. Any *large* Bat from Wexford will be worth attention. I hope that which is compared to a Rook will be captured. . . . If sent to you at Harrow you must get it skinned and stuffed at once; but it might make sure to have it put into a bottle with spirits of wine till you return: that is the simplest way.

(*May 24th.*) Miss Glascott has just sent me some fine *Cochl. anglica* from near Waterford. I ought to thank you, too, for putting Miss G. upon the search. Thank you for sending the Harrow Flora, and I well remember when Mr. Hind was making his first list of Harrow plants. . . . Please go on sending me anything you wish named, and please tell me what you wish me to do with the Harrow Flora, as it is not likely to be very useful to me, and I think would be better in your hands; and even if you have a second copy I daresay you would make better use of it than I could here. . . . One very desirable addition would be a list of the land and freshwater Shells. I hope you do not forget the slugs.

(*June 1st.*) I have done my best with the specimens. . . . There is one very good *Carex*, *C. divisa* (that with the small, dark head and tall stem). Please try and persuade your people to dry some good specimens of it. . . . *Cochlearia* seems all the same, *C. anglica*. On no account publish the localities *by themselves*: they are not worth it; but wait till you can make a good list, after all the summer's work has been put together. *Carex divisa* is quite as good a find as the *Cochlearia anglica*. Do get me some more specimens sent up direct to Dublin.

(*July 20th.*) How glad you will be to return home and gather the plants for yourself, and see them growing. I think I shall be here about beginning of August, but please write just a post-card to say when you expect to come, and I shall be delighted to see you here. If you will let me, I should like to see your list, and then I could tell you which require looking after. About the land-shells, you cannot get on without some book, and I hope you will get Jeffreys' (Gwyn-Jeffreys) "British Conchology." I think vol. i., with Land-shells only, can be had separately for 10s. Then you would not be troubled about the synonyms for *Succinea*.

(*August 10th.*) Do not hesitate to send up your plants. You know that I am always glad to do what I can to help you; and if at the end of the summer campaign you like to send me your complete list, I will mark the rarest, and tell you which are worth publishing, and I think you should draw up the list in the two names, your own and Miss L. G.'s, with the initials of the finder to each locality.

(September 13th.) A new locality for the Clinopodium is very interesting, and I hope you will find others yet. In England it is not at all uncommon in the south. It will be easy to keep the locality safe from exterminators, though I fear there are only too few botanists who will care to gather it. . . . A bottle-nose whale was lately stranded near Wicklow, about 23 feet long: they usually go in pairs—if in some numbers it might be the caling whale. You cannot identify a whale safely until you see it ashore. The bird with red on breast and tail, was it a Crossbill? But one must be very suspicious about these reported wonders, if they come under notice of those who do not know much of natural history.

(September 22nd.) I know Mr. —— well, and he is a most careful and painstaking observer. You may thoroughly trust him; but do not accept too much of the many strange tales you will hear about birds from untrained people. It is easy to gather a lot of unreliable information, but you must be always on your guard, people in general know so little of natural history, and jump at conclusions. . . . I shall be curious to hear what is to be the next Bat you lay hands on, after the Long-eared and Pipistrelle. Not unlikely Nattereri, and, if a *large* one, the Hairy-armed. As you have Bell's "Brit. Quadrupeds," I need hardly remind you that the Shrew you will find is probably always the *lesser* one. If you find a larger one it will be worth noting. . . . About Whales and Dolphins, &c., I am afraid you will do little until you can examine some specimens. Any kind of Dolphin may be called rare, and they are very imperfectly known, and worth photographing if you come across a fresh specimen.

(October 18th.) I ought to have written sooner to tell you that I duly received your list of localities, but I have been so busy since my return to Dublin that I have not had time to look it over properly. I hope it will not put you to inconvenience, and I hope to find time next week. . . . "Solitary Snipe": I think you may safely conclude never to believe in any specimen until you have seen it. Since my list was published I have seen *one* authentic specimen, which was sent to Williams, and I believe he has stuffed another since. If people only knew the right bird mistakes would not be so common. It might be worth your while to obtain a skin from some of the dealers, and then you will have it ready to compare, in case any "Great Snipes" should be shot in Wexford.

(November 12th.) My friend Mr. Harvie-Brown, whose name I am sure you must know, is very anxious to obtain a fresh specimen of the "Irish" Black Rat, and I have told him that I think you are the most likely person to apply to; so if at Christmas, when you return home, you could send him a specimen of any black rat I am sure he would be very much obliged to you. . . . I hope the Achill Snipe will turn out all right. If so it will be the third since my list was printed. Do try and get a skin from London, for yourself and to show to your friends. If



sportsmen only knew the right bird, mistakes would not be made so often. Just the same with the American Woodcock, so often reported as shot in Ireland, but which is quite a different bird.

(*November 22nd.*) I have been asked to prepare a new edition of the List of Irish Birds. Can you send me any contribution of any very rare occurrence or locality? . . . . I am glad the Achill Snipe turned out all right. Any Irish Little Crake requires careful overhauling, like the Snipe. Usually the Spotted Rail is mistaken for it, and Baillon's is much more likely than the Little. I received a splendid Hare from Kilmanock. Many thanks for it. No white yet, . . . . but there is an inclination to greyish.

(*December 1st.*) I now enclose you the fair copy which Miss Glascott has made, and I think it will make a fair paper for the "Journal of Botany." It just wants a few lines of introduction at the beginning—something to the effect of what I have written on the half-sheet of note-paper—which please to write yourself, and when you have looked it through please return me the paper, and I will forward it to my friend the Editor, telling him that it contains a good deal of new information.

(*January 9th, 1889.*) Excuse a short note to-day. I must leave the plants, &c., for my next. . . . I hope you are still inquiring about Sand-grouse. If those seen lately in England were fresh arrivals, the coast of Wexford is likely to have been visited also. . . . I hope you will be able to see the supposed Little Bittern. If not that, it might be a Squacco Heron. . . . Lizard:—The only one in Ireland is *Zootoca vivipara*, but it varies much in colour, sometimes with a good deal of green. Its size is so much less that it could hardly be mistaken for the Green Lizard, which occurs in the Channel Islands, but not in England. . . .

*In re* Black Rat—Is yours *Mus hibernicus*, which is credited with a shorter tail, shorter and more hairy ears, more hairy tail, and softer fur than the Black Rat? You should get a skin from England to compare. Thompson gives—

	M. Hibernicus	M. Rattus
head and body,	7½ inches	7 in. 4 lines
ears,	9 lines	11½ lines
tail,	5½ inches	7 in. 10 lines

In Bell the Irish Rat is mentioned under *Rattus*, and Thompson also thought it nearer to *Rattus*. But Blasius (a good foreign authority) placed it under *M. decumanus*; so you see there is room for further observation. But the white spot is of little consequence. The number of rings on the tail are given as 260 to 270 for *M. Rattus*.

200 to 220 for *M. decumanus*.

I hope you will measure and weigh all the black rats you can get, and

count rings of tail. Thompson's largest *Hibernicus* weighed 1 lb. and 3 oz.

Of head and body length was 11 inches

Of tail (imperfect) 8 ,, 3 lines

Of ears 10½ lines

which seems to show they vary in length. Please collect and study all the information you can; but do *not at present* write anything to "The Zoologist" about the length of tail. By *taking time* you will be likely to obtain some good results. Your list, I am glad to see, is in the "J. of Bot." for January.

(*January 16th.*) I am glad to hear that *Mus hibernicus* is in such good hands. Thompson seems to have seen the *M. Rattus* as well as his *M. Hibernicus* from Ireland; but he also speaks of a *black* variety of the Common Rat. That I suppose will be the end of *M. hibernicus* = a melanic form of *M. decumanus*.

(*February 9th.*) Your queries are not easy to answer. Of course you must *not* offer a reward for specimens, nor in any way abet or incite to the shooting of Sand-grouse, which I am sure, as an ornithologist, you would never think of. I think your best plan will be to ask generally do any of your correspondents see or hear of any small flocks of brownish-coloured birds frequenting the more *inland* parts of the sand-hills. If seen away from the shore, likely such may be Sand-grouse. I do not understand whether all or most of those seen this winter were remainders of the spring immigration or fresh arrivals. In some cases, if you are not afraid of inviting answers such as the correspondent thinks *would please* you (a too common, and good-natured fault in Ireland), you might copy out or abridge from Yarrell a description, and, especially, send a *tracing on transparent paper* of some plate or figure, and ask them to look on the ground for any trace of the *very small* footmarks. And do not let them think it is a *shore-frequenting* bird you are asking after.

This correspondence, doubtless, did much to expedite, amongst other matters, the settlement of the "Irish Black Rat" question (by the conjoint inquiry of Messrs. Eagle Clarke and Barrett-Hamilton), which, almost dormant since Thompson's time, was re-opened in 1889, when Harvie-Brown and Buckley's "Fauna of the Outer Hebrides" was published. The number of varying opinions held regarding the animal which had been so little studied is very curious. Thompson had thought it a distinct species, but closely allied to the old English Black Rat (*Mus rattus*). Bell had supposed it only a variety of *Mus rattus*. Mr. Eagle Clarke, in some remarks which appeared in the

“Fauna of the Outer Hebrides,” inclined to rank it as a species, but far more closely related to the Brown (*Mus decumanus*) than to the English Black Rat. Mr. Thomas Southwell, disputing this conclusion (“Zool.,” Sept. 1889), thought it was probably a cross between the two. Ultimately (“Zool.,” Jan. 1891) Messrs. Eagle Clarke and Barrett-Hamilton published, as the result of an exhaustive inquiry, the conclusion, since generally subscribed to, that the “Irish Black Rat” is a melanistic variety of *Mus decumanus*, the common Brown Rat.

## CHAPTER XLVIII.

## MISCELLANEOUS LETTERS.

[1889.]

A REVISION of his List of Irish Birds was called for in consequence of the first edition having been sold off; but he was glad of the opportunity to retouch it largely, as many of his letters show.

*January 18th, 1889.*

MY DEAR NEWTON,—I am preparing a new edition of the “List of Irish Birds,” and I hope you will not think me too troublesome if I ask you what shall I do about the Sooty Shearwater. Am I to call it *Puffinus stricklandi Ridgw.*, or adhere to the old *griseus*? Again, would it be heresy to suggest that it is a melanic form of *P. major*, as the black state of the Skuas? Or should I be put down at once for such an idea?

I am glad to say that I am much better in bodily health than I was a year ago, and am doing a little work regularly, chiefly at botany. The leg, however, refuses to do any work, as the pain in and about the hip-joint and along the thigh-bone is still severe, and the limb very touchy and tender. Still I am glad to limp about on crutches, and travel the longer distances in a bath-chair. I trust that you and your brother are both quite well. Will not Sir Edward write some account of West Indian Birds? Please kindly tell me which you would recommend as the best edition of Hewitson’s “Oology” for a man who is rather a connoisseur of books, but also fond of ornithology. I promised to ask you.—And with all the best wishes for the year 1889, I remain, yours very sincerely,

A. G. MORE.

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*February 17th, 1889.*

DEAR NEWTON,—Many thanks for your last letter. As you advise, I must leave the Shearwater as *griseus*; but I could find no differential character, in size, shape, bill, or wing, to separate it from *major*, killed also in Kerry. Are there no cases in the Shearwater similar to those of the parallel melanic forms of *Skua*? I don’t like relying on colour. . . . I am much exercised about whether to include the Nightingale and Reed Warbler, both *only once* captured in Ireland (if Montgomery was

right about his winter Reed Warbler, for the specimen did not come to the Museum with his other birds). Both numerous in England, both only once in Ireland!! It seems to spoil one of the features of the Irish Fauna to put them in on same terms as the other truly native species. What say you? Would they do under Obs., as if excluded on purpose? Except perhaps Carrion Crow, I do not know of any others\* in the same predicament. But these two (the Nightingale and Reed Warbler) I do not like to count as *Irish* Birds.

Prevented by his lameness from mounting the Museum staircase, he had not, while revising the Bird List, the advantage of being able to visit the collection to which it was primarily intended as a guide; for the Irish birds were not then, where they have since been placed, on the ground-floor of the building. For all recent information on this subject he was therefore indebted to his successor in the Curatorship, Dr. Scharff, his letters to whom evince a constant solicitude for the welfare of the collection which had been his special hobby.

*May 13th, 1888.*

DEAR DR. SCHARFF,—I am glad to hear that you have such a good addition in the Bee-eater. . . . Of course you will have made sure of all the particulars. . . . I am very glad that you are looking to the interests of the Irish Birds.

(*December 11th, 1888.*) Many thanks for your note. I shall be much obliged if you will kindly let me see your memoranda on Birds. . . . There is a Woodlark of mine which I have asked Williams to send you for the Museum. This I think would be an addition, would it not? And I daresay you have some others to mention. Please kindly tell me of any that require to be struck out. I hope that you have secured the Pectoral Sandpiper.† I have been hoping to call and see you, but the bad weather has prevented me. I think I could now manage to ascend your staircase on my crutches.

(*January 18th, 1889.*) I now return your list, with many thanks. Some of your notes will be very useful, and could you send me a full summary of your Sand-grouse localities, as I suppose you have many more since you wrote your notice in "Zoologist," and I should like to quote them as credited to yourself? And if you can, please tell me the VOL. of R.D.S. in which your paper is to appear. . . . Is not the

\* He might have added the Red-backed Shrike (see p. 367).

† The only known Irish specimen, shot near Portumna, Oct. 1888, and now in the Museum.

Grasshopper Warbler now in the Museum? I remember one or two coming up from Rev. W. W. Flemyng in 1885 or 6, I think. I hear that —— knows of two or three other Bee-eaters, which were shot at same time with yours; so you might perhaps think well of writing to ask whether he can induce any of the owners to part with them, as gift or sale. What a pity to lose such a lovely and valuable bird! . . . I do hope you will write to him at once.

(*January 21st, 1889.*) Many thanks for your letter and the summary of Sand-grouse in Ireland, which will be very useful. You must have worked hard to collect so many occurrences. I wonder whether any of the birds are left still alive in Ireland. Four killed in November, 1888, in Co. Down, are noticed in the January "Ibis" by Mr. R. L. Patterson, as I daresay you have seen.

(*February 23rd, 1889.*) Many thanks for the memoranda about Birds, which you so kindly sent. Could you kindly let me have the localities, and date, and names of donors of the three Greenland Falcons in the Museum? I hope that Williams has shown you the beautiful young Night Heron, which he has lately stuffed. It was shot close to Rathmines, and would be a good thing for the Museum, if you can secure it. I am very glad to hear that, at last, you have obtained a real Great Snipe. It will be very useful as showing shooting men what the Great Snipe is, and how different from the Common S.

The following are to Mr. J. R. Sheridan :—

*January 26th, 1889.*

DEAR SIR,—I was much interested to hear of your having found *Erica mediterranea* in such abundance near the Colony. Does not the little stream run out into the sand-hills near Lord Cavan's Lake? How shall I enter your locality, as I am now preparing a new edition of our book, the "Cybele Hibernica"? And by-the-way, if you have not got the book I shall be very happy to send you a copy, as it might be useful, both to yourself and to some of your visitors who may take interest in our wild plants. You have now got something worth showing them, in such a fine bed of the "Irish" Heath. I wish you would kindly take the trouble to send me up a few branches of it: rolled up roughly in paper, it will travel well enough. It has, I think, a sweet scent, has it not?

Has anything been done about exploring and digging into those great shell-mounds which I so well remember in Inishkea? I think you must have had Colonel Wood-Martin with you in Achill? And I suppose he would be delighted with such a chance.

Your letter was sent on from the Museum; but I am sorry to say that I am now *retired on pension*, and have nothing more to do with the Science and Art Museum, though I still work as much as I can at my old pursuit of natural history, and shall always be very glad to hear

from you, and to give you any little help that may be in my power. I am very lame, and can only go about on crutches or in a bath-chair; so I fear I can hardly hope to see Achill again. But this is much better than last year.

"Polish Swan" I do not understand, and I don't know who does. I cannot distinguish it from immature Tame Swan. . . . I hope you got back your Black Tern safely. Can you give me the date when you shot it; also the date when you shot the Iceland Gull? Have you found any remarkable bird this winter? Has the Crossbill visited you; and do you find the Snow Bunting every winter? Of course, I suppose you had no Wild Swans this mild winter?

I have a question to ask about the Irish Hare. With you does it turn *partially* white when there is *no snow* in winter? Again, does not the white begin on the *ears* and *legs*? I see many hares now have their ears only white, or partly white. Does this agree with your experience? Also, a grey patch shows on the rump just above the tail (about six inches wide) at the commencement of the change. Is this so always? Does the Stoat (or "Weasel," as it is called in Ireland) often change to white in winter with you? And does it change *sooner* or more often than the Hare?

*Eagles.* Does the White-tailed or Sea Eagle breed still in the Cliffs of Achill? Rather, I should ask, do both Golden and Sea Eagle breed in your cliffs? I hope they are not exterminated? I am afraid you will think all these queries very troublesome, and that I am imposing too much on your good nature. I forgot to say that when I was in Achill I *did* gather a few weakly plants of the Erica on the way to Keem Cliffs, on low ground behind them.

(*February 7th, 1889.*) I am sending you a copy of my "List of Irish Birds and Guide to Museum." I wish to improve and enlarge the new edition of "Bird List," and shall be glad to avail myself of your observations on—

Iceland Gull,  
Black Tern,  
Polish Swan,

if you will kindly send me the dates at once.

Also, about the Sea Eagle. You do not speak quite clearly as to whether it still breeds in or about Achill. Please say do you think it does breed or not; and has it ever nested, to your knowledge, in Island of Achill or anywhere on the adjoining mainland? Polish Swan I am still doubtful about: whether it is not some variety or age of the Tame Swan. If you get an adult in winter how are you to distinguish it, or a half-grown bird? Have you ever compared them? . . . .

*Mediterranean Heath.* Do I understand that you have found another locality, or merely an extension of your former one?

Also, please say how *high* are the tallest plants of the wet ground? Do they reach to your waist, say three feet? Please to remember, neither short nor tall growth has anything to do with Mackay's Heath,

which is altogether different. Does the pale colour belong to the tall or to the short form? I am sorry that I have no books at all on Kitchen Middens. My library is only one of reference for natural history. You should ask Mr. Wood-Martin for help in this. In botany or zoology I am always happy to examine any specimens you like to send.

The quantity of information received from all sources made him sanguine about other projects, such as the long-contemplated Vertebrate Fauna.

March 27th, 1889.

DEAR BARRINGTON,—Things are marching. The information now coming in for "Bird List" is a long step towards our proposed new Vertebrate Fauna of Ireland, for which there remain—

R. Warren,	}	as Committee.
R. M. B.,		
R. J. Ussher,		
A. G. M. as Secretary.		

I propose that we ask for a grant from British Association. Are you agreeable? Next, I am going down to-day to see Mr. ——. I am going to sound him as to whether he would be willing to draw us a few (say four) sketches of peculiarly *Irish* Birds, such as Shearwaters—

1. Great and Manx, in one plate,
2. Snow and Greylag Goose,
3. Three or four Sandpipers,
4. Sabine's and Great Snipe.

Then a plan map will be required—

- A. for rare Mammals,
1. *all* the Bats,
  2. Pine Marten,
  3. *Mus hibernicus*.

All could go in one map. Thus far, my castle in the air; but you really must awake from your too long indolence, and give me some help. I cannot do it all, nor pay it all, any more than "Cybele," single-handed. And while speaking of the latter, . . . Why should not you and I and Scully together undertake a Map-book of Distribution of Irish Plants, after "Cybele" is finished? Will you join in work and in share of expenses? Thus may we see the two *opera magna* out in our time, I hope—before we die. Now, why do you leave your sincere friend (A. G. M.) so long unvisited and uncomfortable?

His 'castles in the air' were, it must be confessed, too ambitious; but they were the natural outcome of his



favourite line of thought. Among the birds spoken of as "peculiarly Irish," it may be observed that he includes the Great Snipe—so extremely rare a visitor that only a month previously he had congratulated Dr. Scharff on having "at last obtained a real Great Snipe" for the Museum; also the Snow Goose, which, so far as was known, had straggled to Ireland (in small companies or singly) on three occasions only. What, it might be asked, was there "peculiarly Irish" about such birds as these? But in the one case (just as with the Nightingale and Reed Warbler) the very scarcity of the Great Snipe was a true and remarkable characteristic of Irish ornithology; while in the other, so many as three visits of a Goose from the Canadian North-West probably seemed to him as interesting from their frequency as did those of the "Solitary Snipe" from their fewness.

Another rare visitor to the Irish coast turned up this year at Achill. A great Squid\* was stranded on the shore at Dugort. It was the fourth instance of the kind in the British Islands, and three of the four occurrences had been on the West coast of Ireland. Naturally, he was much interested on the receipt of the first intelligence from his correspondent at Dugort, Mr. Sheridan:—

October 14th, 1889.

DEAR SIR,—Judging from your drawing of the two long tentacles (24 feet each), and from the piece which you sent, I think it must be a gigantic Squid which has been cast ashore. If not now too late, can you try and see whether you can count the number of the *short arms*? Is there any trace of the *brown horny* mandibles, which should be about six inches across, and placed at the head, in the centre of the arms: in fact, a great brown beak, something like a parrot's? The central bone or "pen" of the Cuttle-fishes runs inside in a line down the body. It is of cartilage, and might be seen now if the other parts have decayed or been knocked about by the sea: a long, narrow cartilage, of which it would be very interesting to recover even a piece. I am very sorry that you could not find any sucker-rings. I daresay they have fallen out through decay. Still it is worth while to look again, as there must have been a great number. Again, the eyes must have been as big as a plate. What a pity it was not stranded in a fresher con-

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\* An account of this Squid appeared in the "Zoologist" for January, 1890.

dition! Did the two long arms expand into a *club* at their ends, or were they broken off? It is on these ends that the most suckers are found. I enclose you an old number of "The Zoologist," where you will see an account of the Bofin Squid, and in all probability yours was the same species. When fresh it should have had a *lengthened* body; but I suppose the whole had collapsed into one mass, except the arms. Please write again.

A long illness during August and September had made him much less sanguine about his zoological projects. In a letter to Mr. Barrington (December 14th) he revives the subject of the Vertebrate Fauna. "But you and I are getting so '*old*,' do you call it, or *lazy*, that I am almost despairing."

## CHAPTER XLIX.

## FURTHER MISCELLANEOUS LETTERS.

[1890-1891.]

IN April, 1889, he settled in the house (74, Leinster-road) in which his remaining years were passed, and which soon became known to all naturalists who lived in or visited Dublin. He himself took special pains to find out the younger men who had any taste for natural history, to assure them of his willingness to assist. Beginners who visited him for help in determination of specimens, &c., were often astonished at the overflowing interest shown in their trivial and inexperienced researches. His vivacious questions—interspersed with the “Most interesting!” or “Oh, be very cautious!” with which his disciples so soon became familiar—seemed to place insignificant subjects on quite a new footing. “Now, I think, you have materials for a nice paper; why not do it at once?”—was sometimes the sequel. “Oh, don’t hesitate! Here are pens and paper! We can revise it afterwards. Now, about *Ranunculus* —; where do you find it? Most interesting: put that down exactly as you have said it. And —? Roadsides! Say ‘introduced.’ We have to be strictly honest. And — in clover-crops? But do you find it every year? More interesting still; write it down ‘a colonist.’ You are sure — is native? Ah, let us be careful! I think the ‘dagger’ should be used. And —? Can you remember the exact shape of the stipules? Perhaps it might turn out to be —. Better not mention it yet. Don’t be in any hurry.” And so on till the beginner has “written” his first botanical paper, which usually goes to the “Journal of Botany” direct from Leinster-road, and to “save time” is revised in proof there likewise.

His enthusiasm as an instigator is probably the more remarkable in being combined with so extensive an ex-

perience of the inaccuracy and over-confidence of untrained naturalists generally. But there was no lesson which he was fonder of impressing than that of caution, and for this old theme convenient texts frequently came to hand. A preserved Owl supposed to have been obtained in Ireland is alluded to in one letter :—

The Owl has arrived, and I find it is a New Zealand species (*Ninox Novae-Zelandiae*); so that evidently some mistake has occurred, or mixture of specimens, and I have written to ask Mr. ——— to try and clear up the matter. Is not this one more caution how careless some people are in keeping their specimens? Mr. ——— must evidently be a valuable correspondent to have sent you so much useful information, and the mistake about the history of the Owl is none of his doing.

About another reported rare bird :—“Of course, all the ladies are wrong. But this is only one instance of the monstrous blunders which are constantly being made by uninstructed beginners. All you can do in such cases is to insist upon seeing a specimen; and do not believe what such people tell you.”

Regarding some notes by a deceased observer :—“Beware! I pray you, of ———. His records are not reliable. You will find, I think, the Blue Jay of Canada, and the Australian Membranous Duck. There is, too, a Black-headed Gull reported as Bonaparte’s,—and many other blunders. Mr. ——— must have made a mistake about Roseate Tern, as about many other Birds. He was not at all a good Ornithologist. . . . And as you say the *Yellow-shank*!! Bulwer’s Petrel ought to be a caution to us.”

Lectures were occasionally administered to his own correspondents, some of whom have good humouredly supplied the following samples, addressed to themselves :—

I have delayed too long in writing to thank you for the filled-in schedule which you were kind enough to send. It will be a very useful list, and I must ask you kindly to reply to a few questions, which I hope will not give you too much trouble. . . . The Scaup Duck (*breeding*), the Spotted Eagle, the Kite, and the Snowy Owl we should, I think, reserve for the present. For, had you been well acquainted *already* with these birds elsewhere, so as to know them practically and with certainty from former experience, then we might hope to escape criticisms. But I do not think that the identification of such very rare birds (as the last

three) on a first meeting with them could be considered sufficiently certain, unless the birds had been actually obtained; and I am sure you will agree with me that it is much better and safer to make quite certain by relying only on specimens, in these cases of very rare and most improbable birds, and keep back the record, rather than run any risk of having doubt thrown upon the statements hereafter.

Of course, I need hardly tell you how unlikely—nay, almost impossible—it is that a bird only known as one of our rarest *winter* visitors should *breed* with you. . . . I do not think that any amount of studying books and figures is sufficient to ensure the correct and certain identification of rare birds, with which the observer was not previously acquainted. Why, I would not trust my own eyes altogether in such a case. But we do want to be quite sure, before publishing anything.

Do try and give up thinking you have *seen* any rare bird which you do not *shoot*. It is the most unsafe course in natural history, and leads to innumerable mistakes, and to the discrediting of the observer. All such cases should be strictly excluded, and, if worth mention at all, be given only as a footnote, with "I believe" or "I think" to qualify the statement. Unless you follow my advice in this—and I have often urged it upon you, and shall continue to do so—you will find very unpleasant doubts and criticisms raised; and I am sure no skilled naturalist will, for a moment, believe that you have *satisfactorily* identified the Kentish Plover in the manner which you describe. No: you must try and dismiss these supposed rare occurrences from your mind, until you have obtained a *specimen* and had a *safe opinion* on it. How often am I to urge caution upon you, and to tell you it is better to make *sure* of a smaller number than to add anything that is in the least *uncertain*. How much better to have it said, "He made no mistakes, and all his observations were founded upon *specimens*." I sometimes think that you are endowed with a poetic fancy, and this often leads the imagination too far ahead of the facts. Quite a sermon I am writing! But I know you will take it in good part, as it is meant.

I am afraid you are getting into the way of making *random* shots, which is nearly as fatal in botany as in shooting. How could you misname *Valeriana officinalis* *Valerianella olitoria*!! Did you try the description at all, and have you got your "Hooker" with you? (To this correspondent, however, he very soon wrote again in a relenting strain—"Do not think that I was intending to be hard upon you. I was only amused at the guesses which you made, and I hope that, as a botanist, you will in future always carry your Hooker.")

The following is addressed to a young correspondent who was putting together some bird-notes for popular rather than scientific perusal:—

Pray, avoid too many Latin and technical terms, and consider how plainly you should write *for the printer*. Excuse me if I say that your

handwriting is not always very easy to decipher. This means a great expense and trouble to a printer. Once more let me urge tall k's. Your writing is just forming, and you will have much to do with printers. Try and earn their blessing, instead of what Sir R. Gallwey calls their *third barrel*. No doubt, you have met with this joke of his?

The years 1890-91, were somewhat unusually rich in occurrences of zoological interest, adding no fewer than nine new Birds, as well as a Whale, to the Irish List, and yielding many rarities besides. He contributed several notes to the "Zoologist," and zoological topics predominate in his letters. "How delightful for you to be able to watch the Crossbills at their nests. You are indeed more sparing than most collectors would be, in not helping yourself to one of the three nests; and I am sure you will have some interesting notes for publication. I wish you could help to settle the question about which is the ultimate colour of the male bird," he writes to Mr. Ussher (March 31st 1890), with wishes of "every success in this spring's egg-campaign, and in our projected work." The "projected work" was "The Birds of Ireland," on which Mr. Ussher and he were now embarked, with Mr. Barrington and Mr. Warren as partners, and which was henceforth, with the "Cybele Hibernica," a subject of primary interest to him. Its execution, however, was chiefly left to Mr. Ussher. A few more of his letters, in chronological order, are quoted below.

May 20th, 1890.

DEAR BARRETT-HAMILTON,—I ought to have answered your last letter long ago. With regard to your paper on the Rats, the usual course would be to send it when written to the Secretary of the R. I. Academy, who I think would be willing to accept. If you like to send it to me, I shall be most happy to place it in the hands of Dr. Wright, the secretary. But, at the same time, you should consider whether you can get some *plates* to illustrate the paper, which I think would be a matter of some consequence. What I should like to see would be coloured figures of *Mus hibernicus* and *M. rattus*, if not also of *M. decumanus* and *alexandrinus* for comparison; and I much fear that the R. I. Academy would not allow any figures. Also, the paper would be much more generally read, and thus more likely to elicit information, if published in the "Zoologist." And it is well worth while for you to ask Mr. Harting whether he would give you a plate or two in the "Zoologist." . . . As you and Clarke have taken so much time and

trouble about it, it might even be offered to the Zool. Soc. of London, if they would give the plate. . . . About Sabine's Snipe, you cannot do better than write to Mr. Ussher. . . . How pleased you must have been to see the Crossbills nesting at Cappagh! *Cochlearia anglica* is much more strictly attached to a muddy soil than the others, so it is just the species we should expect with you; still you should go on looking for *C. officinalis* as well.

*July 16th, 1890.*

DEAR DR. SCHARFF,—I am just starting for a fortnight at Bray, with my sister, so I am afraid I shall not see you till we return. Many thanks for the copy of "Guide," which I think is very well done. I have a new Irish Bird to be presented to the Museum, which I will bring to you when I come back. It is a rare Warbler, *Sylvia nisoria*,\* but unfortunately in only poor condition. Still, as a bird new to Ireland, it will, I hope, be acceptable.

*August 23rd, 1890.*

DEAR B.-HAMILTON,—I am glad to hear that your Dolphin† turns out to be a rare species. The White-sided D. (*D. acutus*) is not new to the Irish List. I think you will find Mr. J. D. Ogilby's record of one which he obtained near Portrush (in "Zoologist," 1876, p. 5007). He sent me up a sample of the skin when quite fresh. I shall be very happy to send in the Rat-paper, when ready, to the R.I.A., if you will send it to me. I do not think it matters much how you arrange the counties. . . . But I hope you will show the distribution and dispersion of the animal. And what can you do to explain the occurrence of a melanic form in an animal which has probably been so recently introduced? I hope you will give some account of *Mus rattus* also, and *M. alexandrinus*. If you can come to see me any time after eleven, I am almost sure to be at home any day of the Horse Show week.

(*December 4th, 1890.*) We have got some fine additions to the Irish Birds, all from lighthouses:—

Yellow-browed Warbler,  
Short-toed Lark,  
Lesser Whitethroat.

I suppose that Barrington will announce them in the next "Zoologist."

(Dec. 10th 1890). On being consulted on a question of Slug-nomenclature.

DEAR DR. SCHARFF,—That is a difficult point to decide, the right name of *Arion ater* v. *A. empiricorum*. By priority I should vote for

\* The Barred Warbler. It had been shot in Mayo, in 1884, but only recently referred to Mr. More for determination ("Zool.," 1890, p. 310).

† A White-sided Dolphin obtained on the Wexford coast ("Zool.," 1890, p. 384).

*ater*, and *ater* has it also over *rufus*, if the numbers quoted by Pennant from Fauna suecica are right—*ater* No. 2088,  
*rufus* No. 2089.

In other cases, where two of Linné's species have been joined together, it does not seem to have been considered an objection that the one definition does not *include all varieties*, since this must have happened in most cases, and yet a new name was not thought necessary.

*A. ater* may be a badly chosen name, but that is not sufficient.

In botany, we have *Silene gallica* L., now made to include *S. anglica* L.

In birds, we have *Sterna anglica* for a Tern very rarely seen in England.

In birds again, *Tringa alpina* joined to *T. cinclus*, and *T. alpina* is retained in preference to "*T. variabilis*."

In botany there is a Dock, *Rumex sanguineus* Linn., which very rarely has red veins, while the green-veined form is common; yet the Linnaean name *sanguineus* is retained for both varieties.

I am sorry that I have so few books here that I cannot enter more fully into the matter, but I do think *ater* is the right name to use.

(February 28th, 1891: To Mr. Barrington.) I am on the track of a Lesser Kestrel,\* which was brought to me *in the flesh*: said to have been shot near Shankill. If you should hear anything about it please let me know, as I want to announce it, *if quite true*. I am waiting for details, and will let you know when I hear. But why do you not come and see us again? . . . . Another Surf Scoter, from Achill Island.

(Same day: To Mr. Sheridan.) Your bird-skins have just arrived, and I make them out to be—

Arctic Tern (immature),  
 Long-tailed Duck (immature),  
 Surf Scoter (immature).

No wonder the last has puzzled you, as it is imperfectly described in our books, and when I first received one with the two large white spots before and behind the eye I had some trouble with it, but found it described in the American books. This is a great prize, and I daresay one of the best captures you have made in Achill. I hope you have a memorandum of the date. . . . Does the White-tailed Eagle still breed in Achill?

(March 25th, 1891: To Mr. Ussher.) I have sent a full notice of the Little Kestrel to the "*Zoologist*." That history is fortunately

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\* First occurrence in Ireland; third in British Islands.



clear and conclusive. . . . By-the-way, what is your idea of treating such birds as—

Reed Wren,  
Lesser Whitethroat,  
Nightingale,  
Red-backed Shrike,

common in England, but only once found in Ireland? They stand, I think, upon a different footing altogether from Lesser Kestrel, Barred Warbler, Yellow-browed Warbler, Short-toed Lark, which are only very rare visitors to Britain. I remember in the case of Nightingale, you were for keeping it out of the regular list. It seems so inaccurate to say that it occurs in Ireland as well as in England.

*April 4th, 1891.*

DEAR BARRINGTON,—Many thanks for the piece of baleen, which, together with the great size of the animal, proves that it is the Sibbald's Rorqual, new to Ireland, and we may truly say the *greatest* addition\* made for many years to the Irish Fauna. I hope you will go see it, and get measurements taken, especially length of flipper, the colour of flipper, which ought to be "dark above, whitish beneath"; back dark grey, almost black; lower parts paler grey (not white), irregularly mottled with whitish spots and patches. And, of course, secure, if possible, a few good and *perfect* blades of the baleen right down to the root. Flipper should be about 13 feet long; measure from tip of snout to eye, and from eye to root of flipper, wanted. Some few of these things I hope you can do in spite of your very busy occupations. . . . Why do you not publish two nice little penny pamphlets, illustrated—one on the potato disease and its history, the other on how to grow potatoes; and thus pose as a benefactor to your country, instead of "an idle naturalist"?

*(Same Day.)*

DEAR DR. SCHARFF,—I hope you have returned safely from the wilds of Connemara, and that you saw the Mediterranean Heath, and gathered some other spoils and information. No doubt you will have seen the notice of a large Whale stranded at Wexford. Might it not be worth while for you to run down to look at it, though I suppose another skeleton would be rather too large an addition to the Museum, at any rate until a new wing is built? I shall hope to go in and see you some day this week. I think I told you that I had suggested to Mr. Cowell his lending the Lesser Kestrel to the Museum.

*May 7th, 1891.*

DEAR B.-HAMILTON,—I am glad to say that I am much better this week, and I have been out-o'-doors for the last two or three days. . . .

\* The specimen measured 82 feet in length, and was pronounced immature.

I am sure you will not find much trouble in writing your account of the Whale. Just "Sibbald's Rorqual on the Irish Coast" (or "coast of Wexford," if you like it better), will do for the title; and then the date of occurrence, the description of size and colour as given by your correspondents, and the fact of the baleen being *altogether black*, will be sufficient for the identification. Anything more you can hear of the value of the Whalebone and of the oil, and the destination of the skeleton. Of course I shall be pleased if you like to quote me as identifying it from the size and from the colour of baleen; and I think you should write your paper at once, for fear of being anticipated. If you like to send it to me to read over, I can send it on to Harting. When you have done this, I wish you could go and stay a few days on the Saltees, and study the Birds, taking a good glass with you. I hear of a Golden Oriole or two, and Williams brought me an "American Robin," *Turdus migratorius*,\* which does not look like an escaped bird.

September 16th, 1891.

DEAR DR. SCHARFF,—I am glad to hear that you are going to visit Aran. No one, so far as I know, has collected any of the land-shells. There is a small cockle with a *very thin* shell, found in a brackish pool: that is the only rarity I remember. The rarest plants are—

Astragalus hypoglottis.

Ajuga pyramidalis.

Helianthemum canum.

Allium Babingtonii (a tall leek, formerly cultivated).

Matthiola sinuata (not found for many years).

Cornus sanguinea.

Arundo Epigejos.

Viola hirta.

Arabis ciliata.

Carduus nutans.

Galium sylvestre.

Gentiana verna.

Alsine verna.

Cerastium arvense (glabrous var.)

Adiantum Capillus-Veneris.

There is no Irish species peculiar to Aran, except the *Astragalus hypoglottis*, and nearly all the rare plants occur also on the opposite shore of Clare. I am afraid the season is now too late for you to find many plants in flower, especially as Aran is very early from the warm limestone surface. If you have time to bottle a few Beetles, or, better still, to leave a bottle of spirit with the clergyman to receive such coleoptera as he might be able to collect, I think that some good varieties might turn up. I have not yet seen your Slug paper, but if you can spare me a separate copy I should very much like to have it, as being so much more easy to consult; and I hope you will remember Miss A. Warren, of Moyview, who is, I think, about the only working conchologist in Ireland except yourself. The Aran shores have been

\* The first occurrence of this species in Europe.

often dredged for marine shells by Barlee, &c. The land-shells have been quite neglected.

September 17th, 1891.

DEAR B.-HAMILTON,— . . . . Please, at once, set apart a good-sized Pickle Bottle, *filled* with methylated spirits of wine. And into it let there be cast—whether you are at home or not—any doubtful specimens of Bats or Shrews, each of course with a label, written in pencil, attached, with date and locality. You are sure in time to get some rarities, and in the spirit they will keep as long as you like without any trouble. The tall fin you saw? How fond you are of setting me puzzles! Well, the B.\* Shark ought to show *two* fins, back fin and tail fin, and the back fin is triangular, not *narrow* and tall, and should not move much. But I think a Grampus would move faster. You do not say whether it *rolled* or not. These tall fins have often been referred to a male Grampus of some sort, but I do not think they have been examined on land, at any rate not in England.

These were happy years, and uneventful, except ornithologically. "I shall never," says one of his papers, "forget the occasion when my friend, Mr. R. M. Barrington, produced from one small bag three such extraordinary prizes as the Short-toed Lark, the Yellow-browed Warbler, and a Red-breasted Flycatcher, which he had just received from his correspondents at the Irish Lighthouses." Such were among his greatest pleasures. One more letter is quoted here, lest botany might seem to have been forgotten.

November 28th, 1891.

DEAR MR. STEWART,—Thank you very much for your kindness in sending the No. of Field Club with Corry's Paper, which will be of the greatest use to a friend† who is going a second time to Burren next spring. He found *Neotinea* in several localities this year. Still more for the very full manner in which you have taken the trouble to answer my troublesome inquiries. I was really sorry to bother you with so many questions. Still I know that you are as anxious as I am myself to search out the real facts; only it is not everybody who would take so much trouble and send such clear replies. I hope to write again presently, but I do not think there is anything more to say this time except about the *Arctia*. . . . *Rubus chamæmorus*: I can quite understand how you doubt this; but Admiral Jones was a good botanist, and had been much in Scotland, and (was) likely to know the plant. I think it has been sought too near the top of the mountain. It grows often along with and under heather, on boggy or peaty ground. I do hope that yet another search will be made.

\* Basking Shark.

† The late Mr. H. C. Levinge, D.L.

## CHAPTER L.

AN ANXIOUS<sup>d</sup> YEAR.

[1892.]

A SYMPTOM of the improved health which he had for some time enjoyed appears in the unusually large number of notes and short articles which he contributed, during the earlier part of 1892, to various journals. An article on the "Alleged former Nesting of the Osprey in the English Lake District," in which he maintained that the Sea Eagle was probably the bird noticed as "Osprey" by early writers, appeared in the "Zoologist" for January. To the *Journal of Botany*, the same month, he contributed a note on the Lesser Dodder (*Cuscuta epithimum*) as an Irish plant; to the "Zoologist" for February, one on the "Parrot Crossbill" in Ireland; to the *Journal of Botany* for March, notes on *Trichomanes radicans* (the "Killarney Fern") in Spain, *Silene maritima* growing inland, and *Vaccinium vitis-idaea* (cow-berry) at low levels. In April appeared the first number of "The Irish Naturalist," where first place was given to his article on "Recent Additions to the List of Irish Birds." It is curious to notice that in this, which was practically speaking his latest ornithological paper, he pauses to lay stress on the identical feature to which he had drawn attention in what may be called his earliest—namely, the *westward*, rather than southward, course apparently pursued by many of the winter bird-visitors to the British islands. Of the Lesser Whitethroat (obtained in Kerry, in October, 1890), he says:—

This is a striking example of a bird breeding freely in many parts of England, extending northwards to the south of Scotland, but which up to the present time has not even appeared as a rare visitor in Ireland. Like the Nightingale (of which also there is only a single occurrence recorded in Ireland), the Reed Warbler and Tree-Pipit, as well as the Lesser Whitethroat, seem, during the autumnal migration, to find a

more direct route to the Continent, and do not make their way westward into Ireland, while apparently the rare stragglers which visit Ireland in the late autumn must come from a greater distance than the opposite shores of Great Britain. Some, like the Yellow-browed Warbler, from far eastward; others, like the Black Redstart in Ireland, and the Fire-crested Wren in Great Britain, from the nearer portion of the European Continent.

To, the last, the Black Redstart is his pet instance of "Isocheimonal" migration.

He was also an occasional, indeed not infrequent, contributor to the natural history column which one of his friends, under a *nom de plume*, was editing in the "Irish Sportsman." "The Irish Hare" (Feb. 13th), "Jays in Westmeath" (March 12th), "Decrease of Quail in Ireland" (May 21st), "The Stoat in Ireland" (May 28th), and "Increase of breeding Woodcock in Ireland" (June 11th), are among the notes which he sent to this column, selecting as a rule subjects on which he hoped to draw further correspondence, with a view to promoting the proper object of the column, *i.e.* "turning shooting men into naturalists." He constantly, at the same time, urged his own correspondents to become contributors to both journals, suggesting topics as opportunity arose.

(*Feb. 27th, 1892: to Mr. Sheridan.*) Thank you very much for your kindness in remembering the Mediterranean Heath. I was delighted to see the fresh plant from the wild shores of Achill. They are hardly yet in full flower, which I believe will be about the end of March or beginning of April, and they do not seem to have suffered at all from the frost. They should smell very sweetly when at their best, and I do not perceive any scent now. I am glad that you think well of writing a few short notes, now and then, for the "Irish Sportsman." I am sure they will be very glad to receive your contributions. Could not you send, at once, just a short note as to whether you have any Swans this winter, and how many? But I want you especially to look after the Irish Hare, and its changes towards becoming white in snowy weather. *One week* of snow seemed to affect them, judging from what I saw in the shops in Dublin. They resumed their ordinary colour; and now again, after *less* than a *week* of snow, the ears are again whitening, and the grey patch is appearing near the tail. Now, try and think: in Achill, have you, in severe snowy weather, ever noticed the Hares to become partially white? Have you ever seen  *pied*  examples? Any notes on this subject would, I know, be very acceptable to my friend, who is editing the natural history columns. The other little shrub which you sent me with the heather is the wild juniper, the prostrate

or mountain form called *Ƴ. nana*. I remember seeing the Crowberry also in Achill. It looks yellower, with no sharp points to the leaves. You should find it anywhere about Slieve-More, but I think not in any great quantity, just scattered here and there, flat on the ground, or not rising much above it.

(*April 22nd, 1892*: to the same.) I ought to have written sooner to thank you for the beautiful plants of Mediterranean heath which you so kindly sent. The white-coloured variety occurs in *all* the heaths, and is rather rare in the Mediterranean. So I think you might as well send a notice of it for "Irish Sportsman." Please send it at once, or it may be forgotten. And you might say that the heath is *now* in its fullest and best flower. I read your article on the Rock Dove\* with much interest, and I wish you would write a few more such for the "Irish Sportsman." . . . You will find an account of your Moth (*Nyssia zonaria*†) in the May number of the "Irish Naturalist," which I think you subscribe for. And I should strongly advise you to send a short paragraph to the "Irish Naturalist," on the "Surf Scoter off Achill Island," and just give a short account of the circumstances and the date when you shot it. Yours is, as far as I know, the fourth Irish specimen, and it is a very rare bird. You are quite welcome to say that I have seen and identified your bird, as a *female*, was it not? Tell me have you any uncommon Fishes in Achill Island? You should keep a list of what you find.

(*June 4th, 1892*: to the same.) I now return your Wagtail. It is a female of *M. raii*, i. e. the common English Yellow Wagtail, very rare in Ireland. Please send a notice at once to the "Irish Sportsman," and also to the "Irish Naturalist," to this effect. "Yellow Wagtail, *Motacilla raii*, in Achill Island." Just giving the date and the circumstances.

In the June number of the "Irish Naturalist" he reviewed a little book on "Harrow Birds," by Mr. Barrett-Hamilton, contributing at the same time to the "Irish Sportsman" (June 4th) a notice of a conchological paper lately written by Dr. Scharff. And to the "Journal of Botany" for July he sent a short but carefully written article on the lost Irish plant, *Rubus chamæmorus*, summarizing the evidence regarding its Irish station in the "mountains west of Dart," where it had not been gathered or seen for sixty-six years,

\* In the "Irish Sportsman" for April 16th, 1892.

† An insect sent him by Mr. Sheridan, who had picked it up on the Achill sandhills, turned out to be the wingless female of this very local moth, previously quite unknown from the west of Ireland.

and urging botanists, who had almost given up the plant in despair, to undertake fresh efforts for its re-discovery.

By this time his health had for nearly three years remained comparatively unbroken, and he had by degrees regained a little strength. He was working zealously at the "Cybele Hibernica," and had thoughts (unduly sanguine, no doubt) of sending the book to press even so early as the ensuing winter. But now, once again, his progress suddenly collapsed. An asthmatic attack, beginning during a short stay at Howth (June 11th-20th), was followed by a long severe illness, during which for many weeks the worst fears were entertained. He rallied when hope had been almost given up, and on September 26th, after fourteen weeks confinement to the sick-room, was "down stairs and out in chair." Sadly weakened by the long prostration, he continued an invalid to the close of the year, all work and even correspondence being brought to a standstill.

But the period of his illness had been marked in the history of Irish botany by one noteworthy event, from which his name cannot possibly be dissociated. On the 10th of August, a telegram received at 74, Leinster-road, announced "Rubus chamæmorus re-discovered." It was signed "Hart and Barrington," and Mr. Barrington himself soon followed to make the report in person. Had he come either a day sooner or a day later, he would have found his invalid friend unconscious and incapable of hearing his story; but on this day Mr. More was unusually well, his mind was quite clear, and he listened with interest and delight to the news of a discovery which had so thoroughly vindicated his own firm faith. The next day he relapsed into insensibility. When he ultimately recovered, he remembered nothing of Mr. Barrington's visit, and the story of the re-finding of *Rubus chamæmorus* on the mountains west of Dart was as fresh as if he had never before been told it. But it may be doubted whether any botanical triumph achieved by himself in person gave him deeper satisfaction than that which his friends, Messrs. H. C. Hart and R. M. Barrington, had just recorded in the "Journal of Botany" (September, 1892), as the fruits of

a search to which they had been, in Mr. Hart's words, "strongly impelled by our accurate friend Mr. A. G. More, who has always maintained that, although no specimen existed, so careful an observer as Admiral Jones could not have been mistaken, and that the plant would yet be found."

Indeed his accuracy in such matters, where geographical distribution was concerned, seemed almost instinctive. In the case of *Rubus chamæmorus*, some of the best botanists in Ireland had been perfectly convinced that Admiral Jones was wrong. And even in branches of natural history which he did not profess to study, he often saved friends and correspondents from extraordinary blunders. An instance had occurred a few months before his illness. A London specialist to whom a fly taken in Ireland had been sent for identification, looking at it somewhat too hastily, had misidentified it with a species having a limited range in the south of England, and which had not been recorded for Ireland. The fact of the identification was mentioned to Mr. More, who, though he had never studied *diptera*, at once expressed the utmost astonishment at such an insect having occurred in Ireland. "But the more I think of it," he added, "the more impossible it seems! You must get it examined again, compare specimens, and you will find that it is a mistake." And, as usual, he was right.

The autumn of the year was a time of convalescence and rest. He went out daily in his chair, which had now become a familiar feature at football-matches, for his interest in that game was as keen as when he played it at Rugby; and perhaps the first shot he had fired since his expedition with Mr. Howard Saunders to Roundstone was taken this winter, when during an afternoon drive he was guilty of the enormity of shooting a Redwing. His correspondence was almost absolutely in abeyance; but it was far otherwise with his reading, and some recent book or article on natural history was sure to be among the first topics started when a friend dropped in for a chat. Hudson's "Naturalist in La Plata" yielded him the greatest enjoyment. Every now and then a bird, or other specimen, was sent him for examination, and a few weeks before Christmas



he had the pleasure of identifying one of the most unexpected feathered visitors that ever turned up on the Irish coast. A large white bird, with characters which at first sight seemed intermediate between those of the Pigeons and Plovers, was brought to him by Mr. Barrington, who had received it from a lighthouse-keeper, and could hardly say what to make of it. "It puzzled me completely," Mr. Barrington writes to the "Zoologist" (January, 1893); "it was, however, recognized by my old friend, Mr. A. G. More, as the Sheathbill, *Chionis alba*, of the Falkland Islands and South Georgia." This first occurrence in European waters of a nearly Antarctic bird was quite the event of the season, for the Sheathbill's home was no less than 7000 miles away: yet its plumage showed none of those traces of recent captivity which inspection so commonly reveals in cases of unaccountable migration. In February Mr. Barrington had the bird exhibited at a meeting of the Zoological Society of London, where it was received with much interest, but with considerable incredulity also. The following two letters, however, show that neither before nor after its exhibition did Mr. More quite share the general scepticism on the subject of the Sheathbill.

*January 25th, 1893.*

DEAR BARRINGTON,—I have been expecting every day to see you here; that is why I have not written. You should *take the Chionis* yourself to London, and exhibit it *yourself* at Zool. Soc. If you *send* it they will all be trying to pick holes, and say "assisted passage," or "brought in a cage," and so discredit the occurrence. For myself, I see no great difficulty in the bird having flown over of itself. Suppose that it followed the coast of South America up to the West Indies, and then, from the Isles of the West Indies, it might easily cross. Finding itself "lost," or out of its bearings, it might fly away at large, anywhere.

(*April 3rd, 1893.*) Did not I tell you how they would treat the Barringtonian Red-faced Antarctic Sheathbill? Cast every doubt upon it, as not being English! Like Dr. —'s Owl. But yours was not so long buried, so as to admit of mistake. Darwin, I think, in his Journal speaks of the Sheathbill as occurring at *long distances at sea*, and remarks on this. You should just look this up, or am I to do it? and defend your bird. Why, if any bird has ever crossed *unassisted* from America, this is the lad to do it. And we never used to hear so much

about assisted passages in the days when ships were fewer. Yet, I do not think that American birds have come more often of late years, with increase of ships. Dear me! they will next suggest that the Siberian birds come by train! I am myself quite satisfied the bird was a voluntary, unassisted wanderer: who of course felt impelled to come and show himself to R. M. B., that *great light* on migration! . . . If *any one* bird has crossed the Atlantic unassisted, why not many? Surely they do not say that *all* have come by ships! . . . You should order Seebohm's "Geographical Distribution of British Birds."

## CHAPTER LI.

## A BOTANICAL CORRESPONDENCE.

[1893.]

A CORRESPONDENCE with a lady who had made some important botanical discoveries in the West, in a locality not far from Castle Taylor, shows the special nature of his interest in several of the plants most characteristic of the Western Flora. He had long been particularly anxious to ascertain the exact range of *Neotinea intacta*. Indeed, to facilitate search for this rare and easily overlooked orchid, he had a number of photographs taken from the original plate published in the "Journal of Botany," one of which was supplied to each of his correspondents who undertook the exploration of any district likely to produce it. Such other distinctively western plants as the Mediterranean heath, and his old friend *Gentiana verna*, were, after *Neotinea*, among the species whose limits he most wished to see traced. His correspondence with Mrs. Joyce begins with a letter written from Howth in the summer of 1892, but owing to the long illness which immediately supervened he does not seem to have written to her again for nearly a year.

*June 8th, 1892.*

DEAR MRS. JOYCE,—Indeed I have not forgotten the pleasure which I felt in making your acquaintance, and I hope that you still take interest in our native plants, and that you will kindly send me some new localities for rare plants, which I am anxious to have before October next, as the preparation for a new edition of "*Cybele Hibernica*" is now far advanced, and I hope to print it in the coming winter. Please kindly tell me how should the locality be described where you found the *Vicia orobus*? Is it east of Athenry? And again, *Viola stagnina*, which you once sent me—is it not on or near some Turlough? and what is the name of it? Regarding the beetle which was devastating *Rosa spinosissima*: if you will kindly send me a few by post, in a small box, I daresay there will be no great difficulty in finding out the name. It

is very interesting to hear of such a plague. I think it must be the small beetle sometimes called the "fern fly." It was *Neotinea intacta* which I first found at Castle Taylor, on the "hunting course" field, but it is not abundant there, and I fear it is now past flowering. There is more of it about Ballyvaughan, in Clare. And my friend Mr. Levinge (of Knock Drin Castle) has gathered it in Burren last year, and again this year. I will ask him to give me a specimen for you, if you care to have it. This Orchid grows also on the shore of Lough Corrib, close to Cong, I believe in Mayo. But it flowers very early (middle of May), and is quite a small insignificant-looking plant. But it is one of the very best *Irish* plants, being on the Continent found on the Mediterranean, then in Portugal, and I suppose Spain. It is indeed a botanist's marvel. If at any time you should wish me to look at any of your dried specimens I shall be most happy.

By the spring of 1893 he was again working hard at botany, and the correspondence was resumed.

*April 30th, 1893.*

DEAR MRS. JOYCE,—I was very glad to see your handwriting again. And indeed I have not forgotten your interesting discovery of *Vicia orobus* in Galway. . . . When you mention *Ophrys muscifera* as growing in the same locality, it is evident that you have a good chance of finding other rare species. Especially please look out for the *Neotinea*. It should *now* be in flower, a short upright Orchis, very small, with greenish flowers, sometimes a little tinged with purple. And quite unlike any other Orchis, except *Habenaria albida*, which flowers much later. As you know the "Hunting Course" field at Castle Taylor, you will recognize the right kind of surface. And I think you will have to look closely, as *Neotinea* is only 6 to 8 inches high. Please, at same time, notice whether *Gentiana verna* grows at Cregmore. I am very anxious to know its eastern limit. It is recorded as found near Athenry, that is I suppose south or west from Athenry. For the geological strata *change just at Athenry*. And I shall like to hear whether the *Gentian* grows anywhere to the eastward, or off the pure Carboniferous Limestone (such as the Hunting-Course). Again, does *Dryas octopetala* or *Geranium sanguineum* grow in your locality?—with the *Ophrys* and *Rosa spinosissima*? *Rhamnus*? I should be very much obliged if you would kindly take the trouble to find out any new localities for *Gentiana verna*. It extends north to Lough Carra in Mayo, and right away to the west of Clare, how far east we do not know. *Viola stagnina* you once sent me from a turlough is a very rare plant, and I should like to know the locality. . . . The Punchestown Orchis is *O. morio*, which I do not remember finding at Castle Taylor. It grows near Roundstone in Connemara, and in several places near Dublin, and in Kildare. It is one of the less common Irish orchids. I hope that you will continue to send me anything rare. It is always a pleasure to see specimens freshly gathered from the country, and no

trouble to examine them. I shall be curious to hear what you find at Cregmore.

(*May 3rd, 1893.*) Thank you for your very kind reply to my letter, and for the interesting information you have sent. Your locality at Castle Lambert must be a very rich one to produce so many rare plants. . . . There is a small species of *Galium*, *G. sylvestre*, which you will probably find a little later in the season. And a fine large-flowered hawkweed, *Hieracium iricum*, might also be expected where the *Dryas* grows. Are you quite sure that the *Habenaria albida* which you found near Moyode may not have been *Neotinea intacta*? This mistake has often been made. Have you preserved the specimen, and might I see it? For I am very desirous to know how far the *Neotinea* extends. Near Ballyvaughan, in Clare, along and near to the shore, from Black Head to several miles east of Ballyvaughan, there is *plenty* of it *now in flower*, I should think, and probably all over Burren, and near Gort also; so that you will pardon my asking whether the "*Hab. albida*" could have been the *Neotinea*. I am very glad to hear that *Vicia orobus* is so plentiful. It grows also on some islands in Lough Corrib, but has not been gathered there for many years. Indeed you may do a good turn for Botany in Connemara if you will kindly inquire after the Mediterranean Heath, which is now just in flower. The only Heath likely to be found in flower so early. Besides *Urrisbeg* mountain, near Roundstone, it grows, I believe, about the south shores of the Killeries (and abundantly about the base of Mweelrea Mountain, at north mouth of the Killeries). What I wish very much to find out is, whether it grows all round the coast from Killeries to Roundstone, or opposite Bofin Island, or in fact any new localities. It usually occurs at low level, near the sea, and should at this season be conspicuous. A large form of *Erica mediterranea* is commonly grown in gardens, a large bush 5 or 6 feet high. But the wild plant is only about 2 feet. It should be found near Renvyle.

(*May 16th, 1893.*) It was very good of you to take so much trouble about the little Orchid. It is, as you seem to have made out, *Habenaria albida*. But I think this is very early for it to be in flower. By this time the *Neotinea* will be quite over, I should suppose. *Neotinea* (the prize of Burren and Galway) is shorter, has a shorter spike of flowers, and is indeed very like to *H. albida*, only *Neotinea* has few leaves on the stem, and one especially prominent about midway up the stem. Its flowers are usually greenish in Burren, and with a slight touch of *purple* in the Castle Taylor plant. . . . I enclose a fragment of *Erica mediterranea*, which was sent up a few days ago from the shore of Carrowmore Lake, near Belmullet, North Mayo. I have not succeeded in finding out anything new about its distribution in Connemara.

Later in the summer the correspondence relates chiefly to a botanical exploration which, at his suggestion, Mrs.

Joyce was carrying out for the Royal Irish Academy in county Mayo. He writes from Bray:—

June 22nd, 1893.

DEAR MRS. JOYCE,—I received your welcome letter this morning. I feel sure that you will find the long-sought *Neotinea* before very long. Only think that it extends for miles along the Bay of Galway, and must grow in many places near to Castle Taylor. It is very singular, too, that it is only at Castle Taylor it has been found *purplish-coloured*. The Clare specimens which I have seen were all greenish. The interest will now lie in finding out how far to the east does the *Neotinea* extend. Does it reach beyond *Gentiana verna*? The *Hieracium* you sent at the same time as *Habenaria viridis* is a rare one, *H. iricum*. I hope that you will kindly continue to write occasionally, and report progress. You are now upon most promising ground. *Pilularia* grows on Lough Mask, *Rosa sabini* on L. Carra, and the other *Rosa* (? *R. systyla*) is worth looking after. Do not despair of finding *Neotinea* on the shores of either Carra or Mask. I never visited that small lakelet you speak of. It should produce some rarities. Among *Potamogetons*, those which have been called *P. longifolius* are worth looking for. Will you please try a way of drying\* *Potamogetons*, which I think you will find easy and simple. Have a few quires of thin cap-paper ready, then put your wet freshly-gathered plants *inside* the double and folded sheet of cap-paper. Put the *Potamogeton*, folded as it is inside the cap-paper, between some of the sheets of drying paper, and, when you come to change it, *leave* the thin paper attached to the *Potamogeton*, or other water plant, and do not change the *thin* paper at all; but shift the thin paper and the plant together, just as they are, into some fresh drying paper. In this way you will find it easy to dry most of your water-plants, and these *Potamogetons* will become quite hard and stiff in two or three days. Do not mind if all the specimens do not look perfect. If you can secure old and young fruit, and floating and submerged leaves, there will be no difficulty in naming the specimens.

I am sure that some rarities remain yet to be found in the West of Galway and Mayo. Any part of Lough Corrib, any part of Mask and Carra are well worth trying. You will find, I think, *Rhamnus frangula*, as well as *R. catharticus*, on L. Mask. Look also for *Equisetum wilsoni* and *E. mackayi*. You might find *Sanguisorba officinalis*, as I did, on the shore of one of these lakes. Always the lake shores are worth examination. . . . I do not think there is a second species of white water-lily. But please measure the size of flowers and make

\* The careful setting of Mr. More's plants had always been remarkable. Mr. Newbould, writing to him in 1860, relates how, in looking through a large public herbarium, "the sight of a more than usually bad specimen made me involuntarily exclaim, 'I wish we had some of More's specimens here!'" The curator readily endorsed the wish.

your notes. My sister would rejoice to spend a week or two in such a promising country, but we are bound to Bray at present, and I am myself hardly fit to travel so far. But I know it will be a very great pleasure to see your collections when you have finished the campaign. And I must tell you that I think you are doing very well, and you may be sure that your researches will be very useful. Is there no mountain stream in which you might find the very rare *Potamogeton, kirkii* of Hooker and *sparganifolia* of Babington? It is only known from the one locality, the stream near Maam Hotel. It has long, long, half-submerged leaves, like those of *Sparganium*. That short-leaved *Sparganium* you speak of is well worth looking after. . . . Allow me to say "bon courage." You are doing very well, and I wish you still further success.

(July 5th, 1893.) I am afraid that I have been too long in answering your last very interesting letter; but I have not yet quite recovered from my late illness, and I hope that you will kindly make allowance for an invalid. . . . I am very glad that you succeeded in tracing *Gentiana verna*, and I quite believe with you that Lough Carra is much the more promising lake of the two. I hope you have kept a complete list of *all* the plants you noticed, . . . and if you have any chance of going back to Carra and Mask this autumn you will be able to add a number of fresh species. I had rather see a *complete list*, from any well-defined or well characterized district, than a mere list of rarities only; so that I hope you will be able to continue your explorations of this interesting district, not (so much) with the view of searching for *Neotinea* as to make sure of all the plants which do grow there. Also please look after any *Irish names* now in use. These are dying out, and are well worth taking down, if the peasantry can be trusted to know the plant. . . . I enclose you a little chapter on the Irish Flora, which I think you may like to read. Please tell me if you find any objection to any of the propositions. Please kindly let me know your address when you return to Ireland, and especially if you are going on with your collecting this season. Another time it will be well worth searching the east shore of Lough Corrib, near Cong, where Dr. Moore found *Neotinea*, to see how far it extends. *Vicia orobus* too grows on Lough Corrib.

The "little chapter on the Irish Flora" was his sketch of "Characteristic and Rare Plants" in "Guy's South of Ireland Pictorial Guide," written in the early months of this year. The correspondence with Mrs. Joyce was again resumed in October, but of course at that season search for *Neotinea intacta* was out of the question.

## CHAPTER LII.

## GENERAL CORRESPONDENCE.

[1893.]

REGULARLY as the year came round he applied himself to the mapping out of fresh areas for exploration. "Have you made any plans yet as to where you should go exploring this year? I think the north coast of Mayo, for sea eagle and other birds, and the lakes, Mask, Carra, and Corrib, will be best worth your attention." So begins a letter to Mr. Warren, dated April 15th, 1892; and the suggested expedition was carried out during the summer of that year with a large measure of success. The Sea Eagle was seen, and evidence gathered as to its still breeding on some of the coast-precipices of Mayo, more satisfactory than any obtained for several years. Mr. Ussher was simultaneously exploring among the midland lakes, and Irish ornithology was thus making progress in many directions. Mr. More felt his inability to share in the active work. But he was as far from a "sleeping partner" in the later stages as in the inception, nothing being done without frequent reference to him; and the Reports drawn up from time to time for the Royal Irish Academy were generally framed in the form which he prescribed.

*Feb. 15th, 1893.*

DEAR WARREN,—I was very glad to receive your letter. The best way about the Report will be, I think, for you and Ussher to draw up your own Reports separately, and then they can be introduced under "Mr. Warren reports," "Mr. Ussher reports," and if my name is to go in at all, it will only be in the title of the Paper. Are you for sending in a Report *this year*? or for waiting another breeding season? Meantime I now return your very interesting letter, as with a few changes it might easily be turned into a report. . . . And I believe that any notes freshly written down, immediately after the excursion, are always better.



I hope you will read carefully, and make notes on, Dixon's Migration book. . . . As to the torpidity of Swallows, Coues says under *Chaetura pelagica* (in 1884): "It has mostly forsaken the ways of its ancestors who bred in hollow trees, and now nests inside disused chimneys. In primitive districts it still continues to use *hollow trees, to which it resorts by thousands to roost. Not impossibly* winters in such retreats in a lethargic state. Eastern United States, migratory, very abundant in summer." . . . Do not you think that one or two such crowds while roosting were overtaken by a sudden frost?

Returning to your Report. I do not think it should include any birds beyond those which you saw yourself, or which were reported to you at the time. At the end, a short summary, or mention of the most remarkable species, and *deficiencies*, might be given; but I do not think a full list, unless it were short. . . .

Sheridan has got a real rarity in Achill, a King Eider, verified by Bowdler Sharpe, of British Museum. Two Mealy Redpolls too from Achill. The White-eyed Duck\* I am sure you would have liked to see. It was a beautiful male. I have just got a most interesting new book, Abel Chapman, on "Wild Spain." Bustard-hunting, Ibex, and mostly birds. Shall I send it down to you read? As I think you would like it. And you need not be in any hurry to return Dixon. Only I want you to give it a careful reading, and make notes of any objections you find to the theories. . . . In observing the Eagle, could you say had it an *altogether* white tail?

The same unflagging eagerness for the promotion of accuracy and certainty in his favourite studies continues to be the key-note of his letters to Mr. Sheridan.

(*March 28th, 1893.*) I think it will be best if your friend in England will send the Glaucous Gull to Robert Warren, Esq., Moyview, Ballina, Mayo, to be examined. I am quite able now to receive specimens, and always glad to give you every help I can. But Mr. Warren knows the Gulls better than any one else in Ireland. So let your friend send the Glaucous Gull by parcel post to Mr. Warren, who will tell you whether there is any doubt about the name. . . . I hope that you are looking out and keeping *dates* of the arrival of Migratory Birds. You should send at once a notice of the King Eider to the "Irish Naturalist" and the "Irish Sportsman." And you may as well say that it is now over 40 years since any specimen has been obtained in Ireland. The last mentioned by Thompson was in March, 1850. You should state also that your specimen has been examined and identified by Dr. Bowdler Sharpe, of the British Museum, and say in whose possession, and where, it now is; and the age. I think you said an *immature* male, was it not? Also I hope you will send some other notes, at any time.

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\* Shot in January, 1893, near Athlone (Irish Naturalist, vol. ii., p. 114).

(April 6th, 1893.) I hope that you are making notes of the arrival and departure of Migratory Birds. Such notes would do well for the "Irish Naturalist," and I should like to see your contributions more frequently in that Journal.

King Eider.—Thompson gives

One shot at Kingstown, Oct., 1837.

One Derrynane, Kerry, 1843.

One Tralee Bay, Kerry, 1845-6.

One Belfast Bay, March, 1850.

That is only four specimens obtained in Ireland. It will be sufficient for you to say this: Thompson mentions only four specimens obtained in Ireland, the last in March, 1850. So that it is now 43 years since any specimen has been shot on the Irish coast. Say, also, something about the state of plumage, and *how much* of the adult plumage has been assumed. I think you told me it is an immature male. Is it not? Otherwise, if in nearly full plumage, you would have known it at once from your books. Send also some account of the circumstances and the locality where you shot it. It is a great pity you did not offer it to the Museum in Dublin, as there is no Irish specimen there, as you may see from my List. In any case, if you, at any time, obtain a bird whose name is printed in small letters in my list, please write and offer it to Museum.

(April 21st, 1893.) Thank you very much for the beautiful box full of heath which you have so kindly sent. The flowers were simply perfect. I never saw it in such fine condition, with such full and rounded blossoms. Is not this a very early season, with you, as with us? But of course, in a mountainous country, you do not see the advance of spring so early as we do. Horse-chesnut, lilac, hawthorn, all are in flower already. I do not remember such an early spring. But I have not yet seen any swallows myself, though I hear they have arrived. I hope that you are noting the Migratory Birds, &c. And that you have sent a note of the King Eider to the "Irish Naturalist," where it will be permanently on record. It is not enough to write to "Land and Water," as few Naturalists will refer to that newspaper. But if you would get into the way of sending *short notes* to the "Irish Naturalist," you would be making your observations more generally available, and find them very convenient for your own reference also. I suppose you have not heard of any whales this spring. Now is the time to look out.

Among the phenomena of that remarkable summer of 1893, one of peculiar interest to him was the luxuriant flowering of his plants of *Allium sibiricum* (the "St. David's Onion"), which he had planted several years ago in his garden. It had not flowered well until this singularly forward year. The sight, besides recalling memories of a

most happy tour, seemed to renew the old fascination that the leeks of Celtic Britain and Ireland had ever possessed for him, since he first suggested the non-indigenoussness of *Allium babingtonii* in Connaught. Among his letters written at this season to Mr. Griffith, of Bangor, is one in which this association is evident.

*May 13th, 1893.*

DEAR MR. GRIFFITH,—Will you kindly allow me to ask for your help in a matter where I do not know where to apply unless to you. Have you kept any memoranda of the *Heights* attained by plants, on the *Welsh* Mountains? If so, please tell me to what elevation does *Ulex nanus* (Gallii) attain? Also the bracken (*Pteris aquilina*), and any other conspicuous and common species. I want to compare heights a little with the West of Ireland. And here let me say what a fine piece of work there is here for any botanist who would carefully measure the heights attained on the mountains of Wales. We have no reliable data, and I wish you would undertake it. It would be a most useful contribution to your native botany. Again, a *list* of all the plants of all North Wales is much wanted. Better still if South Wales were also given with it. Do you know of anybody working at the subject? Have you seen *Juncus tenuis* growing? And has any second locality been discovered?

You used to cultivate several onions and leeks. If you still have them in your garden, I should be very much obliged if you would kindly spare me a few living roots of *Allium sibiricum*, which I wish to compare with my plant from St. David's Head. I am growing *Allium babingtonii*. And I very much want *Allium scorodoprasum*, which I think you told me is grown in cottage-gardens in Wales. Could you be so very kind as to send a few, say 6 roots. They will travel safely, by parcel post. . . . If you cultivate also *A. schoenoprasum* type, I should like to see it. And do you find any leek in Welsh gardens like *A. ampeloprasum* or *A. babingtonii*? Do you ever think of coming to Dublin? We should be very glad to see you in Ireland. And this is a really dry and safe season.

His contributions to "Guy's Pictorial Guide" (short papers on the Mammals, Freshwater Fishes, and Botany of the South-West of Ireland) were written during May. They are in a more discursive style than he often adopted, and are probably the only articles in which he put forward an opinion as to the origin of Ireland's present flora and fauna. On this vexed question he maintained that the arrival of our animals and plants must have taken place after, or at any rate towards the close of the Glacial Epoch.

It was the reading of Sir Robert Ball's "Cause of an Ice Age," and lectures on the same subject, which had done most to convince him of the impossibility of animal or vegetable life having existed through a period of such rigour. He watched with great interest also the controversy on the indigenoussness of the Frog in Ireland, and made a series of notes, as though contemplating a paper on the subject. On the strength of the historical evidence, he felt satisfied that the Frog was an introduced species in Ireland, as in some other islands.

Towards the end of the month he again fell into indifferent health, and went to Bray, hoping to benefit by the change and sea air. During the whole of his stay here, from May 25th to July 31st, he continued an invalid. His letters at this time are principally dictated, the following amongst others:—

*May 31st, 1893.*

DEAR MR. SHERIDAN,—Your porpoise is I believe *Delphinus acutus*,\* but you must preserve the head and skeleton carefully, and let me see them before I can give a certain opinion. This Dolphin has been taken in Dublin Bay, and also at Portrush in Derry: it is very rare on the Irish coast, and you have secured a great prize. Better keep the skeleton and the head near it, so as to send the two together up to Dublin. In the meantime let them lie buried in the sand till I write to you again about them. By the way, what has become of the remains of the gigantic Cuttle-fish which I think you buried, in hopes of obtaining the bone, which should be most valuable. Have you got the two mandibles of the jaws? of a brown horny colour, and have you kept any of the large horny rings of the suckers of the arms? If you have, please send me two or three if you can spare them, also I should like to see the great spines from the claspers of the great Sun-fish, and have not you kept a few of the large teeth of the Spermaceti Whale? What has become of its great skull, which would be very useful for our Museum? I am here for two or three weeks for the sake of recruiting my health. So please write again to this address. Could you be kind enough to send me a few small branches of the Mediterranean heath to see how far advanced it now is?

But the following is in his own writing:—

*July 9th.*

DEAR WARREN,—I wish I had been at your elbow when you inspected that grand prize, a *freshly killed* Basking Shark.† Only to

\* The White-sided Dolphin. † Recorded in "Irish Naturalist," July, 1893.

say that the mere skin, just taken off by a butcher, and thickly salted, and then put into a box or cask: or even cut in two and so treated—would keep a long time, and is worth some £20. I think Steindachner, in Vienna, offered me that sum. And I think Dr. Günther would give about as much. There are only 3 or 4 stuffed skins known. Then, did you know about that curious large spine, which is implanted in the claspers (hind lower fin) of the *male*? That, of itself, would be worth having. Then, there is the large parasite which is found attached to the *eye*. Then, . . . I suppose you looked for parasites on the *body*? But, of all things I want to see that grand Crustacean parasite, which has been seen, but never described, attached to the eye. I tried hard to get the  $\sigma$  spine, from Achill; but the fish had become too offensive in smell. By the way, our friend Sheridan has got a rare Dolphin lately. Was not Ussher lucky in finding so many Garden Warblers\*? How do you like the enclosed *tract* on the Irish Flora?

Among the attractions of Bray was a colony of tree-frogs, whose music could be heard after dark on warm nights, when he sometimes went out late to listen to them. A sample of the curious items constantly brought him by post is the following short epistle preserved amongst his papers:—

Fassaroe. Enclosed from ——, where also I saw on a farm a fence made—to keep out “a weed”! “What weed?” said I. “Is there any of it?” “Yes, plenty.” “Then get a bit.” Farmer ran into next field, and brought me a bunch of *Convolvulus*. This is the first time I ever saw a fence made to keep a weed in check. 24/6/93.

Such “travellers’ tales” were delicious to him. But unhappily the brilliant summer was marked by another of those severe illnesses, which so terribly reduced his little remaining store of constitutional strength. When he could be moved, he was brought back to Dublin, still in very poor health, on the last day of July—the day on which, as he records in a pocket-almanack, his gun-licence expired. The licence was never renewed. But by the beginning of September he was sufficiently recovered to resume part of his correspondence: and in a letter to Mr. Sheridan (Sept. 7th), discussing a Wagtail, a Skua, a Spider, the Mediterranean Heath, and the White-sided Dolphin, occurs one short sigh of regret for the change since

\* An article on the Garden Warbler in Ireland, by Mr. Ussher, appeared in the “*Irish Naturalist*,” July, 1893.

bygone days. "I hope that you have had a good season. This beautiful hot summer should have brought many tourists to your beautiful Island. I do indeed wish that I could ramble about as I used to. But I am afraid that is quite out of the question now."

In October, he again writes to his Achill correspondent—the subject this time being the *autumnal* flowering of the Mediterranean heath, on which he sent a note to the "Irish Naturalist."

(October 17th, 1893.) Many thanks for the flowering sprays of *Erica mediterranea*. It is very curious to find it in flower at this season. No doubt it is the late hot summer which has pushed it forward, and made it anticipate the usual date. I have seen many apple trees in flower this autumn. I am glad that you have received the head of Dolphin safely back. Now that you have the skeleton all together, I think you should offer it to any one of the large Museums, and certainly begin with Dublin. . . . You should keep the dates of arrivals of birds carefully this year, in case there may be any difference from the usual dates. Mr. Williams has obtained a Red-breasted Snipe in the Dublin market. That is the latest addition to the Irish Birds, and one more American in Ireland. I am fairly well, thank you, and quite recovered from the illness which I had last summer, and I am glad to hear that you are now quite well again.

His ornithological correspondence with Mr. Ussher was particularly brisk, but most of the letters are too technical for quotation. Mr. Ussher's "Report on the Breeding-range of Birds in Ireland" was a paper which interested him greatly, and he made a number of notes on the draft, which was laid before the Royal Irish Academy as "Revised and amended by A. G. More." But the "revision" was probably not more extensive than that which most of the botanical reports read to the same body for years back had received at his hands.

November 24th, 1893.

DEAR USSHER,—I now return you both Breeding Birds and Report.\* The latter should be entitled, I think, *Exploration* instead of *Tour*. "Tour" sounds too much like a pleasure-trip. In the Notes you may perhaps find something; but indeed you have done the Breeding Birds so well and completely that they could hardly be better. I am chiefly

\* On Exploration of the Midland Lakes and Bogs.

sorry about the three Ducks—Pochard, Wigeon, and Pintail—that they have such very feeble claims to be reckoned among our Breeding Birds. It must be very hard to tell the species of Duck. Now, tell me are the males in the *full* adult plumage always, when breeding, or are they in the *brown* summer *dress*? Do not you think, as I do, that the Merganser has often done duty for a rare duck? . . . . Stock Dove: Is it not partly a winter visitor? I think it probably arrives first as a winter visitor, and then a few remain to breed. . . . I have written to Warren, and he thinks of incorporating both his expeditions together into one report. But this does not affect yours, and yours will do quite well as it is.

Of his botanical work, he writes a few weeks later to Mr. Stewart:—

(*December 18th, 1893.*) I have just been entering the localities from your Paper on South Clare and Shannon estuary, and there is one plant about which I should feel very much obliged if you can kindly give me a little information. . . . I am working regularly at “*Cybele Hibernica*,” and shall soon be able to send it to press. It is rather a long and tedious task, as you must know from experience with *Flora of N.E. Ireland*. I am glad to say I am fairly well and strong this winter.

## CHAPTER LIII.

## "NOT GETTING BETTER."

[1894.]

THE new year found him in his usual spirits, and except that his letters show an increasing inclination towards brevity, there is little to indicate that as 1894 went by, he found himself growing gradually weaker. The same alacrity in volunteering suggestions, as also in hammering at them and urging their adoption, shows itself as of old: and not least in his correspondence with Mr. Barrett-Hamilton.

(*April 5th, 1894.*) Many thanks for your letter and all the news. I am delighted to hear that dear old Babington is so well. Please remember me very kindly to both himself and Mrs. Babington, and I hope you will see a little more of them after you have taken your degree. I enclose you two papers from the Royal Irish Academy, by which you will see that you are likely to be a M.R.I.A. in the course of a few days. . . . The Circumpolar Fauna will be a very interesting subject if you will take it up. Newton can give you no end of help. As I think I said to you, all the Vertebrate animals should be included, and the limits of trees are of no great consequence. I should just stick to the Arctic circle for a limit. As you say in the "Zoologist," it would be much better if all the different branches of Flora and Fauna of Ireland could be traced through the same districts, and those of "Cybele Hibernica," which were first laid down by Prof. Babington, would do as well as any others. We should then be able to compare the range of the different Plants and Animals. In Scotland they have laid down a new system of districts, quite different from those which H. C. Watson adopted for plants, and the consequence is that there are now two systems in use, and nobody knows which to follow. Scharff has adopted the twelve districts of "Cyb. Hib." for Mollusca, and I hope other branches will be treated in the same way. For those who want smaller subdivisions there are 37 counties laid down also by Babington.

(*April 24th, 1894.*) I went to the Dog Show yesterday and saw a good many Dachs, and was forcibly reminded of your prizes in this line; also of the Whales, which always seem to get stranded at this time of year. I enclose you a form such as I should like to see adopted generally



in the different branches of our Irish Fauna and Flora. It corresponds with Watson's "Topographical Botany" divisions, and would contain a great deal in a small space, and would show north and south limits. In cases where there might be no authority for some of the counties, these might be inserted as blank; but Watson simply omits them altogether, and this saves space. . . . Now, it has occurred to me that you might like to put together the different papers on Marten,\* after this plan, to try how it works. Two columns just go on one page. This would be a first attempt at "Topographical Zoology of Ireland," and you will soon see how easily, and in how small space, all the animals could be traced through the 37 counties. I think you ought to ask Newton what he thinks about the Circumpolar Fauna, and then you could be laying your plans for it. I cannot too much urge it upon you.

(April 25th, 1894.) I am very glad that you like the formula for Zoological county distribution. Please remember that it is nearly altogether H. C. Watson's, as used in his "Topographical Botany." . . . My earnest wish is to see the same districts employed throughout for all the branches of our Fauna and Flora, and not, as has been done in Scotland, one set of Districts for the Plants, and another for the Animals. . . . I did not see your Dogs at the Show—at least, not to know them as yours. I had no catalogue, and was very lame that day. Thank you for the Marten reprint. I hope when you have leisure you will take up this species, as a first sample of Distrib. in Ireland. I reckon that about one page will do for each species, and some will require much less; so that if you take the whole of the Irish Land Mammals they should not take more than 20 pages, for 22 species and one variety.†

(May 22nd, 1894.) I enclose you the list of 22 Land Mammals that I should include in the Irish Fauna. I believe that the Whiskered Bat is all right, though only one specimen was obtained, as Dr. Kinahan was at the time corresponding with Bell and other English authorities. Daubenton's: I have myself seen an Irish specimen. English Hare: Is this completely established in the wild state anywhere in Ireland; and if so please tell me where? Anyhow it should not be included in the *Irish* Fauna. The name *L. hibernicus* should probably be dropped altogether, if our Hare is identical with that of South Sweden. *Mus alexandrinus*: If this is the southern form, should it not be made the type, and *rattus* the variety? And I think that not having *landed* on Irish soil it can scarcely be placed in the list. . . . You must not be

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\* Three articles on the Marten in Ireland were published this spring: two, by Mr. Harting and Mr. Barrett-Hamilton respectively, in the "Zoologist" for March and April; another, by Mr. R. Patterson, on the Marten in Ulster, read to the Belfast Nat. Hist. Soc. in March, appeared in the "Irish Naturalist" for May.

† *Mus hibernicus*.

discouraged about the Circumpolar Fauna paper. . . . I am sure that much more can be done in England than you think. It is too good a subject to let it fall into someone else's hands. When you are in Brunswick don't forget the Irish Hare; and try to bring back some of the South Swedish, as well as the Norwegian forms.

A reminder of spring which had become as constant as the Dog-Show reached him from Achill.

March 6th, 1894.

DEAR MR. SHERIDAN,—Thank you very much for the Mediterranean heath which you so kindly sent. It arrived in excellent order, and makes quite an ornament to the room at this season, when flowers are so scarce. As you remark, the bloom is not nearly so large as what you sent me last year. I am glad to hear that you have recovered so well from the influenza. It is a very disabling complaint. For myself, I am fairly well, and shall be always glad to examine any specimens you may think worth sending. I am sorry to hear the flippers of your Dolphin have been lost. . . . At any rate the skull is well worth having, and I think you might offer it to the Cambridge Museum. I now return you the drawing you made, and I think there is no doubt it is the White-sided Dolphin. Several other specimens occurred off the British coast last year. Still it is a rare species, and when you have heard the opinion from Cambridge I think you should send a notice to the "Irish Naturalist," as yours seems to be the third Irish specimen. I will look at your Crossbill some day when I go into Dublin. These birds scatter in all directions, and there is nothing remarkable in their occurring in the *west* more than elsewhere; only they are attracted, no doubt, to any locality where there are many fir-trees planted. The *Parrot* Crossbill was obtained in many parts of Ireland these last few years. Hoping that you will soon have something rare to write about. By the way, could not you *colour* the drawings you so often make? A box of colours, either in hard squares or in *soft* colours, are to be had for 1s. (the Society of Arts pattern), and would do perfectly well, and make it much easier to name the drawings. Shall I send you a box, and would you prefer soft or hard?

(April 16th, 1894.) I was glad to see some of your rare birds published in the "Zoologist," and I hope you will soon meet with some more. I wish just to call your notice to a slight mistake about the Surf Scoter, where you say that yours is the eighth specimen. It is much rarer than that in Ireland, for I make out yours to be only the fourth. You have, I think, the 2nd edition of my Bird List, in which three are mentioned, and yours is the only one since, that I know of. I think that if you can refer to my letter you will find I did not say eighth. But likely you may have trusted to memory. About the King Eider, I wish you had mentioned that the last obtained in Ireland was in 1850—actually more than forty years ago. . . . My own health is

pretty fair. Of course I am never very strong, not like those who spend their time in the open air. This month should bring you in some rarities. Keep an eye on the Wagtails again this year. I daresay the White Wagtail might occur again. I think the Mealy Redpoll is quite uncertain in its occurrence, besides being rare. Otherwise it would have been ascertained to visit Ireland sooner than it was.

His wish for fuller knowledge of the range of *Neotinea* is meanwhile as lively as ever.

May 8th, 1894.

DEAR MRS. JOYCE,—I think you may like to know that the little Orchid (*N. intacta*) is now in full flower in Clare, in case you may like to search for it in your own neighbourhood. I should think that any rough rocky pasture, wherever *Gentiana verna* is most abundant, should be the most likely place. And as we know that the Castle Taylor *Neotinea* flowers later than the Clare plant, you ought to be just now in right time. I daresay you have the little Photo still. But in any case look for a heavy head of flowers, with very small blossoms. These are altogether green in Burren. The plant should be more easily found just now, before the grass has come up. And will you kindly try and ascertain how far east of Athenry does the *Gentiana verna* extend? I suppose it should now be in full flower, and easily traced. Only non-botanists seldom make any exact observations; and that is why I should prefer to rely upon what you can report yourself. If you should meet with any specimens that you do not feel sure of, I hope you will send them, and I shall be most happy if I can be of any use in naming them. My sister joins in kind remembrances.

Nor does the spring go by without some attempt at pushing Ornithology.

May 11th, 1894.

DEAR WARREN,—I have just heard that the Committee have made a grant of £10 for bird exploration this year; and small as the sum is, I hope it will enable you to make another search in some promising district within reach of your house. Is it to be another search at the Lakes, Carra and Mask and Corrib? But, in any case, I suppose that you should start soon. . . . Of course you will have seen Barington, and I hope you have been able to accompany him round the cliffs of the north coast.

An explorer with whom his correspondence had for several years been remarkably voluminous was Mr. H. C. Levinge, of Lough Drin, whose letters to Mr. More between 1891 and 1894 would nearly outnumber those of all his other correspondents (for the same period) added together. These relate chiefly if not totally to the botany of the

midland and western districts in which the late Mr. Levinge's field researches were carried on; and it was undoubtedly in the stimulus which he seemed peculiarly qualified to give to painstaking exploration of this character that Mr. More's really important work consisted during these closing years of his life. The instances which appear in the present volume are few indeed among all that could be collected. And now he was beginning to feel that he had little else left to do. He was spared severe attacks of illness in 1894, enjoyed his usual stay at Bray during part of the summer-months, and as the year drew to a close sometimes received congratulations from his friends on a semblance of improvement in health. But for the first time in his life he discouraged these thoughts. "No: I am not getting better," he answered, with a quiet emphasis. He seemed more careful of arranging his papers than anxious to add to what he had written. Still fresh information was always gratefully received, and with the usual interest.

*August 18th, 1894.*

DEAR MRS. JOYCE,—Your Rosa formed a complete puzzle. I have never seen it before. And while I went on trying to make it out, the time has slipped away till I find myself in the position of owing you a very humble apology for the long delay. If you should have the opportunity, I should like to ask you kindly to gather a few of the branches now *in fruit*, and also a piece of the *barren stem*, from which together I might have a chance of making out which species it is. The leaves are too long, narrow, and shining to belong to any form of *R. involuta* (Sabini), and I should not be surprised if it turn out to be a garden escape. I was very glad to hear that you had recovered so much from your accident, and I hope you have had a chance of doing a little field botany again. It would indeed be a pity to have nothing new to record for this season, and I hope you will perhaps be able to tell me of some new localities. I have been staying at Bray with my sister, but that is a locality we know so well that we did not find any botanical novelties.

*November 21st, 1894.*

DEAR MR. STEWART,—Thank you very much for so kindly sending the very interesting *Potamogeton* hybrid, which I had not previously seen. The specimens quite bear out the suggestion of its parentage, and it is curious that you should have had it under observation so long. I wish we had a monograph of the genus, with good *figures*. Your other remarks are of great interest, and I hope you will write again.

A passing controversy, during the same autumn, was raised by a little bird which happened to pay a visit to the wild shores of Achill. In the neighbourhood of Keem Bay, Mr. Sheridan saw, consorting with the usual linnets, stonechats, &c., a beautiful little yellow finch, which he shot, and immediately recognized as identical in species with an American Goldfinch previously shot by him in Canada. Mr. Sheridan sent the bird in the flesh to Mr. More, and with it the American stuffed specimen. The circumstances and locality of the little foreigner's appearance certainly lent themselves very temptingly to the suggestion that one more winged voyager across the Atlantic had reached the Irish shore: and Mr. Sheridan held firmly to this conviction. Mr. More, however, judging partly from the state of some of the feathers, felt that this view was scarcely tenable, and inquiries in several directions confirmed him in the opinion that the bird (being of a species which dealers frequently import) had more probably escaped from a passing ship. Some of his latest letters to Mr. Sheridan relate to this subject.

(*Sept. 21st, 1894.*) Your two little birds are quite safe, and I will ask Mr. Williams to send them back to you as soon as the skin is dry. It is very curious to find a small American Finch at large on the shore of Achill. But then, you must agree that this is just the place where an escaped bird would land, whether liberated on purpose or escaping by accident from its cage. It is not the case of a Plover, or Sandpiper, birds of powerful flight, which have frequently crossed the Atlantic, but a poor little feeble Finch, which, as far as I know, has never crossed from America to Europe, nor likely to do so spontaneously. Your birds are, I believe, both the American Goldfinch (*Astragalinus tristis*), and I wish I could persuade you to take a moderate view about the possibility of that one which you shot in Achill being an escape.

(*Sept. 24th, 1894.*) As Mr. Harting has written to me about your American Goldfinch, I have thought it best to send both your specimens, viz., that shot in Achill, and that which you brought from North America, *to him*, so that he may judge for himself; and I have asked him to return both direct to you. And I write you just this line that you may know where the birds are. I suppose you are on the look-out for autumn visitors. A Glaucous Gull has been obtained already.

His correspondent, though not satisfied about the Goldfinch, bears willing testimony to the truth-seeking spirit in

which the opinion was offered ; and in lending the letters, of which so many have been quoted in the course of these pages, Mr. Sheridan writes :—

I can assure you I prize them very much. I feel now somehow adrift in my natural history pursuits, and I cannot get any to fill his place. He was like a great dictionary, a wonderful store of knowledge, ever ready to impart some of his beautiful thoughts ; and when I remember how cautious he was, and never selfish, I often have wished I could be like him. Every person I have spoken to, who knew him, says the same of him. I can assure you that his memory will always remain bright with me, and always will, I am sure, with everybody who had the benefit of his friendship.

## CHAPTER LV.

THE END.

[1895.]

A VERY little work or writing now fatigued him ; and, as if he had a presentiment that he should not see "The Birds of Ireland" finished, he pressed his friend Mr. Ussher to write a few specimen chapters at once for him to read in manuscript. It was characteristic of him that he asked in the first instance for sketches of two Birds specially associated in Ireland with the cliffs and islands of the West Coast. His letter returning these manuscript articles is the last which he wrote in connexion with the projected ornithological work :—

*January 15th, 1895.*

DEAR USSHER,—I now return, with many thanks, your two sketches of Chough and Common Gull ; and I have only to repeat what I said before, that I think they will do very well, and will require very little addition or correction. I should much like to see you take up six or eight other species, and I believe the best way will be to write the article freely from memory, and one or two chief authorities, and then afterwards fill in the few necessary details which may have been omitted. The Chough article is as complete and perfect as one can wish.

If you could only place, ready on your table, just the materials for six or eight birds, and take up one or two each evening, you will be surprised how quickly the MS. will accumulate. Only do not allow yourself to think it a hard task, for indeed you write easily and fluently enough.

The "casts" of Chough and Peregrine I should send to Dresser.—  
Yours very sincerely,

A. G. MORE.

The severe wintriness of February kept him much indoors, and he jokingly compared himself to a cage-finch showing traces of its captivity. "I am afraid I should hardly pass muster for a *bona fide* unassisted migrant," he said, not long before his last illness.

An attack of bronchitis in March, which at first seemed inclined to pass off, renewed itself on the 17th, and he was too weak to battle through the crisis. It was not a long one. On Friday, March 22nd, he peacefully expired.

His had been a life spent for Natural History, and little that lies outside that aspect of it has been touched on in this Memoir. But it need never be supposed that his thoughtful spirit was given wholly to the things of earth, or that in the face of Nature herself he read no higher parables. Of a Daisy's colouring he once wrote :—

Crimson edge, and crown all golden,  
 But with purest white between :  
 Is there not a lesson holy  
 In that little flow'ret seen ?

Crimson was the blood that flowed from  
 Our dear Saviour's wounded side ;  
 May our sins be changed to whiteness  
 In its pure all-cleansing tide.

White the robes which, with the angels,  
 We shall wear, when hence we rise ;  
 Unto us a crown, all golden,  
 In the realms of Paradise.

At his funeral, on March 25th, was assembled a group of mourners, not large, but representative of every branch of Natural Science, and consisting of all naturalists resident in or near Dublin to whom the sudden tidings of his death had been conveyed.

In Mount Jerome Cemetery, "until the day break, and the shadows flee away," a grey Irish cross marks the resting-place of "a distinguished Naturalist and an unselfish Friend."



APPENDIX TO MEMOIR.

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SELECTED SCIENTIFIC WRITINGS

OF

ALEXANDER GOODMAN MORE,

F.R.S.E., F.L.S., M.R.I.A.







ON  
THE DISTRIBUTION OF BIRDS IN GREAT BRITAIN  
DURING THE NESTING SEASON.

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[*Reprinted from the "IBIS," 1865.*]

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ALL books on British ornithology give some indication, more or less exact, of the range or distribution of the several birds. Still I am not aware that any one in this country has yet made this branch of ornithology a special subject of study, interesting as it is in itself, and important in many scientific points of view.

Whether we wish to compare the respective range of the different branches of our Fauna and Flora, or to contrast their distribution in Great Britain with their range on the Continent, whether it is our object to estimate the effect of climate, prevailing winds, soil, geographical position, or the influence of man, all these most interesting questions can only be properly investigated when we have sufficiently exact data in each of the classes. Thus it is hoped that an attempt to illustrate the distribution of our birds on a regular and methodical plan will not be without its use.

Our census is necessarily limited to the nesting-season, that being the only time when the birds can be treated as stationary; and, for the sake of uniformity, we have adopted the districts already employed by Mr. H. C. Watson in his great work on the geographical distribution of British plants, the 'Cybele Britannica.'

The present outline is confessedly imperfect, not only from the insufficient number of observers, but because it has been thought better in many cases to withhold information of a doubtful character, rather than run the risk of mixing good with bad authority; and as no pains have been spared to investigate every disputed point, it is hoped that the results may be accepted as tolerably accurate so far as they go.

Had our scheme any claim to completeness, it might no doubt be considered partly as a record of the present and past distribution of

several species now fast decreasing through the progress of cultivation and drainage, and, we regret to add, the persecution of game-preservers and collectors. It might also become a measure of the future increase of other birds which seem to flourish under the protecting hand of man.

The present results might also be used as a means of ascertaining some particulars of the movements of birds which remain in Britain all the year, and yet are partially migratory. This might be accomplished by noting the districts which a bird frequents during summer or winter only, or in which any species is more numerous at one season than another.

It is hoped that all who may feel interested in the subject of this paper will not fail to point out any inaccuracy which they may observe, and that they will also endeavour to supply the omissions unavoidable in a first attempt. It is suggested that such additions might form an interesting subject for communication to the 'Ibis,' even if only one additional district can be filled up on good authority. Full lists of the nesting-birds of South and North Wales, of the North-west of England, and of almost any part of Scotland are especially desired.

In acknowledging how much is due to the kind cooperation of the many friends and correspondents who have assisted in this undertaking, I have especially to thank Dr. J. A. Smith of Edinburgh, the Rev. George Gordon of Birnie, and Mr. Robert Gray, Secretary to the Natural History Society of Glasgow, who have not only furnished me with information themselves, but have taken great pains in collecting lists from various parts of Scotland.

My friend Mr. Alfred Newton has constantly assisted me with his advice and criticism, and I have also to return my warmest thanks to Mr. H. C. Watson, who has been repeatedly consulted in the preparation of this paper, and who has kindly allowed the accompanying map to be borrowed from the 'Cybele Britannica.'

The Latin names here used are taken from Mr. G. R. Gray's 'British Museum Catalogue of the Eggs of British Birds' (1852); the order followed is that of Yarrell. Roman numerals represent the larger eighteen districts or "Provinces," and Arabic figures the thirty-eight smaller "Subprovinces," as laid down on the map. When a figure is enclosed in brackets, it is intended to show that the bird has been known to nest in the district, but has not done so of late years. The smaller Arabic figures indicate a greater degree of rarity, or that the bird has been ascertained to breed in the district only occasionally.

The "Types of Distribution" afford a convenient formula for grouping the different species, according as they appear to prevail in the South, North, South-east, or South-west of Great Britain. Thus, "*British type*" includes birds which are tolerably general throughout Great Britain, though some of them become scarce or wanting in the north of Scotland.

"*English type*" comprises birds more abundant in the south, and which do not reach far north in Scotland.

- “*Germanic type*,” birds which have their head-quarters in the south-east of England, and become scarce as we advance to the north and west; for example, the Nightingale.
- “*Atlantic type*,” birds which are more abundant on the western side of Great Britain, or which have their head-quarters in the south-west of England.
- “*Scottish type*,” birds more abundant in Scotland than in England, and which become less numerous as we advance south.
- “*Highland type*,” mountain species, *e.g.* Snow Bunting, Golden Eagle, and Dotterel.

The following are the particulars of Mr. Watson's “Provinces” and “Subprovinces,” together with the names of the friends and correspondents who have furnished me with lists from each of the districts:—

PROVINCE I. “Peninsula.”

1. *Cornwall*, Mr. E. H. Rodd.
2. *Devon*, Mr. J. Gatcombe, Mr. W. Ford, Rev. M. A. Mathews.
3. *Somerset*, Mr. W. D. Crotch, Mr. W. M. Richards.

PROVINCE II. “Channel.”

4. *Wilts*, Rev. A. C. Smith. *Dorset*, Rev. O. Pickard-Cambridge, Rev. J. H. Austen, Mr. H. Groves.
5. *Hampshire*, Professor Bell, Mr. R. Tindall, Mr. H. Rogers. *Isle of Wight*, Rev. C. A. Bury, Mr. H. Rogers.
6. *Sussex*, Mr. Knox, Mr. Borrer.

PROVINCE III. “Thames.”

7. *Kent*, Rev. H. Roundell, Mr. C. Gordon, Mr. G. Jell. *Surrey*, Mr. F. Godman.
8. *Essex*, Mr. H. Doubleday, Dr. C. R. Bree, Rev. J. C. Atkinson. *Herts*, Mr. F. Bond. *Middlesex*, Mr. F. Bond.
9. *Berks* (no list). *Oxford*, Rev. A. Matthews. *Bucks*, Rev. H. Roundell, Rev. B. Burgess, Rev. C. Lowndes.

PROVINCE IV. “Ouse.”

10. *Suffolk*, Mr. A. Newton, Rev. J. Farr.
11. *Norfolk*, Mr. A. Newton, Mr. T. Southwell, Mr. H. Stevenson, and Messrs. Gurney and Fisher's List, published in the ‘*Zoologist*’ for 1846.
12. *Cambridge*, Mr. F. Bond. *Bedford* (no list). *Huntingdon*, Mr. F. Bond. *Northampton*, Lord Lilford.

PROVINCE V. "Severn."

13. *Gloucester*, Rev. F. J. Scott. *Monmouth* (no list).
14. *Hereford*, Mr. R. M. Lingwood, Mr. W. H. Powell, Mr. A. Hepburn. *Worcester*, Mr. G. A. Sheppard, Mr. J. Walcot. *Warwick*, Mr. R. F. Tomes.
15. *Stafford*, Sir J. H. Crewe, Mr. R. Garner's 'Natural History of Stafford.' *Shropshire*, Mr. W. H. Slaney, Mr. H. Shaw.

PROVINCE VI. "South Wales."

16. *Glamorgan* (no list). *Brecon* (no list). *Radnor* (no list).
17. *Carmarthen* (no list). *Pembroke*, Mr. J. Tracy. *Cardigan* (no list).

PROVINCE VII. "North Wales."

18. *Montgomery* (no list). *Merioneth* (no list). *Denbigh* (no list). *Flint* (no list). *Carnarvon* (no list). *Anglesea* (no list). The only authority for this district is Mr. T. C. Eyton's "Attempt to ascertain the Fauna of Shropshire and North Wales," published in the 'Annals of Natural History,' vols. i. and ii.

PROVINCE VIII. "Trent."

19. *Lincoln*, Rev. R. P. Alington, Mr. G. Adrian.
20. *Leicester*, Rev. A. Matthews and Mr. J. Harley's "Catalogue of the Land-birds of Leicestershire" in Macgillivray's 'British Birds,' vol. iii. p. 646. *Rutland*, Mr. W. Bell. *Nottingham*, Mr. H. Milner, Rev. R. Sutton. *Derby*, Sir John H. Crewe, Mr. O. Salvin, Rev. H. H. Crewe, Mr. J. J. Briggs.

PROVINCE IX. "Mersey."

21. *Cheshire*, Mr. J. F. Brockholes, Mr. C. S. Gregson. *Lancashire* (South), Mr. J. F. Brockholes, Mr. C. S. Gregson.

PROVINCE X. "Humber."

22. *East Yorkshire*, Rev. J. C. Atkinson, Mr. A. S. Bell.
23. *West Yorkshire*, Mr. Waterton, Mr. H. Smurthwaite, Mr. H. Reid.

PROVINCE XI. "Tyne."

24. *Durham*, Rev. H. B. Tristram, Mr. J. Hancock. *Northumberland*, Mr. Selby, Mr. J. Hancock, Rev. H. B. Tristram.

PROVINCE XII. "Lake-lands."

25. *North Lancashire* (no list). *Westmoreland*, Mr. T. Gough. *Cumberland*, Mr. C. S. Gregson, Mr. T. Hope, Dr. Heysham in Hutchinson's 'History of Cumberland.' *Isle of Man*, Mr. J. F. Crellin.



PROVINCE XIII. "West Lowlands."

26. *Dumfries*, Sir W. Jardine. *Kirkcudbright* (no list). *Wigton*, Rev. T. B. Bell.  
27. *Ayr*, Mr. R. Gray. *Renfrew*, Mr. M. Young. *Lanark*, Mr. D. Stewart.

PROVINCE XIV. "East Lowlands."

28. *Peebles* (no list). *Selkirk*, Mr. J. F. Whitecross. *Roxburgh*, Dr. J. A. Smith, Mr. J. F. Whitecross. *Berwick*, Rev. J. Duns, Mr. R. Gray. *Haddington*, Mr. A. Hepburn, Mr. R. Gray, Mr. J. R. Pencaitland. *Edinburgh*, Dr. J. A. Smith. *Linlithgow*, Mr. T. D. Weir, Rev. J. Duns.

PROVINCE XV. "East Highlands."

29. *Fife* (no list). *Kinross* (no list). *Clackmannan*, Dr. P. Brotherson. *Stirling*, Dr. D. Dewar, Mr. J. Murray. *Perthshire*, Colonel Drummond-Hay, Mr. A. Pullar, Mr. J. Lamb.  
30. *Forfar* (no list). *Kincardine* (no list). *Aberdeen*, Mr. T. Edward, and the list given in Macgillivray's 'Natural History of Deeside.'  
31. *Banff*, Mr. T. Edward. *Elgin*, Rev. G. Gordon. *Nairn*, Mr. W. A. Stables. *Inverness* (east of Loch Erricht), Mr. W. M. Snowie, Mr. W. Dunbar.

PROVINCE XVI. "West Highlands."

32. *Inverness* (west of Loch Erricht), (no list). *Argyle*, Captain J. W. P. Orde, Dr. D. Dewar. *Dumbarton*, Mr. R. Gray.  
33. *Islay*, *Jura*, *Colonsa*, &c. (no list). *Mull* and *Iona*, &c., Mr. H. D. Graham. *Skye*, &c. (no list).

PROVINCE XVII. "North Highlands."

34. *Ross-shire*, Mr. W. Dunbar, Mr. Danford. *Cromarty* (no list).  
35. *Sutherland*, Mr. W. Dunbar, and the writings of the late Mr. St. John, MS. of the late Mr. J. Wolley. *Caithness*, Mr. R. J. Shearer, Mr. H. Osborne, Mr. W. Dunbar, MS. of the late Mr. J. Wolley.

PROVINCE XVIII. "North Isles."

36. *Outer Hebrides* (*S. & N. Uist*, *Harris*, and *Lewis*), Captain J. W. P. Orde, Dr. D. Dewar, Sir W. Milner's List, published in the 'Zoologist,' p. 2054, Mr. J. Macgillivray's "Zoology of Outer Hebrides," 'Annals & Mag. Nat. Hist.' vol. viii. p. 7, 1842.  
37. *Orkney*, Low's 'Fauna Orcadensis,' Drs. Baikie and Heddle's 'Nat. Hist. of Orkney,' list from Mr. J. H. Dunn.  
38. *Shetland*, Dr. H. L. Saxby and Mr. J. H. Dunn.

Though no list has been obtained from South-east Wales, it has been thought best to assume the Subprovince 16 as filled in, whenever a bird has been found to nest in the surrounding districts.

AQUILA CHRYSÆTOS (*Pall.*) Golden Eagle.

Provinces [VII.] [VIII.] [XI.] [XII.] XIII. XV.—XVIII.

Subprovinces (18), (20), (24?), (25?), 26, (27), 29, 30, 31, 32, (33), 34, 35, 36, (37).

Lat. 55°–59°. “Highland” or Mountain type.

In the time of Willughby, the Golden Eagle was reported to breed annually upon the high rocks of Snowdon; the same writer records a nest found in Derbyshire in 1668. Bewick quotes from Wallis the remark that the Golden Eagle formerly had its eyrie on the highest part of Cheviot. Sir W. Jardine, in his ‘British Birds,’ speaks of the precipices of Westmoreland and Cumberland as having once boasted of eyries.

In the south and east of Scotland the Golden Eagle appears to be nearly extinct, having ceased to nest in the counties of Dumfries, Ayr, Forfar, Banff, and Elgin, but still breeds in Kirkcudbright (*Rev. T. B. Bell*) and Stirling (*Mr. R. Gray*), regularly in Perthshire (*Col. Drummond-Hay*), Aberdeen (*Mr. A. Newton*), and the western and northern parts of Scotland and in the Hebrides.

Dr. Moore, writing on the birds of Devonshire (Charlesworth’s Mag. of Nat. Hist. vol. i. p. 114), mentions that a nest was formerly known on the Dewerstone Rock, close under Dartmoor. This locality is at least ten or twelve miles from the sea; but the nest is as likely to have belonged to the next species as to the Golden Eagle.

HALIAETUS ALBICILLA (*Leach*). White-tailed or Sea Eagle.

Provinces [I.] [II.] [XII.] [XIII.] [XIV.] XV.—XVIII.

Subprovinces (2), (5), (25), (26), (27), (28), 29, (30), 31, 32, (33), 34, 35, 36, 37, 38.

Lat. 56°–61°. “Scottish” or Northern type.

The Rev. M. A. Mathews informs me that the Sea Eagle formerly nested in Lundy Island.

In a ‘History of the Isle of Wight,’ by the Rev. R. Warner, it is stated that an Eagle has been known to incubate among the crags of the Culver Cliff: the last known to build came there in 1780, when a young bird was taken from the nest. Willughby mentions an eyrie in Whinfield Park, Westmoreland; and in 1692, Mr. Aubrey was told that “Eagles do breed in the parish of Bampton,” in the same county (‘Corresp. of John Ray,’ p. 257), which Eagles must have been either this or the preceding species. Dr. Heysham also tells us that in his day this Eagle bred almost every year near Keswick and Ullswater. The late Mr. W. Thompson observed a pair of Eagles in the English Lake-district, in July, 1835 (Charlesworth’s Mag. Nat. Hist. i. p. 164);

and Mr. C. S. Gregson informs me that there is a crag near Grasmere still known as "Eagles' Cliff." Mr. J. F. Crellin has ascertained that a pair of Eagles used to build in the high cliffs at the south end of the Isle of Man: none have bred since this pair was destroyed in a snow-storm, about fifty years ago.

In the south of Scotland, the Sea Eagle used to breed in Dumfries (Charlesworth's Mag. Nat. Hist. i. pp. 119 and 444), in Kirkcudbright (*Rev. T. B. Bell*), on Ailsa (*Mr. R. Gray*), on the Bass (*J. Wolley*, in 'Ooth. Woll.' p. 49), and seems to be nearly or quite extinct in the south of Scotland, but is still to be found nesting in various localities in the Highlands and Scottish isles.

PANDION HALIAETUS (*Cuv.*). Osprey.

Provinces [I. ?] [XIII.] XV. XVI. XVII.

Subprovinces (3 ?), (27), (29), 31, 32, 34, 35.

Lat. 56°-59°. "Scottish" type. Not in Ireland.

Mr. W. D. Crotch informs me that a nest was built, eighteen years ago, at Monksilver in Somersetshire: "the keeper shot the birds when making their nest."

Mr. R. Gray tells me that the nest has been found on Loch Doon, in Ayrshire. Other localities might be cited in Stirling, Perth, Elgin, Inverness, Argyle, Dumbarton, Ross, and Sutherland; but the bird and its eggs are so much sought after by collectors that very few pairs continue to nest in any part of Scotland\*.

FALCO PEREGRINUS (*Gmel.*). Peregrine Falcon.

Provinces I.-III. [IV.] V.-VII. X.-XVIII.

Subprovinces 1-7, (11), (14), 15, 17, 18, 22, 23, 24-38.

Lat. 50°-61°. "British" type, or general.

Thinly scattered from the south to the north of Great Britain. More frequent on the rocky headlands of the north and west coasts, and not found in some of the level districts of the middle and south-east of England.

HYPOTRIORCHIS SUBBUTEO (*Boie*). Hobby.

Provinces I. II. III. IV. V. VIII. X.

Subprovinces 3, 4, 5-12, 14, 15, 19, 20, 22, 23.

Lat. 50°-54°. "Germanic" or South-eastern type. Not in Ireland.

A scarce bird in all the districts where it breeds. Though noticed by Dr. Moore as breeding in Warleigh Woods, the Hobby is not included in any of the recent lists which I have received from Devonshire, nor have I any record of its nesting in Wales. It seems to be more frequent in the south-eastern and midland counties of England, its distribution thus resembling that of the Nightingale.

\* We doubt if the Osprey has bred in Scotland for more than ten years.—ED.

HYPOTRIORCHIS ÆSALON (*Boie*). Merlin.

Provinces II. III. V.–VIII. X.–XVIII.

Subprovinces 5, 8, 14, 15, 17, 18, 20, 22–38.

Lat 50°–61°. “Scottish” or Northern type.

The Rev. M. A. Mathews informs me that the Merlin has been seen on Exmoor in June.

In the ‘Zoologist’ for 1862 (p. 8159), Mr. W. Farren gives an account of his finding the nest of the Merlin in low trees in the New Forest; and Mr. H. Rogers has obtained birds and eggs from the same locality.

From Essex Dr. C. R. Bree writes that the Merlin breeds in the marshes of the Rochford hundred. Mr. Laver, his informant, has brought up the young birds from the nest.

Breeds occasionally in Hereford (*Mr. R. M. Lingwood*), on the Longmynd Hills in Shropshire (*Mr. Shaw*), occasionally in Pembrokeshire (*Mr. Tracy*), regularly in Derbyshire (*Mr. O. Salvin*), in North Wales (*Eyton*), and from Yorkshire northwards is marked as nesting regularly in every county.

TINNUNCULUS ALAUDARIUS (*G. R. Grey*). Kestrel.

Provinces I.–XVIII.

Subprovinces 1–38.

Lat. 50°–61°. “British” type, or general.

The commonest and best known of all our birds of prey. Breeds throughout Great Britain, and is marked as nesting regularly in every county. Doubtless breeds in South-east Wales (subprovince 16), the only district from which I have no return.

ASTUR PALUMBARIUS (*Bechst.*). Gos-Hawk.

Provinces XIV. ? [XV.]

Subprovinces 28 ?, (30 ?), (31).

Lat. 55° or 57°–58°. “Scottish” type. Not in Ireland.

Mr. Tottenham Lee, writing in Dr. Morris’s ‘Naturalist’ for 1853 (vol. iii. p. 45), states that a pair once took possession of a Raven’s nest in Roxburghshire, and that he had heard of another nest in the same county. Mr. Robert Gray, of Glasgow, who knew Mr. Lee, tells me that he was perfectly familiar with birds of prey, and was not likely to make a mistake as to the species.

Macgillivray appears to have met with the Gos-Hawk occasionally among the Grampians; and Montagu quotes Colonel Thornton as having obtained a young Gos-Hawk from near the Spey, and as having seen some eyries in the Forest of Glenmoor and Rothiemurcus. Mr. W. Dunbar also writes that when he was a boy it “used to breed regularly in the woods of Castle Grant, and in Abernethy and Dulnane forests.”

In the 'Zoologist' for 1863 (p. 8678) mention is made of a nest found in Yorkshire, supposed to have been that of a Gos-Hawk.\*

ACCIPITER NISUS (*Pall.*). Sparrow-Hawk.

Provinces I.-XVIII.

Subprovinces 1-37, 38.

Lat. 50°-61°. "British" type, or general.

Throughout Great Britain, extending to the Outer Hebrides and North Scottish isles.

MILVUS REGALIS (*Bris.*). Kite.

Provinces I.-VIII. X. XI. XIII. XV.-XVII.

Subprovinces 1-9, 11, 12, 14, 15, 17-20, 22-26, 29-32, 34, 35.

Lat. 50°-59°. "British" type, or general. Not now in Ireland.

The Kite has become so scarce, that it is impossible to distinguish between the districts where it is quite extinct, and those where a few pairs may still continue to breed. "In Perthshire the Kite is not only destroyed for the sake of the game, but for its feathers, which are used in making salmon-flies; so that, from being, within my recollection, quite a common bird, it is now nearly extinct." (*Colonel Drummond-Hay.*)

BUTEO VULGARIS (*Bechst.*). Common Buzzard.

Provinces I.-VIII. X.-XVII.

Subprovinces 2-8, 11, 12, 14, 15, 17-20, 22-25, 26-35.

Lat. 50°-59°. "British" type, or general.

By no means common, and nearly exterminated in the eastern and midland counties of England. Still breeds regularly in several parts of the west and north of England and in Scotland, where it has a better chance of escaping the vigilance of the gamekeeper.

ARCHIBUTEO LAGOPUS (*G. R. Gray*). Rough-legged Buzzard.

Provinces [X.] XV.

Subprovinces (22), 31.

Lat. 54°-58°. "Scottish" type. Not in Ireland.

A single pair bred for several years in succession at Hackness, where they appeared as summer visitors.

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\* It seems reasonable to suppose that, in the days when forests of *Pinus sylvestris* flourished naturally in Scotland, the Gos-Hawk inhabited the districts so occupied; and Colonel Thornton's evidence as to the fact of its breeding there must be considered satisfactory. It is well known among ornithologists that in some places this bird has bequeathed its common name to *Falco peregrinus*, and hence much confusion has arisen.—ED.

Mr. Alwin S. Bell, of Scarborough, has kindly furnished the following particulars:—"Mr. John Smith, who was gamekeeper for twenty years on the estate of Sir J. V. B. Johnstone, remembers the Rough-legged Buzzards perfectly well: there was no mistake as to the species, as they were feathered right down to the toe-ends. They used to breed, year after year, on the ground, amongst the heather, in the moor-dells near Ash Hay Gill, Whisperdale, about three miles from Hackness. One pair only bred every year during most of the time that Mr. Smith was keeper (twenty-four years ago). They were not seen except in the breeding season. Mr. Smith has himself shot them from the nest, and remembers that they sometimes had young."

Mr. Williamson, the Curator of the Museum at Scarborough, confirms this statement, and remembers a male Rough-legged Buzzard being trapped by the keeper and brought alive to Scarborough. This bird escaped; but soon afterwards its mate was shot; and in the following spring the same male returned, with another partner, when both were taken, and on the male was found distinctly the mark inflicted by the trap.

Mr. Thomas Edward, in his account of the Birds of Banffshire (Zoologist, 1856, p. 5201), writes that the nest has been rarely found in Banffshire; and in confirmation of this statement it may be added that Mr. Edward has this season (1864) seen three young, which were taken by a boy from a nest in a wood about six miles from Banff.

PERNIS APIVORUS (*Cuv.*). Honey Buzzard.

Provinces II. III. IV. V. XI. XII. ? XV. ?

Subprovinces 5, 9, 12, 14, 15, 24, 25 ?, 30 ?

Lat. 50°-56° or 58°. "English" type. Not in Ireland.

This bird is well known to build occasionally in the New Forest, Hampshire. A nest, found at Selborne in 1780, is recorded by White.

The nest has also been taken in Oxfordshire (*Rev. A. Matthews*). At Burnham Beeches, Berks (*Mr. Blyth*, in Charlesworth's Mag. of Nat. Hist. i. p. 539). In Northamptonshire, twice within the last ten years (*Lord Lilford*). Formerly in Warwickshire (*Mr. R. F. Tomes*). Stafford ('Zoologist,' p. 5097). Shropshire (*Mr. H. Shaw*). Northumberland (*Mr. J. Hancock*). In Cumberland, Mr. Heysham was informed that it bred in the woods at Lowther; and in Macgillivray's 'British Birds' (iii. p. 261) mention is made of a nest taken by Mr. J. M. Brown in the woods of Abergeldie, in Aberdeenshire.

CIRCUS ÆRUGINOSUS (*Sav.*). Marsh Harrier.

Provinces I. II. [III.] IV. V. [VI.] VII. [VIII.] [X.] XI. [XII.] [XIV.] XV. XVIII. ?

Subprovinces 1-5, (7), (10), 11, (12), 15, (17), 18, (19), (23), 24, (25), (28), 30, 31, 37 ?

Lat. 50°-58° or 60°. "British" type, or general.

Once frequent, now nearly exterminated; but still breeds occasionally in a few English counties. Much rarer in Scotland, where the nest has been found only in Haddington (*Mr. A. Hepburn*), in Perthshire (*Mr. A. Pullar* and *Mr. J. Lamb*), in Aberdeen and Banff (*Mr. T. Edward*), and in Orkney (*Mr. J. Dunn*). From its scarcity in Scotland, the distribution of this species approaches to the English or southern type.

CIRCUS CYANEUS (*Boie*). Hen Harrier.

Provinces I.-VIII. X.-XVIII.

Subprovinces 2, 3, 4, 5, 6, 7, (10), 11, (12), 15, 17, 18, 19, 20, 22, 23-32, 34-37, 38.

Lat. 50°-61°. "British" type, or general.

Scarce in the south-eastern and midland counties, and already extirpated in many of them; frequent in the north and some parts of the west of England, and still more common in Scotland.

CIRCUS CINERACEUS (*Naum.*). Montagu's Harrier.

Provinces I.-IV. V. ? VIII. X. XVII. ?

Subprovinces (2), 3, 4, 7, (10), 11, (12), 15 ?, (19), 22, 25, 35 ?

Lat. 50°-55° or 58°. "English" type. Not in Ireland.

A scarce species. Until recently, appears to have been a regular summer visitant to some of the southern and eastern counties.

Formerly found nesting in Devonshire by Montagu, and still breeds occasionally in Somerset, Dorset, Kent, and Norfolk. Extinct in Devon, Suffolk, Cambridge, Huntingdon, and Lincoln. In Shropshire Mr. Shaw once obtained a female that had been recently sitting; and a nest found on the Whitby Moors, near Scarborough, is recorded in Dr. Morris's 'Naturalist' for 1855. Mr. Hancock writes that he has two young birds which were bred in Cumberland. There appears to be some doubt whether the species has been properly identified in Scotland, though Mr. Dunbar tells me that he has "eggs and birds from Sutherland." Sir. W. Milner also includes it in his list of birds found in that county (*Zoologist*, p. 2014). This species is believed to have occurred once in Ayrshire, according to Thompson's 'Birds of Ireland' (vol. i. p. 83).

OTUS VULGARIS (*Flem.*). Long-eared Owl.

Provinces I.-XVII.

Subprovinces 2, 3, 4, 6, (8), 10, 11, 12, 14, 15, 17, 19, 20, 21-32, 34, 35.

Lat. 50°-59°. "British" type, or general.

Apparently more frequent in the north of England and in Scotland, perhaps owing to the greater prevalence of fir and pine woods, which are its favourite resort. Scarce during the breeding-season in the southern and midland counties, where it is better known as a winter visitor. Mr. A. Newton considers it the commonest Owl in the eastern counties.

OTUS BRACHYOTUS (*Boie*). Short-eared Owl.

Provinces IV. X. XI. XII. ? XIII.—XVIII.

Subprovinces 10, 11, 12, 22, 24, 25 ?, 26–29, 34–37.

Lat. 52°–60°. “Scottish” or Northern type. Not in Ireland.

Breeds in Suffolk, Norfolk, and Cambridge; formerly also in Huntingdon (*Mr. F. Bond*). The nest has been once or twice taken near Scarborough (*Mr. A. S. Bell*). In Durham and Northumberland (*Mr. Hancock* and *Rev. H. B. Tristram*). Sir W. Jardine also mentions the moorland ranges of Westmoreland and Cumberland as probable breeding-places.

In Scotland, the Short-eared Owl nests regularly in Dumfries (*Sir W. Jardine*), on Ailsa (*Mr. R. Gray*); in the counties of Selkirk and Roxburgh occasionally (*Mr. J. F. Whitecross*); in Stirling (*Mr. J. Murray*), Clackmannan (*Dr. P. Brotherson*); in Perth (*Mr. A. Pullar*); in Ross, Sutherland, Caithness, Hebrides, and Orkney.

STRIX FLAMMEA (*L.*). Barn- or White Owl.

Provinces I.—XVII.

Subprovinces 1–29, 30, 31, 32, 33–35.

Lat. 50°–59°. “British” type, or general.

Very rare in the north of Scotland, and nests only occasionally in Ross and Caithness.

Low states that it used to breed in Hoy; but the bird has not been recently seen in the Orkneys.

SYRNIUM ALUCO (*Cuv.*). Tawny Owl.

Provinces I.—XVII.

Subprovinces 1–32, 34, 35, 37 ?

Lat. 50°–59°. “British” type, or general. Not in Ireland.

Scarce in the north of Scotland, according to Macgillivray; but is reported by various correspondents as nesting regularly in the counties of Aberdeen, Banff, Elgin, Nairn, Inverness, Ross, Sutherland, and even in Caithness; Low describes it as found in the more hilly part of Orkney in summer. It is singular that this Owl should be so scarce in Ireland, Thompson giving only a single instance of its occurrence.

*Obs.*—Several supposed instances of the Snowy Owl (*Nyctea nivea*, Bonap.) breeding in the British Islands are on record. In the ‘Zoologist’ for 1856 (p. 5201), Mr. T. Edward gives an account of a nest, containing two young birds, which was found in 1845 in a narrow chasm on the promontory of Loggie Head, Banffshire; but in a letter which I have lately received from Mr. Edward, he tells me that he did not see the birds himself.

Mr. J. H. Dunn tells me that the Snowy Owl bred on the hills of



Orphir, near Stromness, about thirty-five years ago. He knows the person well who took different nests.

Dr. Saxby writes that the Snowy Owl was first obtained in Shetland in 1808 by Dr. Edmonston, "who neither had nor has any doubt that the bird bred at that time. The spot where the nest used to be found is still pointed out." In Macgillivray's 'British Birds' (vol. iii. p. 412) mention is made of a nest and three young birds found in Shetland, and reported to Dr. Edmonston, who, however, is there quoted as saying "I have always doubted whether it bred here."

Mr. Robert Gray thinks that the Snowy Owl may breed in the Hebrides, where it is by no means rare. It has been repeatedly seen at Benbecula; and specimens have been recently obtained in Skye, Harris, and Benbecula.

On the Continent the Snowy Owl is strictly an Arctic species, breeding only at Alpine elevations, and these north of latitude 60°, hence its nesting in any part of the British Isles appears highly improbable.

The Scops Eared Owl (*Ephialtes scops*, Keys. et Blas.) is recorded by Mr. Hogg (Brewster's 'History of Stockton-on-Tees,' App. p. 14), on the information of Mr. Winch, as having been known to breed once, forty years ago, in Castle-Eden Dene, Durham.

ENNEOCTONUS COLLURIO (*Boie*). Red-backed Shrike.

Provinces I.-XII. XIV.

Subprovinces 1, 2-15, 17, 18, 20, 21-25, 28.

Lat. 50°-55° or 56°. "English" type. Not in Ireland.

Breeds only occasionally in Cornwall, and is apparently not found in Lincolnshire. Mr. Eyton describes the Red-backed Shrike as very common in Wales. Thence northwards it becomes rare, nesting only occasionally in Westmoreland, Cumberland, and Durham, and is not included in the Northumberland list.

A very few instances are known of it breeding in Scotland. The Rev. J. Duns has once seen a pair during the summer in Berwickshire. Mr. Robert Gray tells me that a pair frequented a hedge-row near Dunbar during the breeding-season of 1852; and Mr. J. R. Pencaitland has ascertained that the nest has been once found in Haddingtonshire.

*Obs.*—The Woodchat (*E. rufus*) is thought to have once or twice nested at Freshwater, in the Isle of Wight, where Mr. H. Rogers has twice taken a nest which Mr. F. Bond refers to this species; and Mr. Rogers believes that he saw the parent bird about the same locality. A young bird of the year was shot, in 1856, in the vicinity of the spot where the nest had been taken.

The Ash-coloured Shrike (*Lanius excubitor*) is also supposed to have bred in this country, from the circumstance of old birds having been noticed during the summer months. In his 'British Birds,' Lewin writes, "I have seen it in Wiltshire, and have no doubt of its breeding there." Yarrell mentions its occurrence during summer

in Essex and Northumberland. The Rev. J. Duns has seen the bird in summer, in Linlithgow; and the Rev. T. M. Richards informs me that he once found the nest and young of the larger Butcher-bird in Somerset, and killed the old birds before he was aware of their rarity. I learn from my friend, the Rev. W. H. Hawker, that the nest recorded by him in the 'Ibis' for 1859 (p. 330) has proved to be that of the Red-backed, not the Ash-coloured, Shrike.

MUSICAPA GRISOLA (*L.*). Spotted Flycatcher.

Provinces I.-XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

Less frequent in Scotland; but Mr. Dunbar finds it breeding as far north as Sutherland and Caithness.

MUSICAPA ATRICAPILLA (*L.*). Pied Flycatcher.

Provinces I.-V. VII. VIII. X.-XII. XIV. ? XV. ?

Subprovinces 2-5, 7, 9, 11, 13, 14, 15, 18, 20, 22, 23, 24, 25, 28?, 30?

Lat. 50°-55° or 58°. Type uncertain. Not in Ireland.

A very local species. The nest has been occasionally found in North Devon, Somerset, Dorset, Isle of Wight, Surrey, Oxford, Norfolk, Gloucester, Shropshire, Leicester, and Derby. The bird breeds regularly in a few counties of the north and west of England.

In Scotland, the Rev. J. Duns is assured by a friend, upon whom he can rely, that the Pied Flycatcher has occasionally bred in the neighbourhood of Torphichen.

Mr. T. Edward has seen the young which were taken near Aberdeen, where the bird is said to breed occasionally; and the species has several times come under his notice in the counties of Banff and Aberdeen.

HYDROBATA CINCLUS (*G. R. Gray*). Dipper.

Provinces I. II. V.-XVIII.

Subprovinces 1, 2, 3, 4, 13-15, 17, 18, 20-36.

Lat. 50°-59°. "Scottish" or Northern type.

In all the hilly districts of the west and north of England, and throughout Scotland, reaching also to the Hebrides.

Breeds on one river in Dorsetshire, as I am informed by Mr. H. Groves, who has eggs from this locality.

TURDUS VISCIVORUS (*L.*). Mistletoe-Thrush.

Provinces I.-XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

Apparently still increasing in Scotland, as it is now recorded as breeding regularly even in the most northern counties.

TURDUS MUSICUS (L.). Song-Thrush.

Provinces I.-XVIII.

Subprovinces 1-37.

Lat. 50°-60°. "British" type, or general.

Extends to the Outer Hebrides and Orkney, but does not breed in Shetland.

TURDUS MERULA (L.). Blackbird.

Provinces I.-XVIII.

Subprovinces 1-35, 37.

Lat. 50°-60°. "British" type, or general.

Nests regularly even in the most northern parts of Scotland and in Orkney; but apparently does not extend to Shetland, nor to "the northern and more remote Hebrides" (*Macgillivray*).

*Obs.*—It has been thought that a few pairs of the Redwing (*Turdus iliacus*) occasionally remain during summer and nest in this country. Mr. Blyth, in Charlesworth's 'Mag. of Nat. Hist.,' states that he had known several such instances in Surrey: he also quotes (vol. i. p. 440) the statement of a dealer, that a nest was taken at Barnet. Yarrell mentions a nest found at Godalming; and one taken in Leicestershire is recorded in the 'Zoologist' for 1864, p. 9248.

In Shropshire, Mr. Eyton has noticed that some remain all the summer near Eyton.

In the summer of 1855, Dr. Saxby found a nest in North Wales. It was placed in a tall Portugal laurel; and he repeatedly observed the bird sitting on her eggs, which he afterwards took (see 'Zoologist,' 1861, p. 7427).

In the Outer Hebrides, Mr. Bullock stated that he had found a nest in Harris; and in Orkney, Mr. Low observed a pair "in Hoy through the greatest part of summer" (Faun. Orc. p. 58).

The Fieldfare (*Turdus pilaris*) also is recorded by Mr. Blyth to have bred at Merton in Surrey (Charlesworth's Mag. Nat. Hist. iii. p. 467), but unfortunately that gentleman did not see the birds himself. In his 'Tour in Sutherland' (i. p. 206) Mr. St. John says, "I was shown a nest and eggs from near the Spey." Other instances of supposed nests or of the bird having been observed in summer may be found in the 'Zoologist,' the 'Field,' and other periodicals, but there is little doubt that in nearly all cases the Mistletoe-Thrush has been mistaken for the Fieldfare.

TURDUS TORQUATUS (L.). Ring-Ouzel.

Provinces I.-XVIII.

Subprovinces 1, 2, 3, 5, 7, 10, 11, 14, 15, 17, 18, 20-35, 36?, 37.

Lat. 50°-59°. "Scottish" or Northern type.

Nests regularly in the hilly parts of the west and north of England,

and throughout Scotland. The nest has also been found occasionally in the Isle of Wight, Kent, Suffolk, Norfolk, Warwick, and Leicester. Mr. Dunn tells me that the Ring-Ouzel breeds occasionally in Hoy; and Yarrell mentions that Mr. Bullock found the nest in the Hebrides.

ORIOLOUS GALBULA (*L.*). Golden Oriole.

Provinces I. II. ? III. IV.

Subprovinces 2, 4?, 7, 10, 11.

Lat. 50°–53°. "English" or Southern type. Not in Ireland.

The Rev. M. A. Mathews writes that the Golden Oriole has been known to breed in some pleasure-grounds near Barnstaple.

In Dorsetshire a male Golden Oriole was seen frequenting a garden near Blandford for more than a week, and was supposed to have a nest (*Rev. O. Pickard-Cambridge*, in 'Zoologist,' 1854, p. 4366).

In Kent the nest has several times been found: in a plantation near Ord, in 1836 (*Zoologist*, p. 834); near Elmstone, in 1849 (*Zoologist*, p. 2496); near Sandwich (*Zoologist*, p. 3034). Mr. Charles Gordon, of the Museum, Dover, mentions a nest taken near Elmstead; and adds that the bird appeared again in the same locality in 1861.

Meyer, in his 'Illustrations of British Birds,' figures a nest taken in Suffolk; and Messrs. Sheppard and Whitear speak of a nest found in a garden at Ormsby, in Norfolk. Mr. Alfred Newton tells me that the eggs in Mr. Scales's collection, which were thought to have been taken in Norfolk, were really procured from Holland.

ACCENTOR MODULARIS (*Bechst.*). Hedge Sparrow.

Provinces I.–XVII.

Subprovinces 1–35.

Lat. 50°–59°. "British" type, or general.

Breeds as far north as Sutherland and Caithness. Is also found in the western isles of Scotland (*Yarrell*), and "builds in the bare islands of the north of Scotland" (*Macgillivray*).

ERYTHACUS RUBECULA (*Macgill.*). Redbreast.

Provinces I.–XVIII.

Subprovinces 1–35, 37.

Lat. 50°–60°. "British" type, or general.

Throughout England and Scotland. Nests and remains the whole winter in Orkney; but does not breed in Shetland, and only occasionally visits the Outer Hebrides.

RUTICILLA PHÆNICURA (*Bonap.*). Redstart.

Provinces I.–XVII.

Subprovinces 1–32, 34, 35.

Lat. 50°–59°. "British" type, or general. Not in Ireland.

Rare in Scotland, though the nest has been found as far north as Sutherland and Caithness.

RUTICILLA TITHYS (*Brehm*). Black Redstart.

Provinces V. VI. ? XI.

Subprovinces 15, 16?, 24.

Lat. 52°-55°. Type, perhaps "English." Not in Ireland.

In the 'Zoologist' for 1852 (p. 3503) mention is made of a nest found at Rongdon, near Rugeley, in Staffordshire; and Mr. Hewitson, who has seen one of the eggs, thinks that it can scarcely belong to any other British bird (Eggs B. B. ed. 3. p. 106).

The Rev. H. B. Tristram informs me that a nest, with four eggs, was once taken in the city of Durham.

Mr. James Tracy includes the Black Redstart in his list, as having nested in Pembrokeshire; and Mr. W. H. Slaney tells me that it has been frequently noticed in the neighbourhood of Hatton Hall during the breeding-season.

PRATINCOLA RUBICOLA (*Koch*). Stonechat.

Provinces I.-XVIII.

Subprovinces 1-36.

Lat. 50°-59°. "British" type, or general.

Ranges to the extreme north of the mainland of Scotland, and is included by Dr. Dewar in his list of the birds which he has found nesting in the Hebrides; but does not breed in Orkney and Shetland.

PRATINCOLA RUBETRA (*Koch*). Whinchat.

Provinces I.-XVIII.

Subprovinces 1-36.

Lat. 50°-59°. "British" type, or general.

Like the former, extends to Sutherland, Caithness, and Outer Hebrides; but is scarce in some districts.

SAXICOLA CENANTHE (*Bechst.*). Wheatear.

Provinces I.-XVIII.

Subprovinces 1-38.

Lat. 50°-61°. "British" type, or general.

Perhaps less abundant in the south; "nowhere more plentiful than in the Outer Hebrides and Orkney and Shetland Islands" (*Macgillivray*).

CALAMODYTA LOCUSTELLA (*G. R. Gray*). Grasshopper-Warbler.

Provinces I.-XIII. XIV. XVI.

Subprovinces 1-15, 16?, 17, 19-25, 26, 27, 28, 32.

Lat. 50°-56°. "English" or Southern type.

Thinly scattered through England and Wales, and breeds also in a few localities in the south of Scotland.

The bird has been killed in Kirkcudbright (*Sir W. Jardine*), and the nest taken in Wigton (*Rev. T. B. Bell*). Birds seen in Ayrshire (*Rennie*) and in Renfrew (*Mr. M. Young*). Breeds regularly in Haddington (*Mr. R. Gray*), in Edinburgh (*Mr. J. Grahame*), occasionally in Linlithgow (*Mr. T. D. Weir*), and regularly on Loch Lomond (*Mr. R. Gray*). Dr. Dewar has shot the old birds in Argyleshire.

CALAMODYTA PHRAGMITIS (*Bonap.*). Sedge Warbler.

Provinces I.—XVII.

Subprovinces 1—35.

Lat. 50°—59°. "British" type, or general.

Extends to Sutherland and Caithness, but does not reach the Scottish isles.

CALAMODYTA LUSCINIOIDES (*G. R. Gray*). Savi's Warbler.

Provinces I. ? III. ? IV.

Subprovinces 2?, 7?, 8?, (12).

Lat. 50°—53°. "Germanic" type. Not in Ireland.

The Rev. H. Roundell tells me that he has obtained eggs from Kingsbridge, in Devonshire.

In the 'Zoologist' for 1850, p. 2849, Mr. J. Green, a dealer, mentions a nest taken by himself at Dagenham, in Essex. Another at Erith, in Kent (*Zoologist*, p. 3945).

Mr. H. Stevenson tells me that eggs have been found in the Norfolk marshes much resembling those of Savi's Warbler, and five birds have been killed in the county.

Mr. F. Bond informs me that the nest has many times been found in Cambridge and Huntingdonshire; but that, owing to the recent extensive draining-operations, he believes the bird has ceased to breed in the fens of Baitsbight, Burwell, and Whittlesea, where it was formerly a regular summer visitor.

CALAMODYTA STREPERA (*G. R. Gray*). Reed Warbler.

Provinces I.—X.

Subprovinces 3—22.

Lat. 50°—55°. "English" or Southern type. Not in Ireland.

More common on the eastern side of England, and does not breed in Devon and Cornwall. Extends as far north as Scarborough (*Mr. A. S. Bell*) and Lancashire (*Mr. J. F. Brockholes*).

The nest has once been taken in Haddingtonshire by Mr. Hepburn.

CALAMODYTA ARUNDINACEA (*G. R. Gray*). Great Reed Warbler.

Provinces III. IV.

Subprovinces 7?, 8, 12.

Lat. 51°–53°. "Germanic" type. Not in Ireland.

Yarrell, in his second Supplement, records a nest taken near Dorking; and the bird has several times been killed in Kent. Mr. F. Bond tells me that he has seen three eggs which were taken in Hertfordshire; and he himself possesses two eggs which were sent to him from Northamptonshire.

LUSCINIA PHILOMELA (*Bonap.*). Nightingale.

Provinces I.–V. VIII. X.

Subprovinces 2–15, 19, 20, 22, 23.

Lat. 50°–54°. "Germanic" type. Not in Ireland.

Nests in East Devon, Somerset, Gloucester, Monmouth, Hereford (rarely), Shropshire (occasionally), Stafford, Derby, York, and in all the counties to the east of this line.

The Nightingale is also thought to have once bred near Sunderland, and has been heard at Carlisle.

In the 'Zoologist' (p. 241) Mr. R. D. Duncan repeats his statement that a pair of Nightingales were heard, and the male shot, in Calder Wood, Mid Lothian, in the summer of 1826—a warm season.

SYLVIA ATRICAPILLA (*Latham*). Blackcap.

Provinces I.–XVII.

Subprovinces 1–28, 29, 30?, 31, 32.

Lat. 50°–58°. "English" or Southern type.

Rare in Scotland, though it has been found nesting in many different counties, especially of the two southern provinces. Beyond the Forth, the nest has been found in Clackmannan (*Dr. P. Brotherson*), in Perthshire (*Col. Drummond-Hay*), in Banffshire a few pairs every year (*Mr. T. Edward*), in Dumbarton (*Mr. R. Gray*), and in Ross-shire (*Mr. R. Danford*).

SYLVIA HORTENSIS (*Lath.*). Garden Warbler.

Provinces I.–VI. VIII.–XIV. XV. ? XVI. ?

Subprovinces 1, 2–15, 17, 18–28, 29?, 32?

Lat. 50°–56°. "English" or Southern type.

Throughout England; but scarce in Cornwall and Pembrokeshire, and I have no authority for its breeding in North Wales.

Extends to the south, at least, of Scotland, perhaps to Argyle and Perthshire.

*SYLVIA CINEREA* (*Lath.*). Whitethroat.

Provinces I.—XVII.

Subprovinces 1–33, 34, 35.

Lat. 50°–59°. “British” type, or general.

Scarce in the north of Scotland, though ranging to the extreme north of the mainland.

Mr. W. Dunbar describes it as nesting only occasionally in Ross, Sutherland, and Caithness; and Mr. H. D. Graham finds it breeding regularly in Mull and Iona.

*SYLVIA CURRUCA* (*Lath.*). Lesser Whitethroat.

Provinces I.—V. VIII.—XIV. XVI.

Subprovinces 3–15, 19–25, 27, 28, 32?

Lat. 50°–56°. “English” or Southern type. Not in Ireland.

Apparently scarce in the west of England, and does not breed in Cornwall or Devon, nor have I any authority for its nesting in Wales. Very rare in Scotland, where it has been observed in Ayrshire, Renfrew, and Lanark (see *Macgillivray*, vol. ii.). In Haddington, breeding (*Mr. A. Hepburn*). In Edinburgh. In Linlithgow, breeding occasionally (*Mr. T. D. Weir*). Mr. R. Gray believes it breeds near Loch Lomond, and he has also obtained the bird from Argyleshire.

*SYLVIA SIBILATRIX* (*Bechst.*). Wood Wren.

Provinces I.—XVI.

Subprovinces 1–28, 29, 30, 32.

Lat. 50°–58°. “British” or “English” type. Not in Ireland.

Throughout England; and in Scotland ranges further north than the Chiff-Chaff, having been observed by the Duke of Argyll in Argyleshire and at Balmoral. Mr. T. Edward has seen the bird in Banffshire; and Mr. J. Lamb tells me that it is common round Perth, where Mr. A. Pullar has also found the nest.

*SYLVIA TROCHILUS* (*Lath.*). Willow Wren.

Provinces I.—XVII.

Subprovinces 1–35.

Lat. 50°–59°. “British” type, or general.

Throughout Great Britain, becoming less numerous in the north of Scotland. Found plentiful in Sutherland by Mr. Selby; and is reported by Mr. W. Dunbar as nesting regularly in Ross, Sutherland and Caithness.

*SYLVIA RUFA* (*Naum.*). Chiffchaff.

Provinces I.—XIV.

Subprovinces 1–25, 26–28.

Lat. 50°–56°. “English” or Southern type.



Throughout England and Wales, and in a few counties of the south of Scotland. Sir W. Jardine marks the Chiffchaff as nesting sparingly in Dumfries. Mr. R. Gray finds it nesting near Glasgow; and the Rev. J. Duns tells me that the bird is well known in Berwickshire.

Macgillivray speaks of its having been seen in various parts of Scotland, especially the Lothians, where it is very rare. The bird is included in the 'Natural History of Dee-side,' on the authority of Mr. Brown, who describes it as occurring very rarely near Abergeldie and Micras.

*SYLVIA UNDATA* (*G. R. Gray*). Dartford Warbler.

Provinces I.—III. V. ? VIII. ?

Subprovinces 1 ? 2-9, 14 ?, 20 ?

Lat. 50°-52°. "English" type, or Southern.

Confined apparently to a few counties of the extreme south of England. Montagu mentions its occurrence in Cornwall. The nest has been found in Devon, Wilts, Dorset, Hants, Sussex, Kent, Surrey, and Middlesex.

The nest has once been taken in Oxfordshire (*Zoologist*, p. 2597); and Mr. J. J. Briggs has lately informed me that he has taken a nest in Derbyshire, which he believes belongs to the Dartford Warbler. Yarrell mentions its occurrence in Worcestershire and Leicestershire. It seems likely that the bird may occasionally extend its range beyond latitude 52°, until killed or driven back by an unusually severe winter. One of the species characteristic of the South-European fauna.

*REGULUS CRISTATUS* (*Koch*). Golden-crested Wren.

Provinces I.—XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

Breeds as far north as Sutherland and Caithness (*Mr. W. Dunbar*), but not in the Scottish isles.

*Obs.—Regulus ignicapillus* (Naum.). In the third edition of Hewitson's 'Eggs B. B.' (vol. i. p. 148) occurs the remark:—"The Rev. E. H. Browne has watched this species" [the Fire-crested Wren] "during the summer near his residence at Blo' Norton, in Norfolk, and has no doubt it breeds there;" but there is too much reason to fear that the Golden-crested Wren has in this instance been mistaken for the Fire-crested, which appears to be only a winter visitant to Britain.

*PARUS MAJOR* (*Linn.*). Great Titmouse.

Provinces I.—XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

Rare in the north of Scotland, but marked by Mr. Dunbar as

building regularly in Ross and Sutherland. Sir W. Jardine describes it as ranging scarcely so far north as the Blue Titmouse.

PARUS CÆRULEUS (*Linn.*). Blue Titmouse.

Provinces I.—XVII.

Subprovinces 1–35.

Lat. 50°–59°. “British” type, or general.

To Sutherland (*Mr. Selby* and *Mr. Dunbar*) and Caithness (*Mr. Dunbar*).

PARUS CRISTATUS (*Linn.*). Crested Titmouse.

Provinces XIII. ? XV. XVII.

Subprovinces 27 ?, 31, 34.

Lat. 56°–58°. “Scottish” type. Not in Ireland.

From Sir W. Jardine we learn that the Crested Titmouse annually breeds in some plantations near Glasgow; this locality may belong to province XVI. and subprovince 32, instead of XIII. and 27 as entered above.

The Rev. George Gordon tells me that it breeds at Abernethy, on the Spey; and Mr. Dunbar describes it as plentiful in the woods of Castle Grant, in Inverness-shire; Montagu had already seen it from the forest of Glenmoor—all three localities being situated close together on the confines of the counties of Inverness, Elgin, and perhaps extending to Aberdeenshire and Banff. Further north the bird has been seen on the Findhorn, and it nests regularly in Ross-shire (*Mr. W. Dunbar*).

Yarrell mentions that the Crested Titmouse has been seen in the Pass of Killiekrankie; and Macgillivray notices a specimen killed in Argyleshire.

PARUS ATER (*Linn.*). Coal-Titmouse.

Provinces I.—XVII.

Subprovinces 1–35.

Lat. 50°–59°. “British” type, or general.

Mr. Dunbar finds the nest as far north as Sutherland. The late Mr. St. John also noticed the bird in the same county; and Macgillivray describes it as plentiful in the pine-forests of the north of Scotland.

PARUS PALUSTRIS (*Linn.*). Marsh-Titmouse.

Provinces I.—XII. XIV. XV.

Subprovinces 1–25, 28, 29, 30.

Lat. 50°–58°. “English” type, or Southern.

Throughout England and Wales, becoming scarce in Scotland, where it is mostly found in the Lothians. Nests regularly in Haddington

(*Mr. A. Hepburn*), regularly in Linlithgow (*Mr. T. D. Weir*), and occasionally in several other counties of subprovince 28. The Marsh-Titmouse extends to Fifeshire, according to Macgillivray, and breeds in Perthshire (*Mr. A. Pullar* and *Mr. J. Lamb*), occasionally in Aberdeenshire (*Mr. I. Edward*), and even as far north as Inverness (*Mr. W. Dunbar*). This bird can hardly be supposed wanting in subprovinces 16 and 19, though it is not included in either list of the nesting birds of Lincolnshire, where Mr. Adrian informs me that it has only been noticed as a rare visitor.

PARUS CAUDATUS (*Linn.*). Long-tailed Titmouse.

Provinces I.-XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

Less frequent in the north of Scotland, but is described by Mr. Dunbar as nesting regularly in Ross, Sutherland, and Caithness. Sir W. Jardine considers that it does not reach nearly so far north as the Coal-Titmouse.

PAROIDES BIARMICUS (*G. R. Gray*). Bearded Titmouse.

Provinces [II.] III. IV. [V.] [VIII.] [IX.] [X.]

Subprovinces (6), 7, 8?, 10, 11, 12, (13?), 19, (21?), 23.

Lat. 50°-53°. "Germanic" type. Not in Ireland.

A very local species, apparently now restricted to a few localities in Norfolk and Suffolk, and to the reed-beds along the banks of the Thames. Still breeds in Surrey (*Rev. J. C. Atkinson*) and probably in Essex (where the bird has been noticed), in East Suffolk (*Rev. J. Farr*), in Norfolk (*Mr. H. Stevenson*), and possibly in Lincolnshire, which is one of the five counties mentioned by Hewitson. (See also Mr. J. D. Hoy's account of this bird, in Loudon's 'Mag. of Nat. Hist.' vol. iii. p. 328.)

Extinct in Sussex (*Mr. Knox*); extinct also in Cambridgeshire and Huntingdon (*Mr. F. Bond*).

Kent, Gloucester, and Cowbit in Lancashire are given as localities by Montagu; and Mr. Waterton tells me that a pair once built by the side of the lake at Walton Hall.

MOTACILLA YARRELLI (*Gould*). Pied Wagtail.

Provinces I.-XVIII.

Subprovinces 1-37.

Lat. 45°-60°. "British" type, or general.

Throughout the mainland, extending to the Outer Hebrides (*Dr. D. Dewar*) and Orkney; but does not breed in Shetland.

Blasius considers the Pied Wagtail a local race of the next species.

MOTACILLA ALBA (*Linn.*). White Wagtail.

Provinces I. ? II. ? III. ? IV. ?

Subprovinces 2 ? , 5 ? , 6 ? 7 ? , 12 ?

Lat. 50°–53° ? . “English” type. Not in Ireland.

The Rev. M. A. Mathews considers the White Wagtail a regular spring visitor to the coast of North Devon, and has noticed a pair frequenting the banks of a stream near Barnstaple. He also writes that, in June, 1860, his friend Mr. Brodrick, who knows the bird well, found a pair of White Wagtails nesting in a wall bordering on a little stream between Ilfracombe and Morte.

At Freshwater, in the Isle of Wight, Mr. H. Rogers has obtained a pair of Wagtails, with their nest, which Mr. Bond and Mr. Gould refer to *M. alba*, though the birds are not so pale in colour as usual.

With regard to Sussex, Mr. Swaysland has informed the Rev. M. A. Mathews that the White Wagtail is a regular summer visitant to the south downs, and then frequents the little pools on the high grounds, in the vicinity of which it is believed to breed.

Dr. Plomley told the Rev. H. Roundell that *M. alba* was a regular summer visitor, and bred in Kent. In the ‘Zoologist,’ p. 1497, Dr. Plomley describes it as common about Romney Marsh.

Mr. Charles Gordon has no doubt of its breeding in the cliffs of Kent, where he has noticed it during the breeding-season; and, from the clamour and actions of birds which he has shot there, he has no doubt there was a nest. To this may be added Mr. Carter’s statement that he has caught the female upon the nest at Whittlesea (Hunts), where he saw the birds in great numbers for two successive summers (Hewitson, ‘Eggs of B. B.’ ed. 3. p. 165).

MOTACILLA SULPHEURA (*Bechst.*). Grey Wagtail.

Provinces I. II. III. V. VIII.–XVII.

Subprovinces 1, 2, 3, 4, 5, 7, 9, 13, 14, 15, 20–32, 34, 35.

Lat. 50°–59°. “Scottish” type, or Northern.

Scarce in the south during summer, and then found mostly in the west. Breeds occasionally in Cornwall (*Mr. E. H. Rodd*); regularly in North Devon (*Rev. M. A. Mathews*), in South Devon (*Mr. J. Gatcombe*), near Herrington in Dorset (*Mr. H. Groves*), at Chemies (*Gould*, ‘Contrib. to Ornith.’ 1849, p. 137), and by the little river Chess (*Rev. B. Burgess*), in Bucks and in Gloucester, where it is rare (*Rev. F. J. Scott*). Is believed to breed also in Somerset, Wilts, Hants, and Kent (as mentioned by Yarrell). Breeds more numerous in Stafford and Shropshire, and from Derbyshire northwards throughout Scotland, though considered by Macgillivray very rare north of Inverness.

Doubtless nidifies in South and North Wales, though I have no record of its doing so.

MOTACILLA CAMPESTRIS (*Pall.*). Ray's Wagtail.

Provinces I.-XVI. or XVII.

Subprovinces 2-28, 30, 31, 32, 35?

Lat. 50°-58° or 59°? "English" type, or Southern.

Throughout England and Wales, becoming very scarce or local in the north of Scotland. Mr. T. Edward finds it breeding on the east coast of Aberdeenshire; and Mr. W. M. Snowie marks it as nesting also in East Inverness. Mr. R. Gray has found the nest in Dumbartonshire; and the bird has been seen as far north as Sutherland, by Mr. St. John and Sir W. Jardine, &c.

*Obs.*—*Motacilla flava*, L., whose nest is supposed to have been found in Cambridgeshire, is not included in the list which Mr. Bond has sent me for that county.

ANTHUS ARBOREUS (*Bechst.*). Tree-Pipit.

Provinces I.-XVI.

Subprovinces 1-28, 29, 30, 31, 32.

Lat. 50°-58°. "English" type. Not in Ireland.

Scarce in Cornwall, Wales, and Scotland, though the nest has been found as far north as Dumbarton (*Mr. R. Gray*), in Aberdeen and Banff (*Mr. T. Edward*), and in East Inverness (*Mr. W. Dunbar*).

ANTHUS PRATENSIS (*Bechst.*). Meadow-Pipit.

Provinces I.-XVIII.

Subprovinces 1-38.

Lat. 50°-61°. "British" type, or general.

A common bird throughout Britain; especially abundant in the north, and reaching the Outer Hebrides and Shetland.

ANTHUS OBSCURUS (*Keysl. & Blas.*). Rock-Pipit.

Provinces I. II. III. VI.-XVIII.

Subprovinces 1-7, 17-19, 21, 22, 24-38.

Lat. 50°-61°. "British" type, or general.

All round the coast, preferring rocky shores, but frequenting also the muddy estuaries of the flatter parts of the coast.

ALAUDA ARVENSIS (*Linn.*). Sky-Lark.

Provinces I.-XVIII.

Subprovinces 1-38.

Lat. 50°-61°. "British" type, or general.

To the extreme north of Scotland and its isles.

ALAUDA ARBOREA (*Linn.*). Wood-Lark.

Provinces I.—VI. VIII.—X. XII.

Subprovinces 1, 2, 3, 4, 5–11, 12, 13–15, 17, 18, 19?, 20, 21, 22, 23, 25.

Lat. 50°–55°. “English” type. Not in Scotland.

Chiefly in the south of England, and apparently rare or wanting in some of the eastern counties. Nests only occasionally in Essex, and is not included in either of the lists which I have received from Lincolnshire, though the county is mentioned by Yarrell.

Nests occasionally in Derbyshire, in Yorkshire (where it is rare), in South Lancashire (*Mr. C. S. Gregson*), and in Westmoreland (*Mr T. Gough*).

PLECTROPHANES NIVALIS (*Meyer*). Snow-Bunting.

Provinces XV. XVIII.

Subprovinces 30 and 38.

Lat. 57°–61°. “Highland” or mountain type. Not in Ireland.

In the ‘Natural History of Deeside’ it is recorded that the Snow-Bunting has been noticed (by Macgillivray), early in August, on Loch-nagar, Cairn-tual, and Ben-mac-dhui. In the same work, Messrs. Cumming and Brown state that it resides on these mountains all summer, and breeds; and Mr. Stewart says that it breeds on Ben Aun. In Banffshire, also, Mr. T. Edward has seen the Snow-Bunting in summer (*Zoologist*, p. 6597). Reference may be made to the first volume of Macgillivray’s ‘British Birds,’ and to Yarrell, who quotes Colonel Thornton as having seen “Snow-flakes” on a Ptarmigan-mountain on the 29th of August,

Quite recently Dr. Saxby has discovered the nest of the Snow-Bunting in Unst, Shetland (*Zoologist*, p. 7709); and he tells me that he has upon many occasions observed pairs of them during summer, but in parts of the cliffs almost always inaccessible (see also ‘*Zoologist*’ for 1863, p. 8680, and 1864, p. 9237). In the latter passage Dr. Saxby considers that the Snow-Bunting breeds regularly in the cliffs below Saxavord.

EMBERIZA MILIARIA (*Linn.*). Common Bunting.

Provinces I.—XVIII.

Subprovinces 1–38.

Lat. 50°–61°. “British” type, or general.

Less numerous in Scotland, being attached to the corn-fields and cultivated districts, but reaches to the Outer Hebrides, Orkney, and Shetland.

EMBERIZA SCHÆNICLUS (*Linn.*). Reed-Bunting.

Provinces I.—XVIII.

Subprovinces 1–36, 37.

Lat. 50°–59° or 60°. “British” type, or general.

Once observed breeding in Orkney, according to Messrs. Baikie and Heddle.

EMBERIZA CITRINELLA (*Linn.*). Yellow Hammer.

Provinces I.-XVIII.

Subprovinces 1-35, 37.

Lat. 50°-59° or 60°. "British" type, or general.

To the far north of Scotland, and has twice bred in Orkney (*Messrs. Baikie and Heddle*).

EMBERIZA CIRLUS (*Linn.*). Cirl-Bunting.

Provinces I. II. III. V.

Subprovinces 1-6, 7, 13, 14.

Lat. 50°-55°. "English" (or "Atlantic") type. Not in Ireland.

Along the south coast, from Cornwall to Essex; but does not appear to breed in Kent.

Nests occasionally in Surrey (*Mr. F. Godman*). Has been seen in Herts, in May, by the Rev. H. H. Crewe, who has lately found it breeding near Tring (*Ibis*, 1865, p. 114). It has been obtained in Berks by the Rev. F. O. Morris. Breeds in Gloucester (*Rev. F. J. Scott*), in Hereford (*Mr. R. M. Lingwood*), in Worcester and Warwick (*Mr. R. F. Tomes*). The few birds which have been noticed further north were most likely accidental visitors.

FRINGILLA CŒLEBS (*Linn.*). Chaffinch.

Provinces I.-XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

The commonest and probably most abundant of our Finches; nesting regularly as far north as Caithness, but appears only as a visitor in the northern Scottish isles.

*Obs.*—*F. montifringilla* (L.). In the 'Zoologist' for 1864 (p. 9210), the Rev. J. C. Atkinson describes a nest and eggs found near Thirsk, which he supposes to have been those of the Brambling—a bird which in Western Scandinavia does not breed south of lat. 59° N., and in Eastern Scandinavia not south of lat. 67° N. (*Wallengren* in 'Naumannia' 1855, p. 136).

PASSER MONTANUS (*Steph.*). Tree-Sparrow.

Provinces I.-V. VIII.-XI. XIV. XV.

Subprovinces 3, 4, 6, 7, 8, 9-15, 19, 20-24, 28, 29, 30, 31.

Lat. 50°-58°. "Germanic" type. Not in Ireland.

Chiefly in the middle and eastern counties of England, reaching as far north as Lancashire and Cumberland, with a few scattered localities on the eastern side of Scotland.

Mr. W. D. Crotch has once taken the nest, and caught the hen, in a hole in a thatched roof near Taunton. In Dorset, Mr. H. Groves has found the nest in a tree in a swamp at the mouth of the river Wey.

The Tree-Sparrow breeds regularly in Gloucester, Hereford, Stafford, Shropshire, where "it is common" (*Mr. H. Shaw*). Mr. C. S. Gregson considers it not scarce in South and North Lancashire; and he tells me that he has taken the nest near Warrington and near Lancaster, and believes that its range extends to Westmoreland and Cumberland.

Extremely rare in Scotland. Mr. R. Gray has noticed a pair frequenting a farm in North Berwick all the summer; Mr. J. R. Pencaitland also marks it as nesting occasionally in this county. Mr. J. Murray and Mr. A. Pullen tell me that it breeds occasionally in Perthshire. Mr. T. Edward has seen eggs which were taken in "the higher parts of Aberdeenshire"; and, in Elginshire, the Rev. George Gordon finds the Tree-Sparrow breeding annually in small numbers in the hedges of the warmer parts of the county, where it appears as a summer visitor.

PASSER DOMESTICUS (*Leach*). House-Sparrow.

Provinces I.—XVIII.

Subprovinces 1–38.

Lat. 50°–61°. "British" type, or general.

Throughout Great Britain, extending to the western and northern isles of Scotland.

FRINGILLA CHLORIS (*Temm.*). Green Linnet.

Provinces I.—XVII.

Subprovinces 1–35.

Lat. 50°–59°. "British" type, or general.

Breeds as far north as Sutherland (*Mr. W. Dunbar*) and Caithness (*Mr. H. Osborne*), but not in the Scottish isles.

COCCOTHAUSTES VULGARIS (*Steph.*). Hawfinch.

Provinces II. III. IV. V. VIII. X.

Subprovinces 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 20, 23.

Lat. 50°–54°. "English" type. Not in Ireland.

Apparently increasing, and reported as now breeding regularly in Wilts, Kent, Surrey, Essex, Middlesex, and Bucks. The nest has also been found in Dorset (*Mr. H. Groves*), Hants, Sussex, Herts, Berks, Oxford, Suffolk, Norfolk, Warwick, Rutland, Derby; and at Cusworth near Doncaster (*Mr. H. Reid*).

Mr. T. Edward informs me that he believes a pair bred, a few years ago, near to the town of Banff.



FRINGILLA CARDUELIS (*Linn.*). Goldfinch.

Provinces I.-XVII.

Subprovinces 1-34, 35.

Lat. 50°-59°. "British" type, or general.

Rare in the north of Scotland, though reputed to breed regularly in Ross-shire (*Mr. Danford*) and occasionally in Caithness (*Mr. H. Osborne*); the late Mr. St. John also observed the bird in Sutherland.

The Goldfinch is said to be decreasing in several of the northern districts; and if we look to the account given by Mr. Knox of the great numbers annually destroyed by birdcatchers in the autumnal migration, there can be no doubt that the Goldfinch and many other of the Finches and Linnets are destroyed in a most reckless and unprofitable manner. Without wishing for protective laws like those enacted in France, we cannot avoid registering this protest against the cruel and useless slaughter which Mr. Knox deplures, in his 'Ornithological Rambles' (ed. 3, p. 78).

FRINGILLA SPINUS (*Linn.*). Siskin.

Provinces II. III. IX. X. XI. XII. XIII. XXII.

Subprovinces 4, 7, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 35.

Lat. 50° or 54°-59°. "Scottish" type. Not positively known to breed in Ireland (Zool. p. 3708).

The Rev. O. Pickard-Cambridge tells me that he once found a Siskin's nest in a furze-bush, close to a fir-plantation, near to Bloxworth, Dorset. Meyer mentions a nest taken in Combe Wood. The bird is considered to have bred near Oxford (*Rev. A. Mathews*), and has been seen near Gloucester in the month of May.

The nest has been found in Lancashire (*Yarrell*), near Walton Hall (*Mr. Charles Waterton*), in Durham (*Mr. J. Hancock* and *Rev. H. B. Tristram*) and in Westmoreland, according to Bolton, as quoted by Montagu.

In the south of Scotland, the Siskin breeds occasionally in Dalswinton Woods, Dumfriesshire (*Mr. W. G. Gibson*); in Kirkcudbright (*Yarrell*); within two miles of Glasgow (*Mr. R. Gray*); in several counties of subprovince 28; in Perthshire, perhaps regularly; in Argyleshire; and, though not numerous as a species, may be considered to nest regularly in most of the northern counties of Scotland.

FRINGILLA CANNABINA (*Linn.*). Linnet.

Provinces I.-XVIII.

Subprovinces 1-35, 37.

Lat. 50°-60°. "British" type, or general.

Throughout the mainland; and also breeds regularly in Orkney (*Messrs. Baikie and Heddle* and *J. H. Dunn*).

FRINGILLA LINARIA (*Linn.*)\* Lesser Redpoll.

Provinces II. III. IV. V. VIII.—XVIII.

Subprovinces 4, 5, 7, 9, 10, 11, 13, 14, 15, 20-31, 32, 34, 35, 37.

Lat. 50°-60°. "Scottish" type, or Northern.

Nests occasionally in Dorset, Isle of Wight, Kent (Zoologist, p. 8951), Oxford, Warwick, and Shropshire; regularly in Norfolk and Suffolk; regularly in Nottingham (*Rev. R. Sutton*) and Derby (*Rev. H. H. Crewe* and *Mr. O. Salvin*), and thence northwards becomes more numerous, breeding in all the counties of the north of England and throughout Scotland. Low tells us that it breeds in Hoy; and Messrs. Baikie and Heddle also describe it as indigenous to Orkney.

FRINGILLA FLAVIROSTRIS (*Linn.*). Twite.

Provinces V. VII. VIII. IX. X.—XVIII.

Subprovinces 14, 15, 18, 20, 21-25, 27-32, 33?, 34-38.

Lat. 50°-61°. "Scottish" type, or Northern.

In Herefordshire, Mr. R. M. Lingwood says that the Twite breed sparingly on the Black Mountains, or Hatterell Hills, on the west border of the county.

Garner tells us that this bird breeds in Staffordshire; and Sir John Crewe marks it as nesting regularly in that county. Mr. H. Shaw describes it as nesting occasionally on the Longmind Hills, in Shropshire. The bird also breeds in Derbyshire occasionally (*Sir J. Crewe*), in North Wales (*Eyton*), on the mosses of South Lancashire, Warrington, &c. (*Mr. C. S. Gregson*); in East York (*Mr. A. S. Bell*); in West York (*Mr. H. Smurthwaite*); Westmoreland (*Mr. T. Gough*); Isle of Man (*Mr. J. F. Crellin*), who has kindly sent me specimens of the bird, obtained in the month of June; in Durham and Northumberland, and in nearly all the counties of Scotland, reaching to the Hebrides and Northern Isles; but I have no authority for subprovince 26.

Mr. H. Groves tells me that he believes the nest has been found in the north of Dorsetshire; but some confirmation of this locality is desirable, as this would extend the breeding-range two degrees further south.

PYRRHULA RUBICILLA (*Pall.*). Bullfinch.

Provinces I.—XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

Though not an abundant species, the Bullfinch appears to be widely

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\* We think there can be no doubt that the true *Fringilla linaria* of Linnæus is the bird usually called by English ornithologists the "Mealy Redpoll"; the specific name proper to the "Lesser Redpoll" would seem to be *rufescens*, Vieillot —ED.

distributed in Britain. Mr. Dunbar describes it as breeding regularly in Sutherland and Caithness; and Mr. Danford marks it as nesting every year in Ross-shire.

*LOXIA CURVIROSTRA* (*Linn.*). Common Crossbill.

Provinces I.—V. VIII. X. XI.—XV. XVII.

Subprovinces 2, 3, 5-8, 11, 13, 20, 22, 25, 26, 28, 29, 30, 31, 34, 35.

Lat. 50°-59°. "Scottish" type, or Northern.

The Crossbill appears to be an increasing species in Scotland, and, from having been more frequently found breeding in the northern counties, seems to belong rather to the "Scottish" than the "British" type, though the nest has occurred in scattered localities throughout Great Britain.

Commencing from the south, the nest has been found in the following counties:—Devon (*Zoologist*, p. 39), Somerset (*Mr. W. D. Crotch*), Hants (*Zoologist*, p. 189), Sussex (*Mr. W. Borrer*), Kent (*Mr. G. Fell*), Surrey (*Hewitson*), Essex (*Mr. H. Doubleday*), Herts (*Mr. F. Bond*), Norfolk (*Sheppard* and *Whitear*), Gloucester (*Hewitson*), Leicester (*Harley*), East York (*Hewitson* and *Mr. A. S. Bell*), West York (*Mr. H. Reid*), Durham and Northumberland (*Mr. J. Hancock* and *Rev. H. B. Tristram*), Cumberland (*Mr. T. Hope*), Dumfries (*Mr. W. G. Gibson*), Selkirk and Roxburgh (*Rev. T. B. Bell*), Linlithgow (*Rev. J. Duns* and *Mr. T. D. Weir*), Perth (*Mr. A. Pullen*), Banff (*Mr. T. Edward*), Elgin (*Rev. G. Gordon*); and the bird is considered to breed regularly in Aberdeen, Inverness, Ross, and probably Sutherland.

*STURNUS VULGARIS* (*Linn.*). Starling.

Provinces I.—XVIII.

Subprovinces 1-38.

Lat. 50°-61°. "British" type, or general.

Throughout the mainland and isles, but is much more numerous in some districts than in others, and it has been observed to increase very rapidly in some counties where it formerly was hardly known. Sir W. Jardine marks the Starling as having bred regularly "of late years only" in Dumfriesshire; and Mr. Archibald Hepburn describes it as "a colonist" in Haddingtonshire.

*CORACIA GRACULA* (*G. R. Gray*). Chough.

Provinces I. II. [III.] VI. VII. XII. XIII. XIV. XVI. XVII. XVIII.

Subprovinces 1, 2, (3), 4, 5, (6), (7), 16, 17, 18, 25, 26, 27, 28, 32, 33, 34, 35, 36.

Lat. 50°-59°. "Atlantic" type.

On the rocky headlands of the south and west coasts, from the Isle of Wight to Ross and Sutherland, in which latter county Mr. Dunbar

tells me that it inhabits only a few localities. Formerly nested on Dover cliffs, according to Pennant, who states that a pair brought from Cornwall escaped and stocked these rocks, though the well-known passage from Shakspeare seems to imply an earlier origin.

The species is believed to be now extinct in Sussex and Kent, and very few pairs now remain in the Isle of Wight, and at Purbeck. On the east coast, a few birds only are known to breed about St. Abb's Head and near Fast Castle in Berwickshire.

Though not strictly south-western, its much greater prevalence on the western side of the island, and its southern distribution on the Continent, induce me to refer the Chough to the "Atlantic" rather than to the "British" type.

*CORVUS CORAX* (*Linn.*). Raven.

Provinces I.—XVIII.

Subprovinces 1–38.

Lat. 50°–61°. "British" type, or general.

Thinly scattered throughout Great Britain, being more numerous in the north and very scarce in the more level and cultivated districts. The Raven is already nearly extirpated in many of the midland and eastern counties, and is not included in either of the two lists which I have received from Lincolnshire.

*CORVUS CORONE* (*Linn.*). Carrion-Crow.

Provinces I.—XVIII.

Subprovinces 1–32, 35, 36.

Lat. 50°–59°. "British" type, or general.

Frequent in England, becoming rare in the middle and north of Scotland, where its place is supplied by the Hooded Crow. Mr. T. Edward, however, considers the two birds about equally numerous in Banffshire. Mr. R. J. Shearer marks the Carrion-Crow as nesting occasionally in Caithness; and the late Mr. St. John mentions its occurrence in Sutherland, where, however, its nest has not come under the notice of Mr. Dunbar.

Dr. Dewar informs me that he has seen the Carrion-Crow, during the breeding-season, in the Outer Hebrides, where, as in the neighbourhood of Glasgow, he believes that it pairs with the Hooded Crow.

*CORVUS CORNIX* (*Linn.*). Hooded Crow.

Provinces III. IV. X. XI. XII. XIII.—XVIII.

Subprovinces 8, 11, 22, 24, 25, 26–38.

Lat. 51° or 54°–61°. "Scottish" type, or Northern.

Mr. Laver, of Colchester, has informed Dr. C. R. Bree that the "Dun Crow" occurs in great numbers near the Blackwater River, in Essex, and "some remain and breed there every year. Mr. Laver has

frequently seen and taken the nest on Osey Island, in the parish of Steeple, on Ramsay Island, and at Paglesham. His cousin, Mr. Robert Laver, has shot the old bird from the nest, which is generally that of the Carrion-Crow." Dr. Bree has since written to say that the trees in which the Hooded Crow used to breed have been cut down in one of the localities whence he kindly endeavoured to obtain specimens.

Messrs. Gurney and Fisher mention a pair having once nested near King's Lynn in 1816.

There is reason to believe that the Hooded Crow breeds occasionally in North Wales, where the birds have been noticed so late as May. Further information on this point is very desirable.

The Hooded Crow has been known to breed near Scarborough on two or three occasions (*Yarrell*, and 'Zoologist,' p. 6142). A bird which bred at Hackness is still preserved in the Museum at Scarborough.

Mr. Selby marks the Hooded Crow as breeding occasionally in Northumberland; and Mr. J. F. Crellin reports it as breeding annually in the Isle of Man. The bird breeds throughout Scotland, becoming more abundant northwards.

In the neighbourhood of Glasgow, Mr. R. Gray describes the Hooded Crow as constantly pairing with the Carrion-Crow, and says this is the rule rather than the exception; and in Rennie's 'Field Naturalist' (1833, p. 279) Mr. Blyth records that the same observation has been made near Inverness. This circumstance is greatly in favour of the opinion that the two birds are races of the same species.

Blasius treats the Hooded Crow as variety  $\beta$  of *C. corone*.

*CORVUS FRUGILEGUS* (*Linn.*). Rook.

Provinces I.-XVII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

Decreases northwards; but breeds as far north as Caithness (*Mr. R. J. Shearer*); not, however, extending to the Western or Northern Isles.

*CORVUS MONEDULA* (*Linn.*). Jackdaw.

Provinces I.-XVIII.

Subprovinces 1-35, 37.

Lat. 50°-60°. "British" type, or general.

To the extreme north of Scotland; and a few pairs breed in South Ronaldshay (*Low*, and *Baikie and Heddle*).

*PICA CAUDATA* (*Flem.*). Magpie.

Provinces I.-XVIII.

Subprovinces 1-35.

Lat. 50°-59°. "British" type, or general.

To Sutherland and Caithness; but does not breed in the Scottish isles.

GARRULUS GLANDARIUS (*Leach*). Jay.

Provinces I.—XVI.

Subprovinces 1—25, 26, 27, 28, 29, 30?, 32.

Lat. 50°—57°. “English” or Southern type.

Throughout England, reaching as far north as the middle of Scotland. Macgillivray describes the Jay as “found here and there in the woods skirting the Grampians, from Forfar to Dumbarton, and in all the more or less wooded districts southward.” Colonel Drummond-Hay marks the Jay as breeding regularly in Perthshire; and Captain Orde describes it as occurring in Argyleshire wherever there is much copse-wood.

GECINUS VIRIDIS (*Boie*). Green Woodpecker.

Provinces I. VIII. IX. XI. XII.?

Subprovinces 1, 15, 17, 20, 21?, 22, 23, 24, 25?.

Lat. 50°—55°. “English” type. Not in Ireland.

Not a common bird, but marked as nesting regularly in every county as far north as Derbyshire. In the north of Yorkshire it becomes scarce, and nests only occasionally in Durham and Northumberland.

The Green Woodpecker is not included in either of the two lists which Mr. J. F. Brockholes has sent from Lancashire and Cheshire; but Mr. C. S. Gregson informs me that the bird breeds in the latter county. Mr. Gregson also states that “the Green Woodpecker breeds in Barron Wood, Cumberland, close to the borders of Scotland,” and “also in Westmoreland.” Dr. Heysham, however, only knew it as a rare visitor to Cumberland; nor is it marked in the lists which I have received from Mr. Gough and Mr. T. Hope.

PICUS MAJOR (*Linn.*). Great Spotted Woodpecker.

Provinces I.—V. VII.? VIII.—XI. XV

Subprovinces 1, 2—15, 18?, 19, 20, 21, 22, 23, 24, 29—31.

Lat. 50°—58°. “English” type. Not in Ireland.

Breeds in small numbers in nearly all the southern and midland counties of England, becoming rarer northwards.

Very scarce in Scotland, though Macgillivray describes it as formerly not uncommon near Dunkeld, and mentions Loch Ness, the Spey, and Braemar as localities where it is not unfrequent. The bird has been observed by Mr. Selby on the banks of the Dee and Spey.

Mr. T. Edward marks the Great Spotted Woodpecker as nesting occasionally in Aberdeenshire, and in the ‘Natural History of Dee-side’ it is described as resident in the woods, but very rare.

Mr. Dunbar considers that it breeds regularly in the woods at Castle Grant, in East Inverness; and he tells me that the bird has been observed also in Ross-shire.

PICUS MINOR (*Linn.*). Lesser Spotted Woodpecker.

Provinces I. II. III. IV. V. VIII. X.

Subprovinces 2-15, 19, 20, 22, 23.

Lat. 50°-55°. "English" type. Not in Ireland.

More southern in its distribution than the former, not reaching further north than Yorkshire.

Yarrell mentions its having been found in Lancashire; but I have no authority for its nesting in that county nor in any part of Wales.

*Obs.*—The Great Black Woodpecker (*Dendrocopus martius*) has been recorded as breeding in a brick wall at Claremont in Surrey (Naturalist, 1851, p. 20); also in an oak-tree in the New Forest (Zoologist, 1862, p. 8091). It seems possible that in each case some other bird was mistaken for this species.

YUNX TORQUILLA (*Linn.*). Wryneck.

Provinces I.-V. VIII.-XII.

Subprovinces 2, 3-15, 19, 20, 21, 22, 23, 24, 25.

Lat. 50°-55°. "Germanic" type. Not in Ireland.

Rare in the northern counties, and apparently much less numerous on the western side of England. Does not breed in Cornwall, and is very rare in Devon. I have no authority more recent than Pennant for its breeding in Wales.

Mr. Gregson has only once found the nest in Lancashire; and Mr. Smurthwaite has never seen the bird in North-west Yorkshire. Mr. Gough, however, describes the Wryneck as breeding regularly in Westmoreland; and in Loudon's 'Mag. of Nat. Hist.' (vol. iii. p. 172) it is included among the summer visitors to Carlisle.

Though the Wryneck has been observed a few times in the south of Scotland, its nest has not been found.

CERTHIA FAMILIARIS (*Linn.*). Tree-Creeper.

Provinces I.-XVII.

Subprovinces 1-32, 34, 35.

Lat. 50°-59°. "British" type, or general.

On the mainland to Sutherland (*Mr. St. John*) and Caithness (*Mr. Dunbar*), but does not reach the Scottish isles.

TROGLODYTES PARVULUS (*Koch*). Common Wren.

Provinces I.-XVIII.

Subprovinces 1-38.

Lat. 50°-61°. "British" type, or general.

To the extreme north of Scotland. Common in the Outer Hebrides and Orkney, and "a few breed annually in Shetland."

UPUPA EOPS (*Linn.*). Hoopoe.

Provinces II. III. IV.

Subprovinces 4, 5, 6, 7, 12.

Lat. 50°–52°. "Germanic" type. Not in Ireland.

The Rev. A. C. Smith informs me that a nest, containing young birds, has been taken in Wiltshire. The Rev. O. Pickard-Cambridge writes that a pair of Hoopoes are reported to have bred at Warmwell, in Dorsetshire, many years ago.

Mr. Jesse, in his 'Gleanings,' mentions a nest found near Chichester. Latham records another pair whose nest was built in Hampshire; and Gilbert White also records that a pair of Hoopoes frequented, for some weeks, an ornamental piece of ground, adjoining his garden at Selborne, and seemed disposed to breed, until driven away.

Mr. Knox tells me that the nest has been found at Southwick, near Shoreham.

Mr. Blyth noticed a pair frequenting a garden near Tooting in 1833 ('Field Naturalist,' 1834, p. 53); and in the 'Zoologist' (p. 564) Mr. J. P. Bartlett notices some eggs taken near Dorking in 1841.

The Rev. H. B. Tristram informs me that the nest has once occurred in Northamptonshire.

SITTA CÆSIA (*Meyer*). Nuthatch.

Provinces I.–XII.

Subprovinces 1–20, 21?, 22, 23, 24, 25.

Lat. 50°–55°. "English" type. Not in Ireland.

Throughout England; but rare in the north-western counties.

Mr. Eyton describes the Nuthatch as common in Shropshire and North Wales. Mr. Gregson considers it numerous at Dunhorn Park, on the Cheshire side of the Mersey, and also in the woods at Wyresdale, North Lancashire; but Mr. Brockholes has not met with it in either county.

Dr. Heysham records one pair as breeding regularly, in his day, in Cumberland.

Mr. Hancock marks the Nuthatch as breeding occasionally in Durham; and Mr. Selby has found the nest in Northumberland.

CUCULUS CANORUS (*Linn.*). Cuckoo.

Provinces I.–XVIII.

Subprovinces 1–35, 36, 37, 38.

Lat. 50°–61°. "British" type, or general.

Throughout the mainland; but appears to be less numerous in the isles.

Mr. John Macgillivray has recorded its occurrence in North Uist.



Messrs. Baikie and Heddle tell us that a few breed every season in the retired parts of Hoy and Waas. Dr. Saxby describes the Cuckoo as a very rare visitor to Shetland, where, however, he has obtained young birds not fully feathered.

ALCEDO ISPIDA (*Linn.*). Kingfisher.

Provinces I.—XV.

Subprovinces 1–28, 29.

Lat. 50°–57°. “English” type, or Southern.

Thinly scattered throughout England and the south of Scotland.

Breeds regularly in Ayr, occasionally in Lanark, regularly in nearly all the counties of subprovince 28, regularly in Stirling and Clackmannan, and perhaps every year in Perthshire, where it is very rare.

It is sad to think that this beautiful ornament of our streams is fast disappearing before the unceasing persecution of would-be collectors; and since its feathers have become a fashionable ornament of dress, even the ladies have now to be added to the list of the enemies of the Kingfisher. To salmon-fishers the sight of the living bird ought to more than compensate them for the loss of the best of flies.

HIRUNDO RUSTICA (*Linn.*). Chimney-Swallow.

Provinces I.—XVIII.

Subprovinces 1–35, 36, 37, 38.

Lat. 50°–60° or 61°. “British” type, or general.

Throughout Great Britain, and also reaches the Scottish isles.

Mr. John Macgillivray describes *H. rustica* as the only Swallow found by him in the Outer Hebrides, where it did not arrive till the end of June. Messrs. Baikie and Heddle say that a few pairs build annually near Kirkwall; and Dr. Saxby tells me that a nest was once taken in Lerwick.

CHELIDON URBICA (*Boie*). House-Martin.

Provinces I.—XVIII.

Subprovinces 1–32, 34, 35, 37, 38.

Lat. 50°–60° or 61°. “British” type, or general.

Builds regularly as far north as Sutherland and Caithness; but does not appear to reach the Outer Hebrides, nor has Mr. Graham found its nest in the islands of Argyleshire.

In Orkney, the House-Martin builds at Kirkwall and about the Cathedral of St. Magnus (*Messrs. Baikie and Heddle*).

COTYLE RIPARIA (*Boie*). Sand-Martin.

Provinces I.—XVIII.

Subprovinces 1–32, 34, 35, 37, 38?

Lat. 50°–60°. “British” type, or general.

Ranges to the extreme north of the mainland; but, like the former

species, the Sand-Martin has not been found breeding in the isles of Argyleshire.

W. Macgillivray has noticed that Sand-Martins frequent the sand-banks on the shores of the northernmost Hebrides. They build in Orkney, and perhaps occasionally in Shetland.

CYPSELUS APUS (*Illig.*). Swift.

Provinces I.—XVII.

Subprovinces 1–35.

Lat. 50°–59°. “British” type, or general.

Throughout the mainland; and breeds also in Mull and Iona (*Mr. H. D. Graham*); but does not build in Orkney, or Shetland, or the Outer Hebrides.

CAPRIMULGUS EUROPÆUS (*Linn.*). Nightjar.

Provinces I.—XVII.

Subprovinces 1–34, 35.

Lat. 50°–59°. “British” type, or general.

Less numerous in the north of Scotland, breeding occasionally only in Caithness (*Mr. Shearer*).

Mr. H. D. Graham reports the Nightjar as breeding regularly in Mull.

COLUMBA PALUMBUS (*Linn.*). Wood-Pigeon.

Provinces I.—XVII.

Subprovinces 1–35.

Lat. 50°–59°. “British” type, or general.

A common species in nearly all parts of Britain, and, though Mr. H. D. Graham does not include the Wood-Pigeon in his list of the birds of Iona, Mr. J. K. Wilson describes it as breeding annually in the island of Mull.

The Wood-Pigeon extends to the extreme north of the mainland, but does not reach the Scottish isles. Its rapid increase of late years in the Lothians has been frequently commented upon.

COLUMBA CENAS (*Gmel.*). Stock-Dove.

Provinces II. III. IV. V. VIII. IX. X.

Subprovinces 4–13, 14, 15, 19, 20, 21, 22, 23.

Lat. 50°–54°. “Germanic” (or “English”) type. Not in Ireland.

There is a peculiarity in the distribution of this bird, since it seems to be absent during the breeding-season from several of the south-western counties, in which, and even in Dorsetshire, it appears chiefly as a winter visitor. Still there is good authority for its breeding in Gloucester (*Rev. F. J. Scott*), Hereford, Shropshire, and perhaps in North Wales (*Eyton*). The nest has been found both in East and West

Yorkshire, but hardly, I believe, beyond the 54th degree of latitude. The bird seems to be most numerous in some of the midland and eastern counties of England, and has not been observed in either Scotland or Ireland. Mr. J. F. Brockholes, who has taken especial pains to identify the species, tells me that the Stock-Dove breeds regularly in Cheshire and South Lancashire, where the nest is placed in fir-trees and ivy. The Rev. O. Pickard-Cambridge describes the bird as building in exactly the same kind of locality, among matted ivy, close to the trunks of cedars and fir-trees, more often in the holes of old trees where limbs have been broken off.

COLUMBA LIVIA (*Briss.*). Rock-Dove.

Provinces I. [II.] V.-VIII. X. XII.-XVII.

Subprovinces 1, 2, 3, (4), 13, 17, 18, 20, 21?, 22, 23, 25, 26-38.

Lat. 50°-61°. "Atlantic" (or perhaps "Scottish") type.

Far more numerous in the north; and on the west than on the east coast of Scotland.

Commencing from the south of England, the Rock-Dove used to breed formerly at Purbeck (*Rev. H. Austin*); but there is no direct evidence of its having ever bred in the Isle of Wight.

Mr. E. H. Rodd includes the Rock-Dove in his list as breeding occasionally in Cornwall. Rev. M. A. Mathews has observed it building in the cliffs about Lynton. Mr. W. D. Crotch reports it as breeding in Somersetshire. The bird is said to be common in Gloucester and Monmouth.

Sir W. Jardine gives Caldey Island as a locality, and Mr. Tracy marks the bird as breeding in Pembrokeshire. The Rev. H. Harpur Crewe has observed it breeding in Denbighshire, and there are probably several other localities in South and North Wales.

Mr. J. F. Brockholes tells me that there is a colony at Beeston Castle, Cheshire, and that he once noticed a pair frequenting the high banks of the Mersey during the breeding season. Mr. C. S. Gregson informs me that the Rock-Dove breeds at Whitbarrow Scar; and Mr. J. B. Hodgkinson has found its nest occasionally in Cumberland: it breeds also in the Isle of Man, as I learn from my obliging correspondent Mr. J. F. Crellin.

The Rock-Dove is numerous in many localities along the west coast of Scotland, especially in the isles, and abounds in the Outer Hebrides, in Orkney, and in Shetland, and, though less numerous on the east side of Scotland, breeds regularly in Caithness, Elgin, Banff, and in a few localities in Aberdeenshire, at Down Castle, Stirling (*Mr. J. Murray*), in the Isle of May, on the Bass Rock, and at Fast Castle, Berwickshire.

On the east coast of England, the Rock-Dove breeds only at Flamborough; it also breeds in a few rocky valleys or inland cliffs in Derby, York, Leicester, Stafford, Shropshire, and Somerset.

Like the Dartford-Warbler, the Rock-Dove on the European continent is quite a southern species.

TURTUR AURITUS (*G. R. Gray*). Turtle-Dove.

Provinces I.-V. VI. ? VIII. X.

Subprovinces 2, 3, 4-15, 17 ?, 19, 23, 24.

Lat. 50°-54° or 55°. "English" (or "Germanic") type.

Breeds in South Devon occasionally, and Somerset; regularly in Gloucester, and perhaps also in Pembroke; regularly in Herefordshire, Shropshire, and Stafford; in the last two counties it is rare; in Derbyshire occasionally (*Mr. F. F. Briggs*); in Cheshire very rarely (*Mr. F. F. Brockholes*), and in the south of Yorkshire (*Mr. Reid*). To the east and south of this line, the Turtle-Dove nests in all the midland and southern counties, but is described as scarce in Lincolnshire.

Dr. Heysham records that a young bird was once taken in Cumberland, where the species is very rarely seen; and the Rev. H. B. Tristram tells me that the nest has once been found as far north as Durham. Yarrell says that the Turtle-Dove is found in Lancashire, and is not uncommon in Cornwall; but I have not been able to obtain any evidence of its breeding in either of these counties. It seems also safer to consider the locality of South Wales uncertain for the present.

PHASIANUS COLCHICUS (*Linn.*). Pheasant.

Provinces I.-XVII.

Subprovinces 1-37.

Lat. 50°-59°. Not native, but generally established.

Though not an indigenous bird, the Pheasant is so thoroughly established throughout Great Britain that it is included in every county list, and breeds regularly even as far north as Caithness. Still there is no doubt that if the protection bestowed on this favourite game-bird were withdrawn, its range would be considerably narrowed, though it is probable that the species would not become extinct in this country.

TETRAO UROGALLUS (*Linn.*). Capercally.

Provinces [XV.] [XVII.]

Subprovinces (29), (30 ?), (31), (34 ?), (35).

Lat. 56°-59°. "Scottish" type. Formerly also in Ireland.

Pennant, in his 'Tour in Scotland' (1769), tells us that the *T. urogallus* was formerly common throughout the Highlands of Scotland north of Inverness. Even at that date the bird had become very rare; and Pennant himself had seen only a single bird, which was "killed in the woods of Mr. Chisolme, to the north [? west] of Inverness."

The Rev. George Gordon informs me that the Capercally formerly inhabited the county of Elgin; and Mr. R. J. Shearer marks it as extinct in Caithness. This is the only independent testimony which I have obtained respecting the former distribution of this fine bird. A search in some of the old Scottish county-histories may bring to light

some further details concerning the Capercally. Macgillivray, in the first volume of his 'British Birds' (p. 143), quotes an interesting passage from the 'Historia Scotorum.'

At present the bird seems to have become thoroughly re-established in several parts of Perthshire, where it has increased rapidly within the last ten years, and is believed to have spread to the adjoining county of Clackmannan, as I learn from Dr. P. Brotherson.

TETRAO TETRIX (*Linn.*). Black Grouse.

Provinces I.-VI. VII. ? VIII.-XVII.

Subprovinces 1, 2-6, (7), (9), (11), (12), 14?, 15, 16, 18?, 20-23, 24, 25-35.  
Lat. 50°-59°. "Scottish" type. Not in Ireland.

Though found in the extreme south of England, the Black Grouse more properly belongs to the low birch-woods and heaths of the less elevated districts of Scotland. It breeds "occasionally" in Cornwall (*Mr. E. H. Rodd*). In Devon, Somerset, Dorset, Hants, Sussex, Surrey, Berks, Worcester (*Yarrell*), Shropshire, Stafford, Radnor (*Mr. Rocke*), North Wales "introduced and decreasing on the Beswyn mountains near Corwen" (*Eyton*), Cheshire, Lancashire, and both divisions of Yorkshire, and in all districts to the north of these, extending to Islay, Mull, Skye, &c., but not reaching the Outer Hebrides, nor is it found in Orkney or Shetland.

The Black Grouse has been successfully introduced in the neighbourhood of Lynn in Norfolk. *Yarrell* says that the progenitors of the birds at present inhabiting the heaths of Surrey and Berks were brought from Holland, though the species had previously been known as indigenous to the former county. A single nest found in Northamptonshire is recorded by Lord Lilford (*Zoologist*, p. 3278).

Mr Selby describes the Black Grouse as increasing in Northumberland; and the same circumstance has been noticed coincident with the increase of plantations in several parts of Scotland. As *Thompson* remarks, the Black Grouse might probably be introduced to Ireland, but the attempts hitherto made have been unsuccessful.

LAGOPUS SCOTICUS (*Leach*). Red Grouse.

Provinces V.-XVIII.

Subprovinces 13-18, 20-37.

Lat. 51°-60°. "Scottish" type.

Colonel Newman tells me that the Red Grouse is plentiful on the hills of Monmouthshire. The bird also inhabits Hereford, Shropshire, Stafford, Radnor (*Mr. Rocke*), and Pembroke (*Mr. Tracy*). Breeds in Derbyshire, Lancashire, Yorkshire, and in every county north of lat. 54°, reaching the Outer Hebrides and Orkneys, but not occurring in Shetland.

LAGOPUS ALBUS (*Boie*). Ptarmigan.

Provinces [VII. ?] [XII.] XIV. ? XV.—XVIII.

Subprovinces (18 ?), (25), 28 ?, 29, 32–36, (37).

Lat. 55°–59°. “Highland” type. Not in Ireland.

At present the Ptarmigan is confined to Scotland, though there are records of its having formerly inhabited Westmoreland and Cumberland. (See Pennant and other earlier writers.)

Heysham describes the Ptarmigan as having become, in his time, very scarce in Cumberland; and he cites “the lofty mountains about Keswick” as the only locality known to him.

There is a tradition of its former existence in Wales, but I have not been able to discover the original authority for this statement, which is repeated by both Macgillivray and Thompson, and in Graves’s ‘British Ornithology.’

My valued correspondent, Dr. J. A. Smith of Edinburgh, has copied for me, from a newspaper, a paragraph stating that the Ptarmigan inhabits the county of Peebles; but this is the only authority for its occurrence so far south on the mainland at present. The bird inhabits Islay and Jura (*Thompson*, ‘B. Brit.’ ii. 45), Mull (*Mr. H. D. Graham*), Dumbarton (*Mr. R. Gray*), Argyle, Perth, and all the counties northward. Mr. John Macgillivray found the Ptarmigan sparingly in South Uist, and it has only recently been exterminated in Hoy.

PERDIX CINEREA (*Lath.*). Common Partridge.

Provinces I.—XVII.

Subprovinces 1–35.

Lat. 50°–59°. “British” type, or general.

Throughout Great Britain, being only less common where the land has not been brought into cultivation.

The Partridge is probably a colonist in the northern portion of its present range, having followed the progress of tillage.

Messrs. Baikie and Heddle inform us that it has been, within a few years, successfully introduced into the islands of Rousay and Shapinshay, in Orkney.

CACCABIS RUFA (*G. R. Gray*). Red-legged Partridge.

Provinces III. IV. VIII. X. XII.

Subprovinces 7, 8–12, 13 ?, 19, 20, 23, 25.

Lat. 50°–55°. Not native. “Germanic” type. Not in Ireland.

Introduced about one hundred years ago, the Red-legged Partridge has become very numerous in some of the eastern counties, where, in the struggle for life, it has been stated to have in some places nearly supplanted the Common Grey Partridge.

There must be some local influences that limit the range of the Red-legged Partridge in this country, since the attempts made to establish it

in Dorset, Hereford, Derby, and East Yorkshire appear to have failed; nor has the bird hitherto spread to any of our south-western shires. I am informed by Mr. T. Gough that it has bred regularly of late years in Westmoreland.

The bird is returned as now breeding occasionally in Kent (*Mr. G. Fell*). In Essex, Herts, Oxford (occasionally), Bucks, Suffolk, Norfolk, Cambridge, Huntingdon (occasionally), Northampton (occasionally), Lincoln, Rutland (occasionally), and West York (very rarely).

The Rev. F. J. Scott believes that it is established in the hills of Gloucestershire; but some confirmation of this last locality appears desirable.

COTURNIX COMMUNIS (*Bonn.*). Common Quail.

Provinces I.-XVII.

Subprovinces 2-8, 9, 10, 11, 12, 13, 14, 15, 17, 19-23, 24-29, 30, 31, 32, 35.

Lat. 50°-59°. "British" type, or general.

Thinly scattered, during the breeding-season, from the south of England to the very north of Scotland. Yet there are few counties in which the Quail is considered to breed annually; nor can these be grouped in any manner so as to show where the species is most numerous.

It has certainly decreased of late years in several districts, and this apparently not owing to any cause that can be discovered. In the west of Ireland the same diminution has been noticed. In former times I am informed that the Quail was reckoned as one of the regular winter visitors on the west side of the sister island, but it has not been so much observed of late years. It is still considered to breed annually about Belfast, and in county Armagh I have myself heard its note during the breeding-season. The bird is probably better known in the north-east of Ireland than in any part of England or Scotland.

If there is any difference, the range of the Quail seems to incline rather to the east side of Great Britain, as well as of Ireland, during the breeding-season. It seems to occur chiefly in the south of England during winter.

OTIS TARDA (*Linn.*). Great Bustard.

Provinces [II.] [IV.] [VIII.] [X.]

Subprovinces (4), (5), (6), (10), (11), (12), (19), (22).

Lat. 50°-55°. "Germanic" type. Not in Ireland.

In former times the Great Bustard was well known as inhabiting the downs of the south of England, the heaths in a few of the eastern counties, and the wolds of Yorkshire.

Its breeding-range included the counties of Wilts, Dorset (*Rev. F. H. Austen*), Hants, Sussex, Suffolk, Norfolk, Cambridge, Lincoln, and

Yorkshire. Montagu tells us that "these birds were formerly found even as far north as Scotland," where, however, they were probably only accidental visitors.

Even at the date of Montagu's 'Supplement' (1813) the Bustard had nearly disappeared from the downs of Wiltshire. It seems to have lingered to a considerably later date in Suffolk and Norfolk, where some nests were found in 1832 and 1833 (Loudon's 'Mag. Nat. Hist.' vol. vi. p. 150; vol. vii. p. 458; and vol. ix. p. 528). In Yorkshire the last egg was taken in 1816, and is now preserved in the museum at Scarborough.

*Obs.*—An egg, which can be hardly anything else than that of the Little Bustard (*Otis tetrax*, Linn.), was obtained by the late Mr. Wolley at Thurso, in 1848; and as a female Little Bustard was killed about the same date in that neighbourhood, the occurrence seems worth mentioning here (*J. Wolley in MS. penes A. Newton*).

ÆDICNEMUS CREPITANS (*Temm.*). Stone-Curlew.

Provinces II.-V. VIII. X.

Subprovinces 4-12, 14, 19, 20, 22, 23.

Lat. 50°-55°. "Germanic" type. Not in Ireland.

Breeds in Dorset, Hants, Sussex, Kent, Herts, Oxford, Bucks (perhaps extinct), Suffolk, Norfolk, Cambridge, Worcester (*Blyth*), Lincoln, Rutland, Nottingham, and in both divisions of Yorkshire; but is described as rapidly decreasing in most of its localities.

I have no authority for its breeding in Devon, Essex, or Lancashire.

CHARADRIUS PLUVIALIS (*Linn.*). Golden Plover.

Provinces I. VI. VII. ? VIII. X.-XVIII.

Subprovinces 2, 3, 17, 18 ?, 20, 22-38.

Lat. 50°-61°. "Scottish" type, or northern.

Far more abundant in the north, and especially in Scotland, but breeds in small numbers in Devon and Somerset. In Pembroke (*Mr. Tracy*), and doubtless in North Wales, though I have no authority for Subprovince 18. Mr. Eyton writes that the Golden Plover is said to breed in the mountains above Chirk Castle; and Mr. O. Salvin has found the nest in Derbyshire. The bird becomes more numerous on the moors from Yorkshire northwards, and is especially well known on all the Highland mountains.

CHARADRIUS MORINELLUS (*Linn.*). Dotterel.

Provinces [VIII. ?] X.-XII. XV. XVII.

Subprovinces (20 ?), 23-25, 30, 31, 34, 35.

Lat. 54°-59°. "Highland" type. Perhaps in Ireland.

With respect to Derbyshire, Sir John Crewe informs me that he has



often heard from his gamekeeper that it was quite easy, fifteen or twenty years ago, to shoot Dotterels, when they had young, on the Derbyshire hills bordering on Staffordshire. These hills are now nearly all under cultivation, and Sir John Crewe believes that the Dotterel no longer stays to breed, though small flocks are still seen in May.

The bird is well known to breed on several of the mountains in the English Lake district, where, it is believed, its localities extend to the three counties of Westmoreland, Cumberland, and Yorkshire. And the Rev. H. B. Tristram tells me that a few pairs linger on the borders of Durham and Cumberland; and that he has heard of nests being taken on the top of Cheviot, where he himself has seen the birds.

Macgillivray describes the Dotterel as breeding in the upland tracts of the counties of Forfar, Kincardine, Aberdeen, Banff, and Moray; he also speaks "of small flocks settling in the Lammermoor hills," so that it is possible the bird may breed in the south of Scotland.

Mr. T. Edward finds the nest in Aberdeen and Banff shires; and Mr. W. Dunbar marks the bird as breeding regularly in Sutherland and Caithness.

CHARADRIUS HIATICULA (*Linn.*). Ringed Plover.

Provinces I.-IV. VI.-XVIII.

Subprovinces 1-3, 5-8, 10, 11, 17-19, 21, 22, 24-38.

Lat. 50°-61°. "British" type, or general.

More numerous in the north during summer, from the prevalence of suitable localities; but breeds throughout the coasts of Great Britain, as well as on the margin of freshwater lakes, and even numerous on dry sandy warrens in the eastern counties.

*Obs.*—The Little Ringed Plover (*Charadrius curonicus*, Beseke) has been by some supposed to breed on the shores of Sussex and Kent, and eggs attributed to this species are preserved in several collections. But there is no doubt that these eggs, as well as most of the birds which have been recorded in Britain as *C. curonicus*, represent a smaller race of *C. hiaticula*. Certain it is that on the Continent *C. curonicus* is described as frequenting principally fresh water and large rivers. The specimens which I have seen from Sussex seem scarcely distinguishable, except in size, from *C. hiaticula*, and very different from the true *C. curonicus*, which is well known to every practical ornithologist.

CHARADRIUS CANTIANUS (*Lath.*). Kentish Plover.

Provinces II. III.

Subprovinces 6, 7.

Lat. 50°-52°. "Germanic" type. Not in Ireland.

One of the most local of our indigenous birds, breeding only in Sussex and Kent, in both of which counties it is very scarce.

VANELLUS CRISTATUS (*Meyer*). Lapwing.

Provinces I.—XVIII.

Subprovinces 1–38.

Lat. 50°–61°. “British” type, or general.

More numerous on the heaths and moors of the north, but is included in every county list as breeding regularly.

HÆMATOPUS OSTRALEGUS (*Linn.*). Oyster-catcher.

Provinces I.—IV. VI.—VIII. [IX.] XI.—XVIII.

Subprovinces 1, 2, 3, 4, 7, 8, 11, 17, 18, (19), (21), 24–26, 28–38.

Lat. 50°–61°. “Scottish” type.

In the south of England the Oyster-catcher is comparatively rare in summer; and though it breeds regularly in Cornwall and Devon, a few pairs only occur along the south coast; nor is it much more numerous on the eastern side of England. Thus, though ranging from extreme south to north during the breeding-season, it belongs more properly to the “Scottish” than to the “British” type.

*Obs.*—The Crane (*Grus cinerea*, Bechst.) is spoken of by Turner (*Avium Historia*, 1543) as breeding in this country. This author says, “earum pipiones ipse sæpissime vidi”; and an Act of Parliament, passed in 1533, made the taking of a Crane’s egg an offence punishable with a fine of twenty pence. But the bird could not have long continued the practice of breeding with us, for to Sir Thomas Browne and John Ray it was only known as a winter visitant. As in several other cases, the bird’s name remains, and in many parts of the country the Heron is commonly known as the “Crane.”

ARDEA CINEREA (*Linn.*). Common Heron.

Provinces I.—XVIII.

Subprovinces 1–35, 37.

Lat. 50°–60°. “British” type, or general.

The Heron breeds in every subprovince, and in nearly every county from which I have received a list. It does not, however, nest in the Outer Hebrides, nor in Shetland, and only occasionally in Orkney.

BOTAURUS STELLARIS (*Steph.*). Common Bittern.

Provinces [II.—VI.] [VIII.] [X.—XV.]

Subprovinces (6), (8), (10–12), (15), (17), (19), (22–24), (26), (28), (29), (31).

Lat. 50°–58°. “English” or (British?) type.

Though recorded as having formerly bred in many different parts of the country, the Bittern can no longer be reckoned among our indigenous birds. The latest nest of which I have received information is one that was taken about ten years ago at the Reservoirs near Tring.

Mr. H. Stevenson has not heard of any nest in Norfolk during the last twelve years.

*Obs.*—Mr. Hewitson mentions that in the Museum of the Natural History Society of Newcastle-upon-Tyne there is a stuffed specimen of the Little Bittern (*Ardea minuta*), together with its eggs, which formerly formed part of the Allan or Wycliffe Museum. Of the history of the eggs nothing is known; but that gentleman has “very little doubt that they were taken in this country.” Macgillivray also suggests that a nest described by Montagu as that of the Water-Rail belonged to this species (Hist. B. B. iv. p. 524).

PLATALEA LEUCORODIA (*Linn.*). Spoonbill.

Province [IV.].

Subprovinces (10), (11).

Lat. 52°–53°. “Germanic” type. Not in Ireland.

The little that is known of the Spoonbill having formerly bred in England is contained in the record of Sir Thomas Browne, who says:—“The platea or shovelard which build upon the tops of high trees. They have formerly built in the Hernery, at Claxton and Reedham [Norfolk]; now at Trimley in Suffolk” (*Works*, Wilkin’s Ed. vol. iv. pp. 315, 316). This was written about two hundred years ago, the author having died in 1682.

NUMENIUS ARQUATUS (*Lath.*). Curlew.

Provinces I. II. ?, V.–VIII. IX. ?, X.–XVIII.

Subprovinces 1, 2, 4 ?, 15–18, 20, 21 ?, 22–35, 37–38.

Lat. 50°–61°. “Scottish” type, or Northern.

Rare in the south during summer, though a few pairs are recorded as breeding in Cornwall and Devonshire.

Mr. H. Graves informs me that the Curlew “breeds regularly near Charminster in Dorset, laying its eggs in the furrows of the fallow-land”; but I suspect that in this locality, and also in Wiltshire, the Stone-Curlew (*Edicnemus crepitans*) has been mistaken for *Numenius arquatus*.

Further north there are one or two breeding-stations in Shropshire, and Mr. O. Salvin finds the nest in Derbyshire.

The Curlew breeds in North and South Wales, and from Yorkshire northwards becomes more numerous, extending as far north as the Shetland Islands; but we learn from Macgillivray that it does not breed in the Outer Hebrides.

NUMENIUS PHÆOPUS (*Lath.*). Whimbrel.

Provinces X. ? XVII. XVIII.

Subprovinces 23 ?, 35, 37, 38.

Lat. 54° or 58°–61°. “Scottish” type. Not in Ireland.

Mr. Thomas Gough, of Kendal, tells me that the nest of the Whimbrel has been recently found on the mountains of Yorkshire adjoining Westmoreland, and that he has perfect confidence in his informant.

Mr. W. Dunbar describes the Whimbrel as plentiful during the breeding-season all along the coast of Sutherland and Caithness, and he tells me that it breeds in open moors near the sea. Mr. H. Osborne also marks the Whimbrel as breeding in Caithness. It breeds in Orkney and Shetland, but not in the Outer Hebrides.

TOTANUS CALIDRIS (*Bechst.*). Common Redshank.

Provinces III. IV. VIII. X.—XVIII.

Subprovinces 7, 8, 10, 11, (12), 19, 20, 22–26, 28–38.

Lat. 50°–61°. “Scottish” type, or Northern.

A few pairs still breed in Kent and Essex, but the bird is rapidly decreasing in the south, and has almost deserted the fens of the eastern counties, being driven out as its haunts become more and more circumscribed by drainage and cultivation. I have no authority for its breeding in Wales or Lancashire, though the bird can hardly be supposed wanting in Subprovinces 17, 18, and 21.

*Obs.*—The Green Sandpiper (*Totanus ochropus*) has been recorded by Mr. R. Lubbock (*Fauna of Norfolk*, p. 75) as having bred in Norfolk, but there was probably some mistake in the observation (*cf.* ‘*Proc. Zool. Soc.*’ 1863, p. 529).

TOTANUS GLAREOLA (*Linn.*). Wood-Sandpiper.

Provinces IV. XI. XV. ?

Subprovinces 11, 24, 31 ?

Lat. 52°–56° or 58°. “Scottish” ? type. Not in Ireland.

A nest was found by Mr. John Hancock at Prestwich Carr, near Newcastle, June 3, 1853. And my friend Mr. F. Bond tells me that he has some eggs taken in Elginshire, which he considers belong to the Wood-Sandpiper. Messrs. Gurney and Fisher state (*Zool.* 1323), on Mr. Scales’s authority, that a young bird, of which a figure is given, not yet having entirely lost its down, “was shot at Beachamwell, in Norfolk, and may fairly be supposed to have been hatched near the spot where it was killed.”

TRINGOIDES HYPOLEUCA (*G. R. Gray*). Common Sandpiper.

Provinces I. II. ? V.—XVIII.

Subprovinces 1, 2, 3, 4 ?, 6, 13–18, 20–37, 38.

Lat. 50°–61°. “Scottish” type, or Northern.

Scarce in the south during the breeding-season, and apparently wanting in several of the southern and eastern counties. The Common Sandpiper is reported to breed only occasionally in Cornwall, but regularly in North and South Devon and Somerset. In Dorset it

becomes more rare, though Mr. Groves has seen it on several small streams. Mr. Knox describes it as breeding regularly in Sussex, where, however, it must be scarce, as Mr. Borrer has only once found the nest. It seems doubtful whether the bird breeds in Kent, and it appears to be wanting in several of the eastern and southern districts.

TOTANUS GLOTTIS (*Bechst.*). Greenshank.

Provinces XV. XVI. XVII. XVIII.

Subprovinces 29, 32, 34, 35, 36.

Lat. 56°-59°. "Scottish" type. Not in Ireland.

Breeds in small numbers in the counties of Perth and Argyle (*Mr. R. Gray*), Ross (*Mr. W. Dunbar*), Sutherland (*Mr. Selby*), Caithness (*Mr. W. Dunbar*). Macgillivray was the first to discover the nest in the Outer Hebrides, where it has since been found by other observers.

RECURVIROSTRA AVOCETTA (*Linn.*). Avocet.

Provinces [II.] [III.] [IV.] [VIII.].

Subprovinces (6), (7), (11), (19).

Lat. 50°-54°. "Germanic" type. Not in Ireland.

In former times the Avocet appears to have been a regular summer visitor to a few localities on our southern and eastern coasts. The neighbourhoods of Rye in Sussex, Romney Marsh in Kent, Salthouse in Norfolk, and West Fen in Lincolnshire are upon record as former breeding-places.

The late Mr. H. Reid, of Doncaster, has told me that about twenty years ago he obtained the eggs from the mouth of the Humber, which appears to be the last instance of the bird having been found breeding in this country.

LIMOSA ÆGOCEPHALA (*G. R. Gray*). Black-tailed Godwit.

Provinces IV. [VIII.] [X.].

Subprovinces 11, (12), (19), (23).

Lat. 52°-54°. "Germanic" type. Not in Ireland.

Until lately, a few pairs were accustomed to breed annually in the fens of Norfolk, Cambridge, Huntingdon, and Lincoln; but it is believed that the birds have now nearly deserted their former haunts, Norfolk being the only county in which there is a possibility that a pair or two may linger occasionally.

The late Mr. H. Reid, of Doncaster, has frequently told me that the Black-tailed Godwit used, within his recollection, to breed on Hatfield Moor, in which locality he once found the young birds himself.

PHILOMACHUS PUGNAX (*G. R. Gray*). Ruff.

Provinces [I. ?] IV. VIII. [X.] XI.

Subprovinces (3 ?), (10), 11, (12), 19, (22 ?), (23), 24.

Lat. 51° or 52°–56°. "Germanic" type. Not in Ireland.

Like the former, this bird is rapidly disappearing before the advance of cultivation and drainage.

Montagu was informed that Ruffs were not uncommon in the fens about Bridgewater, in Somersetshire, before they were drained. In Suffolk the bird appears to have become quite extinct; but Mr. Stevenson says that a few pairs still breed in eastern Norfolk, where, happily, they are strictly preserved. It is extinct in Huntingdon, Cambridge, and Northampton, and probably also in Lincolnshire. In Yorkshire the Ruff appears to have ceased to breed, though Mr. Reid remembered them to have been quite plentiful. Mr. Hancock and the Rev. H. B. Tristram tell me that the bird has become extinct in Durham, but still breeds occasionally in Northumberland.

SCOLOPAX RUSTICOLA (*Linn.*). Woodcock.

Provinces I.–V. VIII.–XVII.

Subprovinces 2–15, 19–26, 27, 28, 29–35.

Lat. 50°–59°. "Scottish" type, or northern.

The nest of the Woodcock is by no means so rare as is generally supposed. The bird is reported as breeding occasionally in nearly every county throughout England and the south of Scotland. Further north it becomes more numerous, and may be considered to breed regularly from Perthshire northwards to Caithness. There is no doubt that many more birds remain to breed now than formerly; and this increase appears to be owing to the great extent of country which has been covered with plantations during the past few years.

GALLINAGO MEDIA (*Leach*). Common Snipe.

Provinces I.–V. VIII.–XVIII.

Subprovinces 1, 2–5, 6, 7, 8, 9, 10–13, 14, 15, 20–38.

Lat. 50°–61°. "British" type, or general.

Far more numerous in the north during summer; but the Snipe is described as breeding regularly in most counties, even in the south of England, wherever there are suitable localities. As with the Woodcock, I have no authority for its breeding in Wales, though in all probability both birds will be found to do so.

*Obs.*—A few instances are on record in which the Jack Snipe (*Gallinago gallinula*) has been seen in England during the summer months; hitherto there appears to be no good authority for believing that the nest has ever been found in this island.

TRINGA ALPINA (*Linn.*). Dunlin.

Provinces VI. ? IX. ? X.-XVIII.

Subprovinces 17?, 21?, 22-38.

Lat. 52° or 53°-61°. "Scottish" type, or northern.

The Dunlin has been reported to breed in Devonshire on the authority of Dr. Moore, but I have not been able to obtain any corroboration of this statement. The bird is also considered to nest in Pembrokeshire (*Mr. Tracy*) and in Cheshire (*Mr. Brockholes*), but some confirmation of these localities seems desirable.

There is good authority for its breeding in both divisions of Yorkshire, and thence northwards throughout Scotland.

*Obs.*—The Purple Sandpiper (*Tringa maritima*) has been supposed to breed within the limits of the British Islands, but the nest has never been found; and the habits of the *Grallæ* are such that the mere occurrence of a species at any particular spot during some one of the summer months is quite insufficient as proof of its breeding there. The Purple Sandpiper breeds plentifully on the highest mountain-tops in the Færoes; so that it is not improbable that it should some day be found nesting in Shetland.

PHALAROPUS HYPERBOREUS (*Lath.*). Red-necked Phalarope.

Provinces XV. XVI. ? XVII. XVIII.

Subprovinces 29, 32?, 35, 36, (37).

Lat. 56°-60°. "Scottish" type. Not in Ireland.

The Red-necked Phalarope breeds in a few scattered localities in the counties of Perth (*Colonel Drummond-Hay*), Inverness (*Dr. D. Dewar*), Sutherland (*Mr. St. John* and *Mr. Dunbar*), and in the Outer Hebrides (*Captain J. W. P. Orde* and *Dr. D. Dewar*)

Mr. Dunn tells me that the bird is no longer found in Orkney, where it used formerly to breed in several of the islands.

ORTYGOMETRA CREX (*Leach*). Corn-Crake.

Provinces I.-XVIII.

Subprovinces 1-38.

Lat. 50°-61°. "British" type, or general.

Throughout Great Britain, extending to the western and northern isles of Scotland. Perhaps less numerous in the south of England, but it is recorded as breeding regularly in every county from which I have received any list.

ORTYGOMETRA PORZANA (*Steph.*). Spotted Crake.

Provinces I. III.-V. X.-XII. ? XIV. ? XV.

Subprovinces 2, 3, 7, 10-13, 15, 19, 20, 22-24, 25?, 28?, 29-31.

Lat. 50°-58°. "English" (or "British") type.

A scarce bird, and one whose nest usually escapes observation. It seems to breed in small numbers in a few scattered localities from the north to the south of England.

In Scotland the nest has been found only in Perth, Aberdeen, and at Loch Spynie in Elgin.

ORTYGOMETRA BAILLONI (*Steph.*). Baillon's Crake.

Province IV.

Subprovince 12.

Lat. 52°–53°. "Germanic" type. Not in Ireland.

In the 'Zoologist' for 1859 (p. 6329) will be found Mr. Sealy's account of two nests taken in Cambridgeshire, the only instances in which the bird has been found to breed in this country.

RALLUS AQUATICUS (*Linn.*). Water-Rail.

Provinces I–XVIII.

Subprovinces 2–35, 37.

Lat. 50°–60°. "British" type, or general.

Throughout the mainland; and Messrs. Baikie and Heddle describe it as "found in Orkney all the year."

GALLINULA CHLOROPUS (*Lath.*). Water-hen.

Provinces I–XVIII.

Subprovinces 1–35, 36, 37.

Lat. 50°–60°. "British" type, or general.

To the extreme north of Scotland, extending also to the Outer Hebrides and Orkney, but does not breed in Shetland.

FULICA ATRA (*Linn.*). Common Coot.

Provinces I–XVIII.

Subprovinces 1–37.

Lat. 50°–60°. "British" type, or general.

Like the former, extends to the Hebrides and Orkney, but does not reach Shetland.

ANSER FERUS (*Steph.*). Grey-lag Goose.

Provinces [IV.] [VIII.] [X.] [XII.] XVII. XVIII.

Subprovinces (11), (12), (19), (22?), (23), (25), 34–36.

Lat. 57°–59°. "Scottish" type. Formerly in Ireland.

The Grey-lag Goose has long ceased to breed in the fens of Norfolk, Cambridge, Lincoln, and Yorkshire, where the bird is said to have been formerly abundant; and Mr. Gough tells me that it is also



extinct in Westmoreland. It still breeds in the counties of Ross (*Mr. W. Dunbar*), Sutherland, and Caithness, and in the Outer Hebrides.

*Obs.*—Both the Bean-Goose (*A. segetum*, Meyer) and the Pink-footed Goose (*A. brachyrhynchus*, Baill.) have been recorded as breeding in Scotland: but Sir W. Jardine informs me that in Sutherland the Grey-lag Goose has been mistaken for the Bean-Goose, and the more recent observations of the late Mr. J. Wolley have conclusively proved that only one species at present breeds in the north of Scotland.

Similarly, in the Outer Hebrides, only the Grey-lag Goose has been lately found in the localities where Mr. J. Macgillivray believed that he had discovered the breeding-station of the Pink-footed Goose.

The late Mr. Arthur Strickland has described two species of Goose as having formerly inhabited the "carrs" of Yorkshire (*Ann. & Mag. N. H.* 3 ser. iii. pp. 121–124). One of them, which he terms *Anser paludosus*, is apparently identical with the Bean-Goose of other authors; but there is no positive evidence of the bird having bred in this country, it being a species proper to much higher northern latitudes.

CYGNUS FERUS (*Leach*). Whooper, or Whistling Swan.

Province [XVIII.].

Subprovince (37).

Lat. 58°–60°. "Scottish" type, formerly.

In his 'Fauna Orcadensis' (p. 133), Mr. Low remarks of the Wild Swan, that "A few pairs build in the holms of the Loch of Stenness. \* \* \* But the few that build here never increase, are always robbed by the country-people." This observation was probably made about eighty years ago, the author having died in 1795. Messrs. Baikie and Heddle add, in 1848, that "the birds have not been known to build there for many years."

Mr. J. H. Dunn tells me that old men well remember their fathers speaking of having taken several Wild Swans' nests on the small islands in the large loch of Harray, about one hundred years ago.

In Ireland the Wild Swan appears to have been formerly more numerous, and to have extended further south than in Great Britain.

TADORNA VULPANSER (*Linn.*). Shell-drake.

Provinces I.–IV. VI.–XVIII.

Subprovinces 2, 3, (4), (7), (10), 11, 17–19, 21, 22, 24–26, 28, 30–38.

Lat. 50° or 51°–61°. "British" (or "Scottish") type.

Scarce in the south of England, and reported as extinct in Dorset, Kent, and Suffolk; but still breeds in North Devon, Somerset, and Norfolk, in the last of which counties it is described as decreasing.

SPATULA CLYPEATA (*Boie*). Shoveller.

Provinces II.–V. X. XI. XIV.–XVI.

Subprovinces 4, (7), 11, 15, 22, 24, 28, 31, 32.

Lat. 50°–58°. "British" (or "English") type. Not in Ireland.

In the 'Zoologist' (p. 5757) Mr. W. Thompson mentions a nest found in Dorset. Yarrell tells us that the Shoveller formerly bred in Romney Marsh. It still breeds occasionally in Norfolk, and Mr. F. Bond has found the nest in Staffordshire. Mr. Hewitson mentions Hornsea Mere as a breeding-locality. The Rev. H. B. Tristram tells me that the Shoveller breeds occasionally in Durham; and Mr. Hancock marks it as breeding regularly in Northumberland.

In Scotland the nest has been found once on Guillon Links, Haddingtonshire (*Sir W. Jardine*); on the banks of Loch Spynie, in Elgin (*Mr. St. John*); and in the 'Zoologist' (p. 3503) Sir G. H. Leith records that he has shot the female and found the nest in Dumbartonshire.

CHAULELASMUS STREPERUS (*G. R. Gray*). Gadwall.

Province IV.

Subprovince II.

Lat. 52°-53°. "Germanic" type. Not in Ireland.

The nest has been found only in Norfolk, where Mr. A. Newton tells me that this duck breeds regularly, at Narford; but it is possible that the stock was originally the produce of semi-domesticated birds.

DAFILA ACUTA (*Eyton*). Pintail.

Province XI.

Subprovince 24.

Lat. 55°-56°. "Scotch" type. Not in Ireland.

The nest has been found by Mr. John Hancock, who informs me that he has known the Pintail to breed spontaneously in a swamp in Northumberland, which swamp is now drained; but Mr. Hancock believes that the bird still breeds occasionally on the Northumbrian moors.

ANAS BOSCHAS (*Linn.*). Wild Duck.

Provinces I.-XVIII.

Subprovinces 1-38.

Lat. 50°-61°. "British" type, or general.

Though scarce in the south during summer, a few pairs remain to breed in nearly every county of England.

PTEROCYANEA CIRCIA (*Bonap.*). Garganey.

Province IV.

Subprovinces II, (12).

Lat. 52°-53°. "Germanic" type. Not in Ireland.

The nest has several times been found in Norfolk, where Mr. Stevenson tells me that a few pairs breed annually in the district of the broads on the eastern side of the county.

Mr. F. Bond has informed me that the Garganey bred also in the fens of Cambridge and Huntingdon before they were drained.

*QUERQUEDULA CRECCA* (*Steph.*). Teal.

Provinces I.-XVIII.

Subprovinces 3-12, 15, 18-23, 24-38.

Lat. 50°-61°. "Scottish" (or "British") type.

The nest of the Teal has been found occasionally in most counties, even of the south of England; and in several of these, especially in Norfolk, the bird is reported as breeding regularly. It is, however, more numerous in the north, and is described as breeding annually in nearly all the districts of Scotland.

*MARECA PENELOPE* (*Selby*). Wigeon.

Provinces II. IV. ? VIII. ? IX. XVI. ? XVII. XVIII.

Subprovinces 6, 11 ?, 20 ?, 21, 32 ?, 34, 35, 37, 38.

Lat. 50° or 57°-61°. "Scottish" type. Perhaps in Ireland.

The nest has been found in two or three localities in England, but it is only in the north of Scotland that the Wigeon breeds regularly.

Mr. Borrer, of Cowfold, tells me that the Wigeon breeds occasionally on the borders of St. Leonard's Forest, in Sussex. The nest was found by Mr. C. S. A. Dickens in 1854, and a brood was seen again in 1862.

In their 'Catalogue of the Birds of Norfolk,' Messrs. Gurney and Fisher state their belief that the Wigeon "has been occasionally known to breed" in that county.

Mr. J. J. Briggs believes that it breeds occasionally in Derbyshire, having seen young birds, apparently belonging to this species, frequenting the marshy banks of the Trent in August and September.

Mr. J. F. Brockholes informs me that in the summer of 1863 a pair of Wigeons reared their brood at Puddington, in Cheshire, where he often watched them within a distance of a few yards. Mr. Brockholes had previously killed a Wigeon at the same spot, in August, 1862.

Dr. Dewar once found a pair of Wigeons (and shot the male bird), in the last week of June, in West Inverness; so that it seems probable that the birds breed in this county. Mr. R. Danford describes the Wigeon as breeding regularly in Ross-shire, and the nest has been found in the counties of Sutherland and Caithness. Colonel Drummond-Hay has found the nest in Orkney: and Dr. Saxby tells me that the bird breeds occasionally in Shetland, but only in backward seasons.

*SOMATERIA MOLLISSIMA* (*Boie*). Eider Duck.

Provinces XI. XIV. XVI, XVII.

Subprovinces 24, 28, 33, 35-38.

Lat. 55°-59°. "Scottish" type. Not in Ireland.

The Farn Islands and the Bass Rock have long been known as localities.

Mr. H. D. Graham finds the Eider breeding on Colonsay and other islands in Subprovince 33; but I do not know of any locality on the mainland of Argyleshire.

Mr. St. John, in his 'Tour in Sutherland,' mentions some islands at the entrance of the Kyle of Tongue; and many different observers have met with the nest in the Outer Hebrides, Orkney, and Shetland.

*Obs.*—Bullock informed Montagu that he had found a nest of *Somateria spectabilis* at Papa Westra, one of the Orkneys, where, according to Messrs. Baikie and Heddle, the King-Duck is now only known as an occasional visitant.

*CEDEMIA NIGRA* (*Flem.*). Black Scoter.

Province XVII.

Subprovince 35.

Lat. 58°–59°. "Scottish" type. Not in Ireland.

Mr. W. Dunbar tells me that the Black Scoter breeds every year in many parts of the moors in Caithness, making its nest in the boggy swamps around the lakes. He has known the eggs taken more than once.

Mr. R. J. Shearer writes that a "Black Duck" is well known as breeding on one or two lakes in the Thurso district.

*NYROCA FERINA* (*Flem.*). Pochard.

Provinces III. IV. X.

Subprovinces 8, 9, 11, 22, 23.

Lat. 51°–54°. "English" type. Not in Ireland.

The nest of the Pochard has been several times found in a limited locality on the borders of the counties of Herts and Buckingham, as I learn from my friend the Rev. H. H. Crewe.

With regard to Norfolk, the bird, according to Messrs. Gurney and Fisher (*Zoologist*, p. 1378), "has been occasionally known to breed in the county"—a statement confirmed by Mr. Lubbock (p. 113), on Girdlestone's authority. Mr. A. Newton tells me it has ceased to breed at Scoulton Mere for some years, but that he has reason to suppose there was a nest, in 1850, not very far from that locality.

Hewitson mentions Hornsea Mere and a piece of water a few miles from Scarborough as breeding localities; and quite recently the Rev. H. Roundell has found the Pochard breeding in the Craven district of Yorkshire.

*Obs.*—A female Scaup (*Fuligula marila*) was once shot by Sir W. Jardine in Sutherland during summer, and hence it has been supposed that this species bred in the north of Scotland. But that gentleman tells me that he considers it was "most probably a wounded bird, or remaining by some accident."\* Mr. Wolley could not find this species during his excursions in Sutherland.

\* In Mr. Selby's paper on the Birds of Sutherland (*Edinb. New. Phil.*

FULIGULA CRISTATA (*Steph.*). Tufted Duck.

Provinces II. V. VIII. X. XI.

Subprovinces 6, 15, 20, 23, 24.

Lat. 50°-56°. "English" type. Not in Ireland.

Mr. Borrer tells me that a brood of Tufted Ducks was found near Horsham in May, 1853, and another at West Grinstead in 1854.

Mr. W. H. Slaney writes that the bird is common on the large meres of Stafford and Shropshire, and that he has known of one nest in the latter county.

Sir William Milner and Mr. A. Newton have recorded the occurrence of several nests in Nottinghamshire (*Zoologist*, p. 4440; *Trans. Tyneside Nat. Club*, vol. v. p. 40).

In the '*Zoologist*' (p. 2879), mention is made of a brood observed on Malham Water, in the West Riding of Yorkshire; and Mr. Hancock describes the bird as breeding occasionally in Northumberland (*Trans. Tyneside Nat. Club, ut supra*).

*Obs.*—In 1848 two eggs were given to the late Mr. John Wolley in Shetland as those of the "Calloo Duck" (the local name for *Harelda glacialis*), with a positive assurance that they had been taken on a low holm in that group of islands. So far as can be determined from their appearance, there is nothing to cast a doubt on the accuracy of the information; and as it came from respectable and disinterested persons, that gentleman believed it. I am, however, not aware of any corroboration of the statement, and the breeding of the Long-tailed Duck in Shetland is probably a rare occurrence.

*Clangula glaucion.* Mr. W. Dunbar informs me that the Goldeneye has been once known to breed in Sutherland, a nest with the young birds having been found by a shepherd in the hollow of an old larch-tree on Loch Assynt; and Mr. Dunbar suggests that one of the parents must have been disabled and unable to migrate.

MERGUS SERRATOR (*Linn.*). Red-breasted Merganser.

Provinces XVI. XVII. XVIII.

Subprovinces 32-38.

Lat. 55°-61°. "Scottish" type, or northern.

In several localities on the west coast of Scotland, extending from Islay to Shetland; but I have no authority for its breeding on the east side of Scotland, though Macgillivray tells us that it is found in summer as far south as the Moray Firth.

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*Journ.* vol. xx. p. 293), it is stated that this bird "was attended by a young one, which unfortunately escaped among the reeds;" but in the note with which I have been favoured by Sir William Jardine, he says nothing about the latter, merely mentioning that the old female he shot is now in his collection.

MERGUS CASTOR (*Linn.*). Goosander.

Province XVIII.

Subprovince 36.

Lat. 57°-58° or 59°. "Scottish" type. Not in Ireland.

Mr. John Macgillivray appears to have been the first to discover the nest of the Goosander in the Outer Hebrides, where he describes it as breeding by the larger lakes, and occasionally by the sea.

Mr. Robert Gray tells me that he has no doubt about the Goosander; for his friend Dr. Dewar has killed the female on the nest, and taken the contents of several nests, in North Uist. Mr. Gray has also himself obtained eggs from the same locality.

The "Goosander," mentioned by Low as breeding in the Loch of Stenness, is no doubt the Red-breasted Merganser, one species only of *Mergus* being included in the 'Fauna Orcadensis.'

PODICEPS CRISTATUS (*Lath.*). Great Crested Grebe.

Provinces II.-V. VI. ? VII. ? VIII.-X.

Subprovinces, 6, 8, 10, 11, (12), 14, 15, 16 ?, 17 ?, 18 ?, 19, 21, 22, 23.

Lat. 50°-55°. "English" type. Not in Scotland.

A few pairs breed in the counties of Sussex, Herts, Suffolk, Norfolk, Huntingdon (perhaps extinct, *Mr. F. Bond*), Worcester, Warwick, Shropshire, Lincoln, Cheshire, and in both divisions of Yorkshire. Yarrell tells us that the Great Crested Grebe breeds on some of the lakes of Wales, but I do not know in which of the districts.

PODICEPS MINOR (*Lath.*). Little Grebe.

Provinces I.-XVIII.

Subprovinces 1-37.

Lat. 50°-60°. "British" type, or general.

Throughout Great Britain, and extends to the Outer Hebrides and Orkney, but does not appear to have been found breeding in Shetland.

*Obs.*—The Eared Grebe (*Podiceps auritus*) is mentioned by Pennant as breeding at Spalding in Lincolnshire; but the nest does not seem to have come under the notice of any recent observer.

COLYMBUS ARCTICUS (*Linn.*). Black-throated Diver.

Provinces XV.-XVIII.

Subprovinces 29, 31 ?, 32, 34-36, (37).

Lat. 56°-59°. "Scottish" type. Not in Ireland.

Mr. Robert Gray tells me that the Black-throated Diver breeds on the confines of Perth and Argyleshire, extending to both counties. The nest has been found in several parts of Argyleshire, Inverness, Ross, and Sutherland, and also in the Outer Hebrides; but the bird is said to have become quite extinct in Orkney.

COLYMBUS SEPTENTRIONALIS (*Linn.*). Red-throated Diver.

Provinces XV.-XVIII.

Subprovinces 31, 32, 34-38.

Lat. 56°-61°. "Scottish" type. Not in Ireland.

With much the same range as the former species, the Red-throated Diver appears to be the more frequent of the two, and extends to Shetland.

Mr. St. John mentions Loch Endorb, in Morayshire, as a locality for the nest.

*Obs.*—*Colymbus glacialis*. Mr. W. Dunbar tells me that once, when a boy, he saw a pair of Great Northern Divers, with one young one, on Loch Endorb. On the same loch were two or three pairs of the Black-throated Diver; so that the two species were easily distinguished by the great disparity of size.

Dr. Saxby writes that he has procured from Yell, in Shetland, some eggs which he considers to belong to the Great Northern Diver; but I fear that the eggs alone are not to be relied upon, as Mr. R. Gray has seen eggs about as large as those of the Great Northern Diver, and very much resembling them in shape, which were taken from a Black-throated Diver shot on its nest. The last-named species, however, does not breed in Shetland, as Dr. Saxby has lately remarked (*Zool.* p. 2525).

Messrs. Baikie and Heddle inform us that in Orkney the Great Northern Diver has been seen during summer on moors at a distance from the sea; but, as yet, the fact of its breeding in any part of the British Islands seems to need positive proof.

URIA TROILE (*Lath.*). Common Guillemot.

Provinces I.-III. [IV.] VI. VII. X.-XVIII.

Subprovinces 1-7, (11), 17, 18, 22, 24-28, 30-38.

Lat. 50°-61°. "British" type, or general.

Formerly the Guillemot used to breed in the cliffs at Hunstanton, in Norfolk.

The variety which has been distinguished under the name of Ringed Guillemot (*U. ringvia*) appears to occur more frequently in the northern counties. It is returned as breeding on Lundy Island, the coasts of Wales and Yorkshire, the Farn Islands, Ailsa, the Bass Rock, in Aberdeen, Banff, Caithness, and in all three groups of isles, and is probably to be met with in most other localities where the Common Guillemot is numerous.

*Obs.*—Brünnich's Guillemot (*U. bruennichi*) is included by Sir W. Milner in his List of the Birds of Sutherland, published in the 'Zoologist'; but Mr. Henry Milner has kindly informed me that the bird was not found breeding there, and only a single specimen was purchased on that occasion.

URIA GRYLLE (*Lath.*). Black Guillemot.

Provinces [VI.] [VII.] XII. XIV.—XVIII.

Subprovinces [17], (18), 25, 28, 29, 30-38.

Lat. 54°-61°. "Scottish" type, or Northern.

In the time of Montagu a few pairs used to breed annually at Tenby; and it is possible that the bird is not yet extinct in this locality, as Mr. Tracy includes it in his list. Pennant mentions Llandudno and Anglesea; and Mr. J. F. Crellin finds the Black Guillemot breeding in small numbers in the Isle of Man. It breeds also on the east coast of Scotland, at St. Abb's Head (*Rev. F. Duns*), on the Bass Rock; on the Isle of May (*Sir W. Jardine*); at Stonehaven (*Dr. F. A. Smith*); and is pretty generally distributed in the north and west of Scotland.

*Obs.*—The Little Auk (*Arctica alle*) is recorded as having been seen by Macgillivray on the Bass Rock during the month of May, and was reported to him as breeding at St. Abb's Head; and in Thompson's 'Birds of Ireland' (vol. iii. p. 220) mention is made of four Little Auks seen at Ailsa Craig on the 19th of May; but the eggs have not been found in either locality.

ALCA IMPENNIS (*Linn.*). Gare-fowl, or Great Auk.

Province [XVIII.].

Subprovince (36), (37?).

Lat. 59°-60°. "Scottish" type, formerly. Not in Ireland.

Spoken of positively by Martin as having formerly bred on St. Kilda; and according to the information procured in the Orkneys by Bullock, and published by Montagu, a pair of this species annually visited Papa Westra up to the year 1812, when the specimen now in the British Museum, and the last observed there, was shot.

Mr. John Macgillivray, in 1840, found that the bird was well known to the inhabitants of St. Kilda, but had not been observed to breed there for many years back.

FRATERCULA ARCTICA (*Illig.*). Common Puffin.

Provinces I. II. [III.] VI. VII. X.—XVIII.

Subprovinces 1, 2, 4, 5, (7), 17, 18, 22, 24, 25, 27, 28, 30-38.

Lat. 50°-61°. "British" type, or general.

Montagu tells us that the Puffin used formerly to breed in the cliffs of Dover. It still breeds in small numbers in the Isle of Wight, and is to be found on most of our rocky shores during the nesting-season. As with many other sea-birds, I have no authority for its breeding in Subprovince 29.

ALCA TORDA (*Linn.*). Razor-bill.

Provinces I. II. [III.] VI. VII. X.—XVIII.

Subprovinces 1-6, (7), 17, 18, 22, 24, 25, 27, 28, 30-38.

Lat. 50°-61°. "British" type, or general.



This is perhaps the most abundant of our cliff-birds; but, like the Puffin and Guillemot, it does not nest upon the flat shores of the east coast from Kent to Yorkshire; and I have no authority for Subprovinces 26 and 29, though there can be little doubt that it breeds in both of these districts.

GRACULUS CARBO (*G. R. Gray*). Common Cormorant.

Provinces I. II. [IV.] VI. VII. X.-XVIII.  
Subprovinces 1-6, (11), 17, 18, 22, 24-28, 30-38.  
Lat. 50°-61°. "British" type, or general.

Like most other sea-fowl, the Cormorant is more numerous on our northern and western coasts.

Sir Thomas Browne tells us that they formerly built upon trees at Reedham in Norfolk, "whence King Charles the First was wont to be supplied."

Doubtless the Cormorant, as well as the Shag, breeds on the Isle of May, and perhaps on other parts of the coast of Fifeshire; but I have no list for this county.

GRACULUS LINNÆI (*G. R. Gray*). Shag.

Provinces I.-II. VI. VII. X.-XVIII.  
Subprovinces 1-5, 17, 18, 22, 24-29, 32-38.  
Lat. 50°-61°. "British" type, or general.

The Shag is far less numerous than the Cormorant in the south, but is described as abundant in many parts of Scotland, especially the western and northern islands. On the east side of Scotland, however, there are large tracts of coast on which none are to be seen. The bird is also wanting on the south and east coasts of England, from the Isle of Wight to Yorkshire.

SULA BASSANA (*Boie*). Gannet.

Provinces I. XIII. XIV. XVIII.  
Subprovinces 2, 27, 28, 36, 37.  
Lat. 51°-59°. "Scottish" type, or Northern.

The breeding-stations of the Gannet are Lundy Island, in the British Channel; Ailsa Craig, off Ayrshire; St. Kilda (and, I believe, one or two neighbouring islands), in the Outer Hebrides; Suliskerry, which lies to the west of Hoy in Orkney; and the Bass Rock, in the Firth of Forth.

STERNA CANTIACA (*Gmel.*). Sandwich Tern.

Provinces I. III. XI. XII. XIV.-XVI.  
Subprovinces 1, 7, 8, 24, 25, 28, 29, 32.  
Lat. 50°-57°. "English" type, or Southern.

Breeds in Cornwall (*Mr. E. H. Rodd*); in South Kent occasionally

(*Mr. R. Kent*); in Essex, and probably also in North Kent, at the mouth of the Thames (*Mr. F. Bond*); in Lancashire (this may include Subprovince 21) (*Rev. H. B. Tristram*); on the Farn Islands and Isle of Coquet, off Northumberland, and on the coast of Cumberland.

Mr. Robert Gray writes that a small colony has lately established itself on an island in Loch Lomond; and Sir W. Jardine tells us that it breeds on the Isle of May and off North Berwick. Further north, the birds have been seen in summer on the Firths of Tongue and Erribol; but the nest was not discovered.

STERNA PARADISEA (*Brünn.*). Roseate Tern.

Provinces I. XI.—XIV. XV. XVI.

Subprovinces 1, 24, 25, 26?, (27), 28, 29, 32.

Lat. 50°–57°. “English” (or “British”?) type.

Only a few localities are known for the nest of this species, which appears to be much more scarce than the Common and Arctic Terns.

Mr. Rodd marks the Roseate Tern as breeding regularly in Cornwall. Mr. Hewitson mentions Foulney Island in Lancashire, and Yarrell the low islands in the Solway Firth. The Farn Islands are another well-known locality. In Scotland Sir W. Jardine has found the bird breeding plentifully in the Isle of May, off Fifeshire. Mr. Archibald Hepburn informs me that it breeds also in Haddingtonshire; and Mr. Robert Gray finds a few pairs breeding on an island in Loch Lomond, but remarks that “this elegant species has entirely disappeared from the Cumbraes, where it was originally discovered.”

STERNA HIRUNDO (*Linn.*). Common Tern.

Provinces I.—IV. VI.—VIII. IX. ? X.—XVIII.

Subprovinces 1, 2, 4, 6–8, 11, 17–19, 21?, 24–26, 28–38.

Lat. 50°–61°. “British” type, or general.

Breeds on various parts of the coast from the south to the north of Great Britain, and frequents also the islets in many of the Scottish Lakes, but has not always been distinguished from the next species.

STERNA MACRURA (*Naum.*). Arctic Tern.

Provinces I.—IV. VII. VIII. IX. X.—XII. XIV.—XVIII.

Subprovinces 1, 3, 6–8, 11, 17–19, 24, 25, 28–30, 32–38.

Lat. 50°–61°. “British” type, or general.

With much the same range, in Great Britain, as the Common Tern, the Arctic Tern appears to be about equally numerous; and if observed in fewer districts, this is probably only because it has been passed over, being either mistaken for, or associated with, the Common Tern.

STERNA MINUTA (*Linn.*). Lesser Tern.

Provinces II.-IV. VIII. IX.? X.-XII. XIV.-XVIII.

Subprovinces 6-8, 10, 11, 19, 21?, 22, 24, 25, 28, 30-32, 35, 37.

Lat. 50°-60°. "British" type, or general.

Though not numerous as a species, the Lesser Tern breeds in a few scattered localities from Sussex to Orkney. As Macgillivray remarks, most of its breeding-stations are on the east side of Great Britain; and this is also the case with the other Terns, on account of the greater prevalence on the east coast of the low sandy shores and islets which these birds prefer for their nests.

HYDROCHELIDON FISSIPES (*G. R. Gray*). Black Tern.

Provinces III. IV. [VIII.].

Subprovinces 7, (10), 11, (12), (19).

Lat. 51°-53°. "Germanic" type. Not in Ireland?

This is one of the birds whose numbers have greatly diminished of late years; for although Mr. Hewitson describes it as "abundant in some parts of the counties of Cambridge and Lincoln," I believe that it has nearly, if not entirely, ceased to breed in this country.

A pair or two are considered still to nest occasionally in Kent and Norfolk; but I am assured by various correspondents that the Black Tern has become altogether extinct in the counties of Suffolk, Cambridge, Huntingdon, and Lincoln.

LARUS RIDIBUNDUS (*Linn.*). Black-headed Gull.

Provinces III. IV. V.? VIII.-XVIII.

Subprovinces 7, 8, (10), 11, 15?, 19, 21, 22, 24-38.

Lat. 50°-61°. "Scottish" (or "British") type.

A few breeding-stations occur in the south of England, in the counties of Kent, Essex, Norfolk, and Lincolnshire; but the localities for the bird are much more numerous in the north.

Plott mentions a locality in Staffordshire, but I do not know whether the birds still frequent this county during the breeding-season.

RISSA TRIDACTYLA (*Macgill.*). Kittiwake.

Provinces I. II.? X.-XVIII.

Subprovinces 1-3, 4?, 22, 24, 25, 27-38.

Lat. 50°-61°. "Scottish" type, or Northern.

On the south coast, the Kittiwake has been stated to breed in Dorsetshire; but I have been unable to obtain any confirmation of this assertion. It is certainly not found in the Isle of Wight during the nesting-season.

Mr. Rodd tells me that the Kittiwake breeds occasionally in Cornwall; the Rev. M. A. Mathews finds the nest in North Devonshire;

and Mr. Crotch tells me that the bird breeds also in Somerset. From this point I am unable to trace any locality until we reach the Isle of Man, where Mr. Crellin says that it breeds annually.

On the east coast of England, the Kittiwake breeds at Flamborough Head and at the Farn Islands, off the coast of Northumberland. It is also abundant in many different parts of Scotland, especially in the western and northern isles.

LARUS CANUS (*Linn.*). Common Gull.

Provinces I. III. VI. X. ? XII. XIII. ? XIV. XVI.—XVIII.

Subprovinces 1-3, 8, 17, 22?, 25, 26?, 27, 28, 32-38.

Lat. 50°-61°. "Scottish" type, or Northern.

Breeds in Cornwall (*Mr. E. H. Rodd*), in North Devon (*Rev. M. A. Mathews*), and in Somerset (*Mr. W. D. Crotch*); in Pembrokeshire (*Mr. J. Tracy*); and in Cumberland (*Mr. T. Gough*). On the east coast of England, the Rev. J. C. Atkinson assures me that the Common Gull breeds in the Essex Marshes, where it is rare. It is believed to nest on the cliffs of Yorkshire; but it appears to be a scarce bird in most of the English localities, and seems to be wanting also in several of the Scottish districts.

LARUS FUSCUS (*Linn.*). Lesser Black-backed Gull.

Provinces I. II. VI. VII. XI.—XIV. XVI.—XVIII.

Subprovinces 1-3, 5, 6, 17, 18, 24-28, 32-38.

Lat. 50°-61°. "British" type, or general.

Like many other of our sea-fowl, the Lesser Black-backed Gull becomes much more numerous northwards, though it is too generally distributed to be placed under the Scottish type.

LARUS ARGENTATUS (*Brünn.*). Herring-Gull.

Provinces I.—III. VI. VII. X.—XVIII.

Subprovinces 1-7, 17, 18, 22, 24-38.

Lat. 50°-61°. "British" type, or general.

This appears to be the most widely distributed of all our Gulls, being found on all the rocky parts of the coast during the breeding-season.

LARUS MARINUS (*Linn.*). Great Black-backed Gull.

Provinces I. VI. VII.? XII.—XIV. XVI. XVIII.

Subprovinces 1, 2, 17, 18?, 25-28, 32-38.

Lat. 50°-61°. "Scottish" type, or northern.

It is only in the north of Scotland that the Great Black-backed Gull is at all numerous. The few localities in which it has been found breeding in England are scattered along the west coast, from Cornwall

to Cumberland. I cannot find any recent authority, except Yarrell, for its breeding in the marshes at the mouth of the Thames.

STERCORARIUS CATARRHACTES (*G. R. Gray*). Great Skua.

Province XVIII.

Subprovince 38.

Lat. 60°–62°. "Scottish" type, or northern. Not in Ireland.

Only in the Shetland Isles, where the nest has long been known; and here the bird extends to the island of Unst, which lies a little beyond latitude 61°.

STERCORARIUS PARASITICUS (*G. R. Gray*). Arctic Skua.

Provinces [XVI.] XVII. XVIII.

Subprovinces (33), 35–38.

Lat. 57°–61°. "Scottish" type, or northern.

Pennant formerly found the Arctic Skua breeding in the Islands of Islay, Jura, and Rum; and it is probable that a few pairs may still linger in some of the numerous islands of this district, though Mr. H. D. Graham tells me that the bird is quite extinct in Jura. In Thompson's 'Birds of Ireland' (vol. iii. p. 390) mention is made of a pair which were shot in 1837 in the Isle of Rum, where it is likely they had a nest.

The bird still breeds in Sutherland and Caithness, and in all three groups of the Scottish Isles.

STERCORARIUS CEPHUS (*G. R. Gray*). Long-tailed Skua.

Provinces XVII. XVIII.

Subprovinces 35, 36, 37.

Lat. 57°–61°. "Scottish" type. Not in Ireland.

Respecting a former breeding-station in Caithness, Mr. R. J. Shearer, of Ulbster House, Wick, has favoured me with the following particulars:—"Seven or eight years ago a few pairs of the Long-tailed Skua were always to be found breeding on the same ground with the commoner species. This was on a large inland flat, studded with small dark lochs. Besides the two Skuas the Lesser Black-backed Gull, the Common Gull, and the Curlew used to breed on the same spot. In 1860, a pair of Long-tailed Skuas were shot on this ground during the breeding-season; and when Dr. Sinclair, in 1840, published a list of the Birds of Caithness, he had found only the Long-tailed Skua, which at that time seemed to be the most numerous and easily obtained on this breeding-ground."

On revisiting this spot in 1861, Mr. Shearer found that nearly all the Skuas had been destroyed by a gamekeeper, who made a point of shooting every bird that attempted to breed on the moor. It may be added that

Mr. Shearer is perfectly aware of the difference between the Long-tailed and Arctic Skuas, and that he has always been accustomed to distinguish the two species.

Mr. Robert Gray, of Glasgow, who has paid much attention to the birds of the West of Scotland, tells me that he has seen a pair of the Long-tailed Skua, male and female, which were obtained, in June, 1862, on the Island of Wiay, off Benbecula, one of the Outer Hebrides. These birds were shot above a marsh where the Arctic Skua was breeding; so that there can be little doubt that they had a nest.

Mr. J. H. Dunn tells me that three pairs of the Long-tailed Skua bred in Hoy Island in 1852, when he obtained their eggs. None have nested since.

PROCELLARIA GLACIALIS (*Linn.*). Fulmar.

Province XVIII.

Subprovince 36.

Lat. 57°–58°. "Scottish" type. Not in Ireland.

Only in the Outer Hebrides, where St. Kilda has long been noted as the principal breeding-place. Yarrell adds the neighbouring islands of Borrera and Soa, on the authority of Mr. G. C. Atkinson, "who was informed that the birds also breed in the South Isles of Barra."

PUFFINUS ANGLORUM (*Boie*). Manx Shearwater.

Provinces I. [XII.] XVI. XVIII.

Subprovinces 1, 2, (25), 33, 36–38.

Lat. 49°–61°. "Atlantic" type, or western.

The Manx Shearwater breeds in the Scilly Islands. In Lundy Island, in the Bristol Channel (*Rev. M. A. Mathews*). Formerly it was abundant on the Calf of Man, where Mr. Crellin considers that it was extirpated by rats. Mr. H. D. Graham finds it breeding on the Islands of Staffa and Treshnish; and there are several localities in the Outer Hebrides, Orkney, and Shetland.

It will be observed that all these localities are situated on the west coast, and the nest seems always to be placed upon islands. I am not aware of any breeding-station on the mainland, unless Berwickshire should prove to be an exception, as the Rev. J. Duns tells me that he has seen it during summer off St. Abb's Head, and believes that a few pairs breed there occasionally.

THALASSIDROMA LEACHI (*Keys & Bl.*). Fork-tailed Petrel.

Province XVIII.

Subprovinces 36, (37)?

Lat. 57°–58° or 59°. "Atlantic" type. Not in Ireland.

The only breeding-station known with certainty is St. Kilda, in the Outer Hebrides.

Mr. J. H. Dunn marks the Fork-tailed Petrel as having formerly nested in Orkney; but the bird is not mentioned in the 'Fauna Orcanensis,' nor in the more recent work of Messrs. Baikie and Heddle. Mr. Dunbar includes it in his 'List of the Birds of Ross-shire,' but without mention of the locality.

THALASSIDROMA PELAGICA (*Vigors*). Stormy Petrel.

Provinces I. XIII. XVI. XVIII.

Subprovinces 1, 2, 27, 33, 36-38.

Lat. 49°-61°. "Atlantic" type, or western.

In the Scilly Isles. In Lundy Island (*Rev. M. A. Mathews*). On Ailsa (*Mr. R. Gray*). On Iona, Staffa, and Treshnish (*Mr. R. D. Graham*). In Skye (*Mr. J. Macgillivray*, *fide Yarrell*); and in all three groups of the Western and Northern Isles.

Sir W. Jardine has seen small parties of Stormy Petrels, in June, off the Isle of Man, where they probably breed.

# SUPPLEMENT TO BIRD-DISTRIBUTION PAPER,

CONSISTING OF THE

## MANUSCRIPT NOTES IN MR A. G. MORE'S INTERLEAVED COPY, WITH A SUMMARY.

Mr. More kept an interleaved copy of his essay "On the Distribution of Birds in Great Britain during the Nesting Season," in which he made many notes. These are not sufficiently complete or uniform in character to justify their incorporation with the text of the original Essay; nor is it clear that all the alterations suggested in the MS. would have been adhered to had the author carried out his intention of printing a second edition. The more important of them may, however, be indicated.

In the case of 35 species, additional Provinces or Subprovinces are included within the range.

1. Peregrine Falcon, . . . . Prov. IV., "Absent from VIII.-IX. only."
2. Honey Buzzard, . . . . Prov. XV. (Subprov. 30). Subprov. 8.
3. Long-eared Owl, . . . . Subprov. 8.
4. Pied Flycatcher, . . . . Prov. XV. (subprov. 31). Subprov. 8.
5. Blackbird, . . . . Subprov. 36.
6. Nightingale, . . . . Prov. VII. (subprov. 18).
7. Chiffchaff, . . . . Prov. XV. (subprov. 29).
8. Marsh Titmouse, . . . . Subprov. 31.
9. Grey Wagtail, . . . . Prov. VII. (subprov. 18).
10. Wood-Lark, . . . . Prov. XV. (subprov. 29). In Scotland.
11. Snow-Bunting, . . . . Subprov. 31.
12. Cirl-Bunting, . . . . Prov. VII. (subprov. 18). Subprov. 8, 9.
13. Tree-Sparrow, . . . . Prov. XVII. (subprov. 35).
14. Siskin, . . . . Subprov. 6, 8.
15. Lesser Spotted Woodpecker, . . . . Prov. XI. (subprov. 24).
16. Wryneck, . . . . Prov. VI. (subprov. 16, 17).
17. Stock-Dove, . . . . Prov. VII. (subprov. 18), XII. (subprov. 25).



18. Ptarmigan, . . . . . Prov. XIII. (subprov. 26). Subprov. 30, 31.
19. Dotterel, . . . . . Subprov. 29.
20. Dunlin, . . . . . Prov. I. (subprov. 1).
21. Red-necked Phalarope, . . . . . Subprov. 38.
22. Shoveller, . . . . . Prov. XIII. (subprov. 26).
23. Garganey, . . . . . Subprov. 10.
24. Wigeon, . . . . . Subprov. 31.
25. Pochard, . . . . . Prov. II. (subprov. 4), XVII. (subprov. 35). Subprov. 10.
26. Tufted Duck, . . . . . Prov. IV. (subprov. 11), XV. (subprov. 29), XVII. (subprov. 35). Subprov. 4.
27. Goosander, . . . . . Prov. XV. (subprov. 29), XVI. (subprov. 32), XVII. (subprov. 34, 35).
28. Great Crested Grebe, . . . . . "Recently found breeding in vicinity of the Clyde ('Saunders' Manual,' 701)."
29. Red-throated Diver, . . . . . Prov. XIII. (subprov. 27). "Probably in 29 also."
30. Gannet, . . . . . Prov. VI. (subprov. 17).
31. Little Tern, . . . . . Prov. VI. (subprov. 16). Subprov. 4.
32. Black-headed Gull, . . . . . Prov. II. (subprov. 4).
33. Fulmar, . . . . . Subprov. 38.
34. Manx Shearwater, . . . . . Prov. VI. (subprov. 27).
35. Stormy Petrel, . . . . . Prov. VI. (subprov. 17). "Must breed in 35."

In the case of four species, Provinces or Subprovinces originally included in the range are withdrawn:—

1. Montagu's Harrier, . . . . . Prov. XVII.
2. Ptarmigan, . . . . . Prov. VII., XII.
3. Whimbrel, . . . . . Prov. X., XVII.
4. Common Gull, . . . . . Though not noted in the interleaved copy, it appears from a letter of Mr. More's (Feb. 13, 1885) to Rev. H. A. Macpherson, that he proposed withdrawing the records for Provinces I. and XII.

Four species are excluded from the list as not sufficiently authenticated:—

- Rough-legged Buzzard.                      Great Reed Warbler.  
 Black Redstart.                              Long-tailed Skua.

One species is added, viz. :—

Marsh Warbler.

In ten cases "Not in Ireland," or "Not positively known to nest in Ireland," is erased:—

Redstart.	Shoveller.
Wood Wren.	Pintail.
Tree-Sparrow.	Tufted Duck.
Siskin.	Red-throated Diver.
Stock-Dove.	Fork-tailed Petrel.

Five changes of type are proposed:—

Golden Eagle, .	From "Highland" to "perhaps Scottish type, as it is not confined to mountains on the Continent."
Barn Owl, . . .	From "British" to "English."
Golden Oriole, .	From "English" to "Germanic."
Carrion Crow, .	From "British" to "English."
Tufted Duck, .	From "English" to "perhaps British"

A list is also added of "Birds Breeding in Britain, not in Ireland." They number 61:—

Osprey.	Black Grouse.
Hobby.	Ptarmigan.
Goshawk (Hist.).	[Red-legged Partridge].
Kite.	Bustard (Hist.).
Honey Buzzard.	Stone Curlew.
Montagu's Harrier.	Dotterel.
Short-eared Owl.	Kentish Plover.
Tawny Owl.	Bittern (Hist.).
Red-backed Shrike.	Spoonbill (Hist.).
Pied Flycatcher.	Whimbrel.
Golden Oriole.	Wood-Sandpiper.
Savi's Warbler (Hist.).	Greenshank.
Reed Warbler.	Avocet (Hist.).
Nightingale.	Black-tailed Godwit (Hist.).
Lesser Whitethroat.	Ruff.
Dartford Warbler.	Red-necked Phalarope.
Crested Titmouse.	Baillon's Crake.
Marsh Titmouse.	Grey-lag Goose.
Bearded Titmouse.	Whooper (Hist.).
White Wagtail.	Gadwall.
Tree-Pipit.	Garganey.
Snow-Bunting.	Eider Duck.
Cirl-Bunting.	Scoter.
Hawfinch.	Goosander.
Green Woodpecker.	Black-throated Diver.
Great Spotted Woodpecker.	Great Auk (Hist.).
Lesser Spotted Woodpecker.	Black Tern (Hist.).
Wryneck.	Great Skua.
Hoopoe.	Arctic Skua.
Nuthatch.	Fulmar.
Capercaillie (Hist.).	

Below are appended Mr. More's detailed notes. (To facilitate reference, the name of each species is printed, whether followed by a note or otherwise.)

**Golden Eagle.**—Extinct in England. Pennant, folio ed. of "Brit. Zool.," 1768, says the Eagle has bred in Snowdon rarely. Also in "Brit. Zool.," 1776, p. 162 :—"This kind of Eagle sometimes migrates into Carnarvonshire, and there are instances, though rare, of their having bred in Snowdon hills." A pair had their eyrie in Martindale in 1788 and 1789 (Rev. W. Richardson in Hutchinson's "Cumberland," i., p. 449). Mention is also here made of "the Borrowdale Eagles" (p. 450), which "Mr. Gray says . . . are the Erne," "but one caught in 1793 is unquestionably the Golden Eagle."  
Rare in Scandinavia. Perhaps Scottish type, as it is not confined to mountains on the Continent.

**White-tailed or Sea Eagle.**—Extinct in England. The eyrie at Bampton is identical with that of Wallow Crag, Hawes Water (Rev. H. A. Macphersou, "Bs. of Cumb." p. 75).  
General in Scandinavia.

**Osprey, "Bald Buzzard"?**—? Not in England. See "Zool.," 1889 and 1892. Summer visitor.

**Peregrine Falcon.**—Absent from VIII.—IX. only. Leaves Scandinavia in winter.

**Hobby.**—Not in Scotland. Summer visitor. South and middle Scandinavia (summer only).

**Merlin.**—*Shot* in Middlesex, April, 1861 (J. E. Harting.)

Lap Fells and North Scandinavia: not South Scand. Leaves in winter.

**Kestrel.**—Summer visitor to Scandinavia.

**Goshawk.**—Extinct. Pennant, Ed. 1776, speaks of the Goshawk as breeding in Scotland, building its nest in trees.

General in Scandinavia, where it *partly* remains in winter.

**Sparrow-Hawk.**—A few remain in Scandinavia in winter.

**Kite.**—(19) Eggs taken near Waughley (Lincoln) in 1870. (Adrian. *vide* J. E. Harting.)

South and middle Scandinavia. Summer only.

**Common Buzzard.**—vii. 18. About Snowdon (Zool. 1866, p. 437), where I have seen it. Not far north in Scandinavia. Summer visitor.

**Rough-legged Buzzard.**—Omit.

**Honey Buzzard.**—(8) "A nest in Middlesex. Sterland in the Field" (J. E. H. See "Handbook of B. Birds," p. 6). (14) A nest in Herefordshire. J. B. Pilley in "Zool." 1879, 132. (XII. 25) For Cumberland read Westmoreland. (XV. 30). A nest in Aberdeen, July, 1866 ("Zool." 1867, p. 554). Summer visitor.

Middle of Scandinavia. Summer.

Marsh Harrier.—South Sweden, summer.

Hen Harrier.—General in Scandinavia, summer.

Montagu's Harrier.—Province XVII. withdrawn. Isle of Wight, occ.  
 ("Zool." 1875). Wharfedale ("Zool." 1879, p. 220).  
 Breeds in Denmark, not Scandinavia. Summer.

Long-eared Owl.—(8) Eggs were taken in two localities in Middlesex in 1861 and 1863 (J. E. Harting). (7) Birds "moaning" at Lord Onslow's, March, 1861. To concluding sentence add "since the recent increase of fir plantations."  
 South and middle Scandinavia, resident.

Short-eared Owl.—(24). Eggs from Moors near Bellingham, 1863 (J. E. Harting). (25) Cumberland, in several districts (Rev. H. A. Macpherson). (28) Mr. W. P. Turnbull once found nest on Tenchit Muir. ("Birds of East Lothian," p. 12, 1867).  
 North Scandinavia (!) only, and summer visitor.

Barn, or White Owl.—"English" type. Not in Scandinavia; rare in Denmark, resident.

Tawny Owl.—South and middle Scandinavia, resident.

[Snowy Owl, obs.—High North of Scandinavia, on the snowy fells.]

[Scops Eared Owl, obs.—Add "and is mentioned as having nested near Oykel." (St. John's "Tour in Sutherland," I. p. 122).]

[OBS.—The Little Owl (*Athene noctua*) has bred in York and Hants, having been introduced. (H. Saunders' "Manual," p. 291).]

Red-backed Shrike.—Denmark, not Scandinavia.

[Woodchat, obs.—For "in 1856" read "in the autumn of 1856."]

Spotted Flycatcher.—To far north of Scandinavia.

Pied Flycatcher.—(8.) Regular spring migrant to Middlesex, and nest has been found at Hampstead, Highgate, Harrow (J. E. Harting), Essex (Harting, "Summer Migrants"). (xv. 31) Inverness (Yarrell, 4th ed.)

Lapland, &c. Local in Scandinavia.

Dipper.—Black-bellied form north to Quickiock.

Mistletoe-Thrush.—General in Scandinavia, but not to extreme north. A few only of the Thrushes winter in Scandinavia.

Song-Thrush.—General in Scandinavia.

Blackbird.—Add Sub-province 36 (Outer Hebrides). General in Scandinavia.

[Redwing, obs.—On supposed nesting in Middlesex, see “The Field,” June 24, 1871, and July 1, 1871 (cf. Gurney in “Zoologist,” 1876, p. 4833). York, “Zool.” 1845, p. 1056; 1873, p. 3411; 1879, p. 460. For “found a nest in Harris” read “found it breeding in Harris”; reference is to Fleming’s “Hist. of Brit. Animals,” p. 65. See also Saxby’s “Birds of Shetland,” Appendix, p. 384. In Scandinavia from S. Wermland to N. Cape.]

[Fieldfare, obs.—Recorded also as having in 1835 bred at Gala, Selkirkshire, and in Kent (G. Fairholme in Charlesworth’s “Mag. of Nat. Hist.,” I., p. 339, 1837); and Blyth, p. 439; said to have nested near Hastings (F. S. Dugmore in “Field,” June 25, 1859). Chiefly North Scandinavia.]

Ring-Ouzel.—Nest at Malvern, “Zool.” 1877, p. 387. General in Scandinavia.

Golden Oriole.—Not in Scotland. “Germanic” type. A nest in Dump-ton Park, Isle of Thanet, in 1874 (Harting, “Our Summer Migrants,” 2nd ed., p. 268).

Eastern Finland, not Scandinavia.

Hedge Sparrow.—To Lapland, summer migrant.

Redbreast.—Summer visitor to Scandinavia, but a few remain in winter; latest to leave in autumn.

Redstart.\*—Summer visitor. (29) Breeds regularly at Donipace House, Falkirk, Stirling, and other localities (Mr. J. A. Harvie-Brown).

General in Scandinavia.

Black Redstart.—Omit.

Stonechat.—Accidental in Scandinavia and Denmark.

Whinchat.—Summer visitor. To far north of Scandinavia.

Wheatear.—Summer visitor. To farthest north of Scandinavia.

Grasshopper Warbler.—Denmark, not Scandinavia. Regular summer visitor to Ireland.

Sedge Warbler. South and mid Scandinavia, and Finland.

Savi’s Warbler.—Not in Scotland. England only. Extinct. Last nest in 1849 (Yarrell, 4th ed., p. 39). Last specimen in June, 1856. Not in Scandinavia.

Reed Warbler.—Not in Scotland: South Scandinavia.

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\*The words “Not in Ireland” in the text stand untouched; but in the appended list of “Birds Breeding in Britain, not in Ireland,” the Redstart is omitted. Since 1885 it has been known to nest locally in Ireland.

Marsh Warbler (*Calamodyta palustris*). \*—Nests in Somerset, Gloucester, and Cambridge (H. Saunders, "Illustrated Manual"). Wicken Fen, Cambs. ("Zool." 1861, p. 7755); Hampstead? ("Zool." 1864, p. 9109, and 1865, p. 9847); Cambs. & *Norwich* (Harting, "Summer Migrants," p. 97, 2nd ed.); 3 near Yarmouth (Harting, in "Field," 6th May, 1871).

Great Reed Warbler.—Exclude as not proved.

Nightingale.—Not in Scotland. (VII. 18). In Montgomery, 1880 and 1881 (F. O. Philpott, in "Field," June 25, 1881, p. 869); near Dölfä, Montgom. (H. C. T. B., "Field," Dec. 30, 1882, p. 927). See M'Gillivray, and Turnbull's "Birds of E. Lothian."

Rare in Denmark. Not in Scandinavia proper.

Blackcap.—Subprovince 34 was inadvertently omitted from the original text. (29) In the Forest of Torwood, Stirling, repeatedly (Mr. J. A. Harvie-Brown). Has occurred in winter in England and Ireland.

To Tornea, Lapland.

[Orphean Warbler (*Sylvia orphea*).—Supposed to have nested in York in 1848 (Sir W. Milner in "Zool." 1849, p. 2588). A young bird unable to fly near Holloway, June, 1866 (Harting in "Field" & Handbook, and "Summer Migrants"). Nest and eggs near Wakefield, June, 1864 (Harting); nest and eggs, East Grinstead (Newton's Yarrell, *vide* Saunders).]

Garden Warbler.—To Quickiock, Lapland.

Whitethroat.—Less northern than *S. hortensis*. †

Lesser Whitethroat.—Same range as last. †

Wood Wren.—Erase "Not in Ireland."

Mid and South Scandinavia as far north as Stockholm.

Willow Wren.—General and to North Cape in Scandinavia.

Chiffchaff.—(xv. 29) Has been found breeding in Dunmore Woods, Stirlingshire; perhaps Reg.; nest and eggs seen by Mr. J. A. Harvie-Brown. Mr. W. P. Turnbull describes it as a very rare summer visitor to East Lothian (p. 15).

Mid Scandinavia, not common; once at Quickiock. [Obs.—*S. hippolais* is sparingly dispersed in S. and Mid Scandinavia.]

Dartford Warbler.—Not in Scotland. Not in Ireland. Has once bred in extreme S. of York (see "Vert. Fauna of York"). Not in Scandinavia.

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\* The distribution of the Marsh Warbler would be shown thus:—

Provinces I. III. ? IV. V.

Subprovinces 3, 8?, 11, 12, 13.

Lat. 51°–53°.

† These remarks apply to the Scandinavian range of the two Whitethroats.

- Golden-crested Wren.—Mid Scandinavia (and general).  
 Great Titmouse.—General and resident in Scandinavia.  
 Blue Titmouse.—Mid and South Scandinavia.  
 Crested Titmouse.—Scandinavia to 63° N. Not Denmark.  
 Coal Titmouse.—Fir forests of Mid and South Scandinavia (Continental form).  
 Marsh Titmouse.—Add Subprovince 31.\* Pairs twice seen in Stirling (29) during the breeding-season, and believed to breed by Mr. J. A. Harvie-Brown.  
     South and Mid. Sweden.  
 Long-tailed Titmouse.—General in Scandinavia.  
 Bearded Titmouse.—Not in Scotland. Province VIII. (bracket removed). For 12 and 23 read (12)? and (23). Formerly found in Devonshire (*vide* De Moore) at Topsham and on the Exe. For "Cowbit in Lancashire" read "Cowbit in Lincolnshire" ("Zool.," 1879, p. 305).  
     Not in Scandinavia.  
 Pied Wagtail.  
 White Wagtail.—Not in Scotland. General in Scandinavia.  
 Grey Wagtail—(VII. 18) Found by Mr. Wharton nesting near Beddgelert, &c. (see "Ibis," n. s., vol. ii., p. 323), and seen by myself breeding on the streams near Bangor and Aber. in July, 1866. (9) In Oxfordshire ("Zool.," 1879, p. 179).  
     Once only shot in S. Sweden, and very rare in Denmark.  
 Ray's Wagtail.—Replaced by *Motacilla flava* and *M. melanocephala* in Scandinavia.  
     [*M. flava* has nested near Gateshead, Durham (J. Hancock) J. Watson, in "Zoologist," 2343-2406. "Saunders," p. 119.]  
 Tree-Pipit.—(29.) Regular and not scarce in Stirlingshire. Torwood Forest and elsewhere (Mr. J. A. Harvie-Brown, 1868).  
     To Lapland in summer.  
 Meadow Pipit.—To North Cape.  
 Rock Pipit.—*Anthus obscurus* replaced by *A. rupestris* to North Cape.  
 Sky-Lark.  
 Wood-Lark.—Lat. 50°-57°. (XV. 29.) Mr. J. A. Harvie-Brown writes that he has taken the nest and eggs of the Wood-Lark in Torwood Forest, Stirling; the only known instance of the bird having bred in Scotland (Jan. 1868). North Wales (VII. 18), "Newton's Yarrell."

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\* No new authority is quoted for this subprovince, but Yarrell (4th edition) might have been cited. An authority for Inverness was referred to in the original essay. "Newton's Yarrell" gives another additional subprovince (27) to the bird's range.

Snow-Bunting.—Subprov. 31 added. Inverness, Ross, and Shielday  
 ("Newt. Yarr." ii., p. 4.)

Common Bunting.

Reed-Bunting.

Yellow Hammer.

Cirl-Bunting.—Not in Scotland. (8) Birds have been shot at Peckham, Harrow, Hampstead, and Kingsbury, and Mr. Harting has a nest and eggs which he believes to belong to Cirl Bunting, taken near Wembley Park, Middlesex. See "Birds of Middlesex," p. 78. (9) Breeds in Bucks (H. H. Crewe, in "Zool.," 1865, p. 9416). (VII. 18) Mr. C. G. Beale finds it, as he believes, breeding in a valley called Glyn Ceiniog, in Denbighshire, three miles S. of the Dee Valley (May, 1881). Instead of Essex, Sussex should have been named as the eastern limit of its range on the south coast.

Chaffinch.

Tree-Sparrow.—Also in Ireland. (XVII. 35) Found by Mr. T. Mackenzie breeding near Dornoch Castle, Sutherland, in 1872 (Harvie-Brown in "Nat. Hist. Soc.," Glasgow, 1871, and revised 1874). Mr. W. P. Turnbull gives three localities where it breeds in East Lothian ("Birds of E. L.," p. 17).

House-Sparrow.

Green Linnet.

Hawfinch.—Not in Scotland. Add Worcester to list of counties. Increasing in Huntingdon (G. D. Rowley, in "Zool.," 1867, p. 989); Hants, "Zool.," 1867, p. 913; Kent, "Zool.," 1867, p. 793; Malvern, Worcester (Mr. Edwards; and "Reg." in Mr. Sheppard's list); near Beverley and Sheffield (F. Boyes, in "Zool.," 1876, p. 4763); near Bingley (E. P. P. Butterfield, in "Zool.," 1879, p. 180).

Goldfinch.

Siskin—Certainly in Ireland. Chichester, Sussex ("Zool.," 2nd s. p. 1033); Kent (Latham in Pennant). Surrey (Newton in 4th ed. of "Yarrell"; Middlesex (Harting); Derbyshire?, Cumberland, 1883 and 1884 (Rev. H. A. Macpherson).

Linnet.—Very rare in Sutherland (Baikie and Heddle): none in Shetland, perhaps not in Orkney or Outer Hebrides.

Lesser Redpoll.—? in Sutherland, where Mr. Harvie-Brown has not found it breeding.

Twite.—For "Lat. 50°-61°" read "Lat. 52°-61°." Why not Monmouth?

Bullfinch.

Crossbill.—Near Bournemouth ("Zool.," 1877, p. 254, *vide* G. J. D. Lees), in Middlesex at Muswell Hill (J. E. Harting, "Birds of Middl.," p. 91).



- Starling.—General in Scandinavia, summer visitor.
- Chough.—(II. 4) Two nests on the coast of Dorset in 1865 (J. E. H.); (VI. 18) above Llyn Cwellyn ("Zool.," 1866, p. 438). "Appears to have become extinct about St. Abb's Head and Fast Castle between 1846 and 1855" (Muirhead, "B. of Berwickshire," p. 199).
- Raven.—Formerly in North Lincoln (Harting, note).
- Carrion Crow, "English" type.—Denmark, flocks in winter: does not breed in Scandinavia.
- Hooded Crow.—In Flamborough Cliffs in 1876 (F. Boyes, "Zool.," 1876, p. 5121). Wallis, Northumberland, 1769, vol. i., chap. 9, p. 368), says the Royston Crow builds usually upon alder-trees.  
General and partially migratory in Scandinavia.
- Rook.—Summer visitor to extreme south of Scandinavia.
- Jackdaw.—South and Middle Scandinavia; partially migratory.
- Magpie.—General and resident in Scandinavia.
- Jay.—General and resident in Scandinavia.
- Green Woodpecker.—Not in Scotland. For "Provinces I. VIII. IX. XI." read "Provinces I.—VIII. IX.—XI. "; and for "Subprovinces 1, 15, 17, 20," read "Subprovinces 1—15, 17—20." Barron Wood, Cumberland, is very much nearer to the borders of Westmoreland than to Scotland (Rev. H. A. Macpherson). Heysham says the Green Woodpecker is seldom seen in Cumberland, only occasionally visiting this country. South and Mid Scandinavia.
- Great Spotted Woodpecker.—General in Scandinavia.
- Lesser Spotted Woodpecker.—Not in Scotland. Add XI. 24. At Edenhall, near Penrith, in 1882 (Rev. H. A. Macpherson). Not further north than Cumberland.  
Middle and North Scandinavia; winter visitor to South Scand.
- [Great Black Woodpecker, obs.—4th line, for "possible" read "probable." General in Scandinavia.]
- Wryneck.—? Not in Scotland. Add VI. 16, 17. Glamorgan, Caermarthen, Brecknock, and Radnor ("Newton Yarr."). In 25, has nested at Bickerley Park, near Carlisle (Rev. H. A. Macpherson). Heysham says he has taken a female from the nest. Perhaps breeds in Perth ("N.'s Yarrell").  
South and Middle Scandinavia.
- Tree-Creeper.—Has occurred once in Shetland (Saxby); twice in Orkney.  
South and Middle Scandinavia, resident.
- Wren.—*T. hirtensis* in St. Kilda (Seebohm). *T. borealis* in Shetland (R. M. B.).
- Hoopoe.—Not in Scotland. Perhaps breeds in South Scandinavia, but very rare.

Nuthatch.—Not in Scotland. For “in Cumberland” read “in the woods near Lowther Hall, in Westmoreland.”

South Scandinavia, resident.

Cuckoo.

Kingfisher.—Breeds in Denmark, not Scandinavia.

Chimney-Swallow.—To far north of Scandinavia.

House-Martin.—This and next less common in Lapland.

Sand-Martin.

Swift.—See Saxby, “Birds of Shetland.” To far north of Scandinavia.

Nightjar.—Scandinavia, but not Lapland, in summer.

Wood-pigeon.

Stock-Dove.—Not in Scotland.\* Add VII. 18 and XII. 25.

VII. 18. Merionethshire, . . . T. Ruddy, 1875.

Denbigh, . . . W. J. Kerr, 1875.

— . . . C. G. Beale, 1881.

XII. 25. Cumberland, . . . W. Duckworth, 1880.

Also in cliffs on the coast. (II. 4) In May, 1865, Mr. J. E. Harting found Stock-Doves nesting in the cliffs at Lulworth, Dorset (note of J. E. H.). (II. 5.) Nest found in Isle of Wight (C. A. Bury, 1873). Breeds in the cliffs at Flamborough “Zool.,” 1876 (p. 5040). Regularly in West Sussex (J. E. Harting).

Rock-Dove.—For “XII.—XVII.” (a misprint in the original) read “XII.—XVIII.” For “Atlantic, or perhaps Scottish,” read “Atlantic, *inclining to* Scottish,” type.

(4). Mr. J. E. Harting did not see the typical Rock-Dove in Dorsetshire in 1865 (see under preceding species). (5). In a MS. note Mr. Harting says, “The species nesting at Purbeck in 1865 was undoubtedly *C. oenas*. (15). Not in Shropshire, *vide* Beckwith.

In Mayo the domestic pigeons often intermix with the wild birds, and are found breeding in same caves. The same thing has been noticed in Scotland.

Turtle-Dove.—Not in Scotland. Doubtful if it breeds in Ireland. (v.) For “in the last two counties it is rare” read “in the last county it is rare.” Very common in Shropshire, near Clungunford (Mr. J. Rocke). (Of the young bird taken in Cumberland) Heysham suggests it might have been bred in a cage.

Pheasant.

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\*The words, “Not in Ireland,” stand uncorrected in the text here, but in the appended list of “Birds Breeding in Britain, not in Ireland,” Mr. More, of course, omits the Stock-Dove. See his list of Irish birds.

Capercally.—Scotland only. Shaw's "General Zoology," vol. xi., pt. 2 (1819), p. 268, foot-note:—"The late G. Montagu, however, was present when one was killed near the upper end of Loch Lomond, about 35 years since." Formerly abundant in Sutherland.

Black-Grouse.—For "Beswyn mountains" read "Berwyn mountains."

Red Grouse.

Ptarmigan.—Read distribution as follows:—

Provinces XIII. XIV. ? XV.—XVIII.

Subprovinces 26, 28 ?, 29-36, (37).

(XIII. 26.) Until 1822 a few in Dumfries and Galloway (R. Service in "Zool.," 1887).

[Other notes which here follow were incorporated in the paper which Mr. More contributed to the "Zoologist" for Feb., 1885.]

For "Thompson, B. Brit.," read "Thompson, B. of Ireland."

Common Partridge.

Red-legged Partridge.—Not in Scotland. To counties add Middlesex (J. E. Harting). In Somerset two were shot in Sept., 1879, on the manor of Compton Bishop by Mr. C. F. Edwards, who was informed by the keeper that others fed in the coverts with the pheasants (J. E. H., note).

Quail.—In second paragraph read "in the county of Armagh I have myself heard its note during the breeding-season, and shot many birds in winter."

Great Bustard.—Not in Scotland.

Stone Curlew.—Not in Scotland. Summer visitor. North breeding limit is in England. To counties add Wilts. "Zoologist," 1877, p. 183; also p. 60.

Golden Plover.

Dotterel.—Add subprovince 29. Perth (E. T. Booth). Summer visitor.

Ringed Plover.—For "a smaller race" read "the continental or typical *hiaticula*."

Kentish Plover.—Not in Scotland. A summer visitor, breeding in S. Sweden, Denmark, Holland (Seebohm, *Ch.* p. 168).

Lapwing.—Resident.

[Turnstone.—*Streptilas interpres*. See "Harting's Handbook," pp. 44-45. Nest once found in Shetland (see Saxby, "B. S.," p. 171).

On Farne Islands formerly plentiful; an egg in 1863 (*vide* Dr. Embleton), Harting's Handbook).

An egg seen in 1873 in possession of the keeper by Mr. Tennant (W. E. Clarke). Staffa, believed to breed (Gray).

Breeds from Arctic sea to the Danish Isles in Baltic. (Seebohm).]

Oyster-catcher.—Resident.

Common Heron.

Common Bittern.

Little Bittern, obs.—*Ardea minuta* is admitted by Mr. Saunders as a breeding species:—There can be little doubt that it has bred on some of the Broads of Norfolk and other localities. ("Saunders' Manual," p. 369).

Spoonbill.—Not in Scotland. Formerly at Fulham, "Zool." 1886, p. 81. Formerly also in Sussex ("Zool." 1877, p. 423: "in the woods called the Westwood and the Haselette" in the East Dean Park, 7 miles from Chichester (*vide* a MS. Survey, dated 1570).

Curllew.

Whimbrel.—Only in Shetland and Orkneys. Summer visitor.

Common Redshank.

Rainham Saltings, Kent. W. H. Power (in "Zool." N.S., 1866, p. 125).

Cauvey Island & Foulness, Essex. W. V. Legge ("Zool." 1866, p. 91).

Pitsea Marshes, Essex, in 1863, 3 nests. J. E. Harting.

For S.E. Essex see "Zool." 1867, p. 602.

[Green Sandpiper, obs.—Said to have bred at Hunmanby (Norfolk). See Stevenson, II. p. 226, note. And near Aberfoile, Perth ("Field," 21. 8. 75, & 6. 5. 76).]

Wood-Sandpiper.—On Guillam Links, E. Lothian, June, 1867. E. T. Booth. (Harting, note). Nest in Elginshire, 23rd May, 1853, same year as at Newcastle. (Thurnall in "Naturalist," 1853, p. 254). Rare visitor in spring and autumn.

Common Sandpiper.

Greenshank.—Scotland only.

West Cromarty, West Inverness (Harvie-Brown), (Harting, note).

Inner Hebrides, Islay and Jura (R. Gray).

Two or three pairs in Skye (Gray, "B. of W. Scotl." p. 301).

Avocet.—Not in Scotland. (Add to former breeding-places mentioned): Winterton and Horsey in Norfolk, near the Seven-mile House on the Bure (Stevenson, "B. of Norf." ii. p. 238); the merelands at Thorpe, near Aldeburgh (Hele, "Notes about Aldeburgh," p. 120); Foss Dyke Wash, Lincoln (Pennant).

Black-tailed Godwit.—Not in Scotland.

Ruff.—Not in Scotland.

Woodcock.—In many parts of Ireland, chiefly on east side.

Common Snipe.

Dunlin.—Add I. 1. Nest found in Cornwall, *vide* Rodd in "Zool." 1868, p. 1319. (21) Lancashire (Berry in "Mag. Nat. Hist." 1834, p. 599). Why not in Monmouth or other parts of S. Wales?

Red-necked Phalarope.—Add Subprovince 38 (Shetland). Lat. 56°-61°. Scotland only.

Unst, etc., Shetland (Saxby, "B. of S.," p. 215).

Exclude Sutherland (Harvie-Brown). Only once seen by St. John.

Corncrake.—Summer visitor.

Spotted Crane.

Baillon's Crane.—Not in Scotland. Two nests near Great Yarmouth ("Zool." 1866, p. 389).

Water-Rail.

Water-Hen.

Common Coot.

Grey-lag Goose.—Now in Scotland only.

Whooper.—Not in England. High North (Lapland, etc.).

(To last paragraph add): Harris in his "History of Down," 1744, p. 234, says: "Great numbers of them breed in the islands of Strangford Lake"; and mentions four islands called Swan Islands.

Shell-drake.—In Scandinavia only in the south of Sweden.

Shoveller.—Erase "Not in Ireland." Add XIII. 26. In Kirkcudbright, "Zool." 1880, p. 406. Reg. in 11. Annually in Moray (31), (Harting, note). Not found breeding in Scandinavia.

Gadwall.—Not in Scotland. (A few additional localities, all in Norfolk, are mentioned.)

Never in north of Scandinavia. More common in Denmark.

Pintail.—In Ireland at Abbeyleix, *vide* Lord Castletown of Upper Ossory. See Sir R. Payne-Gallwey ("Fowler in Ireland," p. 51).

Common in Lapland only; high north.

Wild Duck.

Garganey.—Not in Scotland. Add Sub-province 10. Breeds every year at Leiston, Suffolk ("Zool." 1874, p. 4036), and the nest has several times been found at Thorpemere, near Aldeburgh (Harting, note). Mr. Sterland reports having found the nest in the Sherwood Forest district. Formerly bred at Prestwick Carr, Northumberland.

Southern, and rare in Scandinavia.

Teal.—General in Scandinavia.

Wigeon.—Add Subprovince 31. On a lake in Morayshire (Capt. Dunbar, Harting, note). In last paragraph, for "West Inverness" read "North Uist," and omit following words to end of sentence. *Vide* Gray ("Birds of West Scotland," p. 375).

General in Scandinavia.

Eider Duck.—On Islands. At St. Kilda, 1884 (Dixon in "Ibis"). To the high north.

Black Scoter.—Add Sutherland: a nest in 1877 (Harvie-Brown's Supplement). Breeds regularly in Strathmore, Caithness ("Zool." 1869, p. 1867). Young, and eggs with adult birds from Caithness shown to me in Edinburgh in 1871.

Lapland, etc.

Pochard.—(Add II. 4). In Dorset (Mansell Pleydell in "Zool." 1877, p. 385; T. M. Pike, p. 386); (10) Norfolk (Stephenson in "Zool." 1876, p. 5107); Suffolk, a flapper at Aldeburgh, August, 1874 (J. E. Harting); (XVII. 35) Sutherland ("Zool." 1868, p. 1309). Regularly in 11.

Does not breed in Scandinavia.

Tufted Duck.—Add IV. 11; XV. 29; XVII. 35; and subprov. 4.

(4) In 1876 nested in Dorset (Newton, in "Field," 10th March, 1877).

(11) Norfolk (Stevenson, in "Zool.," 1876, p. 5107). At Stanford, W. Norfolk, in 1876 (J. E. Harting).

(29) On Butterston Loch, near Dunkeld (A. B. Brooke, in "Ibis," 1875, 514).

At Loch Leven, Kinross, in 1876 ("Trans. Royal Phys. Soc.," Edin.).

In Fife (J. Lumsden, in "Zool.," 1879, p. 180).

(35) In 1860 and previously, the T. D. bred on an island in the loch of Stemoter, Caithness (J. E. Harting).

For Notts, see "Field," May 19, 1877, quoted by Rowley, "Orn. Misc.," iii., 229.

Erase "Not in Ireland." Perhaps British type.

Northern in Scandinavia. Lapland.

[Golden-Eye, obs.—Could these (young birds in Sutherland) have belonged to Goosander, which also nests in hollow trees?]

Red-breasted Merganser.—Breeds in the district of Loch Lomond (Lumsden.—Harting, note).

North Scandinavia and Lapland.

Goosander.—Add XV. 29; XVI. 32; XVII. 34, 35.

(29) May, 1871, Mr. Harvie-Brown received fresh eggs from North Perthshire.

(32) Argyle ("Saunders' Yarrell," iv.). July, 1871, a Goosander and young were seen on Loch Awe ("Field," 29th July, and 12th August, 1871).

(34) May, 1876, Mr. Osgood Mackenzie found a nest on the Fiona Loch, Ross-shire ("Field," 20th May, 1876).

(35) Sutherland ("Yarrell," 4th ed.).

North Scandinavia and Lapland.

Great-Crested Grebe.—Recently found nesting in vicinity of the Clyde,\* *vide* R. H. Read ("Saunders' Manual," 701). Breeds in Ireland. I have not been able to obtain any recent confirmation as to Wales.

\* Province XIII., Subprov. 27, or XVI., Subprov. 32.

Little Grebe.

Black-throated Diver.—Scotland only. (36) Two eggs with skins of parents from North Uist ten years ago (H. W. Fielden, "Zool.," 1867, p. 710).

Red-throated Diver.—Add XIII. 27. Arran ("Saunders' Yarrell"). Probably in 29 also. And in Ireland (Donegal).

[Great Northern Diver, obs.—For "does not breed in Shetland" read "has not been proved to breed in Shetland."]

Common Guillemot.

[Brünnich's Guillemot, obs.—See also Thompson, "Birds of Ireland."]

Black Guillemot.—A few at Ormeshead (Pennant, "Wales," iii. p. 149).

Gare-fowl, or Great Auk.—Cf. "The Gare-fowl and its historians." "Nat. Hist. Review," N.S., vol. v., 1865.

Common Puffin.—For "formerly," read "in his time."

Razor-bill.—Formerly in (III. 7), on the authority of Montagu, under "Puffin."

Common Cormorant.

Shag.—For "wanting on the south and east coasts of England," read wanting on the eastern half of the south and on the east coast of England." And see "Zool.," 1865, p. 9674.

Gannet.—On Islands. Add VI. 17. On Grassholm, off Pembroke (H. Saunders, and in Mr. Tracy's list). Its breeding-stations are (1) Lundy Island; (2) Grassholm; (3) Ailsa Craig; (4) St. Kilda and neighbouring islands; (5) Suliskerry, 40 miles to the west of Hoy in Orkney; (6) North Barra or Suliskeir, 10 miles west of Rona, 40 miles north of the Butt of Lewis; (7) the Bass Rock.

Sandwich Tern.—(25) Walney Island (J. E. Harting, in "Zool.," 1864).

Roseate Tern.—(25) Found associated with other Terns breeding on Walney Island, Lancashire, in May, 1864 (J. E. Harting, "Zool.," 1864).

There are no "islands in the Solway Firth." ("Birds of Cumberland," p. 165).

Common Tern.—Fresh and salt water.

Arctic Tern.—Coast, and inland at Lough Carra, Mayo (A. G. M.).

Little Tern.—Add VI. 16, and Subprov. 4. Mr. Harting has received eggs from the beach between Weymouth and Abbotsbury, and from Glamorganshire. Coast only.

Black Tern.—Not in Scotland. Fresh-water marshes only.

Black-headed Gull.—Add II. 4. Near Poole, Dorset ("Zool.," 1877, 384 and 385). Breeds on fresh-water marshes, inland. On the coast in Kent and Essex; and (25) on Walney Island (J. E. Harting).

Kittiwake.—Scarcely ever seen inland. A truly maritime species.

Common Gull.

Lesser Black-backed Gull.—Breeds occasionally on fresh-water. On flat islets and even "marshy plains" (see M'Gillivray). (25) A colony on Foulshaw Moss, near Arnside ("Zool.," 1879, p. 339).

Herring Gull.—Breeds also on flat islets, but nearly always on salt water. (25) On Foulshaw Moss with the former ("Zool.," 1879, p. 339). On Farne Islands only a few pair observed among hundreds of *L. fuscus* (J. E. Harting).

Great Black-backed Gull.—Plentifully on Lundy I. (J. E. Harting). Breeds on islets in fresh-water lakes not far from sea, and especially on isolated pinnacles or "stacks" on the coast.

Great Skua.—On Foula, 60 pairs; Unst, 9 pairs; North Mavin, 4 pairs (H. Raeburn, in "Scottish Naturalist," Jan., 1891).

Arctic Skua.

Long-tailed Skua.—Omit.

Fulmar.—Add Subprovince 38. In Foula, Shetland (Mr. J. Garrick, in "Zool.," 1879, p. 380). Cf. "Zoologist," 1890.

Manx Shearwater.—On Islands. Add VI. 17. Abundant on Skomer I., off Pembrokeshire (R. M. B.). Probably in Sutherland.

Fork-tailed Petrel.—On Islands. Erase "Not in Ireland." Add "The west side of Mingalay (Elwes, in 'Ibis,' 1869, pp. 27, 38)."

Stormy Petrel.—On Islands. Add VI. 17. On small islands off Pembrokeshire (J. H. Gurney). Must breed in 35.



ON THE  
GEOGRAPHICAL DISTRIBUTION OF BUTTERFLIES  
IN GREAT BRITAIN.

BY T. BOYD AND A. G. MORE.

(ZOOLOGICAL XVI.)

*EDITED FOR THIS MEMOIR*

BY W. F. KIRBY, F.L.S., F.E.S., &c.

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NOTE BY W. F. KIRBY.

IN editing the present paper I have made no alterations or additions beyond inserting, as foot-notes, all the remarks added by Mr. More in pencil in his own interleaved copy. Three foot-notes which formed part of the original paper, have of course been included, and one or two slight memorandums of my own, which appeared necessary, have also been added.

The essay by Messrs. Boyd and More was the first serious attempt to trace out the distribution of Lepidoptera in the British Islands. My attention was drawn to it by an article by Mr. H. T. Stainton, published in the "Entomologists' Weekly Intelligencer" for Oct. 8, 1859 (vol. vii., pp. 9, 10), and I supplemented it by a paper on the "Geographical Distribution of Sphingina in Great Britain and Ireland" ("Ent. W. Int.," vol. vii., pp. 67-70, 110, 111), which I regard as my first entomological publication of any importance. This led to a correspondence between Mr. More and myself, and to a proposal to work out the subject more fully; but as we found that it attracted little general interest, and that it would be difficult to get the paper published, the matter dropped. It was, however, taken up by Mr. Jenner Fust, who published a series of tables of Distribution of British Macro-Lepidoptera, in 1868, in the "Transactions of the Entomological Society of London," series iii., vol. iv.; and Dr. F. Buchanan White adopted a similar system in drawing up his lists of the Macro-Lepidoptera of Scotland in the "Scottish Naturalist," vols. I.-V. (1871-1879).

[From "THE ZOOLOGIST," vol. 16, 1858.]

ON THE GEOGRAPHICAL DISTRIBUTION OF BUTTERFLIES  
IN GREAT BRITAIN.\* BY T. BOYD AND A. G. MORE,  
ESQRS.

p. 6018. THE present paper originated in a desire to ascertain how far the plan of Mr. H. C. Watson's "Cybele Britannica" is available in the sister science of Zoology, and for our experiment we have selected the butterflies as the best-known and most generally studied of British insects. It is now offered to entomologists as a sketch which future observation may fill up, as something to which the youngest, if only he be accurate, may make useful additions, and so aid in forming a list which shall be valuable in a scientific point of view.

p. 6019. Anyone at all acquainted with entomology, its present immature condition, its peculiar liability to error, and the state of feeling among collectors, will easily perceive that nothing beyond a bare sketch of the distribution of any family of insects is at present possible. We are aware that the accompanying list might have been made much more complete had a wider range of authorities been taken; but knowing how much doubt attaches to many names occurring in the best works, and the amount of inaccuracy to be found in many local lists, it appeared to us that more would be lost in value than gained in completeness by quoting authorities indiscriminately. We have, therefore, confined ourselves to one recent work, which we believe to be compiled with great care—viz., Stainton's "Manual of British Butterflies"; and for the rest we have relied upon the authority of the following entomologists, to whom our best thanks are due, and whose names will be a sufficient guarantee for the accuracy of their information:—Messrs. Allis, Ashworth (since deceased), Bond, Buxton, Doubleday, Edleston, Harris, Logan, Salt, and Vaughan. Two or three localities are also added on the authority of McGillivray's "Natural History of Dee-side."

The names adopted are those of Doubleday's "Synonymic List," which we believe are at the present time most generally used in this country. The particulars of the "Provinces" into which Mr. Watson has divided Great Britain are enumerated below:—

1. Peninsula: Cornwall, Devon, Somerset.
2. Channel: Dorset, Wilts, Isle of Wight, Hants, Sussex.
3. Thames: Kent, Surrey, Berks, Oxford, Bucks, Middlesex, Herts, Essex.

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\* Compare a paper on the same subject by Mr. H. T. Stainton, read before the British Association. See Report for 1859 (29th) Transactions of Sections, p. 156.

Compare also H. Jenner Fust on the Distribution of Lepidoptera in Great Britain and Ireland, Transactions of the Entomological Society of London, 3rd Series, vol. iv., pt. 4 (1868).

4. Ouse: Suffolk, Norfolk, Cambridge, Bedford, Huntingdon, Northampton.
5. Severn: Gloucester, Worcester, Warwick, Stafford, Salop, Hereford, Monmouth.
6. South Wales: Glamorgan, Caermarthen, Pembroke, Cardigan, Brecon, Radnor.
7. North Wales: Montgomery, Merioneth, Caernarvon, Denbigh, Flint, Anglesea.
8. Trent: Leicester, Rutland, Lincoln, Notts, Derby.
9. Mersey: Cheshire, Lancashire.
10. Humber: York.
11. Tyne: Durham, Northumberland.
12. Lakes: Westmoreland, Cumberland (Isle of Man).
13. West Lowlands: Dumfries, Kirkcudbright, Wigton, Ayr, Lanark, Renfrew.
14. East Lowlands: Berwick, Roxburgh, Peebles, Selkirk, Haddington, Edinburgh, Linlithgow.
15. East Highlands: Fife, Kinross, Clackmannan, Stirling, Perth, Forfar, Kincardine, Aberdeen, Banff, Moray (including Nairn, Elgin, and the North-east of Inverness).
16. West Highlands: Dumbarton, Argyle, Inverness, westward of p. 6020. Loch Erricht, Isles adjacent, from Arran to Skye.
17. North Highlands: Ross, Cromarty, Sutherland, and Caithness.
18. North Isles: Hebrides, Orkney, Shetland.

It is with these provinces alone that the present paper has to do, and no attempt has been made to work out an estimate of the counties, or the latitude or altitude to which the various species are confined, there being at present no sufficient materials for the purpose.

*Papilio Machaon*.—Area \* 2 \* 4. Marshes, local. A handsome insect, frequently bred in numbers, and therefore occasionally taken on the wing in various localities. (\*)

*Pieris Cratægi*.—Area 1, 2, 3, 4, 5. Woods and forests, local.

*P. Brassicæ*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15, 16. This and the two following species seem attached to cultivated land, and are probably common everywhere. Mr. Buxton says that he saw white butterflies in Sutherland (17), but did not notice the species. †

*P. Rapæ*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.

*P. Napi*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.

*P. Daplidice*.—Area, \* [2] 3, 4, 5. *Stainton's Manual*. †

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\* *P. Machaon*.—Wicken Fen, Yaxley and Whittlesea Mere, Ashford in Kent.

† *P. Brassicæ*.—Add Shetland Prov. 18, W. D. Crotch.

‡ *P. Daplidice*.—Add Prov. 2 Brighton (Newman); Hampshire (Mr. Richards). Coleman gives also Dover, Lewes, Whittlesea, Worcester, and Bristol (p. 67).

*Anthocharis Cardamines*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14 \* 16. (\*)

*Leucophasia Sinapis*.—Area, 1, 2, 3, 4, 5 \* \* 8 \* 10 \* 12. Woods and forests.

*Gonepteryx Rhamni*.—Area, 1, 2, 3, 4, 5 \*\* 8, 9, 10, 11, 12. Woods and cultivated land.

*Colias Edusa*.—Area, 1, 2, 3, 4, 5 \* \* 8, 9, 10, 11, 12 \* \* \* 16. Cultivated land and downs. This and the next species are most plentiful near the coast.

*C. Hyale*.—Area, 1, 2, 3, 4, 5 \*\* 8, 9, 10. Cultivated land and downs.

*Thecla Betulæ*.—Area, 1, 2, 3, 4, 5 \* \* 8. Woods. †

*T. Pruni*.—Area, \* \* \* 4. Woods, local. †

*T. W-album*.—Area, 1 \* 3, 4, 5 \* \* \* \* 10. Hedge-row elms.

*T. Quercus*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12 \* \* \* 16. Woods.

*T. Rubi*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13 \* 15, 16, 17.

*Chrysophanus dispar*.—Area, \* \* \* 4. Marshes, local; apparently extinct.

*C. Phlæas*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.

*Polyommatus Argiolus*.—Area, 1, 2, 3, 4, 5 \* 7 \* 9, 10 \* 12. Woods.

*P. Alsus*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13, 14, 15, 16. Downs.

p. 6021. *P. Acis*.—Area, \* 2 \* 4, 5. Cultivated ground, local. 2, 4, *F. Bond.* 5, *Stainton's Manual*. §

*P. Ægon*.—Area, 1, 2, 3, 4, 5 \* \* \* 9, 10. Uncultivated ground.

*P. Alexis*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15 \* \* 18.

*P. Adonis*.—Area, 1, 2, 3 \* 5. Downs on chalk.

*P. Corydon*.—Area, 1, 2, 3, 4, 5 \* \* 8. Downs on chalk.

*P. Arion*.—Area, 1 \* \* 4. Local.

*P. Agestis*.—Area, 1, 2, 3, 4, 5 \* 7 \* \* 10.

*P. Artaxerxes*.—Area, \* \* \* \* \* 10, 11 \* 13, 14, 15. The area of this insect begins where that of *Agestis* ends: is it a species?

*Nemeobius Lucina*.—Area, \* 2, 3, 4, 5 \* \* 8 \* 10 \* 12, 13. Woods, local. ||

(\*) *A. Cardamines*.—Banff, T. Edward (Zool. xvi., p. 6101).

† *T. Betulæ*—Montgomeryshire (6) (Zool. xiv., 5291).

‡ *T. Pruni*.—Northampton (Barnwell Wold) and Huntingdon (Monkswood).

§ *P. Acis*.—nr. Leominster, Hereford (Newman).

|| *N. Lucina*.—XIII. 26 added by H. J. Fust (*vide* W. Lenonn)?

- Limenitis Sybilla*.—Area, \* 2, 3, 4, 5. Woods and forests.
- Argynnis Paphia*.—Area, 1, 2, 3, 4, 5 \* 7, 8 \* 10, 11, 12. Woods.
- A. Aglaia*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13 \* 15, 16. Woods. (\*)
- A. Adippe*.—Area, 1, 2, 3, 4, 5 \* \* 8 \* 10 \* 12 \* \* \* 16. Woods. †
- A. Lathonia*.—Area, 1, 2, 3, 4, 5. Cultivated land, local (*Stainton's Manual*). Other species have frequently been mistaken for this, and it probably often escapes notice from its similarity to them. ‡
- A. Euphrosyne*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13 \* 15, 16, 17. Woods.
- A. Selene*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13, 14, 15, 16, 17, Woods.
- Melitæa Artemis*.—Area, 1, 2, 3, 4, 5 \* \* 8, 9, 10 \* 12, 13, 14 \* 16, Marshes, local.
- M. Cinxia*.—Area, \* 2, 3, 4 \* \* \* \* \* 15. Uncultivated land, local.
- M. Athalia*.—Area, 1 \* 3, 4, 5. Woods, local. §
- Vanessa Cardui*.—Area, 1, 2, 3, 4, 5 \* \* 8, 9, 10 \* 12, 13, 14, 15, 16. The whole of this genus seems to prefer cultivated land.
- V. Atalanta*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13, 14, 15, 16. ||
- V. Io*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13, 14, 15, 16.
- V. Antiopa*.—Area, 1, 2, 3, 4, 5 \* \* 8, 9, 10 \* 12 \* 14 ¶.
- V. Urticæ*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17. (\*\*)
- V. Polychloros*.—Area, 1, 2, 3, 4, 5 \* \* 8, 9, 10 \* 12.
- V. C-album*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12. Local, not found in places where it was once common.
- Apatura Iris*.—Area, \* 2, 3, 4, 5 \* \* 8. Woods.
- Arge Galathea*.—Area, 1, 2, 3, 4, 5 \* \* 8 \* 10. Waste ground, local.
- Erebia Cassiope*.—Area, \* \* \* \* \* 12 \* \* 15. Mountains, local. P. 6022.
- E. Blandina*.—Area, \* \* \* \* \* 9, 10, 11, 12, 13, 14, 15, 16. Waste ground, local.
- Satyrus Semele*.—Area, 1, 2, 3, 4, 5 \* 7 \* 9, 10, 11, 12, 13, 14, 15, 16. Waste ground, local.

(\*) *A. Aglaia*.—Add Prov. 6, Cardiff, Mr. Deane (Zool. XVI, 6100).

† *A. Adippe*.—Heaths.

‡ *A. Lathonia*.—"Dover; and Mickleham, Surrey" (Newman).

§ *M. Athalia*.—Add Prov. 2 Sussex (Newman, p. 8).

|| *V. Atalanta*.—Add Shetland, Prov. 18, W. D. Crotch.

¶ *V. Antiopa*.—In Scotland Subprov. 27 & 28, *vide* H. J. Fust. Said to have occurred in N. Wales (7) (Zool. XIII. 4814).

(\*\*) *V. Urticæ*.—Add Prov. 18, Shetland, W. D. Crotch.

- S. Janira*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.  
*S. Tithonus*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12.  
*S. Megera*.—1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13.  
*S. Ægeria*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12 \* 14 \* 16. Woods.  
*S. Hyperanthus*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13, 14, 15, 16.  
 Damp woods.  
*S. Davus*.—Area, \* \* \* [4], 5 \* [7, 8], 9, 10, [11], 12 \* 14, 15, 16, 17, 18.  
 Local. (\*)  
*S. Pamphilus*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.  
*Steropes Paniscus*.—Area, \* \* \* 4 \* \* \* 8. Woods, local.  
*Pamphila Linea*.—Area, 1, 2, 3, 4, 5 \* \* 8 \* 10 \* \* \* 14.  
*P. Sylvanus*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10 \* 12, 13, 14.  
*P. Comma*.—Area, 1, 2, 3, 4 \* \* \* \* 10. Downs, local. In Stainton's  
 "Manual," Scarborough is given as a locality for this insect;  
 but Mr. Allis says that he has frequently examined specimens,  
 said to be common; † taken in Yorkshire; but they invariably  
 proved to be *Sylvanus*.  
*P. Actæon*.—Area 1, 2 \* \* 5. 5, *Stainton's Manual*. Local.  
*Syrichthus Alveolus*.—Area, 1, 2, 3, 4, 5 \* \* 8 \* 10 \* \* 13 \* \* \* 17 †.  
*Thanaos Tages*.—Area, 1, 2, 3, 4, 5 \* 7, 8, 9, 10, 11, 12, 13 \* \* 16, 17.  
*Chrysophanus Chryseis*.—Area, \* 2, 3. *Stainton's Manual*.

Having thus applied Mr. H. C. Watson's formula, as far as "Provinces" are concerned, we will next endeavour to carry out the system of the "Cybele Britannica" a little further, by referring the several insects to their respective "Types of Distribution," premising that, with increased observation, a few changes may become necessary, and we may then hope to see Mr. Watson's plans carried out, for the butterflies at least, into some of the other details, which he has successfully employed for our flowering plants.

I. Twenty-three species are assigned to the "British Type," as they appear to be widely distributed throughout Great Britain, though their range is scarcely so universal as that of the plants which belong to the same section. They represent our commonest butterflies, and all occur in Scotland, many of them reaching as far as its northern

p. 6023.

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\* Stephens says (Illustr., p. 68) that Professor Hooker is believed to have "once captured a specimen" in Norfolk. "Ashdown Forest in Kent [Sussex, W. F. K.] has also been cited as a locality" (Duncan); also for *S. Hero* (Steph. Illustr., I. p. 68. Duncan gives Newcastle as a locality for *S. Polydama*; also North Wales (Prov. 7 & 11) W. S. Coleman (Brit. Butt. p. 81) gives Norfolk & Lincoln & North Wales.

† Read *P. Comma*.

† [Prov. 17 bracketed by Mr. More, W. F. K.]

extremity: three, however (*Argynnis Euphrosyne* and [A.] *Selene*, and *Syrichthus Alveolus*), are not enumerated in a list of Irish butterflies (\*) with which we have lately been favoured by a correspondent.

The members of the "British Type" † are:—

<p><i>Pieris Brassicæ.</i>          ,, <i>Rapæ.</i>          ,, <i>Napi.</i>  <i>Anthocharis Cardamines.</i>  <i>Thecla Rubi.</i>  <i>Lycæna Phlæas.</i>  <i>Polyommatus Alsus.</i>          ,, <i>Alexis.</i>  <i>Argynnis Aglaia.</i>          ,, <i>Euphrosyne.</i>          ,, <i>Selene.</i>  <i>Melitæa Artemis.</i></p>	<p><i>Vanessa Cardui.</i>          ,, <i>Io.</i>          ,, <i>Atalanta.</i>          ,, <i>Urticæ.</i>  <i>Satyrus Semele.</i>          ,, <i>Janira.</i>          ,, <i>Ægeria.</i>          ,, <i>Hyperanthus.</i>          ,, <i>Pamphilus.</i>  <i>Thanaos Tages.</i>  <i>Syrichthus Alveolus.</i></p>
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A few of these are local: *Melitæa Artemis* and *Syrichthus Alveolus* affect marshy situations; *Polyommatus Alsus*, *Satyrus Semele*, and *Thanaos Tages* seem attached to a dry or calcareous soil; *Argynnis Aglaia*, *A. Selene*, and *Thecla Rubi* can hardly be called common.

Small as this list is already, it is believed that by strictly following Mr. Watson's definition several of its species might be transferred to the next group.

II. The "English Type" comprises twenty-four species, all of which are more abundant in the Southern "Provinces," decreasing in frequency northwards:—

<p><i>Thecla W-album</i> (E.).  <i>Polyommatus Acis</i> (E.).          ,, <i>Arion</i> (E.).  <i>Melitæa Athalia</i> (E.).  <i>Vanessa Antiopa</i> (E.) [S. I]. ‡          ,, <i>Polychloros</i> (E.).          ,, <i>C-album</i> (E.).  <i>Polyommatus Agestis</i> (E.) [? I.]. §  <i>Nemeobius Lucina</i> (E.) [? S.].  <i>Argynnis Adippe</i> (E. S.).  <i>Pieris Cratægi</i> (E. I.). ¶  <i>Colias Hyale</i> (E. I.).</p>	<p><i>Thecla Betulæ</i> (E. I.).  <i>Leucophasia Sinapis</i> (E. I.).  <i>Gonepteryx Rhamni</i> (E. I.).  <i>Polyommatus Argiolus</i> (E. I.).          ,, <i>Ægon</i> (E. I.).  <i>Argynnis Paphia</i> (E. I.).  <i>Satyrus Tithonus</i> (E. I.).  <i>Colias Edusa</i> (E. S. I.).  <i>Thecla Quercus</i> ¶¶ (E. S. I.).  <i>Satyrus Megæra</i> (E. S. I.).  <i>Pamphila Sylvanus</i> (E. S. I.).          ,, <i>Linea</i> (E. S. I.).</p>
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The first four, though very local, seem to have their proper place p. 6024 here, and not in the "Germanic Type," as they do not evince a

(\*) This owing to westerly position.

† *Thecla Quercus* probably to be placed here.

‡ Letters, &c., added in square brackets (here and elsewhere) were inserted by Mr. More in pencil (W. F. K.).

§ Said to occur in Ireland.

¶ Not Irish.

¶¶ Brit. Type.

sufficient preference for the eastern side of England; they, with the next six, are said to be absent from Ireland. (\*) Six—*Colias Edusa*, *Pamphila Sylvanus* and *Linea*, *Thecla Quercus*, *Satyrus Megæra*, and *Argynnis Adippe*—reach Scotland, but only its southern portion. One, *A. Adippe*, is found in Scotland, though wanting in Ireland. †

The ascertained range of *S. Megæra* does not yet warrant its being transferred to the “British Type.”

III. In proceeding to illustrate the third group, or “Germanic Type,” comprising the South-eastern species, it is necessary to notice the difficulty of drawing a line between it and the former (or “English”). For instance, *Pieris Cratægi* [??] and *Thecla Betulæ* might, but for their occurrence in Ireland, be referred to the “Germanic,” while *Argynnis Lathonia* and *Pieris Daplidice* approach the “English.” Thirteen species belong to the “Germanic Type,” its more local members being:—

<i>Lycæna dispar.</i>		<i>Melitæa Cinxia.</i>
<i>Thecla Pruni.</i>		<i>Steropes Paniscus.</i>
<i>Papilio Machaon.</i>		

And those with a wider range, still, however, preserving the same greater frequency on the East side and towards the South-east corner of England:

<i>Pieris Daplidice.</i> ‡		<i>Polyommatus Adonis.</i>
<i>Argynnis Lathonia.</i> §		“ <i>Corydon.</i> ¶
<i>Limenitis Sibylla.</i>		<i>Pamphila Comma.</i>
<i>Apatura Iris.</i>		<i>Arge Galathea.</i> ¶¶

None of these thirteen have been found in either Scotland or Ireland. (\*\*)

IV. The “Atlantic” or South-western type has but one representative, viz. :—

*Pamphila Actæon.*

It is wanting in Ireland.

(\*) *Polyommatus Agestis* and *Nemeobius Lucina* have, with *Polyommatus Corydon* and *Melitæa Athalia*, been recorded as Irish, but there is no recent authority for their occurrence. [*Printed* footnote.—The following note occurs in pencil :—“*P. Agestis*, said to occur in Ireland.”—W. F. K.]

† And perhaps *N. Lucina*, *vide* Lenonn.

‡ *Pieris Daplidice*, a *chalk* insect feeding on *Reseda*.

§ *Lathonia* in Ireland, (?) English Type.

¶ *Corydon*, chalk and limestone.

¶¶ English ?

\*\* Like the plants belonging to the same group, many of these are much influenced in their distribution by the position of the chalk. Insects, in general, are with us more plentiful, both in species and individuals, upon a dry limestone substratum [Continuation of note destroyed in binding the volume.—W. F. K.]



V. The "Scottish" or Northern type contains three species:—

p. 6025.

Polyommatus Artaxerxes.	Erebia Blandina.
Satyrus Davus.	

VI. The "Highland" or Mountain Type one only:—

Erebia Cassiope.

It is remarkable that, of the last four, two only—Satyrus Davus and Erebia Cassiope—reach Ireland, whereas all of them occur in England.\* When surprise is expressed at the poverty of our mountain Fauna, it should be remembered that it is analogous to that of the Scandinavian, not the European, Alps.

If we proceed to institute a comparison between our butterflies and flowering plants, as to the respective proportions of the several "Types," we shall find there are:—

—	Among Butterflies.	In Flowering Plants, according to Mr. Watson's Estimate.	Proportion.
British Type (23), .	2-5ths or nearly 2-5ths,	2-5ths.	The same.
English Type (24), .	2-5ths nearly.	1-5th.	Double.
Germanic Type (13),	1-5th.	1-15th to 1-20th.	Thrice as many.
Atlantic Type (1), .	1-65th.	1-15th to 1-20th.	One-fourth.
Scottish Type (3), .	1-20th.	1-20th.	The same.
Highland Type (1),	1-65th.	1-15th.	One-fourth.

So that the greatest contrast is presented by the striking preponderance of the "Germanic" and "English" Types among the insects: on the other hand, the "Atlantic" element (which in plants nearly balances the "Germanic") is in the butterflies quite insignificant, and the "Highland" is equally small.

The same thing becomes still more evident on adding together the "Germanic" and "English" sections, as they amount to more than one-half of the whole number against a quarter in plants: from which it seems reasonable to conclude that our butterflies are much more unequally and locally distributed than our flowering plants. That the insects are also much more influenced by a warmer † temperature is plain, both from the higher numbers of southern species and | because Ireland p. 6026.

\* Supposing the English *P. Salmacis* to be a mere variety of *P. Artaxerxes*.  
[Printed footnote.—W. F. K.]

† and drier evidently through the numbers of the Germanic Type [?] [This note also has been cut into by the binder, but appears to read as here given.—W. F. K.]

has more than twice as many of them as Scotland. (\*) It is believed this will be still further confirmed by a comparison drawn between Great Britain and any central portion of the European Continent.

The readers of Forbes's Essay will find, in the relative numbers of Highland and Lowland species, nothing but what agrees with the hypothesis that our Alpine Fauna is the more ancient, and has descended to us from a period when the summits of our mountains existed as islands, or members of a chain of islands, communicating with Scandinavia across the "Glacial Sea." In such a case we should expect to find the Alpine species few in number, since their area was restricted from the first and its climate boreal: the insects, too, may have been less able than contemporary plants to survive the changes of temperature and the accidents of geological disturbances. On the other hand, the higher numbers of the "British," "English," and "Germanic" Types point to a more recent derivation from the adjoining Continent (\*\*).

The disproportion, however, among butterflies, between the "Atlantic" and "Germanic" Types, is worthy of attention, in so far as these two nearly agree with Forbes's "Norman" and "North-French" Floras, both of which he supposed (with some reservations) to be still older than the "Scandinavian" or "Highland." Now, the high numbers of the "Germanic" Type, the difficulty of separating it satisfactorily from the "English," together with the fact of its plants being found (some of them abundantly) in the centre of Germany, lead to the conclusion that it is but a branch of, and contemporaneous with, the central European, Forbes's "Great Germanic" Flora.

Looking, on the contrary, at the "Atlantic" Type, with its fewness of insect species; at the more clearly southern character of its Flora (which in great measure consists of plants found towards the Atlantic and Mediterranean coasts, and absent from Germany), and at its being on our shores further isolated from its original abode, we cannot help

p. 6027.

\* The Irish species are thirty-six:—

British Type, 20.  
English Type, 14. †  
Scottish Type, 1.  
Highland Type, 1.

The Scotch species are thirty-three ‡:—

British Type, 23.  
English Type, 6. §  
Scottish Type, 3.  
Highland Type, 1.

Not one is found in either Scotland or Ireland that does not also occur in England. That Ireland, with fewer plants than Scotland, should have more butterflies, shows that the number of the latter is less influenced by western position than might have been expected. || [*Printed footnote.*—W. F. K.]

(\*\*) To them may be added the Scottish.

+ 15. Lathonia in Ireland would make it English instead of Germanic, and add one more to the English Type.

‡ 34.

§ 7.

|| And more by climate or Southern position, as Ireland has twice as many English Type.

inclining to the belief that it presents a distinctness of feature which the "Germanic" does not, and approaches closely in character, perhaps also in age, to the Flora of the West of Ireland, which is said to be the most ancient of all that still exist in Great Britain.

In conclusion, we would venture to recommend Mr. Watson's system to the consideration of those who are engaged in the study of other branches of British Natural History; we have no doubt that it might be applied, with most interesting results, to the land mollusks and other *stationary* members of our Fauna; and the advantages of conforming to a plan already in use it is needless to enlarge upon.

Much, however, remains to be done before the "Cybele" of even our butterflies can be considered complete. We can only hope that a point has been attained upon which future observation may be brought to bear.

T. BOYD.  
A. G. MORE.

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[Additional note, without reference to text.—W. F. K.]

1. Western + Ultra Atlantic.
2. Alpine.
3. General European + Germanic + Scottish.

[This evidently refers to a proposed reduction in the number of so-called "Types."—W. F. K.]

OUTLINES  
OF THE  
BOTANY OF THE ISLE OF WIGHT.

[Reprinted from STANFORD'S "NEW GUIDE TO THE  
ISLE OF WIGHT."]

FLOWERING PLANTS AND FERNS.

OWING to the varied nature of its soil, and the endless diversity of its surface, the Isle of Wight offers to the botanist a field of the highest interest. Its position, too, at the extreme south of England and midway between the eastern and western Floras,\* give it, with an extended coast line, peculiar advantages: and now that the vegetation of the island has been so thoroughly explored by so accomplished a botanist as Dr. Bromfield, through whose labours its soil may be almost said to have become classic ground, there is perhaps no better opportunity for studying indigenous plants than is afforded by a short stay in this favoured locality.

From its vicinity to the mainland, the Flora of the Isle of Wight does not evince in any marked degree an insular character, and differs but little from that of Hampshire. It is the somewhat larger proportion of species belonging to the "Atlantic Type" of Watson, and the comparatively small number of "Germanic" plants, which distinguish the botany of the Isle of Wight from that of the county; and it will be remembered that the "Atlantic," or west-country Flora, is of a decidedly more maritime character than the "Germanic" (or that of the east side and south-east corner of England).

Those who have rambled upon the chalk hills of the mainland will miss, not only the familiar groves of beech, with the two lovely white Helleborines,† and the *Monotropa*, their sure attendants (here among the rarest of plants), but strange to say, *Paris quadrifolia*, *Phyteuma orbiculare*, *Daphne Mezereon*, the *Convallariæ*, *Hordeum sylvaticum*,

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\* Germanic and Atlantic Types of Watson.

† *Cephalanthera ensifolia* cannot with certainty be included in the Island Flora.

*Dipsacus pilosus*, *Helleborus viridis*, and even *Taxus baccata*, are altogether wanting on this side of the Solent, though it is hardly to the absence of chalk or of localities apparently suitable, that this deficiency is to be attributed.

The paucity of aquatic plants is another remarkable circumstance, though less unexpected in a district too small to give rise to any considerable streams.

The geological features of the Isle of Wight are well known; as they exert a material influence upon the vegetation, it has been thought that an endeavour to arrange the plants somewhat in accordance with their distribution upon the different formations, will be found convenient, and the groups thus formed will enable visitors, whose stay is limited, to gather a large variety of plants from knowing something of their association. With this view it is proposed to divide the Isle of Wight into five principal districts, viz. :—

- I. The Sea-shore.
- II. Northern Tertiaries.
- III. Central Chalk Range.
- IV. Valley of the Greensand.
- V. Undercliff, with the Downs above it.

It cannot however be expected that in so short a space mention should be made of *all* the plants which are found growing wild in the island. Only the more interesting and prominent species can find room here: but those who require more complete information, will necessarily refer to Dr. Bromfield's *Flora Vectensis*, where the localities are most carefully and exactly indicated, and also to Babington's *Manual*, which contains the most accurate descriptions of all our British plants.

The most important streams of the Isle of Wight all fall into the Solent, and terminate in muddy estuaries or inlets of the sea, with which the land is deeply indented on the north shore; and as these creeks are the head-quarters of the seaside plants, we shall first proceed to notice the maritime vegetation, which amounts to about one-tenth of the whole Flora.

## DIVISION I.

### SEA-SIDE PLANTS.

The sea-side plants found in the Island comprise some that inhabit—

#### 1. Rocks and cliffs.

<p><i>Statice occidentalis.</i></p> <p><i>Raphanus maritimus.</i></p> <p><i>Matthiola incana.</i></p> <p><i>Daucus maritimus.</i></p>	<p><i>Crithmum maritimum.</i></p> <p><i>Asplenium marinum.</i></p> <p><i>Brassica oleracea.</i></p> <p><i>Euphorbia portlandica.</i></p>
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The last grows also in sand, but not with us.

*Raphanus maritimus* is sometimes found on shingle or on banks sloping towards the sea.

2. Others are partial to the loose sand of the shore, viz. :

Crambe maritima.	Asparagus officinalis.
Cakile maritima.	Carex arenaria.
Honkenya peploides.	Phleum arenarium.
Trifolium suffocatum.	Poa loliacea.
Eryngium maritimum.	Triticum junceum.
Convolvulus Soldanella.	laxum.
Erythræa latifolia.	Ammophila arenaria.
Salsola Kali.	Poa bulbosa.
Atriplex arenaria.	loliacea.
Polygonum Raii.	Festuca uniglumis.
Euphorbia Peplis.	

3. Another class, and that best represented here, consists of plants which inhabit the salt marshes and meadows bordering on the creeks, and the muddy margins of the estuaries.

Cochlearia anglica.	Atr. marina.
Sagina maritima.	Triglochin maritimum.
Lepigonum marginatum.	Juncus maritimus.
Althæa officinalis.	Gerardi.
Aster Tripolium.	Carex divisa.
Bupleurum tenuissimum.	extensa.
Inula crithmoides.	distans.
Cenanthe Lachenalii.	Alopecurus bulbosus.
Artemisia maritima.	Sclerochloa procumbens.
Glaux maritima.	Borreri.
Statice Limonium.	distans.
rariflora.	maritima.
Salicornia herbacea.	Spartina stricta.
radicans.	Hordeum maritimum.
Schoberia maritima.	Lepturus filiformis.
Atriplex littoralis.	

4. The next are more indifferent to soil and situation.

Glaucium luteum.	Beta maritima.
Cochlearia danica.	Atriplex Babingtonii.
officinalis.	Plantago maritima.
Frankinia lævis.	Halimus portulacoïdes.
Silene maritima.	Armeria maritima.
Lepigonum neglectum.	

5. Two inhabit the sea itself,—

Zostera marina.	Zostera nana.
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6. Others the ditches containing water more or less brackish.

Ranunculus Baudotii.	Potamogeton pectinatus.
Ruppia rostellata.	Scirpus maritimus.
Zannichellia palustris var.	

7. A last section includes such species as evince a certain partiality for the sea-coast, without being absolutely restricted to the shore itself.

Coronopus didyma.	Scirpus Savii.
Cerastium tetrandrum.	Tabernæmontani.
Erodium maritimum.	Briza minor.
Smyrniolum Olusatrum.	Gastroidium ligidium.
Apium graveolens.	Medicago denticulata.
Samolus Valerandi.	Erythræa pulchella.
Carduus tenuiflorus.	Trigonella ornithopodioides.
Linaria repens.	Festuca arundinacea.

The points best deserving of a botanist's attention are :—*Brading Harbour* and *St. Helen's Spit*. In various places along the shores of the haven, will be found nearly all the plants enumerated in List 3. Curiously enough, *Statice rariflora* and *Spartina stricta* are missing, though they occur in all the other creeks : *Inula crithmoides*, too, is peculiar to Cowes and Newtown.

Most of the plants are sufficiently abundant; and do not require any particular directions to their localities, except that *Alopecurus bulbosus* and *Carex divisa* chiefly occur in the low meadows of the south side, and with them will be gathered the velvet-leaved *Althæa* and *Carex distans*. *Sclerochloa Borreri* grows in the same marsh upon places occasionally flooded ; with it is *S. procumbens*, and sparingly *S. distans*.

At Brading Quay will again be found *S. Borreri*, and on the landward slope of the embankment *Medicago denticulata*. The marsh on the north side is remarkable for the prevalence of *Hordeum pratense* and *H. maritimum*, and in the ditches will be seen *Ranunculus Baudotii*, *R. Drouetii*, *Potamogeton pectinatus*, and lower down the same stream *Alisma ranunculoïdes* and *Hippuris vulgaris*.

The banks, which are covered at spring-tides, nourish an abundant growth of *Statice* and *Armeria*, *Salicornia radicans*, *Halimus portulacoides*. *Sclerochloa maritima*, &c., and *Zostera nana*, is the prevailing species on the mud flats.

But it is upon the tract of "Dunes" or Sandhills, lying immediately below *St. Helen's*, that the principal harvest will be made. This small piece of ground, not exceeding probably 40 or 50 acres, has been ascertained to yield no less than 250 species of flowering plants, that being nearly  $\frac{1}{3}$  of the whole Flora of the Isle of Wight : and among these not the least interesting are twelve out of thirteen indigenous Trefoils. Indeed, the abundance of Leguminosæ and Caryophyllæ is the most striking feature of the Sandhills, and brings to mind the use which has been made of the prevalence of these two families of plants, to characterise a region warmer than our own. The two Stone-crops also might suggest a resemblance to the arid sands of the Deserts, were it not for the Rein-deer Moss, which is the next plant to meet the eye.

*St Helen's Dover* or *Spit* yields all the species of List 2, except the *Asparagus*, *Crambe*, *Phleum arenarium*, and *Erythræa latifolia*; these must be sought on "Freshwater Island." *Euphorbia Paralias* still flourishes, a last legacy from the hand of Dr. Bromfield, who planted it just before his departure for the East.

Towards the Mill-pond the soil is more tenacious, and there will be seen most of the plants usual in such situations, *Sagina maritima*, *Ænanthe Lachenalii*, *Lepturus filiformis*, *Frankenia lævis*, *Artemisia maritima*, &c. *Carex extensa* and *C. distans* grow in the damp rushy hollows, with them *Erythræa pulchella*. Among the furze will be found *Lathyrus Nissolia*, *Sagina nodosa*, *Mœnchia erecta*, *Sagina ciliata*, and a host of other interesting species. *Poa bulbosa*, *Festuca uniglumis*, and *Scilla autumnalis* are in the Isle of Wight, confined to *St. Helen's Spit*.

*Cerastium semidecandrum*, *Medicago denticulata*, *Ornithopus*, *Myosotis collina*, and *Festuca ambigua*\* are also well worth notice. The last week in May or early in June, is the season at which the Sand-hills will best repay a visit.

Passing *Priory Bay*, where occur *Polygonum Raii* and *Geranium purpureum*, and then *Salterns*, where will be gathered *Ranunculus Baudotii*, *Ruppia*, and a few sand plants, we should next have halted at *Ryde Dover*, formerly a famous locality for rare plants, but now, through the progress of building, they are so utterly exterminated, that the botanist can only look with fond regret upon what was once more than a rival of *St. Helen's Spit*, the station for *Dianthus prolifer*, *Datura Stramonium*, *Onopordum*, hosts of *Trefoils*, &c. Near *Quarr Abbey* is a small embankment which affords *Medicago denticulata* and some other maritime species; but the next creek of importance is that of

*Wootton*, where a profusion of *Spartina stricta* will be everywhere noticed, and *Statice rariflora* mixed with the commoner *S. Limonium*, besides most of the other plants mentioned in List 3. A short excursion into the neighbouring fields will produce *Briza minor*, *Gastridium lendigerum*, *Ænanthe pimpinelloïdes*, *Silene anglica*, and many others.

Next comes the *Medina*, which at high water acquires the dimensions of a river, but is, as far as *Newport*, nothing more than a prolonged inlet of the sea, affording capital winter quarters on its soft mud to numerous yachts. Here again occur everywhere the plants of List 3. *Inula crithmoïdes* has been found on the east bank. *Coronopus didyma* at *East Cowes*; and a little above *West Cowes* *Linaria repens* and its variety *hybrida*, *Inula Helenium*, *Narcissus biflorus*. *Chenopodium olidum* is another local plant; and a piece of Bog at *Cockleton* produces *Pinguicula lusitanica*, *Achillea Ptarmica*, &c.

\* [In accordance with the author's MS. corrections, the name *Festuca ambigua* is substituted for *F. Broteri* (see p. 107), as are *Sedum anglicum* for *S. album*, *Erythræa latifolia* for *E. littoralis*, and *Potamogeton pectinatus* for *P. flabellatus*, throughout the text.]



*Newtown* \* salt-pans are the chief locality we have for *Inula crithmoides*; *Frankenia lævis* and many other less rare seaside plants also occur here.

*Yarmouth* \* and *Norton* Spit correspond in a striking manner with Brading Harbour and St. Helen's Spit at the other extremity of the Isle of Wight. Both creeks nearly cut off the so-called *islands* of Freshwater and Bembridge, and the vegetation of the two places is very similar. Yarmouth, indeed, produces *Statice rariflora* and *Spartina*, neither of which occur at Bembridge; but the sandy point at Norton is not nearly so rich as St. Helen's, though *Asparagus officinalis*, *Phleum arenarium*, and *Crambe maritima* are peculiar to it. Several trefoils, *Glaucium*, &c., may be worth a passing glance, and inland are many scarce plants. *Chenopodium glaucum*, and *Festuca Myurus* at Thorley. *Chenopodium murale* in the town. *Hyoscyamus niger* attains a large size to the west of Norton; but it is its vicinity to Freshwater, with its cliffs, bog, and heath, that renders Yarmouth so desirable headquarters for a botanist.

At *Alum Bay* *Erodium maritimum* grows abundantly in the Warren, and with it *Erythræa latifolia*; but the beach henceforth becomes remarkably destitute of maritime plants, owing to the constant crumbling of the soft materials of which the cliffs consist; the fallen masses are no sooner detached than they are washed away without affording time for the growth of vegetation. Indeed, it may well be presumed, that the number of our coast plants is from this cause decreasing, and we may have others soon to enrol with *Euphorbia Peplis*, *Lathyrus maritimus*, and *Statice spathulata*, as extinct.

To proceed—*Freshwater Cliffs* are productive of many interesting species.

Two of the rock plants are peculiar to this end of the island; if, at least, we suppose *Statice occidentalis* still survives in some of the inaccessible ledges of the cliffs. *Raphanus maritimus* has within the last two years appeared in one of the coves of the Undercliff, as if the offspring of some sea-borne plant drifted by the tides from Freshwater, its only station. *Cochlearia danica*, and *C. officinalis* are also confined to the western extremity of the Isle of Wight.

The plant that will first catch the eye is the large perennial Sandwort (*Lepigonum rupicola*), whose roots enter deep into the crevices of the chalk, and presents, when its flowers are fully expanded, a most pleasing sight: by its side flourish the wall Pellitory, Samphire, Sea-beet, and many others, but a short description, from the pen of Dr. Bromfield, will give the best idea of the most prominent objects.

“In that part of the majestic line of cliffs called the Main Bench

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\* A careful search in the salt marshes of Newtown, and especially of Yarmouth, will very probably prove the lost *Scirpus parvulus* a native of the island as well as of the opposite coast. So inconspicuous a plant is very liable to be overlooked among the rank vegetation and sea rushes, in whose company it is said to flourish.

and the Nodes, broad flat ledges or terraces occasionally break the uniformity of this stupendous barrier of chalk: . . . . these shelves, technically known as 'meads' and 'greens,' are sometimes of considerable extent, one of them, the largest, is called 'Rosehall green,' and can only be approached from the water and in calm weather. . . . A scramble of a few minutes over the huge chalk blocks and up the steep bank of débris by the Wedge Rock brings you to the green, which is thickly clothed with a vegetation, consisting of that staple commodity Samphire, immense tufts of *Beta maritima* and quantities of a sturdy *Daucus*, with prodigiously thick and hispid stems, very broad hairy leaves, and great hemispherical and even globose umbels: a gigantic form of *Hieracium pilosella* (var. *Peleterianum*) . . . *Parietaria officinalis* here seen in its most truly native state. . . . *Picris hieracioides* with its parasite burden (*Orobanche Picridis*), *Halimus portulacoides*, *Sinapis nigra*, and *Raphanus maritimus*, various forms of *Artiplex*, *Armeria vulgaris*, *Anthyllis Vulneraria* (var.), *Frankenia lævis*, *Hippocrepis comosa*, &c., are among the prevailing species on these magnificent bulwarks of our southern line of coast. The influence of the sea air in giving bulk and obesity to many of the plants is very remarkable."

With reference to the last observation it may be well to mention that the *Daucus*, and other species inhabiting a similar locality, at Whitecliff, are of far less dimensions and "obesity," than their representatives at Freshwater, where the prevailing wind blows direct upon the cliffs, while the plants are growing, and that the effect of the same warm and moist south-west breeze must be very different to that of the chilly and shrivelling winds to which the Whitecliff is exposed in spring.

After passing the low land at Freshwater Gate rise the *Compton Cliffs*, another range of perpendicular chalk, on the face of which flourishes the Sea-stock, in the only station where it is indubitably wild.

The sandy cliffs at *Compton Bay* offer a few trefoils, *Sclerochloa loliacea*, and on a more limited scale resemble in their productions *Sandown Bay*. At *Brook Chine* reappears *Erodium maritimum*. At *Puck-aster* will be noticed a remarkable form of the common Reed, whose stems trail along the ground for a great distance.

On some rocks near *Niton* *Asplenium marinum* used to be found, and may still exist in some sheltered nook where it has escaped the grasping hand of reckless collectors. *Trifolium suffocatum* has been gathered by the new lighthouse, and with it *Sclerochloa loliacea*.

Even at some distance from the sea several marine plants will be found nestling in the crevices or upon the ledges of the overhanging cliffs; *Silene maritima*, *Crithmum*, *Beta*, &c., and in the little coves upon the beach some few others such as *Armeria*, *Glaucium*, *Sclerochloa loliacea*, *Beta*, &c.; but littoral plants are remarkably deficient on the southern shores.

Near *SteePhill* the Sea-stock again occurs, but in a more doubtful locality, and it may be seen even now establishing itself upon many of the declivities about *Ventnor Cove*, in company with *Koniga maritima* and the Fennel, another suspected plant.

Turning into *Sandown Bay* we find a shore a little more favourable to vegetation; and accordingly *Triticum junceum* and *T. laxum*, *Atriplex arenaria*, *Ammophila*, *Salsola Kali*, *Convolvulus Soldanella*, *Cakile*, &c., will be found occupying the narrow strip of soil which lies at the foot of the cliffs. It is here that was picked a solitary specimen of *Euphorbia Peplis*, and *Lathyrus maritimus* is also said to have occurred on the same beach. On the slipped banks will be gathered *Scirpus Savii*, *Osmunda regalis*, and other species partial to boggy soil. At the opposite extremity, where the sand meets the chalk, grows *Medicago denticulata*.

*Whitecliff* is in many places completely covered with *Samphire*, *Daucus maritimus*, of far less dimensions than the Freshwater plant, *Glaucium luteum*, and various other maritime and lime-loving species. Here, too, flourishes the rare *Euphorbia portlandica*, most plentiful on the Sandown side; and on the crumbled chalk at the base of the cliff, approachable from *Whitecliff Bay*, will be found *Brassica oleracea* (sea-cabbage), in a station as truly wild as that of the Stock at Compton.

In *Whitecliff Bay*, *Festuca arundinacea*, *Atriplex arenaria*, *A. Babingtonii*, and a few other sea-side species are all that will be met with.

A small pool under *Foreland* contains *Typha latifolia* and *Catabrosa aquatica*; and it should be remembered that the slipped banks, wherever lying close under the sea cliffs, often afford many species peculiar to swampy situations.

## DIVISION II.

### PLANTS OF THE NORTH TERTIARY DISTRICT.

Leaving the coast, the surface of the northern portion of the island is undulating, but never rises to any considerable elevation: its soil is various, consisting chiefly of a strong clay with occasional patches of gravel, sand,\* or freshwater limestone, the latter producing a marked effect upon the plants, as may be seen in the immediate neighbourhood of Ryde, where at Binstead will be gathered *Inula Conyza*, *Poterium Sanguisorba*, *Reseda Luteola*, *Gentiana Amarella*. *Pastinaca sativa* and other species seldom found except where the soil is strongly impregnated with calcareous matter. In the same way the presence of sand and gravel is at once attested by the Foxglove, the Hawkweeds, *Carex pallescens*, *Ulex nanus*, *Sarothamnus scoparius*, &c., prominent objects in the heaths and copses about Firestone, Guilford, Briddlesford, New Copse, &c. There is also near Newport a considerable extent of soil strictly sandy and similar in its vegetation to the greensand of the "Main Valley."

\* Chiefly found adjoining the Downs, on their north side, along the narrow strip of Eocene vertical strata that crop out in the sands of Alum Bay, and at Whitecliff.

The principal *woods* are situated on the north side of the downs, and the following are some of their most conspicuous plants:—

Anemone nemorosa.	Daphne Laureola.
Ranunculus auricomus.	Euphorbia amygdaloides.
Stellaria Holostea.	Mercurialis perennis.
Arenaria trinervis.	Humulus Lupulus.
Androsæmum officinale.	Ulmus montana.
Acer campestre.	Salix (several).
Oxalis Acetosella.	Populus tremula.
Euonymus europæus.	Betula.
Vicia Cracca.	Corylus.
sepium.	Quercus.
hirsuta.	Orchis mascula.
Prunus Cerasus.	Habenaria chlorantha.
Geum urbanum.	Orchis maculata.
Potentilla Fragariastrum.	Listera ovata.
Fragaria vesca.	Neottia Nidus-avis.
Rosa tomentosa, &c.	Epipactis latifolia.
Rubus (several).	Iris fœtidissima.
Pyrus torminalis.	Narcissus Pseudo-Narcissus.
Malus.	Agraphis nutans.
Circæa lutetiana.	Allium ursinum.
Ribes rubrum.	Arum maculatum.
Sanicula europæa.	Tamus communis.
Angelica sylvestris.	Ruscus aculeatus.
Hedera Helix.	Luzula pilosa.
Adoxa moschatellina.	Borreri.
Viburnum Opulus.	Forsteri.
Asperula cynanchica.	Carex axillaris.
Cornus sanguinea.	remota.
Serratula tinctoria.	sylvatica.
Lactuca muralis.	strigosa.
Ilex Aquifolium.	pendula.
Ligustrum vulgare	Pseudo-Cyperus.
Vinca minor.	Milium effusum.
Pulmonaria angustifolia.	Calamagrostis Epigejos.
Melampyrum pratense.	Melica uniflora.
Veronica montana.	Bromus giganteus.
Stachys sylvatica.	asper.
Ajuga reptans.	Brachypodium sylvaticum.
Lysimachia nemorum.	

Of these the most interesting and characteristic species is the Lungwort (*Pulmonaria angustifolia*), which inhabits almost all the copses lying north of the downs in East Medina, and reaches a short way into the West Medina between Newport and Cowes. This handsome plant is in full beauty in the month of April, and it is remarkable how closely it seems to cling to a clay soil: only one station has yet

been ascertained on the south side of the downs, in a lane near Brading.

Another spring flower, the wild Daffodil, occurs in profusion in many of the woods, over which it sheds a conspicuous yellow tint at a time when hardly even primroses have yet expanded. The Daffodil has been known to flower at the early date of the 20th of January, and it is not at all unusual to find some in bloom early in February.

The two rare *Carices axilaris* and *strigosa* occur in several woods near Ryde. The Oak is the commonest timber tree throughout this division.

For sylvan botany the best woods of the northern division are,

*Centurion's Copse* (near Bembridge), noted for *Vinca minor*, *Narcissus*, *Carex Pseudo-Cyperus*, *Lastræa spinosa*, *Stellaria neglecta*, &c.

*Whitefield Wood* (between Ryde and Brading) produces *Pulmonaria* in abundance, *Rosa tomentosa*, *Viburnum Opulus*, and many other more common species. Close to it is *Hardingshoot* pond, where grow *Nasturtium terrestre*, *Bidens tripartita*, *Chenopodium rubrum*, and in a small field adjoining the road *Narcissus biflorus* and *Tulipa sylvestris*, but probably upon the site of what was once a garden. *Pulicaria vulgaris* is another scarce plant found here.

*Quarr Copse*, now rapidly diminishing from the progress of building, yields *Pyrus torminalis*, *Neottia Nidus-avis*, *Ophrys muscifera*, *Narcissus*, *Daphne Laureola*, *Luzula Borreri*, *Carex axillaris*, *Milium effusum*, *Aquilegia vulgaris*, *Pulmonaria*, &c.

*Firestone* and *Combley*, *Pulmonaria* and *Narcissus*, *Pyrus torminalis*, *Trifolium medium*.

A copse near *Tapnel Farm* by Yarmouth is the sole locality in the island for *Tilia parvifolia*, there plentiful.

There are not many heathy or boggy localities on the north side the Isle of Wight; they are better developed in the sandy district, and along the course of the main river and the Medina.

*St. Helen's Green* produces *Mentha Pulegium* and *Pulicaria vulgaris*; and a wet slope at its western extremity *Scirpus pauciflorus*, *S. Savii*, *Anagallis tenella*, *Hypericum elodes*, *Drosera rotundifolia*, *Galium uliginosum*, *Epilobium palustre*. Close by grows the true *Viola canina*.

*Ashey Common* yields *Carduus pratensis*.

*Ninham Heath* (lying between *Quarr Abbey* and *Ninham Farm*), is one of our stations for *Orobanche Rapum*; *Aquilegia vulgaris* also grows here.

*New Copse* (towards *Wootton Bridge*), produces *Carex pallescens*, *Hieracium tridentatum*, *Carex binervis* and *C. pilulifera*, with *Milium effusum* and *Viburnum Opulus*.

*Bridlesford* will afford *Orobanche Rapum*, *Salix aurita*, *Carex fulva*, *Carduus pratensis*; and some bog plants, as *Valeriana dioica* and *Galium uliginosum*, also *Mentha rotundifolia*, *Hieracium boreale*, &c.

*Wootton*, *Crepis setosa* in the cultivated fields.

Approaching *Newport*, *Linaria repens* occurs by the roadside. *Stapler's Heath* is rich in plants. *Viola lactea* has been gathered here, *Agrostis setacea* is the prevailing grass. *Rosa spinosissima*, *Salix fusca* occur.

*Parkhurst Forest* has *Aquilegia vulgaris*, *Tormentilla procumbens*, *Adonis* in the adjoining cornfields, &c.

*Cockleton Bog* (near Cowes) yields *Pinguicula lusitanica*, *Anagallis tenella*, *Carex intermedia*, *Galium uliginosum*, *Achillea Ptarmica*.

The boggy meadows at *Easton* (Freshwater Gate) are famed for *Valeriana dioica*, *Alisma ranunculoïdes*, *Utricularia vulgaris*, *Epipactis palustris*, *Juncus obtusiflorus*, *Cladium*, *Butomus* (doubtfully wild), *Sium angustifolium*, *Ranunculus Lingua*, &c.

The *Heath at Colwell* is another capital piece of ground; here will be found *Eriophorum latifolium*, *Epipactis palustris*, *Pinguicula lusitanica*, *Scirpus pauciflorus*, and *S. Savii*, *Habenaria bifolia*, *Carex pulicaris*, *C. flava*, *C. fulva*, *Aquilegia vulgaris*, *Rosa spinosissima*.

Like the bog plants, the aquatic are not well represented in the present division, and will be more fully discussed hereafter. There are, however, a few water plants that are apparently restricted to the north side of the downs.

*Ranunculus Lingua*, which grows at Fernhill and at Easton.

*Hippuris vulgaris*, found only in one ditch running through the marshy meadows to the north of Brading Harbour.

*Utricularia vulgaris*, peculiar to Easton, as is also the Flowering Rush, if the latter has not been purposely planted there.

Besides the groups already noticed, we might extend our subdivision into species that are mostly seen in hedges or upon road-side rubbish, in pastures, on rocks, or walls, &c., but these classes are not so distinct or interesting, neither does space allow of further detail. The account of the weeds of cultivated land will be found at page 518.

Suffice it to say, that *Ranunculus parviflorus* is not uncommon upon hedge-banks and in cornfields wherever the soil is light. *Linum angustifolium* is common, *Lathyrus Nissolia* is frequent, and *Cœnanthe pimpinelloïdes* generally abundant over all the clayey meadows of the north division; and in the woods will be easily found the Black Bryony, the Hop, the Privet and both kinds of wild Cherry, *Iris fœtidissima*, *Daphne Laureola*, *Luzula Forsteri* and *Rosa tomentosa*; *Melilotus officinalis* abounds in many of the slipped banks by the shore. *Carex divulsa* occurs along nearly all the roads, *Lepidium Smithii* in many different localities, *Mentha rotundifolia* also may be found, but is more abundant in the Undercliff and in the "Valley of the Greensand."

In the cornfields will be seen *Ranunculus arvensis*, *parviflorus*, and also *hirsutus*; *Barbarea præcox*, *Petroselinum segetum*, *Helminthia echioïdes*, *Linaria spuria*, and *Gastridium lendigerum*, *Torilis infesta*, very generally dispersed; and in less abundance, *Myosorus minimus*, *Euphorbia platyphylla*, *Vicia gracilis*, *Papaver hybridum*, *Fedia Auricula*, and many others.

DIVISION III.

PLANTS OF THE CENTRAL CHALK RANGE.

It is in the neighbourhood of Newport, and thence in a south-west direction, that is found the most considerable extent of chalk. Here, instead of forming a single narrow ridge, the downs are, as it were, massed together, and occupy a continuous tract measuring fully three miles across, and comprising both arable and pasture land: there are also several copses, but of inconsiderable size.

Accordingly the chalk vegetation finds its metropolis in the centre of the island, and chiefly in West Medina. Not only are the characteristic plants most abundant here, but several species seem to be, as regards the Isle of Wight, confined to this district. Dr. Bromfield has suggested that several of these plants, so local with us, exhibit elsewhere a certain repugnance to the sea-coast, and that this may be the reason why they should be so scantily distributed in the Isle of Wight. He was inclined to refer also the absence of others, as *Phyteuma*, *Dipsacus pilosus*, and *Convallaria multiflora*, to the same cause.

The following is a list of those species which with us evince a decided preference for calcareous soil.

*Calcareophilous, or Lime-loving Plants.*

Clematis Vitalba.	Pastinaca sativa.
Helleborus fœtidus, U.*	Torilis nodosa.
Arabis hirsuta.	Viburnum Lantana.
Reseda lutea.	Rubia peregrina.
Luteola.	Asperula cynanchica.
Helianthemum vulgare.	Scabiosa columbaria.
Cerastium pumilum.	Inula Conyza.
Hypericum hirsutum.	Cirsium eriophorum.
montanum, U.	Carduus nutans.
Geranium lucidum.	acanthoides.
columbinum.	acaulis.
Rhamnus catharticus.	Centaurea Scabiosa.
Anthyllis Vulneraria.	nigrescens.
Astragalus glycyphyllus, U.	Cichorium Intybus.
Hippocrepis comosa.	Apargia hispida.
Onobrychis sativa.	Picris hieracioides.
Spiræa Filipendula.	Campanula glomerata.
Poterium Sanguisorba.	Trachelium.
Pyrus Aria.	Monotropa Hypopitys.
Bryonia dioica.	Chlora perfoliata.
SisonAmomum, rather general.	Gentiana Amarella.

\* Those plants which are followed by the capital letter U are peculiar to the Undercliff; not having been yet found upon the Central Chalk.

Lithospermum officinale.	Orchis pyramidalis.
Verbascum Thapsus.	Habenaria viridis.
nigrum.	Ophrys apifera.
Orobanche Picridis.	muscifera.
Lathræa Squamaria.	aranifera.
Origanum vulgare.	Cephalanthera grandiflora.
Calamintha officinalis.	Neottia Nidus-avis.
sylvatica.	Kœleria cristata.
Clinopodium.	Poa compressa.
Nepeta Cataria.	rigida.
Plantago media.	Bromus erectus, U.*
Thesium humifusum.	Avena pratensis.
Parietaria officinalis.	pubescens.
Orchis ustulata.	Asplenium Ruta-muraria.

And in the corn fields :—

Adonis autumnalis.	Specularia hybrida.
Papaver hybridum.	Melampyrum arvense, U.
Sinapis alba.	Calamintha Acinos.
Bupleurum rotundifolium.	Galeopsis Ladanum.
Galium tricornè.	Linaria spuria.

Such is a general outline of the vegetation of the chalk, and most of the plants enumerated are too widely distributed to need any special directions for finding them; but the following localities will be found most productive of the rarest kinds :—

*Bembridge Down* has the advantage of being favourably situated for the descent into either Sandown Bay or Whitecliff Bay. Here grow also *Euphorbia portlandica*, *Brassica oleracea*, and *Daucus maritimus* already mentioned among the maritime Flora. *Cerastium pumilum* occurs near the monument; *Artemisia Absinthium* in the hedges; *Marrubium vulgare* and *Carduus tenuiflorus* near the edge of the cliff; *Gentiana Amarella*, *Campanula glomerata*, *Thesium*, *Ophrys apifera* in profusion on the turf; and in the corn-fields on the south slope a blue variety of *Malva sylvestris*, *Poterium muricatum*, *Bupleurum rotundifolium*, *Papaver hybridum*, &c. Towards Bembridge, *Geranium columbinum* and *Galaeopsis Ladanum*.

*Brading Down*, above Nunwell, boasts of the single shrub of *Juniper* yet found in the Isle of Wight, and it, like the Yew its neighbour, may have been planted. *Lithospermum officinale*, *Torilis nodosa*, and *Rumex pulcher* will be found close to the lane leading from the village; and *Verbascum Blattaria* has become almost established not very far from the cottage gardens where it is cultivated. *Veronica Buxbaumii* is another conspicuous interloper—quite a common weed in the neighbourhood of Brading. On the walls and roof of the church *Sedum dasyphyllum* is plentiful.

\* Those plants which are followed by the capital letter U are peculiar to the Undercliff; not having been yet found upon the Central Chalk.



At *Ashy* we meet the first indications of an increasing number of chalk plants. *Reseda lutea* occurs near the water-works. In the copses called *Bloodstone* and *Eagle-head* we find *Rhamnus catharicus*, *Bryonia dioica*, *Lathræa Squamaria*, *Pyrus Aria*, *Ophrys muscifera*. On the descent to *Kerne*, *Carduus acanthoides*, *Rhamnus catharticus*, and *Sambucus Ebulus*; a little further on, *Cuscuta europæa* sometimes covers the hedges by the field-road to *Alverstone*, and *Cuscuta Trifolii*, another parasite, occurs with *Orobanche minor* in the clover.

*Arreton* is head-quarters of *Verbascum nigrum*. Towards *Merston*, *Daphne Laureola*; in the corn-fields, *Anthemis arvensis*.

*Gatcombe* yields *Neottia Nidus-avis*, *Ophrys muscifera*; and in *Tolt Copse*, *Campanula Trachelium*, *Lathræa squamaria*, *Milium effusum*, *Lactuca muralis*, *Prunus domestica* (?), &c.; in the corn-fields, *Euphorbia platyphylla*. There is also a lane, known as "*Gal-lants*," where *Verbascum Blattaria* grows wild; and *Snowdrop* lane yields in abundance the flower after which it is called. *Saxifraga tridactylites* grows upon the church.

At *Carisbrook* *Arabis hirsuta* grows in the fosse, and elsewhere about the *Castle*; *Echium* is found in the same place, and with it *Calamintha officinalis*. *Ophrys muscifera* occurs in several of the small copses, and one of our scarcest plants, the *Cephalanthera grandiflora*, has been gathered under some beeches on the east side of the *Castle*; and at the western side of the hill *Cyperus longus* may perhaps still exist: to the south-west *Prunus domestica* (?) is plentiful in a lane leading to *Frost-hills*.

By following the road towards *Swainston*, *Ape's Down* Farm will be reached, the only British Station for *Calamintha sylvatica*. To find this unique plant, turn to the left through *Ape's Farm*; on the right lies the steep down producing *Orchis ustulata*, *O. pyramidalis*, *O. conopsea*, *Carduus eriphorus*; and it is in the long strips of copse which bound the road on the left side that will be seen in perfection *Bromfield's Calamint*. In many parts it covers the ground almost exclusively, and in September forms a most beautiful object, with blossoms far larger and handsomer than those of *C. officinalis*. With it grow *Campanula Trachelium*, *Rubus cæsius*, &c.

A little further up the same valley, *Long Copse* produces *Lathræa Squamaria*, and near *Roughborough Farm* *Cichorium Intybus*—very scarce in the *Isle of Wight*.

*Bottom-ground Copse*, on the way from *Carisbrooke* to *Shorwell*, is one of the two stations for *Vinca minor*.

Nearer to *Shorwell* itself is *Geranium lucidum* on the hedge-banks; *Malva moschata*, *Campanula Trachelium* also occur.

Near *Swainston* have been found *Aquilegia vulgaris*, *Chenopodium glaucum*, *Habenaria viridis*, *Poa compressa*, *Calamintha officinalis*.

At *Calbourne* *Papaver Argemone* and *P. hybridum*, *Reseda lutea*, *Orchis ustulata*, *Monotropa Hypopitys* (*New Barn*), *Nepeta Cataria*, *Verbena officinalis*, *Neottia Nidus-avis*, and a single plant of *Cephalanthera grandiflora*; and *Inula Helenium* grows plentifully in a field about

$\frac{1}{2}$  a mile on the road to Yarmouth. In the cultivated fields will be seen *Bupleurum rotundifolium* and many other colonists. *Spiræa Filipendula* is peculiar to Westover.

*Thorley* produces again *Inula Helenium*, *Chenopodium glaucum*, and *Vulpia Myurus* near the church; *Berberis vulgaris* grows in a hedge towards Shalcomb; *Calamintha officinalis* is not rare in the vicinity.

*Freshwater Down* is rich in calcareous as well as maritime plants. Here grow *Arabis hirsuta*, *Gentiana Amarella*, *Orchis ustulata*, *O. pyramidalis*, &c. A variety of *Galium Mollugo*, with yellowish green flowers, occurs in a hedge close to Plumbley's Hotel; and, curiously enough, *Serratula tinctoria* and *Betonica officinalis* may be seen growing on the open pasture behind the Fort, a locality very different from the sheltered woods they usually inhabit. *Carduus tenuiflorus* and *Marrubium vulgare* will be sure to attract attention on the summit of the down, and upon their stems or at their roots there will be obtained that beautiful and local shell *Bulimus acutus*. It will not be forgotten that close by are some localities most prolific in rare plants. A short visit to the marshy meadows at *Easton*, and another excursion to *Colwell Heath* and *Yarmouth* are well worth the consideration of any botanists who have sufficient time at their disposal.

Contrasted with the Southern Chalk Downs above the Undercliff, the main range has 14 species not found in the other, viz. :—

<i>Arabis hirsuta.</i>	<i>Lathræa Squamaria.</i>
<i>Rhamnus catharticus.</i>	<i>Calamintha sylvatica.</i>
<i>Spiræa Filipendula.</i>	<i>Habenaria viridis.</i>
<i>Bryonia dioica.</i>	<i>Ophrys muscifera.</i>
<i>Campanula Trachelium.</i>	<i>Cephalanthera grandiflora.</i>
<i>Verbascum nigrum.</i>	<i>Poa compressa.</i>
<i>Orobanche Picridis.</i>	<i>Bupleurum rotundifolium.</i>

Similarly the Undercliff claims 5 calcareous plants which do not occur in the central chalk.

#### DIVISION IV.

##### PLANTS OF THE GREENSAND VALLEY.

The district lying between the two ranges of Downs presents a surface remarkably varied, often rising to abrupt heath-covered eminences, or again sinking to marshy hollows, through which may be traced, by its fringe of alders, the slowly-winding stream, often almost lost where the valley widens into low swampy meadows, or boggy willow-thickets, conspicuous for enormous bushes of the fragrant Dutch myrtle, and great hassocks of *Carex paniculata*. The deep indentations cut wherever the little brooks fall over the sandstone cliffs, so well known by the name of "chines," principally belong to the Greensand formation.

The soil here consists almost exclusively of a ferruginous sand, with a few beds of an argillaceous character towards Atherfield, &c.

The principal features of this division are the heaths covered with a close growth of the scarce *Agrostis setacea*: deep cut lanes bordered with abundance of ferns, and especially the prevalence of bog and water plants; the valleys of the East Yar and Medina being the headquarters of our aquatic vegetation, which after all is but meagrely represented.

*List of the principal Heath Plants.*

Aquilegia vulgaris.	Er. Tetralix.
Corydalis claviculata.	Calluna vulgaris.
Viola canina.	Vaccinium Myrtillus.
lactea.	Cuscuta Epithymum.
Polygala depressa.	Veronica officinalis.
vulgaris.	Digitalis purpurea.
Sagina subulata.	Pedicularis sylvatica.
nodosa.	Orobanche Rapum.
Moenchia erecta.	Betonica officinalis.
Stellaria graminea.	Teucrium Scorodonia.
Linum catharticum.	Centunculus minimus.
Radiola millegrana.	Plantago Coronopus.
Hypericum humifusum.	Rumex Acetosella.
pulchrum.	Salix fusca.
Ulex nanus.	Habenaria bifolia.
europæus.	Juncus squarrosus.
Sarothamnus scoparius.	Luzula multiflora.
Orobus tuberosus.	Carex pulicaris.
Potentilla procumbens.	ovalis.
Rubus suberectus.	flava.
plicatus.	Ederi.
Rosa spinosissima.	fulva.
Galium saxatile.	binervis.
Achillea Ptarmica.	pilulifera.
Anthemis nobilis.	Nardus stricta.
Solidago Virgaurea.	Agrostis canina.
Senecio sylvaticus.	setacea.
Filago minima.	Aira flexuosa.
Hieracium Pilosella.	præcox.
tridentatum.	Molinia cærulea.
umbellatum.	Triodia decumbens.
Jasione montana.	Festuca ovina.
Erica cinerea.	Pteris aquilina.

The chief localities are Royal Heath at Sandown, Pan and Lake Commons, Ninham Heath near Shanklin, the neighbourhood of Godshell, Kingstone, and Brighstone.

*Other Sand Plants not restricted to Heaths.*

Myosurus minimus.	Prunus avium.
Ranunculus cœnosus.	Alchemilla arvensis.
Dianthus Armeria.	Peplis Portula.
Sagina ciliata.	Montia fontana.
Cerastium tetrandrum.	Seleranthus annuus.
semidecandrum.	Sedum anglicum.
Arenaria serpyllifolia.	acre.
rubra.	Chrysosplenium oppositi-
Geranium pusillum.	folium.
Papaver Argemone.	Anthriscus vulgaris.
Erodium cicutarium.	Galium verum.
Rhamnus Frangula.	Anthemis arvensis.
Medicago maculata.	Tanacetum vulgare.
denticulata.	Myosotis collina.
Trifolium arvense.	Orobanche cœrulea.
striatum.	Lamium Galeobdolon.
scabrum.	Scilla autumnalis.
glomeratum.	Scirpus setaceus.
subterraneum.	Savii.
filiforme.	Carex arenaria.
Trigonella ornithopodioïdes.	pallescens.
Vicia angustifolia.	Aira caryophyllea.
lathyroides.	Holcus mollis.
Ornithopus perpusillus.	Festuca bromoïdes.

*List of most characteristic Bog Plants.*

Viola palustris.	Salix aurita.
Drosera rotundifolia.	Orchis latifolia.
Hypericum Elodes.	Narthecium Ossifragum.
Genista anglica.	Juncus supinus.
Comarum palustre.	Potamogeton oblongus.
Epilobium angustifolium.	Cladium Mariscus.
obscurum.	Rhynchospora alba.
palustre.	Eleocharis multicaulis.
Ribes nigrum.	Scirpus pauciflorus.
Galium uliginosum.	Eriophorum latifolium.
Valeriana dioica.	Eriophorum angustifolium.
Wahlenbergia hederacea.	Carex stellulata.
Vaccinium Oxycoccos.	panicea.
Menyanthes trifoliata.	curta.
Myosotis repens.	Calamagrostis lanceolata.
Veronica scutellata.	Equisetum palustræ.
Pedicularis palustris.	sylvaticum.
Scutellaria minor.	Athyrium Filix-femina.
Pinguicula lusitanica.	Blechnum boreale.
Myrica Gale.	Osmunda regalis.

The principal boggy localities are found along the Yar and Medina. The water plants found in the Isle of Wight are—

Ranunculus (the aquatic species).	Butomus umbellatus.
sceleratus.	Typha (two).
Lingua.	Sparganium (three).
Nasturtium officinale.	Lemna (four).
Hippuris vulgaris.	Potamogeton (several).
Myriophyllum (two).	Ruppia rostellata.
Callitriche (several).	Zostera (two).
Helosciadium inundatum.	Zannichellia.
Sium angustifolium.	Eleocharis fluitans.
Œnanthe fistulosa.	Scirpus Tabernæmontani.
Utricularia vulgaris.	Carex ampullacea.
minor.	Catabrosa aquatica.
Polygonum amphibium.	Glyceria fluitans.
Juncus obtusiflorus.	plicata.
Alisma Plantago.	Equisetum limosum.

*Sandown Bay* yields many interesting species; at Red Cliff will be found *Orobanche cærulea*, *Allium vineale*, and *Silene nutans*, *Trifolium striatum*, *Medicago denticulata*, a maritime form of *Anthyllis vulneraria*. In the adjoining corn-fields, *Galium tricornis*, and other chalk plants; and where the soil is sandy, *Lycopsis arvensis*, *Raphanus Raphanistrum*, *Erodium cicutarium*, *Anthemis arvensis*, &c.

Towards the fort are found *Trifolium subterraneum*, *T. glomeratum*, *T. scabrum*, *Vicia lathyroides*, *Trigonella*, *Anthemis nobilis*, *Moenchia erecta*, *Ranunculus parviflorus*, *Sagina ciliata*, &c. The ditches in the neighbourhood produce *Ranunculus floribundus*, *Œnanthe fistulosa*, whose young leaves so much resemble those of *Œ. Phellandrium*, *Potamogeton natans*, *P. crispus*, &c., *Lemna trisulca*, *L. polyrrhiza*.

In a hollow near the hotel grow *Pulicaria vulgaris* and *Anthemis nobilis*.

On Royal Cliff *Agrostis setacea* appears, and this was formerly a spot famed for *Vicia lathyroides*. *Arenaria rubra*, *Festuca bromoides*, *Vicia angustifolia*, *Aira*, *Hieracium vulgatum*, still exist where the ground has not been built upon.

The marine shore of Sandown Bay has been already noticed. This is not a productive locality for sea-side plants; but in the slipped banks that lie at the foot of the cliff, will be gathered a few species, such as *Osmunda*, *Drosera rotundifolia*, that would hardly be expected in such a station. *Scirpus Savii* is plentiful near Shanklin.

*Shanklin* is a good place for such of the colonists, or weeds of cultivation, as prefer a sandy soil. *Papaver Argemone*, *Silene anglica*, *Geranium pusillum* will be easily found. *Melilotus arvensis* grows in several of the clover-fields; so does *Anthemis arvensis*, and the rarer *Melilotus vulgaris*. *Chrysanthemum segetum*, a chief ornament of sandy

ground, and like *Centaurea Cyanus*, its usual companion, wearing the colours of a warmer clime.

*Spergula subulata*, and *Hypochæris glabra*, both rare with us, have been observed in the corn-fields near Shanklin. Elsewhere these two plants are more often found to inhabit sandy heaths. *Linum angustifolium* occurs both in arable and pasture land.

*Carex pendula* will hardly escape notice in the Chine, or in any of the damp woods; this is the largest, and with *C. Pseudo-Cyperus*, the handsomest of our sedges, and remarkably abundant everywhere near Shanklin.

“*Cowpit Cliff*” (the wood under the footpath leading to Cook’s Castle) yields *Lamium Galeobdolon* in profusion, *Lactuca muralis*, and a few other common sylvan species. It is here that the Beech will be seen growing in one of its wildest stations, and the old gnarled trees of the White Beam that line the crest of the cliff are seldom observed to greater advantage. Great Wood or Shanklin Copse, is also well worth a visit. Returning towards the banks of the Main River; near *Yar Bridge* are two boggy thickets where *Carex Pseudo-Cyperus* will be found fringing the ditches which surround them; *Lemna polyrrhiza*, *Bidens cernua*, and *B. tripartita*, *Sparganium simplex*, *Lycopus Europæus* grow in the water; and on the outskirts of the copse, *Arctium majus* is plentiful.

*Pan* and *Lake Commons* lie close at the back of Sandown, conterminous with Bordwood Forest. The staple grass here is *Agrostis setacea* which grows intermixed with *Festuca tenuifolia*, but the former has a glaucous tinge which easily distinguishes the foliage.

Heath, Furze, Foxglove, and *Galium saxatile*, proclaim that we have reached the heath country. *Jasione montana* abounds on every bank, with it the elegant climbing *Fumitory (Corydalis)*. In the wetter spots, and where the spongy moss scarcely affords a footing, grow *Narthecium Ossifragum*, *Drosera rotundifolia*, *Rhynchospora alba*, *Eriophorum*, *Eleocharis*, *Hypericum Elodes*, *Myrica*, *Viola palustris*, and a search in the ditches will afford *Epilobium obscurum* and *E. palustre*. *E. angustifolium* grows close by, in a boggy thicket, *Lysimachia vulgaris*, another handsome plant, is also found here, and the rare *Carex lævigata*. *Ranunculus cœnosus*, *Malachjum aquaticum*, and *Valeriana sambucifolia*, are other interesting plants; nor must *Polygonum minus* be forgotten that abounds in the small cross drains of the adjoining meadows, and is easily recognised by its bright rose-coloured flowers.

On the higher part of the common, the Columbine (*Aquilegia*) has been found among the Furze, and *Radiola* grows in the bare sandy parts of the road itself. *Rubus plicatus* and other Rubi along the ditch of the north-west side.

*Alverstone* is one of the chief stations for the Marsh Fern, *Lastræa Thelypteris*, which grows a little way above the mill, and also in the “Lynch.” *Osmunda* is abundant hereabouts. *Myosotis palustris* (scarce in the Isle of Wight), *Scutellaria galericulata*, both species of

*Bidens*, *Carex Pseudo-Cyperus*, *Menyanthes trifoliata*, *Veronica scutellata*, and *Mentha rotundifolia*, are among the best of the marsh plants. *Oxalis corniculata* is a weed in the mill garden.

The oaks in *Bordwood* are mostly *Q. sessiliflora*. *Orobanche cærulea*, *Hieracium tridentatum*, and *H. boreale* also grow here.

At *Knighton* is a thicket absolutely filled with *Lastræa Thelypteris*, and it is here only that has been found the rare *Arundo Calamagrostis*. Many other bog plants occur in the same spot—*Veronica scutellata*, *Mentha rotundifolia*, &c. ; and *Zannichellia* chokes the mill dam.

*Newchurch*, *Parsonage Lynch*, is the station for *Carex Bonninghausiana*. The two *Ribes*, *nigrum* and *rubrum*, *Equisetum sylvaticum*, *Epilobium obscurum*, *Scirpus sylvaticus*, *Luzula sylvatica*, are some of the other rarities that occur here. At *Longbridge*, *Utricularia minor* and *Nasturtium terrestre* ; and in a field close by, *Echium vulgare* grows in such profusion as to render the ground one mass of blue. *Thlaspi arvense* is plentiful in the vicarage glebe, *Anthemis arvensis* at *Vinnicombe Barn*.

*Apse Castle* is the spot where Dr. Bromfield first observed that curious *Luzula* which he named *L. Borreri*, and a short passage from his own pen will best describe one of his favourite resorts. Dr. Bromfield thus writes in the *Phytologist*, vol. iii. p. 534 : “ This is simply a thickly wooded eminence about one mile W.N.W. of Shanklin, commanding a fine view and flanked on one side by a deep ravine, along whose bottom winds a clear but shallow brook overhung by precipitous banks covered with trees and shrubs, the natural growth of the place. A more delightful scene can hardly be imagined than is offered by this fresh and verdant spot, when, on some radiant morning in April or May, we tread the solitary mazes of *Apse Castle*, a blooming wilderness of primroses, wood-anemones, hyacinths, violets, and a hundred other lovely and fragrant things, overtopped by the taller and purple-stained woodspurge, early purple orchis, and the pointed hoods of the spotted-leaved wake-robin ; the daisy-besprinkled track leading us upward, skirted by mossy fern-clad banks on one hand, and by shelving thicket on the other, profusely over-shadowed by ivy-circled oak and ash, the graceful birch and varnished holly, beneath which spring the berry-bearing alder, hazel, spindle-tree, the dogwood and guelder rose, with here and there the ‘ bonnie ’ broom and a mountain-ash, airy as a sapling, over all which the woodbine creeps profuse, and the black bryony loves to twine, displaying its hand-broad overlapping leaves of translucent green, that, bright and polished as a mirror, glance and glisten to the sun like a descending stream of foliage.”

In these woods will be found *Pyrus aucuparia*, all the *Luzulæ*, *Prunus avium*, *Androsæmum*, *Rubus suberectus*, and *R. Salteri*, *Aira flexuosa* ; and on the adjoining *Ninham Heath*, *Vicia angustifolia*, *Cerastium tetrandrum* and *C. semidecandrum*, *Echium vulgare* in profusion, *Myosotis collina*, *Filago minima*, &c. In the farm-yard of *Apse* grows *Pulicaria vulgaris*, and there are here some of the finest *Wych elms* to be seen in the *Isle of Wight*.

On the other side, the wood below Cook's Castle produces *Epilobium angustifolium*, *Prunus Padus* (introduced). *Hypericum dubium* has been gathered between Languard and Ninham, the only locality known or it in the island.

*Godshill* and its vicinity afford many of our rarest and most local plants.

In *Appuldurcombe Wood* *Aquilegia vulgaris* and *Androsæmum officinale*, *Rosa tomentosa* and *R. spinosissima* grow in several of the hedges; *Cotyledon Umbilicus* by the roadside near *Kennerley Heath*. *Tanacetum* on many of the high sandy banks of the deep cut lanes, its most natural station as a wild plant. *Veronica Buxbaumii* and *Anthemis arvensis* occur near Sandford; *Datura Stramonium* at the north-east end of the village. There is a good piece of boggy ground called *Munsley* (a few hundred yards north of the church), where *Myrica Gale*, *Narthecium*, *Scirpus fluitans*, *Genista anglica*, &c., will be gathered. Still more productive as a botanical locality is

*Bleak Down*, where, on the higher parts are found *Sagina subulata*, *Carex binervis*, *Juncus squarrosus*, *Polygala depressa*, and near the road *Viola canina* (*flavicornis*), *Moenchia erecta*, *Hypericum humifusum*, *Plantago Coronopus*. At the south-west base, by *Lashmere Pond*, *Scirpus setaceus*, *Centunculus minimus*, *Wahlenbergia hederacea*, *Radiola*, *Nardus stricta*, and in the pond itself *Helosciadium inundatum*, *Myriophyllum alterniflorum*, *Sparganium simplex*, &c. Under the western slope lies the

*Rookley Wilderness*, renowned as the best locality for bog plants in the island. Here are great thickets of *Salix aurita*, and *Myrica* so tall as to resemble *Arbutus*, and under their shade grow *Lastræa Thelypteris*, and *L. spinosa*, *Oxycoccus palustris*, &c. *Viola palustris*, *Veronica scutellata*, *Epilobium angustifolium*, *Carex curta*, *C. ampullacea*, *Ranunculus cœnosus*, *Scutellaria galericulata*, *Narthecium*, *Eriophorum*, *Hypericum Elodes*, will be found in various parts of the marsh; and in the spongy meadows abutting on the stream *Wahlenbergia*, *Anagallis tenella*, *Nardus stricta*, *Genista anglica*, *Juncus squarrosus*, *Botrychium Lunaria*, *Ophioglossum vulgatum*, and many other species partial to a moorish soil. *Arctium majus* has also been gathered here.

*Blackgang* produces *Juncus obtusiflorus*, *Jasione montana*, *Juncus squarrosus*, *Scirpus Savii*; and near St. Catherine's Lighthouse, *Sambucus Ebulus*, *Sclerochloa loliacea*, and, if not extinct, *Trifolium glomeratum*. *Cynoglossum officinale* is very conspicuous along the road-side towards Niton.

*Kingstone* is the perfection of a sandy heath, covered as it is with a dense growth of *Agrostis setacea* (the bristle bent) which produces the most slender leaves of all the British grasses. *Tanacetum* is here again at home upon the road-side banks. *Filago minima* and others abound in the loose soil, and with them *Antirrhinum Orontium*, *Filago spathulata*, *Silene anglica*; and in the neighbouring cornfields the golden Ox-eye, azure Knapweed, and gorgeous Poppies display their



brilliantly contrasted hues, like strangers in a foreign soil, still dressed in the colours of their own sunny clime.

Towards *Shorwell* Cotyledon Umbilicus grows on the sandstone rock, and *Rosa spinosissima* fills the hedges. On the church at *Shorwell* is *Asplenium Trichomanes*.

*Brighstone* produces *Mentha rotundifolia*, *Tanacetum vulgare*, *Filago spathulata*, and *F. minima*, abundance of the commoner Ferns, and a curious variety of *Polypodium vulgare*, approaching *P. cambri- cum*. *Lathyrus hirsutus* was once picked in a corn-field close to the village.

The "Moor-town Moors," the name of the tract of marshy meadows and willow-thickets which skirt the little stream, are well worth investigation: *Osmunda*, *Blechnum*, *Scirpus Savii*, *Equisetum palustre*, and *E. Telmateia*, *Chrysosplenium oppositifolium*, and many other bog plants occur here, and the shaded dell where the spring gushes in a clear stream from the foot of the chalk, is well worth a visit.

*Brook* yields *Erodium maritimum*, *Medicago maculata*, &c.

The Sand-cliff in *Compton Bay*, *Trifolium scabrum*, and a few other species found in *Sandown Bay*.

## DIVISION V.

### PLANTS OF THE UNDERCLIFF AND OF THE DOWNS ABOVE IT.

The southern chalk downs, though of considerably less extent than those of the main range, attain a much higher elevation.

In a geological point of view they differ, by preserving a nearly horizontal position, so that the underlying strata are found in the natural order of sequence; but from the chalk being continually carried down by the rain, and owing to the presence of limestone rock in the lower greensand itself, the Undercliff presents a Flora less decidedly "sandy" than might be expected; indeed it is the "Lime-loving" species which predominate throughout, though there is no want of a considerable admixture of sand-loving plants such as the Yellow Weazel-snout, &c., which add to the interest and variety of its botanical productions.

At the top of *Boniface* and *Shanklin Downs*, instead of the usual close and elastic turf which clothes the rounded summits of the other range, the ground is covered with thick beds of *Bilberries*, *Heather*, and *Dwarf Furze*, which in autumn present a most gorgeous mixture of purple and yellow, too bright for the eye to rest upon. Moor plants are the most conspicuous, such as the *Rein-deer Lichen*, *Carex binervis*, and *C. pilulifera*, *Agrostis setacea*, *Hieracium umbellatum*; and where the surface is strewn with loose flint-stones and in part nearly bare, a scanty growth of neat little sand plants, as *Aira præcox*, *Mœnchia erecta*; so that the summit presents something of the wild and desolate aspect of a mountain moor; while as a contrast lie extended at our

feet, in all the perfection of English scenery, snug homesteads and evenly divided fields, mansion and park, pasture and wooded eminence; each lending its charm to the landscape whether clothed in the tender green of spring, or ruddy with the varied tints of autumn.

One plant only can be mentioned as peculiar to this cluster of Downs. *Bromus erectus* occurs profusely on the sloping turf above the descent into the landslip at Luccombe. Five chalk plants, however, are in the Isle of Wight restricted to the Undercliff,—*Hypericum montanum*, *Ophrys aranifera*, *Melampyrum arvense*, *Astragalus glycyphyllus*, and the Hellebore (*H. fœtidus*), if so be that its locality can be held beyond challenge, wild. The head-quarters of this handsome plant are all close to St. Lawrence Church, and in the neighbourhood of the old ruin of Woolverton. Where it is most plentiful it is associated with a foreign *Hypericum* and cut-leaved Elder. It is well known to have formerly been in request for medicinal use, and the soil of the Undercliff is peculiarly favourable to the propagation of adventitious plants; witness the Red Valerian, now become perfectly established; and those botanists who consider the Milk Thistle of foreign origin will see one more reason for suspecting the nativity of the Hellebore, which is by no means so wide-spread as the *Silybum* in this locality. Besides these five, *Papaver somniferum*, *Geranium rotundifolium*, *Orobanche Hederae*, *Sambucus nigra* var. *rotundifolia*, *Arum italicum*, *Allium oleraceum* are not found beyond the limits of the Undercliff. As before stated, fourteen chalk plants indigenous to the main range are wanting here, and they include several species which evince a preference for inland situations.

“Lime-loving” plants abound, none more so than *Centaurea nigrescens*, *Hypericum hirsutum*, *Carduus acanthoides*, *Clematis*, *Helianthemum vulgare*, *Rubia peregrina*, *Inula Conyza*, and many others will be gathered throughout the district.

But it is in the chalky corn-fields above the Undercliff and lying at the back of Steephill and St. Lawrence that will be obtained the richest harvest of botanical rarities. Here it is that the beautiful purple Cow-wheat sometimes abounds. *Adonis* may be gathered, any season, with *Euphorbia platyphylla*, and many others of the most uncommon of our “cultivated” weeds.

A list of these “Colonists” may not be out of place here.

<i>Adonis autumnalis.</i>	<i>Thlaspi arvense.</i>
<i>Ranunculus arvensis.</i>	<i>Lepidium campestre.</i>
<i>Myosurus minimus.</i>	<i>Raphanus Raphanistrum.</i>
<i>Delphinium Consolida.</i>	<i>Viola tricolor.</i>
<i>Papaver (all).</i>	<i>Silene inflata.</i>
<i>Fumaria confusa.</i>	<i>anglica.</i>
<i>officinalis.</i>	<i>Lychnis Githago.</i>
<i>Barbarea præcox.</i>	<i>vespertina.</i>
<i>Sinapis alba.</i>	<i>Spergula arvensis.</i>
<i>arvensis.</i>	<i>Geranium pusillum.</i>

Geranium dissectum.	Specularia hybrida.
Melilotus arvensis.	Cuscuta Trifolii.
vulgaris.	Lycopsis arvensis.
Vicia gracilis.	Echium vulgare.
sativa.	Lithospermum arvense.
Poterium muricatum.	Veronica (plures).
Alchemilla arvensis.	Antirrhinum Orontium.
Scleranthus annuus.	Linaria minor.
Petroselinum segetum.	Elatine.
Bupleurum rotundifolium.	spuria.
Æthusa Cynapium.	Mentha arvensis.
Torilis infesta.	Euphrasia Odontites.
Scandix Pecten.	Melampyrum arvense.
Galium tricorne.	Orobanche minor.
Sherardia arvensis.	Calamintha Acinos.
Fedia olitoria.	Lamium (plures).
Auricula.	Galeopsis Ladanum.
dentata.	Tetrahit.
Senecio vulgaris.	Stachys arvensis.
Filago germanica.	Anagallis arvensis.
spathulata.	cærulea.
Chrysanthemum segetum.	Chenopodium polyspermum.
Pyrethrum inodorum.	album.
Anthemis arvensis.	Atriplex (several).
Cotula.	Polygonum Convolvulus.
Centaurea Scabiosa.	Euphorbia (four).
Cyanus.	Setaria viridis.
Lapsana communis.	Alopecurus agrestis.
Helminthia echioïdes.	Bromus scalinus.
Crepis setosa.	Bromus commutatus.
Sonchus oleraceus.	Gastridium lendigerum.
asper.	Briza minor.
arvensis.	Lolium arvense.
Hypochæris glabra.	Avena fatua.

Many of the plants here mentioned are found also by roadsides, &c., but less abundantly than in ploughed land. Some of them can scarcely be termed wild, as they are only kept up by sowing repeated from year to year.

About one-eighth of the whole Isle of Wight species come more or less strictly under the definition of colonists. Several of them do not occur in the Undercliff; among such the absence of *Bupleurum rotundifolium*, and apparently of *Calamintha Acinos*, is most remarkable.

The localities in the Undercliff best worth a botanist's visit are *Luccombe*, where *Vicia sylvatica* will be found in the copse above *Luccombe Farm*, and *Inula Helenium* occurs a little to the north of the *Chine*; *Bromus erectus* and *Papaver Lecoquii* above *Rose Cottage*;

*Epilobium angustifolium* among the brushwood; and advancing into the *Landslip*, we shall first see *Hieracium tridentatum*; and then *Lathyrus sylvestris* climbing in luxuriant profusion over every bush and rock. Many Chalk plants will be observed; and it is here that grow *Ophrys aranifera*, *Monotropa Hypopitys*, *Botrychium Lunaria*. *Orobanche Hederæ* will hardly escape notice, growing as it does upon so many of the ivy-covered rocks. *Epipactis latifolia* will be found with it. In the wet hollows towards the shore, *Epipactis palustris* and other water plants. The great woolly-headed Thistle (*Carduus eriophorus*) is conspicuous on the upper side of the footpath. *Inula Helenium* occurs again close to Bonchurch in a locality open to some suspicion. *Rosa rubiginosa*, one of our rarest plants, will be found in its vicinity; *Rubia peregrina* is plentiful; so is *Clematis Vitalba*.

At *Bonchurch* itself may be seen *Geranium lucidum*, growing on the road-side wall; *Rumex pulcher* and *Anthriscus vulgaris* are common. The ascent to St. Boniface Down produces *Orchis ustulata*, *O. pyramidalis*, *Ophrys apifera*, *Thesium humifusum*; and at the summit will be reached that tract of heather of which mention has already been made.

*Steepphill* has been rendered famous from the discovery of *Arum italicum*, which may be obtained in many parts of the Undercliff, especially towards Mirables. *Allium oleraceum* and *Prunus domestica* (?) also occur near Steepphill.

*Pelham Woods* produce *Hypericum montanum*. *Melampyrum* has become thoroughly established among the bushes on the ascent to the corn-fields, where half an hour will be not unprofitably occupied.

Following the footpath along the edge of the cliff we shall soon reach *St. Lawrence*, noted for *Geranium rotundifolium*, *Silybum Marianum*, *Prunus domestica* (?), *Helleborus*, and in the lower corn-fields *Melilotus arvensis*.

The Cliffs hence towards Niton yield many seaside plants, as *Lepigonum rupicola*, *Crithmum*, *Beta*, *Silene maritima*, and on their brow, *Silene nutans*. *Artemisia* here becomes abundant and characteristic, and *Silybum* may be found at intervals among the dense scrub of thorn and other bushes which line the road. Nor will *Mentha rotundifolia* pass unnoticed, so conspicuous from its handsome round velvety leaves. *Arum italicum* grows in the shady recesses of the more wooded parts; *Rubia peregrina* everywhere.

*Niton* is a capital locality for a botanist: here it is that, half way down, towards the shore, grows the rare *Cyperus longus*, so zealously preserved by the owner of the land; within the little fence which encloses it will be found quite a jungle of *Cyperus*, recalling in size and elegance the papyrus of the greenhouses; with it *Juncus obtusiflorus* is equally plentiful, and *Mentha rotundifolia* fringes the stream. *Agri-monia odorata* has been gathered near this, and *Astragalus glycyphyllus* grows in many of the rough rocky fields not far from the *Cyperus*; a further walk will lead to Blackgang, where many sand plants occur, and *Scirpus Savii*, *Eriophorum angustifolium*, &c. But

Niton is above all well situated for a foray into the sand country behind the Downs; a day's ramble down the course of the stream as far as Godshill, Bleak Down, and Rookley will well repay the botanical tourist, and there is a coach passing through Godshill which will either enable him to proceed to Cowes or return to Niton.

To sum up in a few words the Botanical characteristics of the Isle of Wight Flora, it may suffice to state that the whole number of flowering plants amounts to near 800: of these about 80 are maritime species; about 70 are weeds of cultivated land; 30 or 40 others are liable to more or less suspicion as to whether they are aboriginal or not. And to avail ourselves of Mr. H. C. Watson's labours, so as to compare with Great Britain the respective proportions of his different groups, or "Types," the Isle of Wight has, roughly, three out of four of the universally distributed British plants; two out of three of the species which prevail in the south of Great Britain; one out of three of the south-western species; one out of four of the south-eastern. Or, to express their characters in order of the value, the island is distinguished, 1st, for the preponderance of *southern*; 2ndly, of *maritime*; 3rdly, of *universal* or *common* plants; 4thly, come the *south-western*; 5thly, the *south-eastern*; and lastly, the *boreal* or northern element is barely discernible in the presence of *Vicia sylvatica*, *Sagina subulata*, and *Vaccinium Oxycoccus*.

Eight plants of the south-western distribution, i.e. belonging to the "Atlantic Type," find their eastern limit in the Isle of Wight, viz. :—

Erodium maritimum.	Briza minor.
Orobanche Hederæ.	Agrostis setacea.
Pinguicula lusitanica.	Euphorbia Portuladica.
Coronopus didyma.	Euphorbia Peplis (extinct);

and these are species which will probably most interest the metropolitan botanist. Similarly, there are ten belonging to Watson's "Germanic" (south-eastern) "Type," which do not reach to the westward of the island: these are,

Chenopodium glaucum.	Sclerochloa Borreri.
Ophrys aranifera.	Melampyrum arvense.
Poa bulbosa.	Melilotus arvensis.
Frankenia lævis.	Setaria viridis.
Carex Bonninghausiana.	Dianthus prolifer (extinct).

The three last being restricted to cultivated land, there may be some question as to their nativity, and the *Melilotus* especially may be reasonably expected to range further to the west than is at present known. In the Isle of Wight it so often appears among recently sown clover, that it is probably nothing more than an imported stranger. The same may be said of *Poterium muricatum*; neither of these plants have so firm a hold of the ground as *Veronica Buxbaumii*, an acknowledged interloper.

## FERNS.

So general an interest has lately been taken in the study and cultivation of these elegant plants, that at the risk of repetition, some further details may be allowable in this class, since only a few of the rarer species have been noticed along with the Flowering Plants.

The localities which are in the Isle of Wight most productive of Ferns are chiefly situated upon the Lower Greensand formation, which both in itself offers stations more favourable for their growth, and abounds in those boggy woods and heaths, in the absence of which many of our finest species could hardly flourish. Not that any of the hedge-banks are deficient in the commoner kinds, such as *Polystichum angulare*, *Lastrea Filix-mas*, and *Scolopendrium*, which are plentiful in every shady lane, and *Polypodium vulgare* and *Asplenium Adiantum-nigrum* are scarcely less general; but when to them we have added the universal *Pteris aquilina*, it requires some little search and observation to detect a good proportion of the other fourteen species, which raise the total number to twenty. There are besides five kinds of *Equisetum*, but no Club-moss has yet been found to inhabit the Isle of Wight.

*Ceterach officinarum* is very rare in the Isle of Wight. It grows abundantly on Brading church about the south porch. The walls of Carisbrook Castle are another locality.

*Polypodium vulgare* (common *Poly-pody*) is general and abundant. It has been found with forked pinnæ and with fronds doubly pinnatifid, in the Undercliff and at Brighstone; and it is not unusual to meet with fronds bearing pinnæ more or less deeply serrated, as at Quarr, Grove, &c.

*Polystichum aculeatum* is exceedingly scarce. A single root was discovered at Bembridge by the late Dr. Salter. A few other plants may still exist in what was once Little Smallbrook Copse; and it is thought to have occurred also near East Cowes.

*Polystichum angulare* is abundant on hedge-banks and in woods.

*Lastrea Thelypteris* (Marsh Fern) is not very rare, though local. The chief stations are in different boggy thickets along the course of the main river or East Yar; as, near Alverstone above the mill; in Alverstone Lynch; at Knighton; at Newchurch; and Merry Gardens. Along the Medina it abounds in the wettest parts of the Wilderness, and in a boggy meadow at Cridmore. There are besides two outlying stations: one a willow thicket north-east of Compton Grange; the other in the marsh at Easton Freshwater Gate, where it is plentiful.

*Lastrea Oreopteris* (Sweet Mountain Fern) is very rare, if not extinct. America Woods (Apse Castle) near Shanklin, and a low wet bank at Guilford are the only ascertained stations; in both it has been lately sought unsuccessfully.

*L. Filix-mas* (Male Fern) is plentiful; the variety with incised and

sometimes elongated pinnules is not rare in shady woods; the variety paleacea or Borreri, with abundant ruddy scales on the stipes, occurs in many places, especially upon peaty soil.

*L. spinosa* is not common; but will be found to inhabit most of the boggy willow thickets, &c., often in company with *L. Thelypteris*.

*L. dilatata* occurs wherever there is a bog, and also on the shady banks of deep-cut lanes.

*Asplenium Adiantum-nigrum* (Black Spleenwort) is common throughout the sandy district; but is more sparingly distributed elsewhere.

*A. Trichomanes* (Common Spleenwort) is rare. The rocks in the Undercliff; West Cowes; Quarr Abbey; Carisbrook Castle; Chale and Shorwell, are the principal localities. I have more than once heard the name of "Maidenhair" applied in mistake to this species.

*A. marinum* (Sea Spleenwort) used formerly to grow in very small quantity upon some rocks at Niton, but it is believed to have been completely eradicated.

*A. Ruta-muraria* (Wall Rue) is rare. Ryde; Arretton Church; East Cowes; Calbourne, and Freshwater churches, are the localities where it has been found.

*Athyrium Filix-fœmina* (Lady Fern), with most of its varieties, is abundant wherever the soil is boggy.

*Scolopendrium vulgare* (Hart's-tongue) has been found bifid and multifid, crested, and crisped, &c.

*Pteris aquilina* (Brake) is plentiful, especially on the heathy commons; it grows even on chalk upon the north slope of Bembridge Down.

*Blechnum boreale* (Hard Fern) is local, but not of very unusual occurrence, chiefly in the boggy parts of the sandy districts.

*Osmunda regalis* (Flowering Fern) its usual companion, is the more generally distributed of the two; like the *Blechnum*, it abounds most along the course of the East Yar and the Medina, and other places upon the greensand.

*Botrychium Lunaria* (Moon-wort) is rather rare; Nunwell; Shanklin; Landslip; and especially the Wilderness and Rookley, are the known stations, but it requires a close and careful search to find so small a plant.

*Ophioglossum vulgatum* (Adder's-tongue) is not very uncommon. It grows in several damp meadows about Bembridge; in the Undercliff; about Appuldurcombe, and in the Wilderness; in Parkhurst Forest; and in the marsh at Easton.

It will be observed that *Lastræa Fœnisecii*, *Asplenium lanceolatum*, and *Hymenophyllum Tunbridgensis*, are apparently wanting in the Isle of Wight, though any one of them is likely enough to occur.

NOTES ON THE FLORA OF THE NEIGHBOURHOOD OF  
CASTLE TAYLOR, IN THE COUNTY OF GALWAY. BY  
A. G. MORE, Trinity College, Cambridge.

[*Read before THE BOTANICAL SOCIETY OF EDINBURGH, April 12, 1855.*]

The following short sketch from the pen of a beginner, by no means professes to give a complete account of the peculiarities of this interesting district, which is so well known already for several rarities. It is offered as a small contribution towards what has hitherto been so little explored—the geographical statistics of West of Ireland Botany.

Being far removed from the different centres of migration, and without a single prominent example of the Asturian plants so remarkably prevalent in Connemara, the poverty of the Flora is, perhaps, its most striking feature. This deficiency is in part redeemed by the beautiful and interesting limestone and Alpine plants.

The results now laid before the Society are derived almost exclusively from the analysis of about 70 species, while the whole number noticed only amounts to 416 flowering plants, and 16 Ferns; and, allowing that 50 were overlooked, the whole Flora can scarcely be estimated at above 500 species.

The great bulk of the vegetation is naturally made up of such as belong to Watson's "British Type," and it is most curious that many of these generally common plants could not be found.

The district alluded to is of no great extent, comprising the immediate neighbourhood of Castle Taylor, and what little could be accomplished during an occasional excursion to Garryland and Kilmacduagh, which lie about 8 or 9 miles further south. All three places are on the western verge of the great limestone tract, and beyond the direct influence of the sea, from which they are distant some 5 or 6 miles. The surface is broken and rocky, not much above sea level, and affords by numerous subterranean hollows a ready drainage. It is thus, for Ireland, very deficient in water and peat, to which cause may probably be referred the apparent absence of a large number of plants partial to moorish and watery localities. These will be noticed at length under the second head.

It is a difficult thing to account for certain Alpine species ranging to a lower level in Ireland than in Britain under the same latitude, especially when we know how much fewer they are both in number of species and individuals. Still more so when we find the Alpine hare at sea-level. Can this be ascribed simply to the humid and equable climate, resembling that of the northern Scottish Isles, where the same thing takes place? or is there a deeper cause dependent on some complication of geological changes and conditions?



*Division First.*

To begin with the positive features—

- A. 1. There are 9 Subalpine species belonging to Watson's Highland Type.

Ranunculus Flammula, var. reptans.  
 Dryas octopetala, var. pilosa (Bab), . South limit in York.  
 Saxifraga hypnoides.  
 Hieracium cerinthoides, . . . . South limit in York.  
 Arbutus Uva-ursi, . . . . South limit in York.  
 Gentiana verna, . . . . South limit in York.  
 Sesleria cœrulea, . . . . South limit in York.  
 Juniperus nana.  
 Plantago maritima (occurring 7 miles inland).

Five of these find their south limit in York as regards Britain, and hence range further south in Ireland, while the occurrence of the whole number at little above the sea level (50.110) is well worth notice.

2. Nine species are northern plants, appertaining to Watson's Scottish Type.

Thalictrum minus.		Antennaria dioica.
Rubus saxatilis.		Vaccinium Oxycoccos.
Rosa villosa.		Cystopteris fragilis.
Galium pusillum.		Lycopodium selaginoides.
Galium boreale.		

These two sections, numbering 18 species, include all that can be called northern plants.

- B. Of the Atlantic Type we find but 6 species—fewer than might have been anticipated.

Coronopus didyma (Corofin,	Rubia peregrina.
also Kinvarra).	Pinguicula Lusitanica.
Hypericum Androsæmum.	Drosera intermedia.
Cotyledon Umbilicus.	

I may here be allowed to remark that from the paucity of "Atlantic" species in Ireland, Forbes' term of "French Type" is more appropriate for these, and also for the majority of the plants at present referred to the so-called "Atlantic Type."

- C. Of English Type or southern species there is comparatively a large number, viz. 44, and most of them are rare in Ireland.

Thalictrum flavum.		Viola stagnina.
Papaver hybridum.		Hypericum dubium.

Geranium columbinum.	Chlora perfoliata.
Euonymus Europæus.	Verbascum Thapsus.
Rhamnus catharticus.	Linaria Elatine.
Frangula.	Verbena officinalis.
Spiræa Filipendula.	Chenopodium Bonus Henricus.
Rosa arvensis.	Euphorbia exigua.
Poterium Sanguisorba.	Spiranthes autumnalis.
Enanthe Phellandrium.	Epipactis media.
Asperula cynanchica.	Orchis pyramidalis.
Fedia dentata.	Iris fœtidissima.
Auricula.	Potamogeton lanceolatus.
Thrinicia hirta.	Arum maculatum.
Carduus nutans.	Cladium Mariscus.
tenuiflorus.	Carex stricta.
pratensis.	Alopecurus agrestis.
Carlina vulgaris.	Lolium italicum.
Artemisia Absinthium.	Avena flavescens.
Erigeron acris.	Bromus erectus.
Anthemis Cotula.	Ceterach officinarum.
Monotropa Hypopitys.	Lastrea Thelypteris.

*N.B.*—*Veronica Buxbaumii*, first introduced with turnip seed in 1851, is gradually becoming established as a weed.

The following are not marked as Irish in the 3d Edition of Babington's Manual. Those marked T, G, and K occur respectively at Castle Taylor, Garryland, and Kilmacduagh:—

Cardamine sylvatica T.	Hieracium cerinthoides T.
Viola stagnina G.	Epipactis media G.
Spiræa Filipendula G.	Potamogeton lanceolatus K.
Geum intermedium G.	Alopecurus agrestis T.
Myriophyllum alterniflorum T.	Lolium italicum.]

Nearly one-third of the southern plants are peculiarly partial to a calcareous soil.

Geranium columbinum.	Linaria Elatine.
Spiræa Filipendula.	Epipactis media.
Poterium Sanguisorba.	Orchis pyramidalis.
Asperula cynanchica (I have also gathered it on sand-hills).	Bromus erectus.
Monotropa Hypopitys.	Ceterach officinarum.
Chlora perfoliata.	Ophrys apifera.
	Ophrys muscifera.

Only the two Ophrides represent the Germanic or South-eastern Type, and they are inserted amongst the "limestone plants," in the belief that their range in Great Britain is more affected by the distribution of calcareous soils than any geographical reason. Their occurrence at the western extremity of the great limestone plain of Ireland would seem to favour this hypothesis, and they probably ought to be transferred to the English Type.

Other species found at Castle Taylor which are said by Lecoq, "Etudes sur la Geographie des Plantes," to prefer a calcareous soil.  
19 species.

Thalictrum minus.	Daucus Carota.
Papaver hybridum.	Sambucus Ebulus.
dubium.	Rubia peregrina.
Sinapis alba.	Fedia Auricula.
[Geranium pratense].	Carduus Crispus.
Lathyrus tuberosus.	Centaurea Scabiosa.
Rubus cæsius.	Tragopogon major (?).
Rosa arvensis.	Euphorbia exigua.
Pimpinella Saxifraga.	Sesleria cærulea.
Pastinaca sativa.	

Other uncommon plants observed growing near Castle Taylor, which are more or less generally distributed. 35 species.

Ranunculus Lingua.	Habenaria viridis.
Barbarea arcuata.	Potamogeton plantagineus.
Arabis hirsuta.	perfoliatus.
Sinapis alba.	Sparganium minimum.
Viola canina (flavicornis).	Carex intermedia.
Geranium lucidum.	acuta.
sanguineum.	fulva (much rarer than
Geum intermedium.	var. Hornschuchiana).
Pyrus Aria.	Avena pubescens.
Myriophyllum alterniflorum.	Catabrosa aquatica.
Tragopogon pratensis.	Glyceria plicata.
Carduus crispus, var. acanthoides.	Festuca bromoides.
Primula veris.	arundinacea.
Utricularia minor.	loliacea.
Littorella lacustris.	Bromus commutatus.
Rumex sanguineus (red-veined).	Lolium temulentum.
Habenaria chlorantha.	var. arvense.
	Botrychium Lunaria.
	Ophioglossum vulgatum.

On drawing a comparison between our district and Yorkshire (one degree further north, and where the Teesdale limestone affords many of the same species), it is interesting to notice the very great difference of numbers—premising, of course, that considerable allowance should be made for the restricted nature of the Irish district, when balanced against the largest English county:—

Yorkshire has	Castle Taylor.	Proportion.
Total, . 1001	432	7 : 3
Atlantic, . 10	5	2 : 1
Northern, . 91	18	5 : 1
Southern, . 277	44	6 : 1

From this we may see how great a thinning out there is of species as we advance westward. Of all the 432, only three are not found in Yorkshire, and these three are eminently western species, viz. :—*Coronopus didyma*, *Rubia peregrina*, and *Pinguicula Lusitanica*.

The occurrence of the Bee and Fly Orchis, characteristic of the Infer-agrarian zone, among such alpine plants as *Sesleria*, *Gentiana verna*, *Juniperus nana*, and *Arbutus Uva-ursi*, strictly belonging to the (infer-) arctic, is perhaps the most remarkable feature of the district, and presents a combination of characters probably nowhere else to be met with by the explorer of British botany.

N.B.—To render these remarks as far as possible complete, it may be as well to mention three plants which were observed on the same strata in the north of Clare. They are introduced to show that their range extends as far as Castle Taylor. They are scarce plants in Ireland.

*Orobanche rubra*, on *Festuca rubra*, and on *Thymus Serpyllum*.  
*Nepeta Cataria*.  
*Marrubium vulgare*.

The first a northern, the two latter southern plants.

#### *Division Second.*

We now proceed to consider the negative characteristics. This attempt is confessedly imperfect; and, indeed, it would be extremely difficult, and would require longer experience than I have enjoyed, to arrive at a correct estimate on this point. Still, it is too interesting to be passed over.

The species here employed as a standard are those omitted in the *New Botanist's Guide* as being of too common occurrence, deducting, however, those whose range has since been ascertained not to exceed 14 of Watson's provinces. It will also be safer to neglect 38 of these which, though not checked with certainty, were either doubtfully noticed or reported, or, most probably, only overlooked. This will leave 107 species to represent the deficit, and of course there are several others of more restricted range belonging either to the English or Atlantic (French) type that might also be reasonably expected to occur, as well as some ascertained to be more common since the "Remarks" were published.

Out of these 107 absentees, some are to be ascribed to the physical aspect of the country, combined, perhaps, with geographical causes; for instance, those that affect water, hedge banks, and especially wood and copse, there being no vestige of aboriginal forest.

A second class evince a sort of repugnance to the soil. I have never seen them on limestone. This is a curious point, because it is well known that very few plants are really confined to any one class of soils.

For example, the following "Sand Plants" :—

Arenaria rubra.	Scleranthus annuus.
Cerastium semidecandrum.	Filago minima.
Erodium cicutarium.	Lycopsis arvensis.
Cytisus Scoparius.	Myosotis versicolor.
Vicia angustifolia.	collina.
Trifolium arvense.	Aira præcox.
Ornithopus perpusillus.	Plantago Coronopus.

Those of sandy or moorish ground—

Spergula arvensis.	Senecio sylvaticus.
Galium saxatile.	Digitalis purpurea.
Chrysanthemum segetum.	

Those of moorish soil not found—

Viola palustris.	Aira flexuosa.
Jasione montana.	Lastræa dilatata.
Juncus squarrosus.	Athyrium Filix-femina.

I cannot quote any plant whose absence can, strictly speaking, be ascribed to the want of clay.

Table of negative results obtained from the apparent absence of the following species, which are none of them rare or wanting under similar latitude in England :—

(1) Belonging to Watson's British Type, and rated at from 18 to 16 provinces—

Anemone nemorosa.	Ægopodium Podagraria.
Ranunculus sceleratus.	Cenanthe crocata.
hirsutus.	Anthriscus vulgaris.
Papaver Argemone.	Adoxa Moschatellina.
Draba verna.	Galium cruciatum.
Thlaspi arvense.	Hieracium boreale.
Erysimum Alliaria.	vulgatum.
Raphanus Raphanistrum.	umbellatum.
Lychnis dioica.	murorum.
Stellaria Holostea.	cæsius.
uliginosa.	Centaurea Cyanus.
Mœhringia trinervis.	Cichorium Intybus.
Geranium pratense (too near an orchard to be admitted).	Tanacetum vulgare.
Ononis arvensis.	Gnaphalium sylvaticum.
Trifolium medium.	Solanum Dulcamara.
Lotus major.	Veronica montana.
Vicia sylvatica.	Lamium amplexicaule.
hirsuta.	Lycopus Europæus.
Myriophyllum spicatum.	Echium vulgare.
Peplis Portula.	Hyoscyamus niger.
Sedum Telephium.	Stachys arvensis.
	Chenopodium album.

Polygonum Bistorta.	Carex curta.
Mercurialis perennis.	remota.
Alnus glutinosa.	ovalis.
Salix (species plures).	pallescens.
Allium ursinum.	pilulifera.
Sparganium simplex.	paludosa.
Zannichellia palustris.	vesicaria.
Luzula pilosa.	Milium effusum.
Scirpus sylvaticus.	Alopecurus pratensis.
fluitans.	Holcus mollis.
pauciflorus.	Poa nemoralis.
Carex vulpina.	Avena pratensis.
paniculata.	

(2) Species absent (British type, but 15 provinces)—14 species.

Ranunculus auricomus.	Calamintha Clinopodium.
Lepidium campestre.	Galeopsis versicolor.
Sisymbrium Sophia.	Listera Nidus-avis.
Helianthemum vulgare (not Irish).	Potamogeton pectinatus. heterophyllus.
Hypericum hirsutum.	Carex muricata.
Lychnis vespertina.	pendula.
Trifolium filiforme.	

(3) Of Watson's English Type, and rated at 16 provinces—5 species.

Malva moschata.	Bidens tripartita.
Ononis antiquorum.	Linaria vulgaris.
Pyrus Malus.	

(4) English Type, and 15 Provinces—11 species.

Papaver Rhæas.	Apargia hispida.
Viola odorata.	Stachys Betonica.
Rosa rubiginosa.	Paris quadrifolia.
Enanthe fistulosa.	Poa compressa.
Valeriana dioica.	Symphytum officinale (com- mon in gardens).
Dipsacus sylvestris.	

We have thus enumerated 123 plants of general occurrence in England, but not known at Castle Taylor. This shows sufficiently the deficiency of species. There are many others such as *Polypodium calcareum*, which we should expect under similar circumstances on the other side of the Irish Sea.

CORRECTIONS ON THE "FLORA OF CASTLE TAYLOR."

Mr. More published two sets of corrections on the foregoing Paper:—

I. *Corrections published in the Gardener's Chronicle for February, 1856 (p. 60).*

- Page 235, line 12 [p. 525, line 23].\* Add to the northern plants "*Drosera anglica*," making them 10.  
 ,, 235, ,, 20 [p. 525, ,, 32]. Instead of "Atlantic species in Ireland, Forbes' term of French type," it should have been "Atlantic species in *the West of Ireland*, Forbes' term of *Norman type*."  
 ,, 235, ,, 35 [p. 528, ,, 4]. After *Pinguicula lusitanica*, add "and perhaps *Viola stagnina*."  
 ,, 235, ,, 48 [p. 528, ,, 18]. Add *Cerastium arvense* to the Clare plants.  
 ,, 236, ,, 27 [p. 527, ,, 34]. Add *Euphrasia gracilis* (Fries).  
 ,, 237, ,, 11 [p. 528, ,, 34]. Instead of "French type" read "Norman type."

From the list of supposed absent species erase *Scirpus pauciflorus*.

II. *Corrections published in the Natural History Review, 1860 (vol. vii., pp. 440-441).*

In an article on "Localities for some rare plants observed in Ireland," are the following withdrawals from the Castle Taylor flora:—

Hieracium cerinthoides.		Potamogeton lanceolatus.
Epipactis media.		Carex acuta.

Also, as not indigenous:—

Alopecurus agrestis.		Bromus commutatus.
Vulpia bromoides.		Lolium italicum.

The following are added:—

*Fumaria pallidiflora*.  
*Arenaria serpyllifolia* var. *leptoclados*.  
*Hieracium iricum*.

*Euphrasia gracilis*, recorded in earlier set of corrections, is here said to "belong rather to *E. salisburgensis*." Mr. More's notes on this critical plant have been discussed by Mr. N. Colgan in the *Irish Naturalist* for April, 1897 (pp. 105-108).

\* The bracketed references are to the pages, &c. of the present volume.

## REMARKS UPON THE MIGRATION OF BIRDS.

[“ZOOLOGIST,” *May*, 1859.]

IT was the apparently exceptional case of a small-billed migrating warbler being found upon our shores in winter that first drew my attention to a movement little noticed, but which, it is believed, will be found to take place regularly in autumn and winter, in a nearly direct line from the East to the West of Europe.

The black redstart is well known to occur every winter at different spots along the channel, as well as in other parts of Great Britain, a country which, for all practical purposes, occupies with regard to Europe a westerly position; yet this redstart scarcely reaches so far North as Scandinavia in its summer migration, though it is common at this season in the more central parts of Europe.

Several herons, as the great egret and buffbacked herons, also the ibis and the little owl, have been seen in England in late autumn or winter, and all these, it is well known, are found during the breeding season to inhabit the eastern and southern more than the northern parts of the Continent. So has the courser,\* a bird of the Mediterranean basin, been shot upon Salisbury Plain in October; and the Dalmatian *Regulus*, from the borders of Asia, was taken in Northumberland at the end of September; White's thrush in January. The little bustard is a still more striking instance of a species indigenous to the East and South of Europe appearing with us during the winter months; and this bird, too, has been observed in the act of migration flying from East to West near the Caspian Sea.

In Devonshire and Cornwall† it is during winter that are found the fire-crested *Regulus*, Richard's pipit, alpine accentor, spoonbill and little bustard; and many birds of the highest rarity in Britain have occurred at the Land's End in September and October, yet can hardly be supposed to have been reared in England: the crested and short-toed larks, woodchat, ortolan, pastor, avocet and ibis must have proceeded from the central or even southern countries of Europe. And

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\* Other birds no doubt come to us in greater numbers in autumn and winter from the East and South of Europe; but it has been thought best to rely upon the rare species, since they cannot have come to us from a northern latitude.

† For Cornwall I have principally relied upon the numerous and valuable communications of Mr. Rodd to the 'Zoologist.' The Irish occurrences are quoted from Thompson's work; and for Great Britain use has been made of Yarrell's birds and of various notices in the 'Zoologist.' The present paper contains but a short abstract from a large collection of facts, and it is intended to invite discussion upon so interesting and difficult a subject.



the abundant flights of migratory birds which are yearly observed in Cornwall at the period of the autumnal movement include many species that nest rather on the eastern side of England, and certainly do not breed in Cornwall,—*e.g.* nightingale, reed wren, lesser whitethroat, &c. ; and it is evident that these birds have no intention of crossing the channel at its narrowest point. Other examples of a short journey from East to West will be found in the tree sparrow, stock dove and Norfolk plover that are seen in the West of England in winter only.

Various birds which visit the Land's End in spring, as the Kentish plover, white and gray-headed wagtails, purple heron,\* &c., do not go far North in England, and so must be advancing in an easterly direction along the south coast, following at this season a reverse course to that of the autumn.

In Ireland the redstart (probably not the black only) and the crested lark have been obtained in winter; and the blackcap and Norfolk plover are better known in the sister island as winter than summer visitors. I have myself seen a wheatear upon the banks of the Royal Canal in the month of December. The hoopoe has more than once been killed in February, and many of the scarcest occasional visitors to Ireland, as well as Great Britain, have been met with during the autumn and winter months: as examples, the spotted eagle, griffon vulture, spoonbill, avocet, blackwinged stilt, ibis, whiskered and black terns may be quoted; to which perhaps might be added White's thrush and the Sabine's snipe (if a good species), and the two African birds, spotted cuckoo and goldvented thrush, both obtained in winter. Nor are the instances in which some of these birds have been noticed in the spring or summer sufficient to invalidate those above quoted, since it is only here wished to prove the occasional occurrence in Great Britain, during late autumn and winter, of species that come from the South-east and East; and we need not be surprised to find birds from any quarter visiting us at either of the periods of the general migratory movement, it being well known that a few species have, both in spring and autumn, wandered to our shores from America † as well as Africa.

But indeed when we consider the differences presented by the remarkable contrast between the climates termed "maritime" and "continental" by geographers, the former being distinguished by its mild temperature in winter, and more favourable from the moisture of its air to a continuance of insect-life at that season,—while the continental is equally rigorous,—why should not birds by instinct be aware of these differences?

The recent occurrence in Sussex of *Sylvia galactotes*, a bird of quite southern distribution on the Continent, sufficiently shows that the line

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\* This bird has also frequently visited England in winter.

† At least eight Insectorial and nine Grallatorial birds have crossed the Atlantic; and, if we may trust all the notices, three species of woodpeckers, which, like the belted kingfisher, are not generally credited with enduring powers of flight.

of autumnal migration does not lie at all arbitrarily North and South ; but, to a great extent, at right angles to the "Isotherms" of winter temperature, which run in a direction of N.W. and N.N.W. in Central and Western Europe, and migration must therefore take place in a line from the N.E. and E. to W.S.W. and W. With future observation I feel little doubt that the streams of migration may hereafter be laid down in a manner analogous to that of the ocean and air currents ; and that the laws which govern those streams will be found to depend upon the nicely balanced influences of—1st, prevailing winds ; 2nd, physical features of mountain chains and river systems,\* and 3rd, the distribution of water and land ; as well as by temperature and the all-important consideration of a sufficient supply of food, which are at present thought to be almost the sole cause. It will thus be seen how desirable it becomes, with a view to future generalization, that additional pains should be taken to register exactly all occurrences of our rarest birds. At least the month, and far better the day, are well worth recording where possible, instead of the vague notices of "lately" or "within the last few months," which cannot serve a purpose like the present.

Another point upon which some further information would be very acceptable is with respect to the periods at which the old and young birds move. I believe it is very generally thought that the old males precede the females and young by an interval of several days ; but that this rule does not hold quite absolutely I have had good proof by finding female redstarts and blackcaps, as well as males, among the first flights ; and if the females are less noticed they are also more retiring in their habits. I have certainly shot both male and female godwits from the same flock in May.

And if in most cases "the females and young" are later in advancing to their breeding haunts, is it of males only or of both sexes that are composed those small detachments of old birds only, which, at least in the case of the dunlin, are the earliest to return in autumn ? How comes it, too, that when the birds of this family lay but four eggs, so far smaller a proportion is found among the September flocks, unless it be supposed that most of the parent birds have hastened on by themselves at an earlier period. Yet sometimes at least the female is found accompanying the young brood.

May we find some good observers who will try to solve a part of these most interesting problems ! And even if no precise rule can be fixed, why need we despair of discovering something more than is known at present of the general laws ? though Natural History, and especially migration, be not reducible to mathematical exactness.

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\* It is believed that the course of rivers and the neighbourhood of the coast are both followed in preference by migratory birds.

VIOLA HIRTA AND V. ODORATA.

[“PHYTOLOGIST,” *April*, 1860.]

BOREAU, in his 3rd edition (1857) of the “*Flore du Centre de la France*,” describes no less than 15 species of Violets belonging to a section where in England we acknowledge only 2 distinct plants.\*

As the detailed descriptions are somewhat lengthy, and might not be acceptable to all the readers of the “*Phytologist*,” we need not inflict them in full.

Suffice it to say, that however fanciful may appear the distinctions of the foreign botanists, no one who is desirous of claiming a thorough acquaintance with a variable species can afford to remain ignorant of what are by some eminent botanists considered important characters. Whether these be sufficient to establish a species or not, it should surely be our endeavour to test their value upon our own soil, and so try to disprove their permanence, rather than to scout them without investigation. The so-called species are thus arranged dichotomously:—

- |   |                      |
|---|----------------------|
| 3. Stems sending out long, creeping, leaf-bearing scions, . . . . .                           | 7                    |
| Creeping scions absent, or nearly so, . . . . .   | 4                    |
| 4. Ovary of fruit downy or hairy, . . . . .   | 5                    |
| Ovary of fruit glabrous, . . . . .  | <i>V. sciaphila.</i> |
| 5. Flower slightly scented, stipules fringed with hairs as long as their own width, . . . . . | <i>V. collina.</i>   |
| Flower scentless, cilia not so long as the diameter of the stipule, . . . . .                 | 6                    |
| 6. Plant hairy, flowers bluish violet, . . . . .  | <i>V. hirta.</i>     |
| Plant closely downy, flowers lilac, . . . . .   | <i>V. foudrasi.</i>  |
| 7. Adult leaves ovate-oblong, more or less pointed, . . . . .                                 | 9                    |
| Leaves nearly orbicular, very blunt, . . . . .  | 8                    |
| 8. Flowers bluish violet or white, capsule depressed, . . . . .                               | <i>V. odorata.</i>   |
| Flowers flesh-coloured or lilac, capsule ovate, . . . . .                                     | <i>V. subcarnea.</i> |
| 9. Peduncles glabrous, or clothed with close down, . . . . .                                  | 10                   |
| Peduncles pilose throughout, . . . . .  | <i>V. dumetorum.</i> |

\* The specific distinctness of these two has been doubted by some eminent British botanists. See “*Phytologist*,” N.S., vol. I., p. 76; and “*Cybele Brit.*,” vol. I., p. 175.

10. Stipules with fringes of their own width, . . . . . 11  
 Fringes far shorter than the diameter of stipule, . . . . . 12
11. Adult leaves dull green, spur and capsule violet, *V. scotophila*.  
 Leaves bright green, spur not coloured, capsule  
 greenish, . . . . . *V. virescens*.
12. Stipules hairy all over, stolons numerous, rooting, *V. multicaulis*.  
 Stipule fringed only, stolons few, . . . . . 13
13. Sepals fringed at their edges, . . . . . 14  
 Sepals glabrous at their edges, . . . . . 15
14. Flowers scentless, petals much attenuated at the  
 claw, capsule small or abortive, . . . . . *V. abortiva*.  
 Flowers scented, petals little narrowed, capsule  
 rounded, . . . . . *V. vinealis*.
15. Flower scented, white within as far as one-  
 third up, . . . . . 16  
 Flower nearly scentless, a little white at the  
 base, . . . . . *V. permixta*.
16. Flower little scented, petals spreading, narrowed  
 at their claw, . . . . . *V. sepincola*.  
 Flowers highly scented, petals little narrowed,  
 and so close as to form a tube, . . . . . *V. beraudii*.  
 "Boreau," vol. II., pp. 73, &c.).

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### CHICKWEEDS.

See to the Chickweeds.

["PHYTOLOGIST," *June*, 1860.]

PERHAPS nearly every reader of the "Phytologist" thinks he knows quite enough about *Stellaria media*, one of his earliest acquaintances, and such a common weed as it is.

It is, however, the very object of our series of extracts from Boreau (upon *Draba*, *Viola*, *Ranunculus*, &c.) to draw renewed attention to the exact discrimination of some of the commonest plants, which few people think it worth while to examine at all. And though it is easier to adopt the method of Mr. Bentham, who confiscates both species and varieties at once, yet it is believed that, for those who care to make British plants a real study, there are three great advantages derivable from a diligent attention to common plants.

First, we hereby train the mind to the practice of that accuracy which is so essential to Science.

Secondly, there is provided ample occupation for the local botanist.

Thirdly, by this means are to be collected the items of evidence upon which, eventually, must depend any attempt at establishing something like agreement as to the limits and meaning of species, it being notorious that those who are at present most disposed to "lump" species are usually those who have least practical acquaintance with the plants, and that their operations are too often the merest guesses. At the same time it cannot be denied that many species have been recently far too much subdivided, and that it is equally the fault of some "splitting" botanists to have established species with too short experience. Still, for all that, nearly all the progress recently made in the knowledge of our British Plants is owing to the latter of the two "schools," and much will have been gained if we but lay the foundation for future experiments by registering all the "forms" which we can find; thus securing a starting point for observations upon the variability and permanence of the true species. Common plants, above all others, are likely to furnish data for such investigations, because from being more dispersed they exist under more varied conditions, and are under the eyes of a greater number of observers.

Such being then the importance of the subject, I trust no apology will be needed for introducing to the readers of the "Phytologist" three different plants, which are in this country called indiscriminately *Stellaria media*, the first of these being the  $\beta$ , *neglecta* of Babington's Manual, p. 53.

1. *Stellaria neglecta*, Weihe.—*S. latifolia*, D.C. *Stems* of moderate height, weak, fragile, upright, unbranched, or with only short branches at their base, dichotomous at the summit, with an alternating line of hairs running from knot to knot. *Leaves* wide, the lower ones stalked, sub-cordiform, pointed; the upper sessile, ovate, pointed. *Peduncles* very long, reflected when in fruit, usually like the calyx with no hairs. *Petals* white, bipartite, slightly exceeding the calyx. *Stamens* ten. *Anthers* rose at first, then yellowish, at last brown. *Styles* nearly as long as the stamens. *Seeds* rough ["acutely tubercled"]. In damp places.

*S. umbrosa*, Opitz, the *S. media*,  $\gamma$ , of Babington's Manual, and *S. grandiflora*, Ten., is described as having its "leaves narrowed gradually into long points, its calyx more narrowed below; sepals lanceolate, acute, glabrous, but tubercular; valves of the capsule narrower, seeds with prominent acute tubercles" (Bab. Man., p. 53). In the latter character the plant agrees with *S. neglecta*, of which it is perhaps a variety.

*S. neglecta* in aspect resembles *S. nemorum*, and it is very probably the former which has been found near Brighton (see p. 157 of this volume). *S. neglecta* is said to flower in April and May, not the year round like *S. media*. It is to be noticed that Reichenbach (Flor. Exc.) describes *S. neglecta* as having decumbent stems.

2. *S. media*, Vill. *Stems* very much branched, spreading, ascending, of a handsome green colour, with an alternating line of hairs. *Leaves* ovate, pointed, shortly stalked, the upper ones sessile. *Peduncles* axillary and terminal, reflexed when in fruit, ultimately straight, usually hairy, as is the calyx. *Petals* white, cleft, scarcely as long as the calyx. *Stamens* 3 to 5 ("sometimes 6-8 in the English plant"). *Anthers* reddish, becoming brown. *Styles* nearly as long as the stamens. *Capsule* oblong. *Seeds* rough ["bluntly tubercled"].

A remarkable form occurs on a damp heath near Angers. Its stems are numerous, prostrate, branched above only: the branches upright, fastigiate, petals half the length of the calyx; styles 3, plumose; stamens 3.

*Obs.*—The normal number of stamens in *S. media* is 5; these are placed alternately with the petals, and each springs from a little round basal knob or gland. Often one or more extra stamens are found opposite to the petals; but these do not appear to be provided with any basal gland. Sometimes 2 stamens spring from the same gland, then the number is very variable. Of some flowers I recently gathered, No. 1 offered 5 normal stamens + 1 baseless extra stamen; No. 2, 4 regular stamens + 1 irregular; another had 3 regular + 2 irregular; a fourth, 5 regular + 3 irregular stamens.

3. *Stellaria Boreaeana*, Jord.—*S. apetala*, auct. *Herb* pale green, slender, turning yellow when exposed to the sun. *Stems* slender, with the alternate line of hairs. *Leaves* small, ovate, pointed, the upper ones nearly sessile. *Pedicels* axillary and terminal, those of the fruit soon becoming straight. *Sepals* close pressed, seldom opening, covered with jointed spreading hairs, rather glabrous. *Petals* none. *Stamens* 2 or 3. *Anthers* violet, turning brown, included. *Styles* hardly any. *Stigmas* short, curved. *Capsules* ovoid, exserted. *Seeds* small, pale, minutely rough, shagreened in the middle ["bluntly tubercled"]. Dry sandy places.

Capsule and calyx are often tinged with purple, in the Isle of Wight plant. Sepals spreading under a hot sun only.

(Derived principally from Boreau, "Flore du Centre de la France," vol. II., p. 104).

ON THE DISCOVERY OF *GLADIOLUS ILLYRICUS* (KOCH)  
IN THE ISLE OF WIGHT.

[From the JOURNAL OF THE LINNEAN SOCIETY, 1862 (vol. vi., p. 177).]

THROUGH the kindness of my friend, the Rev. E. Venables, I have lately obtained the loan of a specimen and drawing of a wild *Gladiolus*, gathered by a lady near Shanklin, in the Isle of Wight; and, in answer to some inquiries addressed to her, Mrs. Phillipps, the discoverer, has informed me that it was found growing in the midst of a wild tract of copse and heath, called the "Apse" or "America" woods. Only one plant was noticed; it was in bud on the 7th of July, 1855, and having been carried home, afterwards flowered, when the drawing was made.

The *Gladiolus* found at Shanklin evidently belongs to the same species as that which grows in the New Forest, as I have ascertained by comparing Mrs. Phillipps's specimen with a series collected at Lyndhurst, by Mr. John T. Syme; but in the characters afforded by the stigma, whose lobes are suddenly (not gradually) enlarged upwards, the English plant from both localities appears to agree better with *G. illyricus* (Koch) than with either *G. imbricatus* (Linn.) or *G. communis* (Linn.); and I therefore venture to propose a change of name, which, I am glad to say, has the approval of my friend, Professor Babington, who further allows me to state that he finds the English *Gladiolus* to agree exactly with Continental specimens of *G. Illyricus* issued by C. Billot.

*Gladiolus communis* (Linn.) is a much larger plant, and is easily distinguished from the other two species by its larger flowers and much stouter leaves. The range also of *G. communis* appears to be more exclusively southern in Europe.

It will be remembered that Dr. Arnott, in the latest edition of the British Flora, treats "*Gladiolus communis*" as an introduced plant. Mr. Bentham, also, in his "Handbook," writes: "Possibly accidentally introduced"; but I believe that the occurrence of *Gladiolus illyricus* in the Isle of Wight supplies an important link in support of its being indigenous to Britain.

There can be no doubt as to the identity of the present specimen. Fortunately, the finder noted down the date in her Journal at the time, and made a drawing of the plant while it was still fresh. Further, there is a tradition on the spot; it has long been known to the inhabitants of a neighbouring farm-house that a wild *Gladiolus* grows in the woods at Shanklin.

The specimen now exhibited was found in the middle of the wood, in a spot remote from cottages; nor am I aware that *G. illyricus* is at all cultivated as a garden-flower.

The nature of the British stations (heaths and open woods) agrees perfectly with what is known of the place of growth of *G. illyricus* in the north-west of France.

If *G. illyricus* appears to belong to the south and west of Europe, its position in Britain is not unlike that of several other species which, though absent from North and Middle Germany, extend along the shores of the Atlantic as far as the British Isles. *Arum italicum*, *Rubia peregrina*, *Cyperus longus*, *Agrostis setacea*, &c., will readily occur as examples of this, and no doubt all these plants are influenced by the comparative mildness of the maritime climate of the west of Europe.

If very rare in Hampshire and in the Isle of Wight, *G. illyricus* is also said to be exceedingly scarce in the Loire district of France, as indeed might be expected from its outlying position in both countries, where we might suppose it to be at the extreme limit of its range.

It is hoped that any botanist who may succeed in discovering other plants at Shanklin will not fail to publish the details, since, however great the geographical probabilities of its wildness, it would be very desirable to have more than a single root to vouch for *Gladiolus illyricus* being indigenous to the Isle of Wight.

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#### ON THE ALLEGED FORMER EXISTENCE OF THE PTARMIGAN IN CUMBERLAND AND WALES.

[“ZOOLOGIST,” *February*, 1881.]

I HAVE been lately endeavouring to trace back the record, so often repeated, of the former existence of the Ptarmigan in Cumberland and Wales; but hitherto with very unsatisfactory results. I am therefore led to ask the readers of ‘The Zoologist’ if any one can help me with a reference to any writer contemporaneous with, or earlier than, Pennant, who appears to have been the first to publish the locality of Keswick, which, with the addition of Wales, is repeated a few years later by Latham in his “General Synopsis.”

It will not be uninteresting to follow, from the first, the variations and additions which have been made by subsequent authors.

Pennant (1776), in the fourth edition of his ‘British Zoology,’ says of the Ptarmigan, “A few still inhabit the lofty hills near Keswick, in Cumberland.”

Latham (1783) copies these words verbatim, adding, “as well as in Wales”; and here it is well to observe that Pennant, himself a Welshman, and taking particular interest in the fauna of the principality, makes no mention of Wales as a locality for the Ptarmigan, either in his ‘British Zoology’ or in his ‘Tour in Wales.’

Dr. Heysham (1794), in his account of Cumberland animals, given



in Hutchinson's 'History of Cumberland,' refers to both Pennant and Latham, and says, "The Ptarmigan is become a very scarce bird in Cumberland; and I believe is nowhere to be found in this county, except on the lofty mountains about Keswick." A statement which may have been derived from the same source as Pennant's, or may be an adaptation, in slightly varied language, from the 'British Zoology'; and, if Dr. Heysham spoke from independent observation, or enquiry, it is to be regretted that he has furnished so little in addition to what was already known. Whatever we may think of his testimony, so far as I know, he only, after Pennant, can be quoted as a possibly independent authority.

Thenceforward most authors have been content to repeat the old localities of Keswick and Wales,\* or Cumberland and Wales,† varied, in the language of Montagu (1802), as "Some few are yet found to the south of the Tweed."‡

But, in 1825, Selby departs still further from the original statement, when he writes:—"According to Pennant and earlier writers, this species seems, at one period, to have inhabited some of the mountainous ridges of Cumberland and Westmoreland." Selby is the first to omit Wales.

A few years later, Sir W. Jardine, in his 'Game Birds' (1834), says:—"According to Pennant, and some contemporary writers, these birds were found on the hills of Westmoreland and Cumberland; and, I believe, recollections now exist of a few having been seen upon the high ranges which appear on the opposite border of Scotland. These have been for some time extirpated, and unless a few solitary pairs remain on Skiddaw, or some of its precipitous neighbours, the range of the Grampians will be its most southern British station." The same words are repeated in Jardine's 'Birds of Great Britain and Ireland,' part iii. (1842); but I have not been able to discover who were these earlier and contemporary writers, unless Latham, Walcott, Lewin, and Heysham are intended, all of whom, with perhaps the exception of Heysham, evidently copied from Pennant.

Jenyns (1835) gives Cumberland and Westmoreland; Macgillivray (1837) Wales and North England; and, lastly, Yarrell, in all three editions, still repeats Cumberland and Westmoreland, as former localities for the Ptarmigan.

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\* Graves, in his 'British Ornithology,' the first edition of which was published in 1811, remarks that this bird "is rarely to be met with but on the high mountainous parts of this country, on the highlands of Scotland, and on the hills of Snowdon, in Wales; they abound on all the heathy mountains in the north of Westmoreland and Cumberland, and like the Grouse feed on most kinds of mountain berries."—ED.

† Walcott 'Synopsis of British Birds' (1789); Donovan, 'Natural History of British Birds' (1794).

‡ Lewin, 'Birds of Great Britain,' vol. v. (1797); Bewick, 'History of British Birds' (1797).

Thus, for more than a hundred years, we find Pennant's original station of Keswick continually quoted, and this apparently without any confirmation, or fresh enquiries; and the range has been even extended, so as to include Westmoreland. We have Wales repeated up to 1837 although Latham is the sole and unsupported authority for the statement; and we are led to conclude, from the silence of Pennant, and the want of any corroboration since the time of Latham, together with the omission of Wales by many of our best authorities, that Latham unconsciously added Wales, in the belief that he had quoted it from Pennant, who was so well known as an authority concerning his own country.

Dismissing Wales, then, as probably a misquotation, I believe I am now able to offer a possible explanation of the Keswick locality, through the assistance of my friend Mr. W. K. Dover.

Mr. Dover, himself residing at Keswick, has kindly instituted enquiries on the spot, and he tells me that there is, even now, a "white" or white-mottled variety of the Red Grouse, known to frequent Skiddaw Forest. His friends have there met with a few "highly white-mottled Grouse," which the gamekeeper had also observed for several years, and Mr. Dover himself has seen and shot upon Skiddaw some Grouse, "with plumage much mixed with white, and with their legs deeply feathered, white to the toes, so as to give them a whitish mottled appearance when seen upon the open at a little distance." Again, in a more recent letter, he tells me that a few years ago a party, when shooting Grouse upon Shap Fells, in Westmoreland, met with two or three birds which were so white that two Scotch gamekeepers who were present called them Ptarmigan; and these birds both Mr. Dover and his informant believe were white-mottled Grouse. So far, Mr. Dover has not succeeded in finding any tradition of the former existence of the Ptarmigan in the Lake District.

Hence, I think, we may assume that Pennant and Heysham (if the latter did not quote Pennant) may have derived their knowledge from the same informant, who, in the careless way in which Natural History was then studied, is very likely to have merely reported the existence, in small numbers, of a white or white-mottled Grouse upon the mountains near Keswick; and the Ptarmigan having, at that time, only lately been included in the British fauna, any "white" or "white-mottled" Grouse would be identified with it.

I conclude, accordingly, that it was some white or whitish variety of the Red Grouse, and not the Ptarmigan, which used, in the time of Pennant, to frequent, as it does still, the lofty hills near Keswick.

PLANTS GATHERED IN THE COUNTIES OF PEMBROKE  
AND GLAMORGAN.

[JOURNAL OF BOTANY, *February*, 1884.]

DURING last August I made, with my sister, a short tour in South Wales, and I think that a few of the plants which we observed may be worth notice in the 'Journal of Botany.'

AT AND ABOUT ST. DAVID'S TOWN.

Leonurus Cardiaca.	Borago officinalis.
Teucrium Chamædrys.	Verbena officinalis.
Antirrhinum majus.	Mentha rotundifolia.
Centranthus ruber.	Rumex pulcher.
Petroselinum sativum.	Marrubium vulgare.
Teucrium Chamædrys.	Erodium moschatum.
Dianthus Armeria.	Parietaria officinalis.

All in and about the ruins of the Cathedral buildings. These afford a rich sample of a ruin or mural flora, yet, as will be seen, quite different from that of some other castle ruins in South Wales. *Leonurus* is well established on a stone wall in the yard of a cottage near Whitesand Bay.

AT AND NEAR TO WHITESAND BAY.

Erodium maritimum.	Convolvulus Soldanella.
Festuca arundinacea.	Geranium columbinum.
Viola Curtisii.	Carex muricata.
Cotyledon Umbilicus.	Erodium moschatum.

This is a very poor locality for maritime plants.

COLONISTS IN SANDY FIELDS NEAR WHITESAND BAY.

Silene anglica.	Scleranthus annuus.
Papaver hybridum.	Lamium amplexicaule.
Antirrhinum Orontium.	Stachys annua*.
Lycopsis arvensis.	Raphanus Raphanistrum.
Echium vulgare.	Spergula arvensis.
Fumaria confusa.	Valerianella dentata.
Papaver Rhœas.	Veronica Buxbaumii.
Centaurea Scabiosa.	Linaria Elatine.

At Whitesand Bay we sought long and repeatedly for *Cyperus longus* without finding it, though furnished, through the kindness of

\* *Read Stachys arvensis.*

Mr. Britten, with what seemed most exact directions to the locality where this very rare species had been gathered just one hundred and ten years ago; and, as an undoubted specimen is preserved in the Banksian Herbarium at the British Museum, I can only conjecture that modern alterations, however slight, have led to the extirpation of the plant.

The British Museum label reads:—"July 23. 1773 Pembrokeshire, two miles from St. Davids by the side of a small rivulet in a place calld White sand Bay  $\frac{1}{2}$  a mile South of St. Davids Head between that and a farm house calld Trelethen and not above  $\frac{1}{4}$  of a mile up the rivulet from the sea: it grew in one place only in a clump."

The stream is small and easily found, and the distance from the sea so short that I expected to find the *Cyperus* without any difficulty, especially as we were quite familiar with its appearance in the Isle of Wight localities. There is a road crossing the little rivulet at about the right distance from the sea, and along the stream below this point a bank has been thrown up, dividing a pasture on the east from the field on the western side of the rivulet, which is now under tillage. Still, there are marshy corners which look likely ground, and wet slopes on which some barren stems of the *Cyperus* might still linger; but above and below this little bridge and all along the stream we sought most carefully, without finding a trace of the *Cyperus*, and I fear the one patch observed in 1773 has ceased to exist.

#### AT ST. DAVID'S HEAD.

Statice occidentalis.

Sedum Telephium.

Genista pilosa.

Sagina subulata.

Allium Scorodoprasum.

var. Sibiricum.

In the case of *Genista pilosa* we were more fortunate, though at first this plant quite eluded us, through the incorrect description of its locality given in the 'Botanist's Guide.' It does not grow "on the very western extremity of St. Davids Head"; and with this misleading direction we spent the best part of two days in searching the extreme headland itself; that is the most westerly portion, which is cut off, as a fort, by an ancient wall and trench. Here was no trace of *Genista pilosa*, and it was only on the last day of our visit, when walking along the southern slope of the promontory, a good half-mile from the headland, that we succeeded in finding one of the best plants of St. David's. The *Genista* is quite local, and not very abundant, but we found it scattered for a hundred yards or two among the heather, close to where the Brake (*Pteris aquilina*) begins to vary the smoothness of the grassy hill. Only a very few blossoms were in flower.

A still more remarkable plant, and in Cornwall also a close neighbour of the *Genista*, we gathered in, I believe, its second British locality: *Allium sibiricum* grows on the broken rocky slopes on the north side of the ancient fort, within and to the westward of the wall. It is quite restricted to a space of less than a hundred yards; and I must

confess that, however pleased in finding such a rarity, I could not help remembering how many others of the genus *Allium* are liable to suspicion as natives, and it did occur to me that possibly here was the true old Leek of Wales, in former times probably employed as a pottage herb by the occupiers of that fortified headland. In Ireland I have seen *Allium Babingtonii* only where associated with, or in the vicinity of, ruins or cultivation. Similarly, at Killarney, *Allium Scorodoprasum* is too closely connected with the rides known as the "Monks' Walks," and in Ireland has only one other very restricted station, near Cork. So that, in all three cases, we are probably dealing with relics of very ancient cultivation, dating from the time of the early Celts or Britons, to which it is scarcely an objection that the native or original habitat of *Allium Babingtonii* has not yet been ascertained.

AT AND NEAR TO DOWROG POOL.

Aira uliginosa.	Littorella lacustris.
Cicendia filiformis.	Helosciadium inundatum.
Radiola Millegrana.	Scirpus fluitans.
Scirpus Savii.	Drosera rotundifolia.
Hypericum Elodes.	Sparganium simplex.
Eleocharis multicaulis.	Mentha Pulegium.
Pilularia globulifera.	Malva rotundifolia.
Alisma ranunculoides, var. repens.	

Of these *Cicendia*, frequent also on moist heathy ground to the west of St. David's, finds here its northern limit in Wales. *Aira uliginosa*, plentiful in many places round Dowrog Pool, is new to West Britain. *Alisma repens*, with its large flowers and often growing in the water, might easily be mistaken for *A. natans*. *Littorella* new to Pembroke-shire.

*Agrimonia odorata* occurs in one place by the roadside towards St. Justinian's Chapel. *Erodium moschatum* is frequent, and so are *Mentha rotundifolia* and *Calamintha officinalis* in the neighbourhood of the town.

At Pembroke we spent a few days, and found in and about

PEMBROKE CASTLE RUINS.

Linaria Cymbalaria.	Petroselinum segetum.
Calamintha officinalis.	Coronopus didyma.
Cheiranthus Cheiri.	Pyrethrum Parthenium (ray- less).
Antirrhinum majus.	Orobanche Hederæ.
Linaria vulgaris.	Festuca Myurus.
Centranthus ruber.	Conium maculatum.
Rumex pulcher.	Arabis hirsuta.
Ceterach officinarum.	

Quite a different series from the list given for St. David's, whereas,

## ON HAVERFORDWEST CASTLE,

Diploxys tenuifolia.	Cheiranthus Cheiri.
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were the only two noticed in passing.

## ALONG THE SALT-WATER CREEK BELOW PEMBROKE.

Statice rariflora.	Glaux maritima.
S. Dodartii ?	Chenopodium maritimum.
Artemisia maritima.	Erigeron acris.
Inula Conyza.	Helminthia echioides.
Dipsacus sylvestris.	Malva moschata.
*Centranthus ruber.	Arabis hirsuta.
Aster Tripolium.	*Clematis Vitalba (not native).

## NEAR THE "ELIGUG STACKS."

Statice Dodartii.	Inula crithmoides.
Picris hieracioides.	Calamintha officinalis.
Erodium maritimum.	Centaurea Scabiosa (cliff at
Lavatera arborea.	St. Gowan's).

## IN THE GOWER PENINSULA.

Helianthemum canum.	Carduus crispus.
Geranium sanguineum.	Arctium intermedium.
Clinopodium vulgare.	Pyrus Aria.
Inula Conyza.	Ligustrum vulgare.
Viola hirta.	Solanum Dulcamara.
Erodium maritimum.	Hyoscyamus niger.
Inula Helenium.	Cornus sanguinea.
Agrimonia odorata.	Lithospermum purpureo-
Rubia peregrina.	cæruleum.

On the west wall of Pennard Castle we had no difficulty in finding the neat little rosettes of *Draba aizoides*. The whole district appeared to be very rich in calcareophilous species; and I was quite surprised to meet with *Agrimonia odorata* at Oxwich Bay, the only time that I have gathered it on a limestone soil.

*Helianthemum canum* occurs both at Langland Bay and at the Worms Head. *Lathyrus sylvestris* still flourishes on the cliff in Caswell Bay; and near the Mumbles I saw again the same *Statice* which grows so abundantly near the Eligug Stacks, and with *S. rariflora* on the gravelly shores of the creek at Pembroke, and which, in its dense spikes and usually the absence of barren branches, seems to agree better with *S. Dodartii* than with *S. occidentalis*.

## SKETCHES OF IRISH NATURAL HISTORY.

WRITTEN FOR "GUY'S PICTORIAL GUIDE TO THE SOUTH OF IRELAND."

### I.—MAMMALS.

IN consequence of Ireland having been separated from Great Britain before England was itself cut off from the Continent, both mammals and reptiles are much fewer than might have been expected. This is not owing to the humidity of the climate only. The pipistrelle and the long-eared bat are common. The lesser horse-shoe bat has been found in numbers in the counties of Kerry, Clare, and Galway. The reddish-grey bat has been captured in Cork, and the whiskered bat at Feakle in Clare, the only Irish locality. The hedge-hog, lesser shrew, badger, otter, stoat, and fox are all common. The pine-marten, though occasionally found, has become very rare. Two species of seal (*Phoca vitulina* and *Halichærus gryphus*) frequent our coasts. The squirrel, first introduced in Wicklow, is spreading from Leinster into the north of Munster. The "Irish hare," so-called, is now well known to be identical with the mountain or "blue" hare of Scotland. The Irish hare changes, more or less, to white in severe winters. So does the stoat in Ireland, but very rarely, and is hardly ever found pure white. On the other hand, the Irish hare changes in colour much more rapidly, and, on high mountain ground, becomes pretty generally white or whitish in severe winters, when the ground is covered with snow. The red colour of the bogs has, in Ireland, no doubt given a protective tint to the fur, while in Scotland the "blue" or greyish colour is, in the same way, connected with the greyer tint of the granite mountains. Both hare and stoat may have immigrated from Scotland rather than England, or from England while it had an Arctic climate. The long-tailed field-mouse frequents our fields and gardens, and the common mouse and brown rat are ubiquitous. The Irish black rat (*Mus hibernicus*) is now generally admitted to be, as was long ago pointed out by Blasius, Murray, and Lord Clermont, only a variety of the brown rat. The rabbit is not native, but is now found everywhere, even among the sea-cliffs. The only remaining refuge of the red deer is among the wooded mountains round the Lakes of Killarney. It was hunted on the mountains of Tipperary and Waterford in the last century, and the abundance of its remains in the refuse-heaps of raths shows how common it once was in Munster. The remains of the Irish elk have been dug up numerously from beneath peat-bogs in the south

as well as in other parts of Ireland, and it is said that upwards of seventy heads of this gigantic deer were discovered near Lough Gur, county Limerick. Its broken marrow-bones, as well as portions of its antlers, were discovered, in 1879, in a cave near Cappagh, county Waterford, associated with charcoal, hammer-stones, and human bones. In this same cave, but in a deeper deposit, were found remains of the grizzly bear and reindeer. Both these species, as well as the mammoth, or woolly elephant, also of the horse, were represented among the fossil remains found in Shandon Cave, near Dunganran. The last authentic account of the death of a wild wolf in Ireland was in 1782, and fifty years later the breed of the famous Irish wolf-hound became extinct. The wild boar abounded in Ireland, and found ample food in the extensive oak forests which existed here. The word *torc* or *turk*, the ancient Irish name of the boar, is of frequent occurrence in the names of places.

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## II.—FRESHWATER FISHES.

As in Mammals and Reptiles, Ireland is very poor in freshwater fishes. The whole Irish list includes only twenty-three undisputed species. Of these eighteen inhabit South-west Ireland. Several trout, both sea-trout and brown trout, have been separated from each other, and from the "parent" species, if we may so call them. But the distinctions are, in most cases, so delicate and difficult to seize, that only a trained specialist, and that a man of life-long experience, could be trusted to correctly identify and name the many very ambiguous forms, to which Dr. Günther and other refined ichthyologists have given Latin names, and have treated as separate species. This is no question of Darwinism; for if the existing forms were derived from a smaller number of ancestors, still we must, for the sake of making our identifications certain, treat as species, or as sub-species, or as distinct varieties, all the different sorts of trout that our eye can distinguish, so long as their distinctions from each other remain sufficiently clear and permanent.

Here lies the immense difficulty of studying, to any satisfactory end, the innumerable varieties and forms, which are well known indeed to the *local fishermen*, who, also themselves, if removed to a new and different locality, would find their former knowledge all at sea. Even with Dr. Günther's excellent *Catalogue* in hand, we have found it almost impossible to arrange with any certainty, under their several names the many forms of trout which we have taken, so variable are they even in the same lake, even in the same river and its tributaries. No doubt the nature of their food, the colour and nature of the bottom, the amount of light, the depth of water, should all be taken into consideration. But when we find, in the case of the *British Charrs*, that



Dr. Günther has often founded a new species, rather as it seems *on the locality* where taken than upon any permanent and invariable specific characters, what are we to do, who, while wishing to know our native fishes, find ourselves quite unable to determine the various forms? These come so near to one another, that it is often nearly impossible to separate them, and, after some hours of careful study, we find ourselves still full of doubt and perplexity while trying to follow our recognised best authority; yet, unable to feel certain that we have identified our species correctly. What are we to do when we find one excellent authority, Sir W. Jardine, describing as distinct a large trout from deep-water, which another equally skilled authority tells us is only a large, overgrown monster, which, like Orestes, has taken to devouring his own, and his neighbour's progeny? A third excellent authority considers a thickly-coated stomach a sufficient character to establish a new species—"the Gillaroo."

Another good anatomist, when he captured the brown trout in brackish water, where the fresh meets the salt water, called it *S. estuarius*.

Fortunately, it is chiefly among the *salmonide*, or trout family, that these nice and subtle distinctions have been tried. Practical fishermen complain that they cannot follow them or understand them; and, when it is once appreciated, how infinitely variable are trout in appearance and character, we may almost say that every lake, or pool, or river, has its own distinct form. The real difficulty is not in seeing and recognising differences, so much as in knowing how to make a philosophical combination of many forms under one name.

Among botanists, the recent over-refinement of distinctive characters has led to many mistakes in identification, and to making many a promising botanist give up his studies, in view of the enormous difficulties which have been raised in distinguishing the very slightest variation of brambles, hawkweeds, roses, water-crowfoots, &c. Indeed, many naturalists are content to omit altogether the study of these perplexing forms.

In Ireland we have at present two forms of charr. One, *S. colei*, occurs in Lake Coomhasarn, &c., in Kerry; the other in Lough Melvin.

No doubt many other forms exist in unexplored lakes, and will remain to perplex the future ichthyologist. A migratory trout has been described as *Salmo gallivensis*; but how extremely improbable is it that this is not a form of one or other of our well-known sea-trout. Another sea-trout at present imprisoned in Lough Leven (Scotland), and apparently cut off from all access to the sea, has received a specific name as *Salmo levenensis*. That is, a sea-trout has become altogether changed by a long residence in fresh water, somewhat as the estuary trout (of Knox) has received its name from having been captured in *brackish water*. Similarly, there is a small race of the Twaite Shad (*Clupea finta*), which is taken in the Killarney lakes, and has apparently given up its usual migration from salt to fresh water in the

spawning season. A similar habit has been noticed in the shad of some of the Italian lakes. But, surely, no one would think of giving such forms a new Latin specific name and rank.

Even the lesser river lamprey (Planer's lamprey), which grows only to five or six inches in length, is suspected to be an immature state, or stage, of the larger river lamprey.

The history of the eel is not well understood. Those which descend to the sea are said to do so with the intention of spawning in brackish water. But whether both sexes ascend the rivers, or whether the male eel resides always in brackish water, is not quite certain. One thing is interesting, the salmon and sea-trout *ascend* the rivers to deposit their spawn. The eels descend so as to spawn in brackish water, where the innumerable fry are reared, which ascend our larger rivers in such multitudes in spring.

We now give

#### A LIST OF FRESHWATER FISHES

found in Cork, Kerry, Clare, and other parts of South-west Ireland:—

1. Perch (*Perca fluviatilis*). Frequent.
2. Three-spined stickleback (*Gasterosteus aculeatus*). Common; and sometimes swarms in brackish ditches near the sea. Several varieties occur. The rough-tailed (*G. trachurus*), the armoured (*G. semi-loricatus*), the half-armed (*G. semiarmatus*), the four-spined (*G. spinulosus*), are found in brackish and salt-water. The other two, viz., the smooth-tailed (*G. gymnurus*), and the short-spined (*G. brachycentrus*), inhabit fresh water.
3. Ten-spined Stickleback (*Gasterosteus pungitius*) is frequent. Is enumerated by Harvey in the "Fauna of Cork."
4. Gudgeon (*Gobio fluviatilis*) occurs at Killaloe, &c.
5. Rudd (called "Roach" in Ireland) (*Leuciscus erythrophthalmus*). Frequent.
6. Tench (*Tinca vulgaris*). Introduced in a few localities; not native.
7. Loach, or "Colliah" (*Nemachidus barbatulus*). Killaloe, Portumna, and South-west Cork.
8. Twaite Shad (*Clupea finta*). At the mouth of river Blackwater, near Cappelquin, where they are called "Bony Horses"; also in the Lakes of Killarney.
9. Pike (*Esox lucius*). Attains to 49 lbs. and 51 lbs. at Killaloe, and 78 lbs. in Clare (Thompson).
10. Salmon (*Salmo salar*). Ascends all the larger rivers, to spawn in fresh water.
11. Sea-trout (*Salmo trutta* and *S. cambricus*). Both forms ascend the rivers from the sea, to spawn in fresh water.

12. Brown trout, or common trout (*S. fario*). Common, and this includes the varieties:—(a) Estuarius, which I have myself taken at Ardgroom. (b) Gillaroo, *S. stomachicus*. (c) Great Lake trout (*ferox*), a cannibal, coarse form; gives great play when hooked, and often weighs 15 or 20 lbs.

13. Charr. In several of the mountain lakes; at Inchigeela and in Coomahasarn Lakes, &c.

Cole's charr (*Salmo colei*) is the more common form.

Gray's charr (*Salmo grayi*). Killarney lakes.

14. Pollan (*Coregonus pollan*). In Lough Derg and in the river Shannon, near Killaloe.

15. Sturgeon (*Acipenser sturio*).

16. Common Eel (*Anguilla vulgaris*).

17. Sea Lamprey (*Petromyzon marinus*). At Killaloe from 10th to end of June (*Thompson*).

18. River Lamprey (*Petromyzon fluviatilis*). Youghal; to 10 inches in length.

19. Planer's Lamprey (*Petromyzon branchialis*).  $4\frac{1}{2}$  to 5 inches in length. River Shannon, at Killaloe; and at Lough Caragh, Kerry, in spring or summer.

We have, thus, in our district nineteen of the twenty-two Irish fresh-water fishes. The absence of the common bream and minnow is remarkable.

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### III.—CHARACTERISTIC AND RARE PLANTS.

The *Flora* of Ireland, as distinguished from that of the rest of the Continent of Europe, is remarkable from the presence of a few striking species which do not occur in Great Britain nor in northern Europe.

Nearly all of these plants may be classed as Western and South-western in Ireland. Several of them are very abundant in their Irish stations. For instance, the "Bell Heath" (*Dabeocia polyfolia*), a striking and handsome species, occurs plentifully throughout Connemara and the barony of Murrisk, in Western Mayo; in fact, through the whole district lying between Galway bay and Clew bay. This and the Mediterranean Heath (*Erica Mediterranea*) are two of the most characteristic plants of the Irish flora; and, with another Heath (*Erica Mackayi*), constitute a very striking group of species, whose headquarters are to be found in Portugal and Spain. It is to be remarked here, that, curiously enough, not one of these three heaths is found in Clare, or Kerry, or Cork—for the South-west of Ireland has also its own distinct group of plants, most of which do not occur further north. In fact, the peculiarly "Irish" species arrange themselves under four groups.

## (I.)—AMERICAN SPECIES.

Plants which are much more plentiful in North America, and for the most part do not occur on the European Continent. These may be considered as the remains of a former land connection with America, and were probably driven southwards during the Glacial Epoch from the shores of Greenland; at any rate, from the land which, at that time, joined America to Europe; and these may be held to be more or less Arctic species, as well as Americo-European.

The best known of these North-Americans is the rare Orchid *Spiranthes Romanzoviana*, which in Europe occurs only in the few scattered localities in the county of Cork—near Berehaven, and also in the valley of the Bandon river.

Another North-American plant is the so-called “Blue-eyed Grass” of Canada (*Sisyrhynchium angustifolium*), which grows in great abundance between Woodford and Lough Derg, in Galway, and has recently been found near Milltown and Killorglin, and sparingly in a few other scattered localities in Kerry. A third notable plant of the American group is *Juncus tenuis*, which Mr. R. W. Scully found in several places along the estuary of the Kenmare river; a very scarce and local species anywhere in Europe, and in Britain occurring only in Perthshire, in North Wales, and in a single station in Herefordshire.

The *Sisyrhynchium* has given much trouble to botanists, for it is difficult to decide whether it should be considered a native—*i.e.*, as having reached Ireland before the advent of man—or whether it may have spread originally from gardens, as it is a plant which has shown elsewhere extraordinary powers of spreading where it has once been introduced. Still, whatever may be said of this last species, there is no doubt that the “Irish Ladies’ Tresses” (*Spiranthes Romanzoviana*) is truly native; and the unexpected discovery of a new Irish locality in Armagh lends some support to the theory of its Arctic origin. We may assume that it arrived before or during the Glacial period on two separate points of Ireland—Cork and Armagh—both situated not far from the sea-coast.

One more American species, quite lately observed in Kerry, is *Polygonum sagittifolium*, which was discovered only two years ago near Cahirdaniel, county Kerry, by Mr. Scully, who has so successfully devoted himself to the study of the Kerry Flora, but he does not consider it a native plant.

With these may also be classed *Naias flexilis*, found in Galway and Perthshire, as well as in Carah and Killarney Lakes, and *Eriocaulon septangulare*, which occurs on the west coast of Ireland from Donegal to Cork.

So much for the American-Irish plants.

We have next to enumerate the WESTERN and SOUTH-WESTERN species, which, in the British Isles, find their headquarters in Cork and Kerry, and extend also to the European continent. These are the two

or three Saxifrages of the "London Pride" group, *S. umbrosa*, *S. geum*, and, if it can be reckoned as a third species, *S. hirsuta*. The first reaches to the north of Donegal, and eastward to the Cumberagh and Knockmeildown mountains of Waterford; and thus is the most widely distributed of the whole West-Irish group. *S. geum* and *S. hirsuta* (the latter probably only a variety) are found in Cork and Kerry only, and keep at a lower level than *S. umbrosa*, which in Ireland, as well as in Spain, appears quite at home among the Alpine species.

The West-Irish species may be conveniently arranged under the three following groups:—

(II.)—PLANTS GENERALLY DISTRIBUTED ALONG THE WEST COAST FROM DONEGAL TO KERRY.

*Saxifraga umbrosa*, *Carum verticillatum*, *Euphorbia hyberna*, *Asplenium acutum* (the last also in North-east Ireland), *Helianthemum guttatum*, found on Inishboffin and Inish Turk (ranges from these islands to Three-Castle Head, Cork).

(III.)—PLANTS IN IRELAND PECULIAR TO CORK AND KERRY.

*Arbutus unedo* (West Europe and Mediterranean), *Pinguicula grandiflora* (Alps and Pyrenees). The next four all occur in England:—*Carex punctata*, *Asplenium lanceolatum*, *Fucus tenuis* (Kerry only), *Simethis bicolor* (Kerry only), *Saxifraga geum*, and *S. hirsuta*. *Pinguicula grandiflora* is another prominent member of our flora, which is nowhere so abundant as in Kerry and Cork; and my friend, Mr. Colgan, has seen it growing, usually at an elevation of from 5000 to 6000 feet in the Pyrenees, where, however, it does not attain so luxuriant a growth as in Kerry. *Arbutus Unedo*, so abundant at Killarney, occurs also, but more sparingly, in county Cork, about Glengariff, etc.

(IV.)—RESTRICTED TO CLARE, GALWAY, AND MAYO.

*Neotinea intacta* (the locality on Lough Corrib just reaches Mayo). *Dabeocia polifolia*, *Erica mediterranea*, *E. Mackayi*. All these occur in the Spanish Peninsula, as well as near Nice, etc.

With the West-Irish we place *Euphorbia hyberna*, which, like *Saxifraga umbrosa*, reaches to the north of Donegal, and grows, with it, on the Pyrenees. In Ireland, finding its eastern limit along the river Suir and in Colligan Glen, co. Waterford. This rare spurge is known to the Kerry peasantry by the name of "Bonnikéan," not "Makinboy," as mentioned by some old writers, and it is still used for poisoning fish; its acrid milky juice, mingling freely with the water, stupefies all the unfortunate trout which come within the range of its influence. Its use, like that of quicklime by poachers, cannot be too strictly forbidden.

To these may be added the few of Watson's "Atlantic" species, peculiar to Cornwall or the West of England, which reach Ireland.

Their number is fewer than might have been expected from the similarity in position and climate of these two districts. These species are:—*Trichomanes radicans*, *Sibthorpia europæa*, *Carum verticillatum*, *Carex punctata*, *Rhynchospora fusca*, *Helianthemum guttatum*, *Asplenium lanceolatum*, *Hymenophyllum tunbridgense*, *H. Wilsoni*, *Bartsia viscosa*, *Viola Curtisii*, *Simethis bicolor*.

The most interesting species occurring on the borders of our district is the rare little Orchid *Neotinea intacta*, which was discovered by myself and my sister, Miss F. M. More, nearly thirty years ago, at Castle Taylor, in the county of Galway, and has since been ascertained to grow, in some plenty, throughout the Burren district of Northern Clare, on the same upper carboniferous limestone. It has also been found on the shores of Lough Corrib, near Cong, associated there, as in Burren, with *Potentilla fruticosa* and *Gentiana verna*. The last locality extends the range to Mayo.

It is very remarkable that at Castle Taylor, as in Burren, we find this Mediterranean Orchid, a species as eminently southern as is the *Arbutus*, growing alongside of such Alpine species as *Dryas octopetala*, *Gentiana verna*, *Hieracium iricum*, *Selaginella selaginoides*, *Sesleria cærulea*, and *Arctostaphylos Uva-ursi*. *Neotinea intacta*, and, with it, *Rubia peregrina*, *Ophrys muscifera*, and *O. apifera* grow together, a little above sea-level, and associate with the corn crops of Watson's "Agricultural Zone." So that it becomes difficult to say whether we are dealing with alpinism descending into the agricultural zone, or with plants of the lowest agricultural zone in a very abnormal association. At any rate, we have here a commixture of zones, nowhere else to be found in the British Isles, and which, we think, may be fairly attributed to the exceptional humidity of the Irish climate, as well as to past geological changes and migrations.

All the West-Irish plants may be considered as species which are common to the West of France, the Pyrenees, and the Spanish Peninsula, and four of them occur also on the shores of the Mediterranean. This is sufficient to show the presence of a well-defined group of West-European species on the western shores of Ireland. And in the same way, the general British and Irish flora is almost altogether related to the European, in such a manner that we may suppose it has immigrated from the adjoining Continent, and is, in character, such as we might expect if the British Islands were not separated by the German Ocean, the British Channel, and the Irish Sea. It would appear that Alphonse De Candolle was right in accepting the theory that the immigration of our flora (and fauna) was effected through the former continuity of land, and that our islands were not colonized by water and air transport, across the narrow straits which now separate them from their former home. It is different with the spores of *Cryptogamic plants*, which are easily carried by the wind, and whose unexpected presence in our Islands may, in this way, be accounted for; the dust-like seeds having been wafted, perchance, for many hundred miles across the Atlantic Ocean.

All three groups of European-Irish species must be assumed to have immigrated from the adjacent Continent after the Glacial period had passed away, and when plants and animals were advancing northwards, under an ameliorated climate. This disposes of the question as to whether some of them may not have originated in Ireland. The presence of *Dabeocia* in the Azores is harder to explain, but being, as Mr. Watson considers it, a distinct variety, it is likely to have reached these Islands at a time when the species was young, and thus we have still remaining in the Azores a form more closely allied to the original race of the species.

The ALPINE FLORA of Cork and Kerry is comparatively poor, and nearly all the rare species occur in Kerry only—*Saxifraga hirta* and *S. affinis*, *Saussurea alpina*, *Aira alpina*, *Saxifraga aizoides*, *Draba incana*, *Subularia aquatica*, *Polystichum Lonchitis*—and *Thalictrum alpinum*, *Poa alpina*, *Polygonum viviparum*, *Alchemilla alpina*—the four last on Brandon only. A remarkably dwarf form of the Adder's-tongue occurs on Brandon Head. It was found by H. C. Hart several years ago.

The following LOWLAND SPECIES deserve particular mention:—

*Simethis bicolor*, one of the rarest British plants, occurs plentifully near Derrynane Abbey, and in other places along the Kenmare estuary.

*Bartsia viscosa* is frequent in Kerry and South Cork, especially near the sea-coast.

*Lepidium latifolium* (Dittander), perhaps a relic of ancient cultivation, grows in Cork, at Corkbeg, and near Youghal harbour, and is recorded also from near the head of Kenmare river, and near Kinsale.

*Subularia aquatica*, and with it *Isoetes echinospora*, is found in Killarney Lakes.

*Helianthemum guttatum* is plentiful near the old ruins on Three-Castle Head, Cork.

*Lathyrus maritimus* grows, or grew, on the sandy shores of Castle-maine harbour.

*Galium boreale* is plentiful on the shores and islands of Killarney Lakes.

*Pyrola media* is found near Ballyvaughan, and other places in Burren.

*Wahlenbergia hederacea* occurs along the Flesk near Killarney, and near Lispole Station towards Connor Hill; also along the rivers Lee and Bandon.

*Cicendia filiformis* is found on the shores of Lough Guitane, and at Lough Currane; at Waterville and Glenmore Lake, in Kerry; at Berehaven, Glengarriff, Dursey Island, etc., in Cork.

*Orobanche Hederæ*—Muckcross, on the Abbey walls, and on islands in the Lakes of Killarney, and at Derrynane, Kerry; frequent in Cork.

*Lathræa squamaria*—Killarney.

*Monotropa Hypopitys*—In Muckcross demesne, Killarney; also in Galway, Mayo, and Donegal.

*Cuscuta Epithimum*—On the sandhills near Ardferf.—(*R. W. Scully*).

*Linaria repens* is frequent about Bandon, with its hybrid progeny, *Linaria sepium* of Allman.

*Sibthorpia europæa* is plentiful on the northern slope of Connor Hill, at 1700 feet, and thence descends to sea level at Formoyle. It occurs also at Annascaul.

*Calamintha Clinopodium*—Killarney; very rare. Near Muckcross.

*Pinguicula grandiflora* and *Euphorbia hyberna* are widely distributed in the West of Cork and Kerry.

*Utricularia neglecta*—Killarney and Tralee.—(*R. W. Scully*).

*Euphorbia amygdaloides* finds its only Irish localities in the valley of the Bandon river—at Castle Bernard Park, and in Dunderrow wood.

*Epipactis ovalis* grows in the Burren districts of North Clare. A variety only.

*Cephalanthera ensifolia* grows near Killarney and Carah Lakes; also in a wood at Glengarriff and at Adrigoole. Wood at head of Lough Carah. Wood by the Kenmare Road, near Derrycunihy Cascade. Near Brickeen Bridge and at Muckcross, Killarney.

*Allium Scorodoprasum*—At Kenmare and in the woods at Muckross; Foaty Island, and profusely in the woods near Bantry, where it was recently discovered by Mr. R. A. Phillips.

*Simethis bicolor*, as before stated, at Derrynane, and along the Kenmare estuary.

*Juncus acutus*—Plentiful on the warren at Rosscarbery.

*Eriocaulon septangulare*—In L. Carah; in the Cloonee lakes, south side of the Kenmare river; and in a mountain lake near Adrigoole.

*Rhynchospora fusca* is abundant in South Kerry, extending to Glengarriff, Ardgroom, and Berehaven in Cork.

*Scirpus parvulus*—Along a stream near the sea at Ballybunion, Kerry.—(*R. W. Scully*). It has become very scarce, if not extinct, at Arklow, the original Irish station.

*Carex Bönninghauseniana*—Near Killarney.—(*R. W. Scully*). A rare hybrid.

*Carex aquatilis*—Near South end of Carah Lake in several places, and abundant along a small stream near the Upper Lake of Killarney.—(*R. W. Scully*).

*Carex punctata* is abundant along the shores of Kenmare river, and occurs also near Ventry, Berehaven, Ardgroom, Waterville, Kerry Head, etc.

*Pilularia globulifera*—By the Upper Lake of Killarney.



The CLARE PLANTS, which, indeed, scarcely belong to our district, include, as already stated, one of our greatest Irish rarities, *Neotinea intacta*, and many sub-Alpine species, of which the most noteworthy are *Ajuga pyramidalis*, *Helianthemum canum*, and *Potentilla fruticosa*, to which may be added *Astragalus Hypoglottis*, peculiar, in Ireland, to the South Isles of Aran.

The true Maidenhair Fern (*Adiantum Capillus-Veneris*) occurs very sparingly, if not now extinct, along the south shore of the Shannon, near Foynes; and grows plentifully in the Isles of Aran; and in many localities in the North of Clare. There is a record of its having been found, many years ago, on Cahirconree Mountain, near Tralee, but no botanist, has, of late, been able to rediscover it, and it is feared some mistake was made.

In concluding the above short summary of the characteristic plants of the South-west of Ireland, I gladly acknowledge the valuable and most friendly assistance which I have received from my friend, Mr. Nathaniel Colgan, whose investigations into the history of the Shamrock are well known to Irish botanists; and my friend, Mr. Reginald W. Scully, who is now engaged in the preparation of a FLORA OF KERRY, has most liberally given me leave to make use of the results of his recent investigations.

## SHORT NOTES ON NATURAL HISTORY.

## BARTRAM'S SANDPIPER AS A BRITISH BIRD.

[*"ZOOLOGIST," April, 1854.*]

AS no further notice has been taken of the sandpiper described some while ago in the *"Zoologist"* (*"Zool."* 3330), by Mr. Reid, nor have the conjectures offered at the time been since confirmed, I am induced, in the absence of a better account, to lay before the readers of the *"Zoologist"* what information I have obtained on the subject since I have been in Doncaster. His attention once called to the *"American Ornithology,"* Mr. Reid soon satisfied himself that his bird could be no other than Bartram's Sandpiper, agreeing as it did in the most minute particulars with Wilson's description; and the very remarkable character exhibited in its wedge-shaped tail leaves no doubt as to the identity of the bird. It is the *Tringa Bartramia* of Wilson, *"Ann. Orn.,"* vol. ii., 353; *Totanus Bartramius* of Temminck, *"Man. d'Orn."* ii., 650; and of Bonaparte, *"Synop."* 325; and is well figured in Gould's *"Birds of Europe."* The circumstances under which the present individual was found agree so far exactly with what are said to be its habits in America; and indeed Mr. Barnard, the gentleman who sent the bird to be preserved, was particularly surprised that it should have occurred "so far inland, sitting on a bean-stubble, and in a place near to which there is no water." The locality was near Warwick, not Warrington, and this unique specimen I understand still remains in the possession of R. T. Barnard, Esq., of Kinton Hall, near that city, to whom it was brought in the first instance by the man who shot it. So many of the American *Tringidae* have already been enrolled as British birds that the occurrence of one more species cannot be looked upon with much surprise, while in the case before us, the fact that Bartram's Sandpiper has for some time been known as a straggler on this side of the Atlantic will, no doubt, serve still further to justify its introduction into our Fauna. For this very interesting novelty we are indebted to the discrimination of Mr. Reid, who, when recording his description, felt confident his sandpiper had not hitherto been recognised as a British bird.—DONCASTER, *Feb. 15, 1854.*

## NOTE ON ZYGÆNA MINOS.

[“ZOOLOGIST,” *Sept.*, 1854.]

So little is known respecting the new *Zygæna* in Britain, that it is hoped a few remarks made in a second Irish locality will not be uninteresting. In this neighbourhood\* I first noticed *Zygæna minos* in the summer of 1851, but unfortunately then referred it to what is described as a suffused variety of *Z. filipendulæ*, a mistake which may possibly have occurred to other collectors in England. The insect here appears about the first week in June, a fortnight earlier than *Z. filipendulæ*, and is in perfection by the middle of the month; it then swarms on many parts of the rock-strewn pasture so characteristic of the mountain limestone districts in the West of Ireland, where the stones frequently occupy the ground almost to the exclusion of vegetation. I have not yet succeeded in ascertaining its food, but, from the abundance in its haunts of *Lotus corniculatus* and *Anthyllis vulneraria*, it seems very possible that either or both of these constitute its diet. Some eggs laid on the 15th of June were hatched a few days ago, but I fear I shall not be able to rear the larvae through their refusal to eat. As regards the distribution of *Zygæna minos* in Ireland, it occurs all round Castle Taylor, and I have also traced it within the limits of the Co. Galway as far as Garryland, 8 miles south of this, and Tyrone, near Kilcolgan, 4 miles to the north-west. It is more particularly abundant towards the sea. From the prevalence in its favourite localities of certain plants, such as *Gentiana verna*, *Dryas octopetala*, *Sesleria caerulea*, *Arbutus uva-ursi*, &c., which are, I believe, common to a rather extensive tract in these parts, and especially characteristic of the Burren mountains in Clare, where the insect was first taken by Mr. H. Milner, it seems probable that *Zygæna minos* has also an extensive range through the district inhabited by these alpine plants; that is, in this country as far north as Galway, and throughout the limestone district of the north of Clare; how far it may range inland remains to be ascertained. An insect, too, which inhabits Germany, Switzerland, and France can hardly be expected to remain long peculiar to Ireland only of the British Islands, whether we look to Teesdale from its botanical similarity, or to the Southern and Western counties, for its occurrence in England.

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THE ARCTIC TERN (*STERNA ARCTICA*) NESTING ON FRESH WATER.[“ZOOLOGIST,” *March*, 1860.]

In Thompson's 'Birds of Ireland,' vol. iii., p. 295, it is stated that "as far as the observation of the writer extended, the Arctic Tern selects only maritime localities for breeding purposes." That the

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\* Castle Taylor.

observation of so diligent and accurate a naturalist was in the main correct is highly probable; but it may be worth recording, if only as an exceptional case, that upon the islets in Lough Carra, County Mayo, the Arctic Tern breeds in company with the Common Tern; for out of some six or seven birds which I shot there, in June, 1851, at least two belonged to the Arctic species; and I have their feet and skulls still by me, as a conclusive proof that there was no error made in the name.

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NOTE ON THE DISCOVERY OF NEOTINEA INTACTA,  
REICH, IN IRELAND.

[*Read before the* BOTANICAL SOCIETY OF EDINBURGH, *March 9,*  
1865.]

My sister and myself first noticed *Neotinea intacta* early in the month of April (1864). It attracted our notice as appearing above ground at a singularly early date, in a locality where we knew that *Orchis mascula* was the only early orchis, and *Orchis mascula* of course it could not be.

My sister, following up this clue after I had left Castle Taylor, collected and dried several specimens, remarking that the little orchis was something she had never seen before. After a great deal of trouble, my friend Dr. Moore discovered its name, which was soon confirmed by Reichenbach himself; and we thus had the great pleasure of adding one more to the list of southern plants which grow in Ireland without reaching Britain proper. It is hard to say with which group the *Neotinea* should be associated. It is not so peculiarly western as *Erica mediteranea*, *Daboecia polifolia*, *Pinguicula grandiflora*, and the Spanish *Saxifrages*. It may perhaps better be classed with *Arbutus unedo*; yet it is to be remembered that, in Ireland, it does not occupy quite the same position. Castle Taylor is situated about six miles inland from the Bay of Galway, on a part of the "flag" limestone district, whose flora is best known from that of Burren, in Clare.

Those botanists who are interested in the subject will find an excellent account of the Burren Flora, published in the 'Transactions of the Royal Irish Academy,' vol. XXIV. (1862), by my friend Mr. F. J. Foot, who has thoroughly investigated this interesting limestone tract in the county of Clare. Some remarks of my own, on the Flora of Castle Taylor, Galway, are published in the 'Proceedings' of this Society for the year 1855.

It is remarkable that in the very same field with *Neotinea intacta* occurs a very distinct species of Hawk-moth, *Anthrocera minos*, which, in the British Isles, occurs only in the Burren district; and from this circumstance I had always expected to find some peculiar plant also. *Arbutus unedo* at Killarney is similarly associated with two remarkable and local species of insects, *Notodonta bicolora* and *Hydrelia bankiana*.

A mollusk, *Geomalacus maculosus*, is also peculiar to the Killarney district.

Judging from the similarity of the Flora throughout the district, and from the range of the *Anthrocera minos*, which extends to Burren, I should anticipate that *Neotinea intacta* may be discovered in other localities on the same limestone : but it must be looked for early in the season, about the beginning or middle of May.

In a late number of Seemann's 'Journal of Botany' (Jan., 1865) Dr. Reichenbach has given a valuable commentary on the synonymy, range, and peculiarities of this remarkable plant.

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### TRIFOLIUM SUBTERRANEUM IN IRELAND.

[JOURNAL OF BOTANY, *July*, 1868.]

In the month of June last year I had the pleasure of adding *Trifolium subterraneum*, L., to the Irish Flora : I found it growing rather sparingly on the short sandy pasture which borders the north side of the river opposite the railway station, and quite close to the town of Wicklow. On the sandhills, a little north of the town of Arklow, grow *Eleocharis uniglumis*, *Juncus acutus*, and *Equisetum moorei*. The two latter plants occur here and there on many different points of the coast between Wicklow and Arklow, both of them apparently finding their northern limit together in a little cove opposite Sea-Park House.

With regard to *Juncus acutus*, I find that the date of flowering is given incorrectly in most of our books. It flowers early in June, and all the plants which I saw at the beginning of July were already in seed, while at this date *Juncus maritimus* had scarcely shown its panicle. (Glasnevin, May 25, 1868.)

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### DISCOVERY OF SCIRPUS PARVULUS IN IRELAND.

[JOURNAL OF BOTANY, *August*, 1868.]

A few days ago I had the pleasure of finding *Scirpus parvulus*, R. et S., growing rather plentifully on soft mud at the mouth of the river Ovoca, just below the bridge of Arklow. It grows quite by itself on the muddy shallows, which are overflowed at high water, giving a pale green tint to their surface, and forming dense beds of tiny green-tufted stems, about an inch high, its standing rhizomes interlaced and buried deeply in the mud. In habit it is quite unlike any other British *Scirpus*, for though it has been compared to *S. acicularis*, its stems are stouter and more fistulose, and its spikes of a pale greenish or whitish colour, something like those of *S. fluitans*. Our plant answers remarkably well, especially in the hyaline and cellular structure of the lower part of the stems, to the description given by Lloyd, in the 'Flore

de l'Ouest de la France.' There is a fair figure in Reichenbach's 'Icones Flor. Germ.,' tome VIII., fig. 706, and a better in the 'Flora Danica,' XIII. 2161.

I believe that *Scirpus parvulus* has not been gathered in Britain by any other botanist since it was first found by the Rev. G. E. Smith on a mud-flat at Lymington in Hampshire. It is treated as extinct by Mr. Watson, and by the author of the 'British Flora.' Mr. Bentham omits the species altogether, and Dr. Bromfield and many other botanists have sought for it unsuccessfully in the original station, so that I believe its discovery at Arklow will be welcome to English no less than to Irish botanists. (Glasnevin, July 8th, 1868.)

#### DISCOVERY OF AIRA ULIGINOSA, WEIHE, AT ROUNDSTONE, CO. GALWAY.

[JOURNAL OF BOTANY, *Sept.*, 1869.]

Another plant is to be added to the botanical rarities of Roundstone. When looking for *Naias flexilis*, I noticed a Grass very like *Aira flexuosa*. From the nature of the locality, and the appearance of the plant, I felt no doubt from the first that I had found *Aira uliginosa*, and I am glad to say that my friend Professor C. C. Babington quite agrees with me in the determination of the species. *Aira uliginosa* grows in swampy, spongy flats, surrounding the small lake called in the Ordnance Map Cregduff Lough, less than a mile south-west of Roundstone. (July 29th, 1869.)

#### SALPA SPINOSA, OTTO, OFF THE WEST COAST OF IRELAND.

[ZOOLOGIST, *Oct.*, 1874.]

I first found this ocean mollusk in August, 1869, when it was floating near the surface of the sea, in very great abundance, between Golam Head and the Isles of Aran. Again, this season, I have met with it plentifully in the vicinity of the Skiard Rocks, and around Deer Island, to the south-west of Roundstone, in Connemara. (Sept. 4th, 1874.)

#### A NEW STATION FOR ERICA MACKAYANA.

[JOURNAL OF BOTANY, *Oct.*, 1874.]

Hitherto this rare heath has been observed only in the vicinity of Craigga-more Hill, and thence westward along the road leading to Clifden. It will, therefore, be interesting to record a second Irish locality, which is situated about eight miles to the south of Craigga-

more. On August 31st I found *Erica mackayana*, in its most typical form, growing in moderate abundance a little east of the newly built police barrack at Carna. Here it grows in fair quantity along the mountain heath on the way to Lough Sheedagh, and is, as usual, associated with *Erica tetralix*. On the same ground I gathered some of the forms which appear intermediate between *E. mackayana* and *E. tetralix*, and which seem to give some reason for uniting the two plants. These intermediates are much more plentiful about Craiggamore, and are very variable, forming, as it seems to me, a nearly complete series from *E. tetralix* to *E. mackayana*. I could not find any trace of *E. ciliaris* at Carna, though the possibility of its occurrence there was kept in mind. *Aira uliginosa* extends, on the wet mossy bogs and margin of lakes, throughout Connemara, from Clifden to Oughterard, and *Juncus obtusiflorus* is its frequent companion. We found *Naias flexilis* again, sparingly, in Lough Creg-duff, and, as before, in this lake only.

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#### A NEW VARIETY OF *CAMPANULA ROTUNDIFOLIA*.

[ROYAL IRISH ACADEMY PROCEEDINGS, 1876: "Report on the Flora of Inish-bofin."]

*Campanula rotundifolia*, Linn.; var. *speciosa*.—A large-flowered and very handsome variety grows among the rabbit-burrows south of the harbour. The stems are from nine to twenty inches high, the leaves broader and more crowded than usual, lanceolate and linear lanceolate on the middle of the stem. Flowers from one to twelve, with a corolla at least an inch long. This plant, in some of its characters, comes near to the variety *arctica*, figured in "Flora Danica," XVI., Tab. 2711, but has much larger flowers. It also agrees to some extent with a var. *lancifolia*, described in Hartman's "Skandinaviens Flora," but the stem is not recumbent. Being apparently distinct from any described variety, I believe this beautiful plant quite deserves a separate name, as var. *speciosa*, which I here propose for it.

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#### NAIAS FLEXILIS IN KERRY.

[JOURNAL OF BOTANY, Nov., 1877.]

I have to record a second Irish locality for this very rare plant. On the 18th of September last, while dragging in Lough Caragh for a fishing-rod which had been dropped overboard the previous evening, I brought up, together with a large mass of *Chara flexilis*, some bright green fragments, and on close examination I was much pleased to recognise them as *Naias flexilis*, Rostk., having myself several times collected it in the small lake called Lough Creg-duff, near Roundstone,

which, since the first finding by Prof. Oliver, has remained for twenty-seven years the only known locality in Ireland. In Lough Creg-duff the Naias grows intermixed with Chara aspera and other subaqueous plants, close to the margin of the lake, in water only two or three feet deep; but in Lough Caragh, in the place where I dredged up the plant, the water was not less than fifteen to twenty feet in depth, at the south-east corner of the lake, close to the steep wooded bank, and not far from the reed-beds which surround the mouth of the river Caragh. In Lough Caragh grow Eriocaulon septangulare, Isoetes lacustris, Lobelia dortmanna, &c., and in the immediate neighbourhood Pinguicula grandiflora, Bartsia viscosa, Trichomanes radicans, and Euphorbia hyberna. The rare Slug, Geomalacus maculosus, occurs nearly all round the Lake, and the Natterjack Toad (Bufo calamita), so local in Ireland, abounds in many places along the shores of Dingle Bay. Our drag was made of thorn-bushes (Prunus spinosa), bound together and kept in place by two cross-pieces of wood, and weighted with some ten pounds of iron, an implement invented for the occasion by our ingenious fisherman, and which I venture strongly to recommend to botanists who wish to explore the vegetation at the bottom of any lake.

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#### WHITE-NOSED DOLPHIN ON THE IRISH COAST.

[ZOOLOGIST, *August*, 1878.]

We have long had, in the Museum here, a coloured cast of a dolphin, captured some 15 years ago in the vicinity of Dublin Bay, which, lately, by comparing a coloured sketch taken from the fresh animal, with the excellent figure given in the "Proceedings of the Zoological Society" (1876, p. 679, pl. lxiv.), I was able to identify as *Delphinus albirostris* (J. E. Gray). So little is known critically of the Irish species of *Delphinus* that it seems very probable some of the dolphins hitherto passing under the name of *D. tursio* really belong to *D. albirostris*, of which the figures given in the Annals of Natural History, and Bell's "British Quadrupeds," are very far from satisfactory.

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#### MONTAGU'S BLENNY (*BLENNIUS GALERITA*, LINN.), IN IRELAND.

[ZOOLOGIST, *August*, 1878.]

As this little fish is, I believe, not generally known to be found on the shores of Ireland, I may mention that I have captured it in two localities, viz., first (when in company with my friend, Mr. William Andrews) in rock-pools at the entrance of Dingle Harbour, Kerry, in August, 1868; and soon afterwards in 1869 I met with it again on the



coast and Islands of Connemara, where it was often to be seen in the same rock-pools with *Echinus lividus*. It is very similar to small specimens of the Shanny, *Blennius pholis*, but is, of course, easily known by its frontal crest. Specimens from both localities are to be seen in the Museum of Science and Art, Dublin.

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### THE BLUE THRUSH, ERRONEOUSLY RECORDED AS A STRAGGLER TO IRELAND.

[ZOOLOGIST, *February*, 1880.]

The Blue Thrush (*Monticola cyanus*), first announced by Mr. Blake Knox, in the "Zoologist" (1870, p. 2019), as having been killed in Ireland, and noticed as such both in Messrs. Sharpe and Dresser's "Birds of Europe," and in Professor Newton's edition of Yarrell (vol. i., p. 295), has no claim, so far as our specimen is concerned, to be enrolled in the British Fauna. The specimen purchased for the Museum of the Royal Dublin Society, in November, 1866, was at that time supposed to have been shot in the county of Meath by a Mr. Brassington: but, after many inquiries, and the best assistance given by Mr. Glennon, and a long correspondence in all likely quarters, nothing more could be traced of its history. It was by a mere accident that the bird was, many years afterwards, recognized by my friend, Dr. Battersby, of Lough Caragh, who expressed great surprise to see it in the Irish collection. Dr. Battersby then told me that he had himself brought this Blue Thrush, fresh-killed, from Cannes, where he was then residing: and when passing through Dublin had left it, during Mr. Glennon's absence, at his shop for a present. Dr. Battersby's name was no doubt imperfectly remembered by the shop-man, and the bird, being fresh-killed, was too hastily assumed to be Irish. The locality, Meath, may have suggested itself as being the county in which many families of the name of Battersby reside. Dr. Battersby finds, from a memorandum, that he arrived in Dublin on the 14th November, 1866, and returned to Cannes on the 21st, a date which is consistent with Mr. Glennon's having received the bird on the 17th. No blame in the matter can attach to any of the parties concerned; it was a very natural mistake to make, and I feel much pleasure in being able so conclusively to explain the very unusual and perplexing circumstances of its history.

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### SOOTY SHEARWATER OBTAINED IN IRELAND.

[ZOOLOGIST, *August*, 1881.]

Through the good offices of my friend, Mr. J. C. Neligan, of Tralee, I have lately had the opportunity of examining a specimen of the Sooty Shearwater (*Puffinus griseus*, Gmel.), which was killed many years ago off the Little Skellig rock, on the coast of Kerry, and has since been

preserved in the collection of Mr. R. B. Chute, of Chute Hall, to whom I feel much indebted for his kindness in allowing this valuable specimen to be brought to Dublin. This is the bird which was first described as British by Mr. Arthur Strickland, in 1832, under the name of *Puffinus fuliginosus*, from a specimen shot at the mouth of the Tees; and which has been treated as the young or female of the Great Shearwater (*P. major*, Faber) by many of our best authorities. But, in his "Birds of Europe," Mr. Dresser identifies it with *P. griseus* of Gmelin, and considers it a species distinct from *P. major*. Though both birds are rare on the British coast, *P. griseus* appears to be much the scarcer of the two, and has not yet been recorded as Irish.

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### ICELAND FALCON IN IRELAND.

[ZOOLOGIST, *December*, 1881.]

Of the two Gyrfalcons, the Greenlander (*F. candicans*, J. F. Gmel.) has several times been captured in Ireland, and we have in this Museum the very specimen which was killed many years ago at Belmullet, co. Mayo, as already noticed by my friend, Mr. Warren, in "The Zoologist" for 1877, p. 234. But the scarce Icelander (*F. islandus*, J. F. Gmel.) is only very dubiously included by Thompson, and is altogether omitted as an Irish bird by Watters, and in Prof. Newton's edition of Yarrell. I have therefore much pleasure in placing upon record, as Irish, an indubitable specimen of the Iceland Falcon, which belongs to Mr. Henry J. Richards, of Barnagh, Belmullet, and was shot, as Mr. Richards informs me, by his brother-in-law, in September, 1879, at Tarmoncarra, 3 miles from the town of Belmullet. The bird was sent to Dublin at the time, and set up by Mr. Williams, to whom I feel much indebted for the information, and I am still more obliged to Mr. Richards, who was kind enough to send his bird for examination, and to allow it to remain as a loan in this Museum. It is remarkable that both species of Falcon should have occurred in the same neighbourhood, and I may add that my friend, Captain Boxer, of the Irish Lights Office, tells me that of late years he has heard of more than one large white Falcon occurring on the north-west coast of Mayo.

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### SISYRINCHIUM BERMUDIANUM IN KERRY.

[JOURNAL OF BOTANY, *January*, 1882.]

When visiting my friend, Dr. Battersby, last April, I took the opportunity of calling upon the Rev. A. Isaac, of Milltown, who was reported to have found *Sisyrrinchium bermudianum* in that neighbourhood. At the Rectory we were fortunate in meeting Lady Godfrey, who was kind enough to conduct us to a locality within a short distance of Milltown,

where she had previously marked down the plant, and showed us the young shoots, of which only a few were to be seen at this early season.

This locality, which lies on the N.E. of Milltown, is on some enclosed, grassy, but not boggy, pasture, adjoining a road, and near to a large copse, which is clearly not aboriginal. The station seems at present sufficiently 'wild,' nor could I trace near it any cottage ruins, nor recent marks of agriculture. Still the ground was certainly occupied as pasture, and might have been tilled at no very remote period.

In a letter dated 29 July, 1881, Mr. Isaac mentions another locality a mile and a-half S.-W. of Milltown, near Lough Dromin, where he found the *Sisyrinchium* growing "in a field, over which it seems to be evenly but not densely scattered:" and at the same time he was kind enough to send a specimen, which, beyond all doubt, authenticates the species. He searched for it in adjoining fields, but did not find it; but "from the nature and general circumstances of the soil on which it is found" he is strongly disposed to think it native.

I may here mention a locality in Westmeath, where the *Sisyrinchium* cannot be considered otherwise than as an introduced plant, and for the knowledge of which I am indebted to my friend Mr. H. C. Hart. Mr. John R. Simms reports the "Canadian grass" as having been found (1879) near Mullingar, growing "in a gravel walk that had been neglected for years, and covered with weeds. The soil was very cold and hard; in fact its roots were in the stones and gravel which formed the foundation of the walk. It is a very free grower and bears dividing, and is at present (July, 1879) covered with pods of seeds."

Under the circumstances it will probably be best to wait until we know something more of its range, present circumstances, and past history, in Kerry, before pronouncing any opinion on its claims to be considered indigenous; the more so, as it seems so easily to establish itself.

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## BAILLON'S CRAKE IN CO. WATERFORD.

[ZOOLOGIST, *March*, 1882.]

Through the kindness of Dr. Burkitt, whose name is well known to ornithologists as once the possessor of the single Irish specimen of the Great Auk, I am enabled to record Baillon's Crake, *Porzana Bailloni*, from a second Irish locality, which is well authenticated by a label on the stand stating that the bird was "taken alive on Tramore Strand, Co. Waterford, April 6th, 1858." This interesting Rail has been, for many years, in Dr. Burkitt's excellent series of South Irish birds, labelled as "*Crex pusilla*," and having heard of the circumstance through several friends, I requested permission to examine it, when I found the bird to be, as I expected, Baillon's Crake. I have also been allowed by Mrs. Moss to examine carefully the specimen so beautifully preserved

by her late husband, and found this specimen, already recorded by Thompson, to be also certainly Baillon's Crake. It is singular that the Little Crake has not yet occurred in Ireland,\* and another bird which I am looking for is the Pink-footed Goose, both of which might be expected to occur.

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### SPINOUS SHARK ON THE COAST OF DUBLIN.

[ZOOLOGIST, *November*, 1882.]

On the 25th of September last I saw, lying in the shop of a fishmonger in William Street, Dublin, a fine specimen of the Spinous Shark (*Echinorhinus spinosus*, Blainv.), which I was informed had been captured near Skerries, about 15 miles to the north of Dublin. This is, I believe, the first record of the occurrence of this rare fish in Ireland.

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### WHITE'S THRUSH IN MAYO.

[ZOOLOGIST, *April*, 1885.]

A fine specimen of this very rare Thrush (*Turdus varius*, Pallas) has been presented to the Museum of Science and Art, Dublin, by Captain Robert Rutledge-Fair, who informs me that he shot it early in January last (about the 9th) at Westport, Co. Mayo. It was killed "while beating a wood for Woodcock. It rose from thick under-wood, and flew much like a Woodcock, for which it was at first mistaken." This is the third specimen of this Thrush which has been procured in Ireland.

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### REDSTART BREEDING IN IRELAND.

[FIELD, *July* 4th, 1885.]

Hitherto the Redstart has only been known as a very rare and accidental visitor to Ireland: but this summer two pairs have built their nest and reared their young within the deer park demesne at no great distance from the well-known waterfall at Powerscourt, Co. Wicklow. The birds were first observed and identified by a lady who has for many years paid much attention to our native birds; and on Saturday last, having been conducted to the spot by my friend the Rev. Dr. Benson, I had the pleasure of watching the parent birds for more than an hour, and of seeing and handling two of the young birds which had recently left the nest. I was also shown the nest itself, placed in a low wall, and learned from its discoverer that another pair, with their young brood, had been observed in the immediate vicinity.

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\* Mr. More seems here to have overlooked Canon Tristram's record of the "Little Olivaceous Gallinule" shot at Balbriggan in 1854 (*Zoologist*, 1854, p. 4298), but he quotes it in both editions of his *List of Irish Birds*.

## SPINOUS SHARK IN GALWAY BAY.

[ZOOLOGIST, *August*, 1885.]

On June 26th a large Spinous Shark, *Echinorhynchus spinosus*, said to have measured nine feet, was captured in Galway Bay by some fishermen, who reported that another was, at the same time, seen accompanying it. This is the second known Irish example, and the first taken on the west coast, the former instance having occurred in September, 1882, when one of these rare Sharks was caught off Skerries, near Dublin (see 'Zool.,' 1882, p. 424). The head and portion of the tail of the present specimen have been secured for the Science and Art Museum. From Mr. Michael Alfred, of the "Galway Express," I learn that, on the 4th of July, a second specimen of this rare Shark was captured by some Claddagh fishermen outside the Aran Islands. It was about eight feet in length; and, like the latter, was taken on a hand-line used for conger eels, the bait being a gurnard without the head. Depth of water about 30 fathoms. Mr. Alfred adds that three have been caught within ten days.

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## WOOD SANDPIPER IN THE COUNTY OF WICKLOW.

[ZOOLOGIST, *November*, 1885.]

Hitherto the Wood Sandpiper has only been included in the Irish avifauna on very slight and unsatisfactory evidence, and I felt obliged to exclude it from my recently published "List of Irish Birds." But I am now enabled, through the kindness of my friend, Dr. Benson, to announce the occurrence of the first well-authenticated example, which I have just examined, and which was shot by Mr. Smith Cregan (of the Royal Engineering Department) on the 23rd of last August, at Calary Bog, near the Sugar-Loaf Mountain, Wicklow. It was alone, and its flight was thought to resemble that of a Snipe.

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## CLUPEA FINTA, Cuv., AT KILLARNEY.

[ZOOLOGIST, *March*, 1889.]

The occurrence of a Shad, *Clupea finta*, Cuv., in Killarney Lake, was first made known by the late William Andrews, who was informed that "Herrings" were occasionally captured by the fishermen. Charr are also often called "Herrings" in many of the Irish Lakes, and I have obtained specimens of both Shad and Charr from the Lower Lake of Killarney. These Shad are taken by the "trawlers" when

drawing their nets for Salmon, and especially when using a smaller mesh for Trout. I never saw any specimen at all equal in size to the Shad, also *A. finta*, which are taken in the River Moy, of which I have now before me a specimen measuring nearly twenty-four inches in length; or the so-called "Bony Horsemen" (*A. finta*), which in May frequent the mouth of the Blackwater, in Waterford, to the length of twenty inches. When visiting Kerry I often tried to ascertain whether anything were known of the breeding habits of the Killarney Shad, and whether it is ever found ascending from the sea. But the result of my inquiries was that I could never hear of any being taken, either in the River Laune, or in the salt water. They are captured in numbers, and of various sizes according to the season of the year, always small, up to about Herring size; and I am now inclined to believe that these small Shad are resident in the Lake of Killarney, as in some of the Italian Lakes. If this surmise is correct, we have here an instance of a land-locked Shad, resident and breeding in fresh water, perhaps an incipient species.

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#### ERICA MEDITERRANEA, VAR. HIBERNICA IN ACHILL ISLAND.

[JOURNAL OF BOTANY, *April*, 1889.]

From a correspondent, Mr. J. R. Sheridan, I have lately received some specimens of the Mediterranean Heath, flowering at the end of January. This is, I believe, a very unusually early date for its flowering. But the present has been a singularly mild winter, with scarcely any frost, and, until this week, no snow in Ireland. I had myself seen the Mediterranean Heath when in Achill in 1872, and Mr. Sheridan has recently found two new localities at the north end of the island, where, in wet ground bordering on a stream, he tells me that it attains a height of three feet. I may here mention two other rare plants which I found in Achill Island, viz., *Eriocaulon septangulare*, in a small lake at north end of Achill, and *Potamogeton nitens*, in the stream flowing from Lough Keel, on south side of the island.

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#### THE PARROT CROSSBILL IN IRELAND.

[ZOOLOGIST, *May*, 1889.]

We have long been looking for the Parrot Crossbill, *Loxia pityopsittacus*, in Ireland, but it is only within the last few weeks that its occurrence here has been fully established. From the demesne of Lord Rosse, at Parsonstown, Mr. Edward Williams, of Dublin, received for preservation, in January last, a bird which seemed to him heavier and stronger in the bill than usual; and I am glad to say that his suspicion has proved correct. Professor Newton confirms our determination of

the sub-species; and Mr. J. G. Millais, of the Seaforth Highlanders, now quartered in Dublin, most kindly took the trouble to have sent from Dublin a series of Crossbills obtained by himself in Scotland, which enabled me, by comparison, to make quite sure of the name, though of course the opinion of Professor Newton would of itself have been quite sufficient. This, the first authenticated Irish specimen of the Parrot Crossbill, was shot, as I am informed, on January 12th. The past winter has been remarkable for the number of Crossbills which have been observed in various parts of Ireland.

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#### ATHANAS NITESCENS IN IRELAND.\*

[ZOOLOGIST, *June*, 1889.]

I do not think that this pretty little crustacean, so like a miniature lobster, has yet been recorded as Irish. In 1869, when collecting for the Royal Dublin Society in the West of Ireland, I captured this rare species in a rock-pool, in the small island of Magdara, which is noted also for a very interesting old chapel ruin. It lies a short distance to the south of Roundstone, Connemara.

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#### THE SO-CALLED "MARTINICO GALLINULE" IN IRELAND.

[ZOOLOGIST, *January*, 1890.]

In preparing a new edition of my 'List of Irish Birds,' I have done my best to clear up the doubts which have long attached to a bird picked up dead near Brandon Mountain, in Kerry. It will be remembered that, in 1846, Thompson, from a description sent to him by Mr. Richard Chute, announced this bird as *Porphyrio hyacinthinus* of Temminck (Ann. Nat. Hist., vol. xviii., p. 311). Mr. W. Andrews subsequently saw this specimen at Chute Hall, where it still remains, and considered it to be the Martinico Gallinule (*Ionornis martinica*), an identification which Thompson accepted as correct, and under this name mentions this bird in his 'Natural History of Ireland' (Birds, vol. ii., p. 331, footnote). Having asked the assistance of Mr. J. C. Neligan, he and Lord Ventry have very kindly interested themselves in the matter, with the result that, a few weeks ago, Lord Ventry brought up to Dublin a bird of his own, which is labelled as having been obtained "in a cabbage-garden near Odorney, on the River Brick,

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\* As has been pointed out (p. 336), there is an earlier record in Thompson's "Natural History of Ireland," vol. iv., p. 391; but the rarity of the species in Ireland is sufficiently shown by the fact that Thompson had only met with one specimen.

near Ballyheigue Bay, 10th October, 1873," and which, rather to my surprise, proved to be an undoubted example of *Porphyrio smaragnotus*. Lord Ventry further assures me that his bird is identical with the "Martinico Gallinule" preserved at Chute Hall, so that in all probability we must now conclude that the latter also is *P. smaragnotus*, and that Lord Ventry's specimen is a second example of the same species, which, of the two *Porphyrios*, might have been thought the less likely to occur in Ireland. Mr. Neligan and Lord Ventry very kindly tried to obtain for me the loan of the original specimen, but this was not found possible, as the bird is locked up in a glass-case, and the owner was absent from home, so that I could not examine it myself; but it may be added that in Mr. Chute's description, as quoted by Thompson, the bird is described as having the back and shoulders bottle-green, and that Thompson found Mr. Chute's measurements to agree with those of *Porphyrio hyacinthinus* (*cœruleus*) which is a much larger bird than *Ionornis martinica*.

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#### PORPHYRIO SMARAGNOTUS AND P. CÆRULEUS IN IRELAND.

[ZOOLOGIST, *January*, 1890.]

In addition to the two examples of *Porphyrio smaragnotus* above mentioned under my note on the Irish Martinico Gallinule, and both of which were obtained in Kerry, Mr. J. H. Gurney informs me that there is an Irish specimen of *P. cœruleus*, but unfortunately without date or locality, in the collection of Mr. John Marshall, of Taunton.

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#### BARRED WARBLER IN IRELAND.

[ZOOLOGIST, *August*, 1890.]

On his return from Belmullet, a few weeks ago, my friend Mr. R. J. Ussher sent me, for determination, a warbler, which turns out to be a female Barred Warbler, *Sylvia nisoria*, now to be for the first time recorded as an Irish Bird; and I am glad to say that Professor Newton, who has very kindly examined the specimen, confirms my identification. Mr. Ussher informs me that the present example was obtained, by the venerable ornithologist, Dr. Robert Burkitt, at Belmullet, in the remote north-west of Mayo, on the 24th September, 1884, about the same date when several others were captured in England. To Dr. Burkitt Irish ornithology is already indebted for the record of the Great Auk, the Gold-vented Thrush, and the Spotted Eagle Owl, all of which he obtained in the vicinity of his former residence at Waterford; and it is interesting to find one who commenced collecting birds in 1839, and is now eighty-four years of age, adding one more rarity, *Sylvia nisoria*, to the Irish avifauna.



## THE LESSER KESTREL IN IRELAND.

[ZOOLOGIST, *April*, 1891.]

On the 20th of February last, Mr. Tank, of Aungier-street, brought to me, for identification, an adult male of the Lesser Kestrel, *Falco cenchris*, freshly killed. He had just received it from Mr. W. H. Cowell, to whom it had been presented. Mr. Michael Carr informs me that he shot it on the 17th of February, on his farm at Woodford, near Shankill, Co. Dublin. When killed it was feeding upon earthworms, on freshly-ploughed ground. My friend, Mr. James Johnston, of Bray, has very kindly made inquiries in the neighbourhood, and has ascertained some interesting particulars concerning the habits of the bird since its first arrival, which I proceed to quote from his letter:—"It first appeared at Glenamuck (George Byrne's place) early in November, about the 8th or 10th of the month. The ploughman told Mr. Byrne that a Hawk had followed him during the afternoon. Mr. Byrne at first took no notice, but hearing of it on several evenings, he went one day to the field when the plough was at work, and saw the bird; it was then very tame. Next day he brought down a gun, and, when the bird returned, he fired and missed it. This shot made it very wary on sight of a gun, so that, although it still fed close to any of the workmen, yet, if a man appeared with a gun, it was off at once. January the 4th was the last day it was seen at Glenamuck. On that day a brother of Mr. Byrne followed it, but to no purpose. After this I have two records of its being observed by a sportsman named Sutton, who had previously, on different occasions, seen the bird at Glenamuck, and tried to get a shot at it. Sutton is himself a farmer, and his last observations were both made on newly ploughed land. During the snow the bird was not seen, but after the thaw, when ploughing was resumed, it appeared again. Its manner of feeding was something like that of a Gull—at one time walking along the furrows, busily working the freshly turned sod, again rising on the wing, and quartering behind the workmen until a fat worm appeared, on which it would immediately drop. The bird usually fed from about 11 o'clock until evening. It only remains to add that the only occasion on which Mr. Carr saw the bird was on the 17th of February, the day he shot it, and that it was a couple of hours about the place before he secured it. Thus it appears that this little Hawk remained in the same neighbourhood, on the borders of Dublin and Wicklow, for at least three months.

## THE IRISH HARE.

[IRISH SPORTSMAN, *February 13th*, 1892.]

Even a short continuance of snow and frost seems to produce a noticeable effect in changing the colour of the Irish Hare. For instance, we have lately had just a week of snow, and that not very deep, from the

7th to the 14th of January, and anyone looking at the hares now hanging in the poulterers' shops in Dublin will notice that in most cases their ears are bordered more or less broadly with white, and there is a wide patch of greyish fur on the rump. I have seen one in which the white has extended half-way down the hind-legs.

[The above note was signed "G."]

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## THE DECREASE OF THE QUAIL IN IRELAND.

[IRISH SPORTSMAN, *May 21st*, 1892.]

It seems pretty well agreed among sportsmen that the Quail, formerly a common bird, has now become very rare in Ireland. Some say it is fifteen, others twenty, years ago, since this decrease was first noticed. But it is not so easy to find an explanation. In the Rev. H. A. Macpherson's excellent little book, 'Introduction to the Study of British Birds,' it is suggested that the number of quails which visit us may depend, to a certain degree, upon the quantities netted on the Mediterranean; but Mr. Macpherson adds that the Quail seems as abundant as ever in the Rhine Valley, and I am disposed to agree with your correspondent's suggestion that the reason is rather to be sought in some change that has taken place in the climate. The country people often say that the summers used to be much hotter and drier than they are now. Readers of 'Thompson's Natural History of Ireland' will not fail to notice that he has much more to say about the Quail remaining throughout the winter, in various parts of Ireland, than of its occurrence as a summer visitor. Whether these winter birds were all reared in this country, or whether they may not rather be considered as winter immigrants, as in Portugal, would be an interesting inquiry.

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## RUBUS CHAMAEMORUS AS AN IRISH PLANT.

[JOURNAL OF BOTANY, *July*, 1892.]

Since first recorded by Professor Murphy in Loudon's 'Magazine of Natural History' (vol. I., p. 436, 1829), this alpine bramble has not been gathered in Ireland by any other botanist. Search has been made by two excellent observers, Mr. H. C. Hart and Mr. S. A. Stewart, but hitherto this most interesting plant has escaped the eyes of two of the most practical and skilful of our field botanists. In view of the approaching publication of a second edition of 'Cybele Hibernica,' I will now recapitulate all that I know about the locality given in Mr. Murphy's paper, and in Mackay's 'Flora Hibernica.' In Loudon's Magazine (1829) the station is given as "Plentiful on Glen Garro

Mountain, Tyrone." In 'Flora Hibernica' (1836) Mackay says, "On a mountain in the Stranagabrally range, Co. Tyrone." (It is not mentioned in the 'Irish Flora,' 1833). Prof. E. Murphy, writing to us in 1864, says, "Seen by me, in company with Admiral Jones (then Captain Jones), in 1826, on a mountain-top not far from Dart mountain, over which the boundary-line separating Tyrone from Londonderry runs; it was *very abundant*, and *in flower* when we saw it." Admiral Jones himself (1865), in an annotated copy of Mackay's 'Catalogue' of 1825, writes, "On a mountain west of Dart. I cannot give any nearer to the locality. Mr. Murphy and I were covered by a wet fog at the time. We were by way of walking from Mr. Kennedy's Lodge at (I think) Lough Ash to Dart." Thus the matter remains. It will be well to remember that Admiral Jones was, for many years before 1865, accustomed to visit Braemar and the Aberdeenshire Highlands with the object of collecting lichens: and he must have been familiar with *Rubus chamaemorus* in its native habitat in Braemar, where it is abundant; and neither did he nor Prof. Murphy in their letters vary at all from their first identification. It is, however, to be regretted that *Rubus chamaemorus* has not been gathered in Ireland since the year 1829, and hence doubts have been freely expressed as to the correct identification, which renders it the more desirable that a fresh effort should be made to settle a question so interesting to Irish botanists. That any other species should have been mistaken for it, whether *Alchemilla vulgaris* or *Rubus saxatilis*, seems extremely unlikely.

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#### ERICA MEDITERRANEA FLOWERING IN OCTOBER.

[IRISH NATURALIST, *December*, 1893.]

From Achill Island Mr. J. R. Sheridan has sent me a few branches of *Erica mediterranea*, which he found flowering at the very unusual date of 10th October, and he remarks that it had been out for a week or two previously. This is, no doubt, a result of the extraordinarily fine and hot summer which we have experienced this year, and which has caused many other spring-flowering plants to anticipate their usual date.

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#### SUPPOSED OCCURRENCE OF VESPERTILIO MURINUS IN ENGLAND: CORRECTION OF AN ERROR.

[ZOOLOGIST, *April*, 1894.]

In reply to inquiries as to the evidence for including the Mouse-coloured Bat (*V. murinus*) in my List of the Vespertilionidae found in the Isle of Wight (see Venables' Guide, 1860), I may explain that it was the late Mr. F. Bond who wrote me that he had obtained this

species at Freshwater, and I relied altogether upon his identification, knowing how very careful and accurate he was: but, some years afterwards, he wrote that the large Bat which he had found at Freshwater was the Noctule, *V. noctula*, and not *V. murinus*. I remember, also, that the same mistake was communicated to the Linnean Society by the late Prof. Thomas Bell, to whom I had mentioned it. Another Bat, given as Daubenton's Bat in Venables' Guide, Mr. Bond told me proved to be *V. mystacinus*. Both errors were set right by myself in the list of Isle of Wight Quadrupeds given in Jenkinson's 'Practical Guide to the Isle of Wight' (1876), and I am only sorry that I did not make the correction more generally known, since it concerns such a very dubiously British species.

## A LIST OF IRISH BIRDS

SHOWING

THE SPECIES CONTAINED

IN THE

SCIENCE AND ART MUSEUM, DUBLIN.

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REPRINTED (BY SPECIAL PERMISSION) WITH THE AUTHOR'S LATEST ADDITIONS  
AND CORRECTIONS.

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## PREFACE TO SECOND EDITION.

THE previous edition of this list was the first of an official series of Catalogues of the Natural History Collections in the Science and Art Museum, now in course of preparation.

Hitherto the only published accounts of specimens contained in this department of the Museum have appeared in the Transactions or Proceedings of Learned Societies. Among such accounts, papers by the late Drs. Leith Adams and Carte on the Fossil Mammals of Ireland, Mr. W. F. Kirby's Catalogue of the *Lepidoptera* in the Museum, and Mr. Lydekker's Catalogue of the Vertebrate Fossils from the Sivaliks of India, are the most noteworthy.

It is hoped that the publication of these Catalogues will prove mutually beneficial to the public and to the Museum. The present edition of the List of Birds has been carefully revised by Mr. A. G. More, late Curator of the Museum, who is admitted to be the most competent authority on the subject.

A new feature in the Museum, since the first edition was published, will be found in the groups in glass cases, placed on the floor of the upper room, illustrating the life-history of different species of Irish birds.

V. BALL,

Director, Science and Art Museum.

LEINSTER HOUSE, DUBLIN, *December*, 1889.

## INTRODUCTION.

Since the publication of the second edition of this List, in December, 1889, thirteen species of Birds have been, for the first time, recorded as stragglers to Ireland, and other facts of considerable ornithological interest have come to light. It has therefore been thought that the original character of the List will be best preserved by incorporating, in the text, the notes left by Mr. More in manuscript on the blank pages of his interleaved copy. A few recent occurrences of some of the rarest Irish Birds are mentioned in footnotes; and thanks are due to Dr. R. F. Scharff, Curator of the Natural History Department, and to Mr. R. M. Barrington, for valuable information kindly communicated for this purpose.

As in the previous editions,\* the species represented in the Science and Art Museum are distinguished by their being printed in **Clarendon Type**, while the names of those Birds which are not in the collection are printed in *Italics*. The asterisk is used to indicate the Birds which breed in Ireland. The names and order followed are those of the 4th edition (by Newton and Saunders) of Yarrell's British Birds, the standard work on the subject.

The collection of Irish Birds now occupies part of the ground floor of the Natural History Museum, in the space set apart for Irish Vertebrate Animals. Besides the numerous specimens which have at various times been purchased or presented, the Museum's native series comprises three of the most important collections formed in Dublin, viz.:—those of the late T. W. Warren and of the late R. J. Montgomery, together with that of the Natural History Society of Dublin, which last was presented to the Museum in 1880. Many of these birds are mentioned by Thompson in his "Natural History of Ireland" (vols. i-iii [*Birds*]).

Thompson's "*Birds of Ireland*" (1849-51) and Watters' "*Natural History of the Birds of Ireland*" (1853) are well known, and much information respecting Irish Birds will be found in the "*Reports on the Migration of Birds*" (from 1881) and in "*The Zoologist*." As other useful sources of information may be mentioned "*The Irish Naturalist*" (from 1892) and a small book by the Rev. C. Benson, entitled "*Our Irish Song-birds*."

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\*From which the latter paragraphs of this Introduction are principally borrowed.

## A LIST OF IRISH BIRDS.

[The asterisk (\*) is used to indicate the species which breed in Ireland.]

### ORDER—ACCIPTRES.

#### VULTURIDÆ.

*Gyps fulvus* (Gmel.) Griffon Vulture.

Once captured at Cork in the spring of 1843. (*Thompson*). This specimen is preserved in the Natural History Museum at Trinity College, Dublin.

#### FALCONIDÆ.

\**Aquila chrysaetus* (Linn.) Golden Eagle.

Decreasing. Still breeds very sparingly in the West and North of Ireland, in Donegal, Kerry, Galway, and Mayo.

*Aquila clanga* (Pallas). Spotted Eagle.

Two were shot near Youghal, January, 1845. (*Thompson*). One of these is in the Trinity College Museum.

\**Haliæetus albicilla* (Linn.) White-tailed Eagle.—Sea-Eagle.

Like the Golden Eagle, becoming very scarce. It is believed that a few pairs still breed in the West of Ireland, in Kerry and Mayo; but, owing to poisoning, the Sea Eagle has become rarer than the Golden Eagle.

*Pandion haliæetus* (Linn.) Osprey.

Rare visitor, chiefly in autumn. There is, in the Museum, a fine specimen, recently obtained at Clontarf, close to Dublin.

*Falco candicans* (J. F. Gmel.) Greenland Falcon.

Native of America. Rare and uncertain winter visitor. Eight were captured, at different points along the western coast of Ireland, in the winter of 1883-4, of which three are in the Museum, two of these, shot at the Tearaght Lighthouse, Kerry, having been presented by Mr. E. M'Carron. An old male was shot at the Skelligs Lighthouse, September 28, 1887. (*Migration Report* for 1887, p. 122).

*Falco islandus* (J. F. Gmel.) Iceland Falcon.

Like the former, a very rare winter visitor. The specimen in the Museum was obtained near Belmullet, co. Mayo, and has been kindly lent by Mr. H. J. Richards.

**\*Falco peregrinus** (J. F. Gmel.) Peregrine Falcon.

Resident in small numbers. Breeds on the sea-cliffs all round the coast, and less numerously on the higher mountains.

*Falco subbuteo* (Linn.) Hobby.

Very rare summer visitor. Has occurred eight times in Ireland. (*Zoologist*, 1877, p. 472; 1883, p. 122; and 1890, p. 357.)†

**Falco vespertinus** (Linn.) Red-footed Falcon.

Once obtained in Wicklow, in the summer of 1832. (*Thompson*.) This specimen is in the Museum, having formerly belonged to the late Mr. T. W. Warren's collection.

**\*Falco œsalon** (Gmel.) Merlin.

Frequent, especially in the mountainous districts, where it breeds. Descends, in autumn, to the level country and bogs.

**\*Falco tinnunculus** (Linn.) Kestrel.

General, and with the Sparrow Hawk, the most common species of Hawk. Most numerous in autumn.

*Falco cenchris* (Naum.) Lesser Kestrel.

Has once occurred. An adult male, shot at Shankill, co. Dublin, 17th February, 1891, by Mr. Michael Carr, while the bird was feeding on earthworms, following a plough. It had been seen in that neighbourhood all the winter, from early in November (*Zoologist*, 1891, p. 152).

*Astur palumbarius* (Linn.) Goshawk.

One was obtained in Longford in the autumn of 1846. (*Watters*.) One seen in Ballymanus Wood, in Wicklow, in the spring of 1870. (*Zoologist*, 1870, p. 2283.) One, killed at Kilruddery, Wicklow, in 1844, is quoted by Sir R. Payne-Gallwey, from a note left by the late Dr. J. R. Kinahan. (*Fowler in Ireland*, p. 312.)

**Astur atricapillus** (Wils.) American Goshawk.

Native of America. One killed at Ballinacourte, county Tipperary, in Feb., 1870, was presented to the Museum by Mr. G. K. S. Massy Dawson. (*Ibis*, 1870, p. 538.) Another was shot near Parsonstown about same date. (A. B. Brooke, in *Zoologist*, 1871, p. 2524).

**\*Accipiter nisus** (Linn.) Sparrow-Hawk.

Resident and common.

*Milvus ictinus* (Savigny). Kite.

Extremely rare. Has been observed five or six times. Only one Irish specimen is known. In his book, the "Fowler in Ireland," Sir R. Payne-Gallwey mentions having shot a young male Kite on the Cashen River in Kerry, in the winter of 1880-81.

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† A few additional occurrences of the Hobby in Ireland might now be mentioned. It is sometimes obtained at the light-houses.



*Elanus cæruleus* (Desf.) Black-winged Kite.

Has occurred once on the bog of Horsestown in the county Meath (*Ibis*, 1872, p. 471, *Zoologist*, 1875, p. 4455), and is now in the possession of Sir John Dillon, at Lismullen.

\**Buteo vulgaris* (Leach.) Common Buzzard.

Decreasing, and now become very rare, if not extinct, as a breeding species. Thompson mentions four counties as breeding-places, viz. Donegal, Derry, Antrim, and Down. It occasionally occurs as a migrant in spring and autumn.

*Buteo lagopus* (Gmel.) Rough-legged Buzzard.

Very rare visitor in late autumn. Only seven or eight times noticed in Ireland. One was shot in 1867 at Slyne Head, Galway, by the lighthouse-keeper, Mr. Redmond, as I learn from my friend, Mr. R. J. Ussher. One was trapped at Horn Head, Donegal, Nov. 26, 1891 (*Irish Sportsman*, Dec. 19.)

*Pernis apivorus* (Linn.) Honey Buzzard.

Very rare visitor in summer and autumn. Two specimens are in the Museum, of which the first was obtained in Kildare in 1882, and the second in Wexford in July, 1890. Another shot in the latter county in October, 1892 (*Zoologist*, 1892, p. 428.)

\**Circus æruginosus* (Linn.) Marsh Harrier.

Resident, but has now become scarce and local. Still breeds in some of the bogs, especially in the midland counties, and along the shores of the Shannon. Is often called "Kite."

\**Circus cyaneus* (Linn.) Hen Harrier.

Resident, now become rare, but breeds on the moors and mountains in various parts of the country. Like the last, is called "Kite."

*Circus cineraceus* (Mont.) Montagu's Harrier.

Very rare visitor in autumn. Has occurred four times in Ireland, viz. :—At Bray, Oct., 1848. (*Thompson*, Vol. i., p. 427.) At the Scalp, Oct. 1, 1849. (*Thompson*, Vol. ii., p. 8.) Again in 1877, at the Scalp. (*Mr. E. Williams*.) The last specimen is in the possession of Major Barton, at Straffan. A fourth obtained in Wexford, May 14, 1890 (*Zoologist*, 1890, p. 275), is in the Museum.†

## STRIGIDÆ.

\**Asio otus* (Linn.) Long-eared Owl.

Resident and frequent throughout the country.

*Asio accipitrinus* (Pallas). Short-eared Owl.

Regular visitor in winter.

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† A fifth was shot at Glenasmole, co. Dublin, July 3, 1893 (*Irish Naturalist*, 1893, p. 253).

**Scops giu** (Scopoli). Scops-Owl.

Very rare visitor. Two are mentioned by Thompson. One obtained in Meath. Another in Wexford, April, 1847. One was captured at Belfast, 17th November, 1883. (*Mr. Blake Knox.*) A specimen labelled "Ireland," is in the Museum, from Mr. Warren's collection, but with no special locality attached. One shot in Wexford, May 31, 1889, has been presented to the Museum by Mr. F. R. Leigh. (*Zoologist*, 1889, p. 313.)†

**Nyctea scandiaca** (Linn.) Snowy Owl.

Very rare and uncertain winter visitor. One shot on Inishtrahull Island, Donegal, 19th November, 1882, was presented to the Museum by Mr. W. H. James, the Lighthouse-keeper. One was shot at Dundrum, co. Down, January 18, 1889, as I am informed by Mr. Sheals, of Belfast. Mr. H. Blake Knox in 1888 obtained a specimen from Belmullet, Mayo, and one was shot on the 6th December, 1892, in Achill.

**\*Aluco flammeus** (Linn.) Barn Owl.

Resident and generally distributed in small numbers.

## ORDER—PASSERES.

## LANIIDÆ.

**Lanius excubitor** (Linn.) Great Grey Shrike.

Rare and uncertain winter visitor. The two Grey Shrikes in the Museum, from counties Louth and Down, both have only one wing-bar.

**Lanius collurio** (Linn.) Red-backed Shrike.

Has once occurred. Near Belfast, 10th August, 1878. (*Zoologist*, 1878, p. 437.)

## MUSCICAPIDÆ.

**\*Muscicapa grisola** (Linn.) Spotted Flycatcher.

Regular summer visitor, and generally distributed.

**Muscicapa parva** (Bechst.) Red-breasted Flycatcher.

Has twice occurred. Once at Arklow South Lightship, 23rd October, 1887. (*Zoologist*, 1888, p. 390, and *Migration Report* for 1887, p. 124.) A second on Tearaght Rock, 20th October, 1890 (*Zoologist*, 1891, p. 186.)

**Muscicapa atricapilla** (Linn.) Pied Flycatcher.

Very rare visitor. Has several times been taken at lighthouses in autumn—*e.g.*, at Tearaght, September 21, and at Fastnet, October 5, 1886. Again at the Fastnet, September 30, 1888, and at the Tuskar, September 28, 1888. (*Zoologist*, 1888, pp. 391 and 425.) The first Irish specimen was shot at Moyview, co. Sligo, April, 1875 (*Zoologist*, 1875, p. 4498), and was presented to the Museum by Mr. R. Warren.

† One from the Montgomery Collection is probably the bird said to have been killed in Clare (*Dublin Nat. Hist. Soc. Proc.*, vol. i. p. 91, 1852).

## ORIOOLIDÆ.

**Oriolus galbula** (Linn.) Golden Oriole.

Very rare summer visitor—chiefly to the South and East of Ireland.

## CINCLIDÆ.

\***Cinclus aquaticus** (Bechst.) Dipper.

Resident, and frequent in and near to the mountainous districts.

## IXIDÆ.

**Pycnonotus capensis** (Linn.) Gold-vented Thrush.

Has once occurred. Near Waterford, in January, 1838. (*Thompson*.) Formerly in the Trinity College Museum.

## TURDIDÆ.

**Turdus varius** (Pallas). White's Thrush.

Has three times occurred. At Bandon, Cork, in December, 1842. (*Thompson*.) (This specimen, which has lost its head, is in the Trinity College Museum). At Ballymahon, Longford, in the spring of 1867. (*Zoologist*, 1870, p. 2060.) Another shot at Westport, Mayo, January, 1885 (*Zoologist*, 1885, p. 111), has been presented to the Museum by Captain R. Ruttledge-Fair.

**Turdus migratorius** (Linn.) American Robin.

Native of America. Has once occurred. An adult male, shot at Springmount, Shankill, County Dublin, 4th May, 1891 (*Zoologist*, 1891, p. 219), is now in the Museum.†

\***Turdus viscivorus** (Linn.) Mistletoe Thrush.

Resident and now general. Is believed to have settled in Ireland since 1800. Flocks are seen from July onwards. Often mis-called "Jay." It is sometimes taken at the Light-houses.

\***Turdus musicus** (Linn.) Song Thrush.

Resident and common. Large numbers arrive in autumn and winter, when the bird is often captured at the Lighthouses.

**Turdus iliacus** (Linn.) Redwing.

A common winter visitor.

**Turdus pilaris** (Linn.) Fieldfare.

Regular winter visitor.

\***Turdus merula** (Linn.) Blackbird.

Resident and common. Its numbers are largely increased in autumn and winter, and it is often taken at the Lighthouses when migrating.

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† A second example, shot near Lough Gill, on 7th December, 1892 (*Irish Naturalist*, 1896, p. 214), is also in the Museum.

- \***Turdus torquatus** (Linn.) Ring-Ouzel.  
Summer visitor, frequenting, in limited numbers, the mountainous districts throughout Ireland. Has occurred in winter.

## SYLVIIDÆ.

- \***Accentor modularis** (Linn.) Hedge-Sparrow.  
Resident and common.
- \***Erithacus rubecula** (Linn.) Redbreast.  
Resident and common. Often taken at the Lighthouses when migrating.  
[The Nightingale is recorded in the *Zoologist*, 1883, by Mr. Ussher, as having been once obtained; and Mr. F. Rohu has kindly informed me that this single specimen, now in the Museum at Queen's College, Cork, was shot on the Lighthouse wall at the Old Head of Kinsale, on the 23rd September, 1876, but, as in the case of the Reed Warbler, I do not think that one visit of a common English bird is sufficient to give it a place on the Irish list.]
- \***Ruticilla phœnicurus** (Linn.) Redstart.  
Very rare visitor. Has, within the last few years, been found breeding at Powerscourt, Wicklow; and has several times been captured at the Lighthouses, both in spring and autumn.
- Ruticilla titys** (Scopoli). Black Redstart.  
Winter visitor, occurring in small numbers chiefly on or near to the east and south coasts.
- \***Saxicola rubicola** (Linn.) Stonechat.  
Resident and common.
- \***Saxicola rubetra** (Linn.) Whinchat.  
Summer visitor in small numbers. Rare and local. Its few known breeding localities are all in the northern half of Ireland. Has occurred in December, near Dublin.
- \***Saxicola œnanthe** (Linn.) Wheatear.  
Summer visitor, common. Was once seen by me in December, 1855, near Broadstone Station, on the Canal.
- Hypolais icterina** (Vieill.) Icterine Warbler.  
Has once, or perhaps twice, occurred. The first Irish specimen, shot at Dunsinea, 8th June, 1856, was most liberally presented to the Museum by Mr. J. G. Rathborne (see *Royal Dublin Society's Journal*, i., p. 440). Another is recorded as having been observed by Mr. Allan Ellison, in Coollattin Park, Wicklow, on the 29th May, 1886, at nearly the same date when the bird was seen in Pembrokeshire (*Zoologist*, 1886, p. 333).  
[Mr. Montgomery is recorded to have obtained a specimen of the Reed Warbler at Raheny, near Dublin, on the 21st December, 1843 (*Thompson*); and about the same date a Whitethroat, and two Blackcaps.]

- \***Acrocephalus schœnobœnus** (Linn.) Sedge Warbler.  
Regular summer visitor, and generally distributed.
- \***Acrocephalus nævius** (Bodd.) Grasshopper Warbler.  
Regular summer visitor. Rare and local, but breeds in the East and South of Ireland, and in Armagh and Fermanagh. Quite recently the bird has been found also in Mayo (*Zoologist*, 1866, p. 366).
- \***Sylvia rufa** (Bodd.) Greater Whitethroat.  
Regular summer visitor, and widely distributed.
- Sylvia curruca* (Linn.) Lesser Whitethroat.  
Has once occurred. At Tearaght Rock Lighthouse, 1st October, 1890 (*Zoologist*, 1891, p. 186).
- \***Sylvia salicaria** (Linn.) Garden Warbler.  
Rare summer visitor, and very local. Has been found breeding in the counties of Antrim, Tipperary, and probably Cork (*Thompson*). Breeds in Fermanagh. (*Sir V. Brooke*.) In Sligo, and along the Shannon Valley, as far south as the south end of Lough Derg (*Royal Irish Academy, Proc.* (3), Vol. iii., No. 3); also, probably, Down and Queen's County.
- \***Sylvia atricapilla** (Linn.) Blackcap.  
Regular summer visitor in very small numbers. The nest has been found in the counties of Dublin, Wicklow, Tipperary, Waterford, and Mayo, and the bird breeds also in Kildare (*Mr. F. E. Palmer*), Queen's Co. (*Mrs. Croasdaile*), and probably Antrim. Occasionally in Down (*R. I. A. Proc.*, 3rd ser., Vol. iii., No. 3). Has several times occurred in winter.
- Sylvia nisoria** (Bechst.) Barred Warbler.  
Has once occurred. At Belmullet, Mayo, 24th September, 1884 (*Zoologist*, 1890, p. 310). The specimen is in the Museum.†
- \***Phylloscopus sibilatrix** (Bechst.) Wood-Wren.  
Very rare summer visitor. Has been obtained in Fermanagh and Dublin (*Harting, Summer Migrants*), in Donegal (*Hart*), and is a regular summer visitor to Powerscourt, Wicklow. At Clonbrock, Galway, both bird and eggs have been obtained. A specimen from Colebrooke, presented by Sir Victor Brooke, and another from Donegal, presented Mr. H. C. Hart, are in the Museum. A Wood-Wren was observed by Mr. R. Patterson, in the "Bog Meadows," near Belfast, on the 5th May, 1889. One was heard in the Dargle, by Mr. Hart, on the 7th May, 1893. (*Zoologist*, 1893, p. 225.)

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† A second Barred Warbler was obtained at the Rockabill, 25th September, 1896, and is in Mr. R. M. Barrington's collection.

- \***Phylloscopus trochilus** (Linn.) Willow-Wren.  
 Summer visitor, common. Has occurred in winter.
- \***Phylloscopus collybita** (Vieill.) Chiffchaff.  
 Summer visitor, frequent. Has occurred in winter.
- Phylloscopus superciliosus* (J. F. Gmelin.) Yellow-browed Warbler.  
 Has once occurred. On the Tearaght Rock, 14th October, 1890.  
 (*Zoologist*, 1891, p. 186.)
- \***Regulus cristatus** (Koch). Golden-crested Wren.  
 Resident and common. Often taken in large numbers at the  
 Lighthouses when migrating.
- Obs.*—It is remarkable that the Fire-crested Wren has not yet  
 been observed in Ireland, though it occurs nearly every winter  
 in England.

TROGLODYTIDÆ.

- \***Troglodytes parvulus** (Koch). Wren.  
 Resident and common. Is sometimes captured at the Lighthouses  
 on migration.

CERTHIIDÆ.

- \***Certhia familiaris** (Linn.) Tree-creeper.  
 Resident and frequent.

PARIDÆ.

- \***Parus major** (Linn.) Great Titmouse.  
 Resident and common.
- \***Parus cæruleus** (Linn.) Blue Titmouse.  
 Resident and common.
- \***Parus ater** (Linn.) Coal Titmouse.  
 Resident and common.
- Parus palustris* (Linn.) Marsh Titmouse.  
 Very rare. Has occurred in Antrim, Kildare, and Dublin.  
 (*Thompson.*) Dr. Kinahan mentions having once shot, near  
 Donnybrook, a hen and three young ones, which were prob-  
 ably reared in the vicinity. (*Nat. Hist. Review*, Vol. ii.;  
*Proceedings*, p. 24.)
- \***Acredula caudata** (Linn.) Long-tailed Titmouse.  
 Resident and widely distributed.

AMPELIDÆ.

- Ampelis garrulus** (Linn.) Waxwing.  
 Rare and irregular winter visitor.

## MOTACILLIDÆ.

- \***Motacilla lugubris** (Temm.) Pied Wagtail.  
Resident and common. Partially migratory.

*Motacilla alba* (Linn.) White Wagtail.

Very rare summer visitor. Has been twice obtained by Mr. R. Warren, near Moyview; on the 25th April, 1851 (*Dublin Nat. Hist. Soc. Proceedings*, Vol. iii., p. 115); and on the 29th April, 1893. (*Zoologist*, 1893, p. 226.) In 1893, also occurred in Achill and at Downpatrick Head. (*Zoologist*, 1893, p. 227.) Mr. Blake Knox records having once observed it near Wexford. (*Zoologist*, 1866, p. 95.) It was seen at Roundwood by the late Dr. R. Ball. (*Thompson*.)

- \***Motacilla sulphurea** (Bechst.) Grey Wagtail.  
Resident in small numbers, and not unfrequent, but local.

\***Motacilla Raii** (Bonap.) Yellow Wagtail.

Summer visitor in small numbers, and very local. Breeds regularly about Lough Neagh, and occurs every autumn in the vicinity of Dublin, where also the nest has been once found by Mr. E. Williams. More recently, Mr. R. Warren has discovered it breeding by Loughs Mask and Carra, Mayo. Once observed breeding in Galway. A female was shot in Achill Island, 15th May, 1892; and Mr. A. Ellison has several times seen it near Shillelagh, Wicklow, in the spring.

- \***Anthus pratensis** (Linn.) Meadow-Pipit.  
Resident and common. Partially migratory.

*Obs.*—The Tree-Pipit is thought to have been observed at Ballitore, Raheny, Portmarnock, and Irishtown, but no specimen has been obtained in Ireland. The Rev. Dr. Benson tells me that, since he has heard the Tree-Pipit singing in North Wales, he feels some doubt as to the correctness of his identification of the bird which he had observed near Dublin.

- \***Anthus obscurus** (Lath.) Rock-Pipit.  
Resident, and generally distributed on the sea-coast.

## ALAUDIDÆ.

- \***Alauda arvensis** (Linn.) Skylark.  
Resident and numerous. Partially migratory.

*Obs.*—The Crested Lark is stated in the "*Dublin Penny Journal*," February 27, 1836, to have been killed near Taney, in the county of Dublin, but does not appear to have been satisfactorily identified.

**\*Alauda arborea** (Linn.) Woodlark.

Very local and scarce, but has been recorded as resident in small numbers in the counties of Antrim, Down, Armagh, Dublin, Waterford, and Cork (*Thompson*.) Wicklow (*Watters*.) Perhaps still breeds in the valley of the Blackwater, Co. Cork, near which it has been taken of late years. Extinct in Waterford, Dublin, Armagh, Down, and Antrim. Two specimens captured in winter, by Mr. W. Corbet, at Rathcormack, county Cork, have been presented to the Museum by Mr. A. G. More. Mr. Corbet remarks that he has only met with the Woodlark, when the ground is covered with snow. One was shot at the Tearaght Lighthouse, 20th October, 1887. (*Migration Rep.* for 1887).†

*Calandrella brachydactyla* (Leisl.) Short-toed Lark.

Has once occurred. At the Blackrock Lighthouse, Mayo, 11th Oct., 1890. (*Zoologist*, 1891, p. 186.)

## EMBERIZIDÆ.

**Plectrophanes nivalis** (Linn.) Snow Bunting.

Winter visitor, occurring regularly in the North, but rarely in the middle and South of Ireland.

*Plectrophanes lapponicus* (Linn.) Lapland Bunting.

Has once occurred. A female was picked up dead on the Fastnet Rock, county Cork, October 16th, 1887. (*Zoologist*, 1888, p. 76, and *Migration Report for 1887*, p. 142.)

**\*Emberiza schœniclus** (Linn.) Reed Bunting.

Resident and common. More scattered in winter.

**\*Emberiza miliaria** (Linn.) Bunting.

Resident; rather local, but widely distributed.

**\*Emberiza citrinella** (Linn.) Yellow Bunting.

Resident and numerous.

**Emberiza hortulana** (Linn.) Ortolan.

Once obtained. The specimen now in the Museum and stated to have been taken in Clare, was exhibited by the late Mr. R. J. Montgomery before the Dublin Nat. Hist. Society, May, 1852. (*Proceedings*, Vol. i, p. 91.)

## FRINGILLIDÆ.

**\*Fringilla cœlebs** (Linn.) Chaffinch.

Resident and abundant. Often taken at Lighthouses when migrating.

† In 1894, Mr. John Hunter discovered the Woodlark nesting in the vicinity of Woodenbridge, Co. Wicklow (Mr. R. J. Ussher, in *R.I.A. Proc.* (3), III., No. 3; and *Irish Naturalist*, 1894, p. 137.)



**Fringilla montifringilla** (Linn.) Brambling.

Irregular winter visitor, chiefly occurring in the North and middle of Ireland, and in hard weather. Several were taken in Waterford, 1887-8 (*Mr. R. F. Ussher*); also in Wexford in 1886. (*Zoologist*, 1889, p. 144.)

\***Passer montanus** (Linn.) Tree Sparrow.

Very rare, and hitherto found chiefly near Dublin, but apparently increasing of late years. Has occurred about Baldoyle, Sandymount, and Dalkey. Some nestlings, obtained by Mr. E. Williams from near Howth, are in the Museum. The first Irish specimen was exhibited in May, 1852, to the Dublin Nat. Hist. Society by Mr. R. J. Montgomery. A pair were found, as if breeding, on Arranmore Island, county Donegal, by Mr. H. M. Wallis, in May, 1886. (*Zoologist*, 1886, p. 489.)

\***Passer domesticus** (Linn.) House Sparrow.

Resident and common. Sometimes taken at Light-houses.

**Coccothraustes vulgaris** (Pall.) Hawfinch.

Rare and irregular winter visitor. It has frequently occurred in the Phoenix Park, Dublin.

\***Coccothraustes chloris** (Linn.) Greenfinch.

Resident and common.

**Serinus hortulanus** (Koch). Serin.

Has once occurred. Near Dublin, 2nd January, 1893 (*Zoologist*, 1893, p. 108.)

\***Carduelis elegans** (Steph.) Goldfinch.

Resident, but local. Numerous in some parts of the South of Ireland.

\***Carduelis spinus** (Linn.) Siskin.

Occurs principally as a winter visitor, but the bird breeds freely in some parts of Wicklow and, locally, in ten or twelve counties from Wexford and Waterford to Donegal and Antrim.

**Linota linaria** (Linn.) Mealy Redpoll.

Extremely rare winter visitor. One shot at Levinstown, Kildare, Feb. 9, 1876. (*Newton's Yarrell*, ii., p. 137.) A second on Tearaght Rock, 20th September, 1890. (*Zoologist*, 1891, p. 186.) Two shot in Achill, February, 1893 (*Zoologist*, 1894, p. 152.)

\***Linota rufescens** (Vieill.) Lesser Redpoll.

Breeds in many districts numerous, but is better known as a winter visitor, often in company with the Siskin.

\***Linota cannabina** (Linn.) Linnets.

Resident and common. Collects in large flocks in winter.

**\*Linota flavirostris** (Linn.) Twite.

Far less common than the Lesser Redpoll, but breeds in many places, in the heathy and mountainous districts from the North to the South of Ireland. Mr. R. J. Ussher informs me that he has found the nest on the elevated coasts of Waterford as well as near the mountains.

**\*Pyrrhula europæa** (Vieill.) Bullfinch.

Resident, and generally distributed in small numbers.

**\*Loxia curvirostra** (Linn.) Crossbill.

Rare and uncertain visitor. Has bred occasionally in the counties of Down, Wicklow, Meath, and Tipperary (*Thompson*). At Kilkea, Kildare, (*Zoologist*, 1868, p. 1133), and in Waterford (*Zoologist*, 1889, p. 180). The variety *rubrifasciata* has been obtained once at Edenderry, King's county. (*Zoologist*, 1889, p. 266.)

Crossbills have been numerous seen in Ireland during the past few winters, and have remained during summer in many localities (Ed. 1889). Crossbills first came to Fermanagh more than 10 years ago, and are now quite common and breed (*Sir V. Brooke*, 1891). Has bred, or remained through the breeding season, in 13 counties (*R. J. Ussher*, 1893). Increasing.

The *Parrot Crossbill* has occurred near Parsonstown (*Zoologist*, 1889, p. 181), and has probably been passed over in other localities (Ed., 1889). Is the only form received by Mr. E. Williams in 1890 (*Zoologist*, 1891, p. 112). Two from Mageny, Kildare, Jan. 7, 1892.

*Loxia bifasciata* (Brehm.) Two-barred Crossbill.

Once obtained near Belfast, January, 1802. (*Thompson*.) Another in 1868, in the county of Dublin. (*Blake Knox*, in *Zoologist*, 1868, p. 1376.)

## STURNIDÆ.

**\*Sturnus vulgaris** (Linn.) Starling.

Resident and common. Increasing. Large flocks arrive in autumn and winter, and are then seen flying south-west in Wicklow. During winter they collect in immense numbers at certain roosting-places.

**Pastor roseus** (Linn.) Rose-coloured Starling.

Rare and irregular visitor in summer and autumn.

## CORVIDÆ.

**\*Pyrrhocorax graculus** (Linn.) Chough.

Resident in many places where the coast is rocky, and chiefly found in the West and South-west.

**\*Corvus corax** (Linn.) Raven.

Resident in small numbers and decreasing.

\***Corvus corone** (Linn.) Carrion Crow.

Extremely rare. A specimen from county Clare is in the Museum. Is recorded as found in the North, East, and West; also in Kilkenny and Tipperary. (*Thompson*.) Young birds evidently reared in the locality were obtained from Mayo by Mr. H.B. Knox in 1889. Mr. B. Kane tells me that a carrion crow once mated with a hooded crow near Rostrevor, when five young were reared, and Mr. G. Esson describes the carrion crow as occasionally visiting the mountains in county Down in August and September. Mr. J. Anderson has found it near Mourne Park in March, and reports that a brace are seen every spring, though the nest has not been found. Also on an estate near Lough Neagh, a pair have come every March, usually in first week, for 25 years, staying a week or fortnight.†

\***Corvus cornix** (Linn.) Hooded Crow. Scald Crow.

Resident from North to South of Ireland. Breeds in every county. Is sometimes called Carrion Crow.

\***Corvus frugilegus** (Linn.) Rook.

Resident and numerous.

\***Corvus monedula** (Linn.) Jackdaw.

Resident and common.

\***Pica rustica** (Scop.) Magpie.

Resident and now common. Was introduced or immigrated from England previous to 1700. A flight of "under a dozen" said to have arrived in the Barony of Forth, Wexford, about 1676. (See *Zoologist*, 1891, p. 247.)

\***Garrulus glandarius** (Linn.) Jay.

Resident; but very local, occurring principally in the South and East of Ireland. Its head-quarters are in Kilkenny and Queen's county, extending to King's county, Kildare, Carlow, Wexford, Waterford, and Tipperary. Very rare, and only a straggler in Wicklow (*Mr. F. Johnston*), and Westmeath (*Mr. H. C. Levinge*). Mr. E. Williams has noticed that the Irish Jay is of a warmer and richer colour than the English bird.

HIRUNDINIDÆ.

\***Hirundo rustica** (Linn.) Swallow.

Regular summer visitor and numerous.

\***Chelidon urbica** (Linn.) House-Martin.

Regular summer visitor, less common than the Swallow.

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† Mr. Ussher states in the *Irish Naturalist* for March, 1897, that the most satisfactory instance of the nesting of the Carrion Crow in Ireland occurred in 1864, when Mr. J. R. Hardy obtained eggs and a specimen of the bird in Kerry.

**\*Cotile riparia** (Linn.) Sand-Martin.

Regular summer visitor, and general, but not so numerous as the House-Martin.

**Progne purpurea** (Linn.) Purple Martin.

Native of America. Has once occurred. Near Kingstown probably in 1839. This specimen is now in the Museum, and is the only authenticated example obtained in Europe. (*Yarrell*, Ed. 1, vol. ii. pp. 232\* and 274.)

## ORDER—PICARIÆ.

## CYPSELIDÆ.

**\*Cypselus apus** (Linn.) Swift.

Regular summer visitor. Once seen at the unusually late date of 4th October, near Cappagh, Waterford. (*Zoologist*, 1887, p. 428.)

**Cypselus melba** (Linn.) Alpine Swift.

Extremely rare visitor. Three examples are mentioned by Thompson, but no specimens have been obtained since. One shot at Rathfarnham, near Dublin, is in the Museum.

## CAPRIMULGIDÆ.

**\*Caprimulgus europæus** (Linn.) Nightjar.

Regular summer visitor, but local and rather rare. Scarce in the North and West.

## CUCULIDÆ.

**\*Cuculus canorus** (Linn.) Cuckoo.

Regular summer visitor, and generally distributed.

**Coccytes glandarius** (Linn.) Great Spotted Cuckoo.

Has once been obtained in Ireland; on the Island of Omey, Conemara, March, 1842. (*Thompson*.) The specimen is preserved in the Trinity College Museum.†

**Coccyzus americanus** (Linn.) Yellow-billed Cuckoo.

Native of America. Has twice been obtained in Ireland, viz., in the counties of Cork and Wicklow. (*Thompson*.) The specimen from county Cork is in Trinity College Museum.

**Coccyzus erythrophthalmus** (Wils.) Black-billed Cuckoo.

Native of America. Has once been obtained in Ireland, viz., at Killead, co. Antrim, September 25th, 1871. (*Zoologist*, 1872, p. 3022, and *Zool. Soc. Proc.*, 1872, p. 661.) Only one other instance is known of its occurrence in Europe.

† A second Great Spotted Cuckoo is believed to have been seen at Skelligs Rock light-house, Kerry, 30th April, 1897, (*Zoologist*, 1897 p. 574).

## UPUPIDÆ.

**Upupa epops** (Linn.) Hoopoe.

Rare visitor, in spring and autumn, but occurs nearly every year, and chiefly in the south of Ireland. Arrives sometimes very early—in March and even in February.

## CORACIIDÆ.

**Coracias garrulus** (Linn.) Roller.

Extremely rare and accidental visitor, chiefly in autumn. Has occurred ten or twelve times in Ireland. Four are recorded by Thompson. One was shot at Ardrum, near Skibbereen, 29th October, 1883, as I am informed by Mr. W. Barrington. Mr. J. C. Neligan has a specimen which was shot at Corry, Co. Leitrim, in October, 1876. Mr. R. Warren tells me that one shot near Dunmanway, Cork, was in the collection of Dr. J. R. Harvey. One obtained near Randalstown, Antrim, September, 1891, and another at Burt Level Slob, Donegal, 10 Oct. 1891, are recorded by Mr. R. Patterson. (*Zoologist*, 1891, p. 430, and 1892, p. 33.)

## MEROPIDÆ.

**Merops apiaster** (Linn.) Bee-eater.

Extremely rare visitor. Four are mentioned by Thompson, and one by Watters. A small flock of seven occurred at Trabulgan, Cork, in May, 1888. One of them is in the Museum. Another was obtained at Balbriggan, in May, 1889. (*Zoologist*, 1889, p. 229.) A flock of six at Delgany (*Zoologist*, 1892, p. 428).

## ALCEDINIDÆ.

**\*Alcedo ispida** (Linn.) Kingfisher.

Resident, but local; occurring chiefly in the lowland districts.

**Ceryle alcyon** (Linn.) Belted Kingfisher.

Native of America. Two individuals have occurred in Ireland, both in the autumn of 1845. (*Thompson*.) One obtained at Luggela, co. Wicklow, is in the Museum. The other, shot at Annsbrook, co. Meath, is in the Trinity College Museum. These are the only two which are known to have visited Europe.

## PICIDÆ.

**Gecinus viridis** (Linn.) Green Woodpecker.

Extremely rare and accidental visitor. Has occurred twice or perhaps three times in Ireland. One near Granard, Co. Longford. (*Thompson*, Vol. iii., *Appendix*, p. 441.) Another at Sallymount, co. Kildare, 27th Sept., 1847. (*Watters*, p. 97.) A parrot-like bird reported to Mr. G. Barrett-Hamilton as having occurred at Fethard, Wexford, in June, 1888, was, in all probability, a Green Woodpecker. (See *Zoologist*, 1889, p. 145.)

**Dendrocopus major** (Linn.) Greater Spotted Woodpecker.

Very rare visitor; but, of the three Woodpeckers, this is the most frequently met with in Ireland. Several were taken on, or near to, the east coast in the autumns of 1886 and 1889.

**Dendrocopus minor** (Linn.) Lesser Spotted Woodpecker.

Very rare visitor. Some six or seven specimens have been obtained. (*Thompson, Appendix.*) None recently.

**Iynx torquilla** (Linn.) Wryneck.

Has twice occurred. A specimen, killed near Dunmore, co. Waterford, 5th October, 1877, is in the Museum, having been kindly presented by Mr. Jacob who shot it. A second example was obtained at the Lighthouse on North Aran Island, Galway, on the 6th October, 1886 (*Migration Report* for 1886, p. 155.)†

## ORDER—COLUMBÆ.

## COLUMBIDÆ.

**\*Columba palumbus** (Linn.) Wood-pigeon.—Ring-Dove.

Resident and common, becoming more abundant in winter.

**\*Columba œnas** (Linn.) Stock Dove.

Very rare, and apparently only a recent settler in the north-east of Ireland, where it was first noticed in 1875, and has increased since that time, as I am informed by Mr. W. C. Stubbs. In 1876 bred in Down and at Ravensdale Park, Louth. (*Zoologist*, 1876, p. 4798, and 1877, p. 383.) Quite recently the nest has been found in Antrim, by the Rev. J. G. Holmes (*Zoologist*, 1889, p. 309); and Mr. J. Johnston informs me that two pairs have, this year (1889), bred in the vicinity of Powerscourt Waterfall. Mr. H. Blake Knox has also obtained a specimen which was shot in Wicklow by his nephew in August, 1889.

In Queen's Co., occurring at all seasons, is presumed to breed (1891). One sent from Navan, Feb., 1892 (*Mr. E. Williams.*) A pair at Luggala, Wicklow, apparently nesting (E. C. Barrington in *Zoologist*, 1893, p. 192.) At Oak Park, Carlow, (*Mr. R. F. Ussher.*) At Castle Dillon, Armagh. Increasing.

**\*Columba livia** (Gmel.) Rock Dove.

Resident and not uncommon on the rocky coasts, especially in the West of Ireland.

† Three other instances are now known to have occurred. One on Rathlin O'Birne island, Donegal, October, 1878; one at Ballycurry, co. Wicklow, 31st May, 1895; and one at the Rockabill, 5th Sept., 1896. (See *Irish Naturalist*, January, 1898: article, "The Wryneck in Ireland.")

\***Turtur communis** (Selby.) Turtle Dove.

Rare summer visitor, but occurs probably every year in the South of Ireland. Recorded as having nested in the counties of Down and Kerry. (*Thompson*.) No recent instance known, but Mr. E. Williams has obtained young birds in Co. Dublin.

*Ectopistes migratorius* (Linn.) Passenger Pigeon.

Native of America. Has once occurred near Tralee. (*Thompson*, Vol. iii., *Appendix*, p. 443.)

## ORDER—PTEROCLETES.

## PTEROCLIDÆ.

**Syrrhaptes paradoxus** (Pallas.) Pallas's Sand-Grouse.

In June, 1863, a few small flocks visited Ireland and examples were obtained at Balbriggan, co. Dublin, Ross, co. Fermanagh, Drumbeg and Naran, co. Donegal. (*Ibis*, 1864, pp. 211 and 212. *Zoologist*, 1893, p. 8690.) The specimen shot at Drum-beg, Inver Bay, out of a flock of eight, is now in the Museum. On the 4th of October, 1876, a male and female were shot near Kilcock, co. Kildare. (*Field*, Oct. 14, 1876.)

A much larger immigration occurred in the spring of 1888, of which Dr. R. F. Scharff, Curator of the Natural History Museum, has given a full account in the *Scientific Proceedings of the Royal Dublin Society*, Vol. vi. (N.S.), p. 278, from which it appears that the birds were widely scattered from north to south, and from east to west over Ireland, and Dr. Scharff estimates the number as possibly having exceeded many hundreds. A specimen from Tullamore, King's co., and another from Clare are in the Museum.

## ORDER—GALLINÆ.

## TETRAONIDÆ.

\***Lagopus scoticus** (Lath.) Red Grouse.

Resident and generally distributed on mountains and bogs, but not so abundant as in the mountainous parts of Scotland. There is in the Museum a good specimen of the Albino variety. Hybrids between Grouse and Bantam were raised at Crumlin, near Dublin, by the late Mr. Hayes, as I am informed by my friend, Mr. A. R. Wallace, who has very kindly shown me several of the specimens.

*Obs.*—The Capercaillie, *Tetrao urogallus* (Linn.) was formerly an inhabitant of Ireland, but has long since been exterminated, having survived until about 1760, or perhaps 1787.

## PHASIANIDÆ.

**\*Phasianus colchicus** (Linn.) Pheasant.

Well established and breeds throughout Ireland, especially where protected. But is not a native bird.

**\*Perdix cinerea** (Lath.) Partridge.

Resident and formerly more abundant than at present. Two specimens of the variety, which is called *P. montana* by Sir W. Jardine, are in the Museum.

**\*Coturnix communis** (Bonn.) Quail.

A few breed regularly in the North-east, and occasionally in other parts of Ireland. Most of these remain throughout the winter, but the bird has very much decreased of late years. A nest at Ballybrack in 1891 (*Mr. E. Williams*). Was formerly common. Reappeared in 1893.

## ORDER—FULICARIÆ.

## RALLIDÆ.

**\*Crex pratensis** (Bechst.) Land Rail.—Corn-Crake.

Regular summer visitor. A few stragglers have occasionally been killed in winter.

**\*Porzana maruetta** (Leach). Spotted Crake.

Rare visitor, usually occurring in autumn. The nest has been twice found in Roscommon (*Watters*), and a young bird with some down in Kerry (*Thompson*).

*Porzana parva* (Scop.) Little Crake.

Has once occurred. At Balbriggan, 11th March, 1854. (*Zoologist*, 1854, p. 4298.) The specimen reported by Mr. Reeves (*Fowler in Ireland*, p. 252) is, I understand, a Spotted Crake.

**Porzana Bailloni** (Vieillot). Baillon's Crake.

Very rare. Only two specimens have been obtained, viz. :—one near Youghal (*Thompson*), and one at Tramore, Waterford, † (*Zoologist*, 1882, p. 113), both of which I have examined. A supposed Baillon's Crake shot at Kanturk was very kindly shown to me by Mr. Longfield, and proved to be only a Spotted Crake.

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† The specimen from Tramore is now in the Museum, having been kindly presented by Dr. J. R. Burkitt.



\***Rallus aquaticus** (Linn.) Water Rail.

Resident in small numbers throughout Ireland. Becomes more numerous in winter, and is often taken at the lighthouses when migrating in autumn.

\***Gallinula chloropus** (Linn.) Moor-Hen.—Water-Hen.

Resident and common. A specimen of the hairy variety was obtained at Athlone in November, 1883. (*J. H. Gurney*, in *Norfolk and Norwich. Nat. Hist. Trans.* iii. p. 581.)

[*Obs.*—Lord Ventry has very kindly allowed me to examine a specimen of the green-backed Porphyrio (*P. smaragnotus*), in his possession, and which is labelled as having been obtained “in a cabbage garden near Odorney, on the river Brick, near Ballyheigue Bay, 10th October, 1873,” and Lord Ventry further informs me that he believes it is of the same species as the bird at Chute Hall, which has so long passed as the “Martinico Gallinule.” Mr. J. H. Gurney also tells me that there is an Irish specimen of another *Porphyrio* (*P. cæruleus*) in the collection of Mr. John Marshall, of Taunton, with neither date nor locality. But as neither of these *Porphyrios* has yet been admitted to rank fully as a British bird, I believe it best to exclude them for the present.]

\***Fulica atra** (Linn.) Coot.

Resident and frequent on lakes and large rushy pools. Migrates to the sea in hard weather.

## ORDER—ALECTORIDES.

## GRUIDÆ.

**Grus communis** (Bechst.) Crane.

Very rare and accidental visitor. Two fine specimens in the Museum were presented by the Dublin Natural History Society, having been obtained in Kerry or Cork, in November, 1851, when a small flock of six or eight birds visited both counties. (*Dublin Nat. Hist. Soc., Proc.* i., p. 71). Thompson mentions one obtained in Galway and another in Kerry. In Seebohm's “*British Birds*” a male is recorded as shot in the co. Down, May, 1882, and Mr. R. J. Ussher records two in Mayo, one of which was killed, January 1st, 1884 (*Zoologist*, 1884, p. 72), and was by him very kindly presented to the Museum. Smith mentions that Cranes were seen in Waterford and Cork during the great frost of 1739. The name “Crane” is, by country people, commonly misapplied to the Heron.†

† A recent specimen shot at Lough Swilly, June 23rd, 1896, is recorded in the *Irish Naturalist*, 1896, p. 214.

## OTIDIDÆ.

**Otis tetraz** (Linn.) Little Bustard.

Has five times been obtained. One in Wicklow, 1833. (*Thompson*).

One on the shore of Ballycotton Bay, 24th December, 1860. (*Zoologist*, 1861, p. 7385.) One shot near Belmullet, Mayo, in December, 1887, is recorded by Dr. Scharff as recently added to the collection. (*Zoologist*, 1888, p. 108.) Another killed near Youghal, has very kindly been lent to the Museum by the owner, Mr. H. F. Allin. (*Field*, December 8, 1883. *Zoologist*, 1884, p. 69.) A fifth shot near Ballyduff, Kerry, 30th December, 1892, was examined by me, 18th January, 1893.†

*Obs.*—Smith includes the Great Bustard among the Birds observed in Cork, but with no particulars; and as he gives also the Black Grouse in his list, no reliance can be placed upon either statement. (*Antient and Present State of Cork*, vol. ii., p. 329—1750.)

## ORDER—LIMICOLÆ.

## ŒDICNEMIDÆ.

**Œdicnemus scolopax** (S. G. Gmel.) Stone Curlew.

Very rare visitor in autumn and winter. Has occurred six or eight times in Ireland. A specimen from Tramore, Waterford, is in the Museum, from the collection of the Natural Hist. Society of Dublin. Another, obtained on the North Bull, Dublin, on the 3rd December, 1884, is also in the Museum.

[The Collared Pratincole (*Glareola pratincola*) is believed to have once occurred at Castlefreke, Cork, previous to 1843 (*Harvey*, "*Fauna of Cork*," and *Thompson*, vol. ii., p. 81); but depends solely upon the authority of the Rev. Joseph Stopford, whom Dr. Harvey describes as "well acquainted with our native birds," adding that "the minute description which he gave me leaves no doubt as to his correctness. The specimen was not preserved" (*Fauna of Cork*, ii.) But Rev. J. Stopford is also authority for a Great Auk stated to have been washed ashore at Castlefreke (*Thompson*, vol. iii., 239). This is said to have been communicated to Dr. Harvey in February, 1844; but is omitted by Harvey in *Faun. Cork*. (1845.)]

## CHARADRIIDÆ.

**Endromias morinellus** (Linn.) Dotterel.

Very rare and accidental visitor. One obtained in co. Donegal, and two shot on the hills near Clonmel, in September, 1886, are in the Museum.

† A sixth shot at Longford in February, 1895, is recorded in the *Irish Naturalist*, 1895, p. 105.

- \**Ægialitis hiaticula* (Linn.) Ringed Plover.  
Resident; far more numerous in winter. Breeds on some of the inland lakes, as well as on the sea-shore.
- Ægialitis cantiana* (Lath.) Kentish Plover.  
Extremely rare visitor. One obtained on the North Bull, Dublin, is in the Museum.
- \**Charadrius pluvialis* (Linn.) Golden Plover.  
Breeds sparingly in most of the mountainous districts, from Kerry, Cork, Tipperary, Queen's County, and Wicklow, northwards; and is much more numerous in autumn and winter.
- Charadrius dominicus* (Müller). American Golden Plover.  
Native of America. A specimen from Belmullet, Mayo, in the Dublin Market, September 12, 1894 (*Zoologist*, 1894, p. 428).
- Squatarola helvetica* (Linn.) Grey Plover.  
Regular visitor in small numbers around the coast in autumn and winter, remaining till spring.
- \**Vanellus vulgaris* (Bechst.) Lapwing.  
Resident; but becomes much more numerous in autumn and winter.
- Streptilas interpres* (Linn.) Turnstone.  
Frequent on the coast, except in summer.
- \**Hæmatopus ostralegus* (Linn.) Oyster Catcher.  
Common on the sea-coast, and breeds, but is more numerous in winter.
- Chionis alba* (Lath.) Sheathbill.  
One shot at the Carlingford Lighthouse, Co. Down, 2nd December, 1892. (R. M. Barrington in *Zoologist*, 1893, p. 28.)

SCOLOPACIDÆ.

- Recurvirostra avocetta* (Linn.) Avocet.  
Very rare visitor. A specimen, one of a pair first observed by Mr. R. Warren, was killed on the estuary of the river Moy, and presented to the Museum by Captain W. K. Dover. (*Zoologist*, 1877, p. 288.)
- Himantopus candidus* (Bonnat.) Black-winged Stilt.  
Very rare visitor. Has occurred five or six times in Ireland. A specimen, killed at Ballinrobe, is in the Museum, from the Montgomery Collection. A pair were seen, and one of them shot, many years ago, near Kilbeggan, Westmeath, by the late Dr. R. Battersby.
- Phalaropus fulicarius* (Linn.) Grey Phalarope.  
Rare and uncertain winter visitor. Several were taken in October and November, 1886. (*Zoologist*, 1887, p. 75.)

**Phalaropus hyperboreus** (Linn.) Red-necked Phalarope.

Has once occurred. At Lough Gilly, Armagh, November, 1891. Received by Mr. Williams, 13th November (*Zoologist*, 1892, p. 28).

**\*Scolopax rusticula** (Linn.) Woodcock.

Numerous in winter. Many remain to breed, chiefly in the eastern and southern counties; and, as in Scotland, the bird appears to be extending its summer range. The birds reared in this country are believed to leave their breeding quarters in the early autumn. (See 6th Migration Report, 1885, p. 61.)

**Gallinago major** (Gmel.) Great Snipe.

Extremely rare and accidental visitor. Nearly all the so-called "solitary snipes" reported by sportsmen, are nothing more than large individuals of the Common Snipe. I know† of only three Irish specimens. One shot in Leitrim in October, 1886 (*Zoologist*, 1887, p. 75). One shot in Achill Island (*Field*, November 10, 1888), which Mr. R. Livesey has kindly shown to me. A third, shot near Galway, October 12, 1888, has very kindly been presented to the Museum by Mr. W. H. Perse (*Zoologist*, 1889, p. 33). A fourth shot at Ballycroy, Mayo, October 13, 1893 (*Zoologist*, 1893, p. 434).

**\*Gallinago cœlestis** (Frenzel). Common Snipe.

Breeds in small numbers throughout Ireland, becoming much more numerous in winter. The dark variety called Sabine's Snipe is exceedingly rare. (See *Field*, Dec. 10, 1870; *Zoologist*, 1884, p. 272). One shot in Kildare, 5th December, 1886, and presented by Mr. G. M'Sheehy, and another obtained in the Dublin Market, 27th December, 1886, are in the Museum.

**Gallinago gallinula** (Linn.) Jack Snipe.

Regular winter visitor, much less numerous than the Common Snipe.

**Macrorhamphus griseus** (Gmel.) Red-breasted Snipe.

Native of America. One sent with a lot of Common Snipe from Maryborough was obtained by Mr. Williams in Dublin on 29th September, 1893 (*Zoologist*, 1893, p. 433). Another (an adult female) received from Tipperary, 11th October, 1893 (*Zoologist*, 1894, p. 63).

**Limicola platyrhyncha** (Temm.) Broad-billed Sandpiper.

Has once occurred. In Belfast Bay, 4th Oct., 1844. (*Thompson*.)

**Tringa maculata** (Vieill.) Pectoral Sandpiper.

Native of America. Has once occurred. In the *Zoologist*, 1889, p. 32, Mr. E. Williams has recorded a specimen obtained near Portumna in October, 1888, which Dr. Scharff informs me is now in the Museum.

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† In 1889.

- Tringa fuscicollis* (Vieill.) Bonaparte's Sandpiper.  
Native of America. Is believed to have once occurred. A specimen in the Belfast Museum is supposed to have been shot in Belfast Bay. (*Thompson*, Vol. ii., p. 297.)
- \**Tringa alpina* (Linn.) Dunlin.  
Abundant on the sea-shore except in summer. Breeds on bogs and moors in the northern half of Ireland, and in King's County and Wicklow.
- Tringa minuta* (Leisler). Little Stint.  
Regular autumnal visitor, but in very small numbers, and chiefly along the North-east coast.
- Tringa Temminckii* (Leisler). Temminck's Stint.  
Has once occurred. Near Tralee at the unusual date of January, in 1848. (*Thompson*, Vol. ii., p. 302.)
- Tringa subarquata* (Guldenst.) Curlew Sandpiper.  
Regular autumnal visitor in small numbers—very rare in winter.
- Tringa striata* (Linn.) Purple Sandpiper.  
Regular visitor in autumn and winter, but not numerous.
- Tringa canutus* (Linn.) Knot.  
Frequent on the sea-shores in autumn and winter.
- Calidris arenaria* (Linn.) Sanderling.  
Regular visitor in autumn and winter.
- Machetes pugnax* (Linn.) Ruff.  
Rare visitor, chiefly in autumn.
- Tryngites rufescens* (Vieill.) Buff-breasted Sandpiper.  
Native of America. Has twice occurred. The specimen shot near the Pigeon House, Dublin (*Thompson*, Vol. ii., p. 302), is in the Museum, having been presented by the Natural History Society of Dublin. Two were shot at the People's Park, Belfast, October, 1864. (*Zoologist*, 1866, p. 389.)
- Bartramia longicauda* (Bechst.) Bartram's Sandpiper.  
Native of America. Has once occurred. A specimen having been obtained by Mr. Joseph Dunn, in 1855, among other wild fowl sent to him from Ballinasloe.†
- \**Totanus hypoleucus* (Linn.) Common Sandpiper.  
Regular summer visitor, and breeds from North to South of Ireland. Perhaps more common in the North.
- Totanus ochropus* (Linn.) Green Sandpiper.  
Rare visitor, occurring chiefly in autumn.

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† Another, shot in a rushy field at Newcestown, near Bandon, Co. Cork, 4th Sept., 1894, is in the collection of Mr. R. M. Barrington (*Irish Nat.*, 1895, p. 166).

**Totanus glareola** (Gmel.) Wood Sandpiper.

Has once occurred. Shot on Calary Bog, near the Sugarloaf Mountain, Wicklow, 23rd August, 1885, and presented to the Museum by the Rev. Dr. Benson (*Zoologist*, 1885, p. 438).

**\*Totanus calidris** (Linn.) Common Redshank.

Breeds on the inland marshes and lakes, from North to South of Ireland, becoming numerous on the sea-shores in autumn and winter.

**Totanus fuscus** (Linn.) Spotted Redshank.

Very rare visitor, chiefly in autumn. Single birds have several times been observed and twice shot by Mr. R. Warren on the estuary of the Moy. The specimen in the Museum was obtained by Mr. Williams, from Sallins, Co. Kildare (*Zoologist*, 1877, p. 75).

**Totanus canescens** (Gmel.) Greenshank.

Regular visitor in autumn, remaining all through winter and spring.

**Limosa ægocephala** (Linn.) Black-tailed Godwit.

Rare visitor, chiefly in autumn.

**Limosa lapponica** (Linn.) Bar-tailed Godwit.

Regular visitor in autumn, a few remaining through the winter; and the bird is most numerous in spring.

**\*Numenius arquata** (Linn.) Curlew.

A few breed on the bogs and moors from South to North of Ireland. Plentiful on the coast in autumn and winter.

**Numenius phæopus** (Linn.) Whimbrel. "May-bird."

A passing visitor to the sea-shores in spring and autumn.

**Numenius borealis** (J. R. Forst.) Eskimo Curlew.

Native of America. Has once occurred. Obtained in a poulterer's shop in William-street, Dublin, and said to have been shot in Sligo, October, 1870. (*Zoologist*, 1870, p. 2108.) This specimen has been very kindly presented to the Museum by Sir Victor Brooke.

## ORDER—GAVIÆ.

## LARIDÆ.

**Hydrochelidon nigra** (Linn.) Black Tern.

Rare visitor, chiefly in autumn, has occurred also in spring. I have seen an immature bird which was obtained by Mr. J. R. Sheridan in Achill Island, in September, 1887.

**Hydrochelidon leucoptera** (Schinz.) White-winged Black Tern.

Has five times occurred. One shot at Cappagh, Waterford, 13th May, 1875, was presented to the Museum by Mr. R. J. Ussher.†

† The specimen shot in Clare, in 1893, is also in the Museum.

**Hydrochelidon hybrida** (Pallas). Whiskered Tern.

Has once occurred. (*Thompson*). This specimen, shot in Dublin Bay, in September, 1839, is in the Museum, from the collection of the late Mr. T. W. Warren.

**\*Sterna cantiaca** (Gmelin). Sandwich Tern.

Regular summer visitor, but rare and very local. Formerly bred on the Rockabill, Dublin. Now in one locality, near Ballina, Mayo.

**\*Sterna Dougalli** (Montagu). Roseate Tern.

Very rare summer visitor, formerly breeding in a very few localities; Rockabill, Dublin; Mew Island, Down; 50 specimens once received in June, from Wexford, a few years before 1837. (*Thompson*.) Not seen for some years.

**\*Sterna fluviatilis** (Naum.) Common Tern.

Regular summer visitor, breeding on lakes and shores.

**\*Sterna macrura** (Naum.). Arctic Tern.

Regular summer visitor, and with the former the most common species of Tern. Breeds on freshwater at Lough Carra, Mayo.

**\*Sterna minuta** (Linn.) Lesser Tern.

Regular summer visitor, breeding on various parts of the coast. Local, and less common than the two preceding.

**Anous stolidus** (Linn.) Noddy Tern.

Native of America. Has once occurred. Two were shot off the Tuskar Lighthouse, Wexford, in summer about 1830. (*Thompson*.) One of these, from the Warren Collection, is in the Museum. The only occurrence in Europe.

**Xema Sabinei** (J. Sabine). Sabine's Gull.

Native of America. Rare and accidental visitor in autumn, when it occurs in immature plumage. Some ten or twelve have at various times been obtained. Three are in the Museum.

**Larus philadelphia** (Ord). Bonaparte's Gull.

Native of America. Has once occurred. One shot on the Lagan, near Belfast, 1st February, 1848. (*Thompson*.) Two "less thoroughly authenticated" instances are also on record. (*Zoologist*, 1855, p. 4762, and *Zoologist*, 1866, p. 306.) (*Nat. Hist Review*, 1855, pp. 65 and 95.)

**Larus minutus** (Pallas). Little Gull.

Very rare and uncertain visitor in autumn and winter.

**\*Larus ridibundus** (Linn.) Blackheaded Gull.

Resident, and breeds on marshes and on islands in freshwater lakes from North to South of Ireland. The so-called Masked Gull is now generally admitted to be a mere variety. A very large colony breeds on a bog near Tullamore, in King's co. (*Zoologist*, 1889, p. 396.)

**\*Larus canus** (Linn.) Common Gull.

Common in winter. A few remain to breed both inland and on the sea-coast, chiefly in the West of Ireland, viz., in the counties of Kerry, Mayo, Sligo?, Donegal, and Galway. Nests on islands in lakes, as on Lough Mask; on grassy slopes, as in Achill; and cliffs, as in Kerry and Donegal.

**\*Larus argentatus** (Gmel.) Herring Gull.

Resident and common. Breeds all round the coast.

**\*Larus fuscus** (Linn.) Lesser Black-backed Gull.

Resident. Breeds in small numbers on lakes and more numerous on various parts of the coast. Much less numerous than the Herring Gull, and very local in the breeding season.

**\*Larus marinus** (Linn.) Great Black-backed Gull.

Resident. Breeds on the sea-coast in small numbers; becomes more numerous in winter.

**Larus glaucus** (O. Fabricius). Glaucous Gull.

Rare and uncertain winter visitor.

**Larus leucopterus** (Faber.) Iceland Gull.

Very rare and accidental visitor in winter.

**\*Rissa tridactyla** (Linn.) Kittiwake Gull.

Resident and breeds abundantly round the coasts. Many remain all winter.

*Pagophila eburnea* (Phipps). Ivory Gull.

Extremely rare and accidental visitor. Two examples have been obtained and others observed. (*Thompson*.) Mr. R. Warren now believes a mistake was made as to the bird seen 21st September, 1862, near Moyview in Sligo. (*Dubl. Nat. Hist. Soc., Proceedings*, iv., p. 62.) An Ivory Gull, belonging to the late Dr. J. R. Harvey's collection, now in Queen's College, Cork, was obtained, as Mr. Warren informs me, in Bantry Bay. One picked up dead by a coastguardsman in Achill (*Thompson*), was not sufficiently identified. The Iceland Gull is often mistaken for it.

**Stercorarius catarrhactes** (Linn.) Great Skua.

Very rare visitor, chiefly in autumn. One recently obtained in Dublin Bay is in the Museum.

**Stercorarius pomatorhinus** (Temminck). Pomatorhine Skua.

Regular autumnal visitor in varying numbers, usually seen in October.

**Stercorarius crepidatus** (Glm.) Richardsons's Skua.

Regular visitor in autumn. Has occurred also, less frequently, in spring.

**Stercorarius parasiticus** (Linn.) Buffon's Skua.

Autumnal visitor in small numbers and less frequent than Richardson's. Has also occurred in spring.



## ORDER—TUBINARES.

## PROCELLARIIDÆ.

**Fulmarus glacialis** (Linn.) Fulmar Petrel.

Rare and accidental visitor in autumn and winter. It has several times been washed ashore dead in the estuary of the Moy. In the *Irish Sportsman*, Nov. 26, 1892, Mr. R. Warren enumerates 11 specimens picked up near Enniscrone; 8 in October, the others in November, January, and March. Three birds, thus picked up by Mr. Warren, are in the Museum. One was obtained in Rathlin Island, 2nd September, 1889. (*Ibis*, 1889, p. 580.) And one picked up between Ballyshannon and Bundoran, 19th May, 1892. (*H. L. Jameson*, in *Zoologist*, 1893, p. 75).

**Puffinus major** (F. Faber). Great Shearwater.

Rare and uncertain visitor, chiefly in autumn, and on the West coast. The evidence in favour of its breeding in Ireland (*Fowler in Ireland*, p. 289) seems quite insufficient.

**Puffinus griseus** (Gml.) Sooty Shearwater.

Very rare and accidental visitor. A specimen obtained off the coast of Kerry, is in Mr. Chute's collection. (*Zoologist*, 1881, p. 334.) The bird is also believed to have been observed by Mr. R. Warren, off Cork Harbour, in August, 1849. (*Zoologist*, 1881, p. 420.) Mr. R. Lloyd Patterson has one which was shot on Belfast Lough, 29th September, 1869.

**\*Puffinus anglorum** (Temminck). Manx Shearwater.

Occurs chiefly as a summer visitor, and in autumn. Breeds locally on islands and headlands off various parts of the coast.

**Puffinus obscurus** (Gmel.) Dusky Shearwater.

Has once occurred off Valentia, 11th May, 1853. (*Watters*, p. 268.) (*Yarrell*, "*British Birds*," Ed. 3, Vol. iii., p. 659.)†

**\*Cymochorea leucorrhoa** (Vieill.) Fork-tailed Petrel.

Known chiefly as a rare and accidental visitor. But Mr. R. J. Ussher has recently obtained eggs from the Blasquet Islands, in Kerry. (*Zoologist*, 1887, p. 349.)

**\*Procellaria pelagica** (Linn.) Storm Petrel.

Breeds in considerable numbers on several of the islands off the West and North coasts, and is frequently picked up inland after stormy weather.

**Oceanites oceanica** (Kuhl.) Wilson's Petrel.

One at Mossdale, Co. Down, 2nd Oct., 1891 (*R. Patterson*, in *Zoologist*, 1891, p. 427). One on Lough Erne, 1st Oct., 1891 (*E. Williams*, in *Zoologist*, 1891, p. 428.) Breeds in the Southern Hemisphere.

† The specimen was presented to the Museum by Mr. B. Blackburn in 1894.

## ORDER—PYGOPODES.

## ALCIDÆ.

- \***Alca torda** (Linn.) Razor Bill.  
Breeds in large numbers on rocky parts of the coast. A few remain throughout the winter.
- Alca impennis* (Linn.) Great Auk.  
Has once occurred; near Waterford, May, 1834. (*Thompson.*)  
This specimen, which came into the possession of Dr. Burkitt, is in the Trinity College Museum.
- \***Uria troile** (Linn.) Common Guillemot.  
Breeds on the cliffs all round Ireland. A few remain in the winter. The Ringed Guillemot, now considered a mere variety, occurs in small numbers associated with the type.
- \***Uria grylle** (Linn.) Black Guillemot.  
Breeds locally in small numbers all round the rocky coast, and remains all the year.
- Mergulus alle** (Linn.) Little Auk.  
Rare and uncertain winter visitor.
- \***Fratercula arctica** (Linn.) Puffin.  
Summer visitor. Breeds on the rocky coasts all round Ireland. A few are rarely found in winter. A white variety is in the Museum.

## COLYMBIDÆ.

- Colymbus glacialis** (Linn.) Great Northern Diver.  
Regular winter visitor. A few birds in adult plumage occasionally occur late in spring.
- Colymbus arcticus** (Linn.) Black-throated Diver.  
Rare visitor in winter. Seen also on its northward migration late in spring.
- \***Colymbus septentrionalis** (Linn.) Red-throated Diver.  
Regular winter visitor, and, like the former, often found late in spring. The nest has been more than once found in Donegal. (*Field*, 30th May, 1885.) Perhaps also in Sligo (*Zoologist*, 1890, p. 352.)

## PODICIPEDIDÆ.

- \***Podiceps cristatus** (Linn.) Great Crested Grebe.  
Breeds on lakes chiefly in the North and middle of Ireland, in 13 counties, from Galway, or, perhaps, Clare, (Lough Derg), King's Co., and Queen's Co., to Down and Antrim (Lough Neagh); but is more numerous as a winter visitor, on fresh, and rarely salt water. Down, Armagh, Monaghan, Cavan, and Westmeath, are mentioned by Thompson as breeding quarters.

**Podiceps griseigena** (Boddaert). Red-necked Grebe.

Very rare and accidental winter visitor, chiefly found on salt water.

Only five or six specimens have been obtained in Ireland. One shot many years ago in Inver Bay, Donegal, is in the Museum.

**Podiceps auritus** (Linn.) Slavonian Grebe.

Regular winter visitor, in small numbers. Usually found on salt water.

**Podiceps nigricollis** (C. L. Brehm). Eared Grebe.

Very rare and accidental visitor, chiefly on salt water, in winter. but has twice occurred, in full summer plumage, in June.

**\*Podiceps fluviatilis** (Tunstall). Little Grebe.

Resident and common. Often found on the sea in winter.

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 ORDER—STEGANOPODES.

## PELECANIDÆ.

**\*Phalacrocorax carbo** (Linn.) Common Cormorant.

Resident and common. Fishes on freshwater far inland, and occasionally breeds on trees on islands in freshwater lakes. As inland nesting localities may be mentioned Lough Cutra, Lord Gough's seat in Galway, where Lord Gough tells me that from eighty to one hundred birds breed annually. The cormorant has also been found nesting on a few small lakes in Connemara, and in Mayo. Along the Blackwater, below Mallow. In tall bare trees over the Blackwater at Cregg (*Mr. Longfield*). Hermitage Island, Lough Key (*Irish Naturalist*, 1893, p. 264). Lough Coole, Fermanagh (*Mr. Ussher*). A lake at Castlemartyr, co. Cork (*Thompson*).

**\*Phalacrocorax graculus** (Linn.) Shag.

Resident, especially abundant on the north-west coast.

**\*Sula bassana** (Linn.) Gannet.

Breeds on the Little Skellig, co. Kerry, and on the Bull Rock, co. Cork. Not on the Fastnet Rock (*Zoologist*, 1884, pp. 474 and 479.)

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 ORDER—HERODIONES.

## ARDEIDÆ.

**\*Ardea cinerea** (Linn.) Common Heron.

Resident, and common throughout Ireland, breeding in every county. A fawn-coloured variety is in the Museum. Breeds sometimes on sea-cliffs, as in the Dingle Peninsula, and formerly in Waterford (*Mr. R. F. Ussher*). Also on the ground, as on Garumna Island, Galway. (*Mr. G. H. Kinahan*). Generally known as "Crane."

**Ardea purpurea** (Linn.) Purple Heron.

Has once occurred; at Carrickmacross, Monaghan, previous to 1834. (*Thompson*). This specimen, which belonged to the collection of Mr. T. W. Warren, is in the Museum.

**Ardea garzetta** (Linn.) Little Egret.

Extremely rare and accidental visitor. It is recorded as having occurred three times (*Thompson*), but no Irish specimen is in existence.

**Ardea ralloides** (Scopoli). Squacco Heron.

Extremely rare visitor. Has occurred four or five times in spring or early summer in the South of Ireland. A specimen shot at Youghal, Co. Cork, is in the Museum.†

**Nycticorax griseus** (Linn.) Night Heron.

Very rare and accidental visitor. Has occurred ten or twelve times in Ireland. A specimen obtained in county of Louth is in the Museum. An immature bird was shot at Rathgar quarries, 31st December, 1888 (*Zoologist*, 1889, p. 110). A young bird shot near Belfast, 26th October, 1893 (*Zoologist*, 1893, p. 459).

**Ardetta minuta** (Linn.) Little Bittern.

Very rare visitor. Has occurred about ten or twelve times in Ireland. A specimen shot at Skerries, Co. Dublin, is in the Museum. Another shot in Wexford, October 2nd, 1887 (*Zoologist*, 1889, p. 145), is, as Dr. Scharff informs me, also in the Museum.

**Botaurus stellaris** (Linn.) Bittern.

Rare and irregular winter visitor, but occurs nearly every year. Recorded as formerly breeding in a few localities, but the nest has not been found for many years past.

**Botaurus lentiginosus** (Mont.) American Bittern.

Native of America. Extremely rare visitor. Has occurred six times in Ireland, viz., in the counties of Armagh, (*Thompson*), Down, Louth, Tipperary, and Cork, in the months of October and November, usually in November. A specimen shot at Castle-ring, Louth, November, 1868, was presented to the Museum by Lord Clermont.‡

† Two were shot in September, 1895 (*Irish Nat.*, 1896, pp. 56 and 320).

‡ Records of two American Bitterns, shot in counties Derry and Kildare at the end of October, 1889 (*Zool.* 1890, pp. 24 and 26), are not quoted in the interleaved copy; and a record (*Dublin Nat. Hist. Soc.*, iv., p. 49) of a specimen shot in Wexford in December, 1862, although noted on blank page in interleaved copy of the first edition of Mr. More's List, was not mentioned in the second edition. These would make the number of occurrences nine.

CICONIIDÆ.

*Ciconia alba* (Bechst.) White Stork.

Has three times been obtained. Near Fermoy, co. Cork, in 1846 (*Thompson*), near the sea-shore in Wexford, in autumn of 1846 (*Watters*), and on Hop Island, on the river Lee, co. Cork, 7th August, 1866. (*Zoologist*, 1866, p. 524)

IBIDIDÆ.

*Plegadis falcinellus* (Linn.) Glossy Ibis.

Rare and uncertain visitor, chiefly in autumn and early winter. One specimen from Longford, and three presented by the Dublin Natural History Society, are in the Museum.

PLATALEIDÆ.

*Platalea leucorodia* (Linn.) Spoonbill.

Rare and irregular visitor, occurring on the coast, chiefly in autumn and winter. Two specimens in the Museum (formerly in the collection of the Dublin Natural History Society), were obtained on the estuary of the Bandon River, Cork, in December, 1860.

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ORDER—ANSERES.

ANATIDÆ.

Respecting the Birds of this family much interesting information will be found in Sir R. Payne-Gallwey's Book, "The Fowler in Ireland." London, 1882.

*Anser cinereus* (Meyer). Grey-Lag Goose.

Regular winter visitor, but local and rare, occurring chiefly in the centre and east of Ireland. There is a colony of semi-domesticated birds introduced about 1770, by Col. Corry, breeding regularly on a lake at Castlecoole, co. Fermanagh (*Thompson*). The Bog of Allen and a bog near Kirkiston, co. Down, are mentioned as former breeding-places. A large flock frequents, during winter, some fields near the Murrough of Wicklow, remaining till late in spring, but not through the summer. (See *Fowler in Ireland*, p. 154.) Feeds in the *day-time* (*Sir V. Brooke*).

*Anser albifrons* (Scop.) White-fronted Goose.

Regular winter visitor, and not uncommon inland, as well as on salt water. The commonest of the Grey Geese in Ireland. Often miscalled "Bean Goose."

**Anser segetum** (Gmel.) Bean Goose.

Regular winter visitor, generally distributed, but much less frequent than the White-fronted Goose, and seldom seen in the Dublin markets. According to Sir V. Brooke, is the common Goose of all the north of Ireland, inhabiting bogs and wild places, feeding always *at night*.

**Anser brachyrhynchus** (Baill.) Pink-footed Goose.

One shot on Lough Swilly, co. Donegal, about 19th October, 1891 (*Zoologist*, 1892, p. 33). Is believed to have been previously recognized by Sir V. Brooke, who in 1885 wrote that:—About ten or twelve years ago he distinctly identified, with a telescope, a pair of Pink-footed Geese amongst a large flock of Grey-lags, feeding in some marshy fields in Meath; adding that “to an experienced eye a pink foot is very easily distinguished on the ground.”

**Chen hyperboreus** (Pallas). Snow Goose.

Native of America. Has three times occurred. Two were shot at Tacumshin Lake, in November, 1871, another subsequently in Wexford Harbour. (*Howard Saunders*, in *Zool. Soc. Proceedings*, 1872, p. 519.) In October, 1877, a flock of seven birds were seen at Termoncarra, near Belmullet, Mayo, of which two were captured. (*Zoologist*, 1878, p. 419). One of these lived, associated with, and paired with some domestic geese until the spring of 1884, when it was unfortunately killed by a stone. This specimen has been most liberally presented to the Museum by Mr. J. R. Crampton. Mr. H. Blake Knox informs me that about 1st October, 1886, he received a fine male Snow Goose, which had been shot by one of his tenants, near Belmullet, Mayo.

*Obs.*—The Egyptian Goose has occasionally been shot on the coast, but cannot be considered a wild bird.

**Bernicla leucopsis** (Bechst.) Barnacle Goose.

Regular winter visitor, but local and rare except at Lurgan, Dundalk, Sligo, Achill, Erris, and Clew Bay. Feeds on grass.

*Obs.*—The Canada Goose has occasionally been shot in an apparently wild condition. No doubt escaped from domestication.

**Bernicla brenta** (Pallas). Brent Goose.

Regular winter visitor, occurring locally on the muddy estuaries all round the coast. Feeds on *Zostera*.

**Cygnus musicus** (Bechst.) Whooper Swan.

Winter visitor, rare. Occurring chiefly in hard winters.

**Cygnus Bewicki** (Yarrell.) Bewick's Swan.

Winter visitor; frequent, especially in hard weather, and much more numerous and occurs in larger flocks than the Whooper. Chiefly on fresh water.

[\**Cygnus olor* (Gmel.) Mute Swan.

Introduced, but breeds regularly "on many of the unprotected lakes and rivers of Ireland." Sir R. Payne-Gallwey records the occurrence in 1881, of three Polish Swans, and Mr. J. R. Sheridan has obtained what he believes to be the Polish Swan, in Achill Island, but I do not know how this supposed species can be satisfactorily distinguished from immature birds of the Mute Swan.]

**Tadorna casarca** (Linn.) Ruddy Sheldrake.

Has several times occurred, but some of the birds may have escaped from domestication. One shot on the Murrough of Wicklow (*Thompson*), is in the Museum from the collection of the late Mr. T. Warren. Another shot about March 20th, 1871, on Clonea Marsh, co. Waterford, was presented to the Museum by Mr. W. W. M'Guire. A third shot near Tralee, 17th August, 1869, is in the collection of Mr. J. C. Neligan. (*Zoologist*, 1870, p. 2105.) A fourth, in the Museum at Trinity College (*Fowler in Ireland*, p. 66), was mounted from a dried skin, and was, in all probability, of foreign origin. Several occurred in Cork, and on the Shannon, in June and July, 1886. (*Zoologist*, 1886, p. 335, and 1887, p. 25.) Many in July, 1892.

\***Tadorna cornuta** (Gmel.) Common Sheldrake.

Breeds sparingly on the sand hills round the coast. Becomes more numerous in winter.

\***Anas boschas** (Linn.) Wild Duck.

Breeds in small numbers throughout Ireland, and becomes much more numerous in winter.

**Chaulelasmus streperus** (Linn.) Gadwall.

Rare winter visitor occurring from North to South of Ireland.

\***Spatula clypeata** (Linn.) Shoveller.

Regular winter visitor in small numbers. Breeds from South to North, but chiefly in the middle of Ireland. Increasing as a breeding species. An adult male in the brown summer plumage, killed with two young ones at Baldoyle, on the 24th July, 1876, was presented to the Museum by Mr. J. J. Dowling.

\***Dafila acuta** (Linn.) Pintail.

Regular winter visitor, but not numerous. Sir R. Payne-Gallwey mentions it as breeding at Abbeyleix, Queen's county, and records having himself observed female Pintails with young broods in June, both on Lough Mask and Lough Corrib, co. Galway. (*Fowler in Ireland*, p. 51.) The nest has only once been found at Abbeyleix by Lord Castletown, many years ago.

\***Querquedula crecca** (Linn.) Common Teal.

Breeds in various parts of Ireland, and is numerous in winter.

**Querquedula circaia** (Linn.) Garganey.

Very rare visitor, chiefly in spring, but has occurred also in winter. One shot on the River Barrow in March, 1888, Dr. Scharff informs me, is in the Museum, and another was obtained in April, 1888, near Dublin. (*Zoologist*, 1888, p. 187.)

**\*Mareca penelope** (Linn.) Wigeon.

Common winter visitor. Extremely rare as a breeding species. I am indebted to Lord Castletown for the information that one pair of Wigeon bred at Abbeyleix in 1888. Mr. R. J. Ussher saw a pair in June, 1893, on Lough Allen, Leitrim.

**Fuligula rufina** (Pallas). Red-crested Pochard.

Has once occurred; having been obtained by Sir. R. Payne-Gallwey from a fowler who shot it near Tralee, January 18th, 1881. (*Zoological Society of London Proceedings*, 1881, p. 409, and *Zoologist*, 1881, p. 143.)

**\*Fuligula ferina** (Linn.) Pochard.

Regular winter visitor, both on fresh and salt water. Has nested near Strangford Lough (*Thompson*)—on Loughs Derg and Beg. (*Fowler in Ireland*, p. 98.) And is reported to have bred in Galway, Roscommon, Westmeath, and Tipperary.

**Nyroca ferruginea** (Gmel.) White-eyed Duck.

Very rare winter visitor. Has occurred in Antrim and Dublin in March, 1871. (*Blake Knox*, in *Zoologist*, 1871, p. 2845.) Two on the east coast in 1879. (*Fowler in Ireland*, p. 101.) An adult male near Athlone, 21st January, 1893 (*Zoologist*, 1893, p. 106.)

**Fuligula marila** (Linn.) Scaup.

Regular winter visitor, common on the sea shores, except in the South of Ireland.

**\*Fuligula cristata** (Leach). Tufted Duck. Magpie Diver.

Regular winter visitor in small numbers, preferring fresh water. A few breed on Lough Neagh, Lough Beg, on the Shannon Lakes, and in the county Monaghan (*Fowler in Ireland*, p. 105): in Fermanagh, Roscommon, Sligo, and probably on lakes in Longford and Westmeath (*R. J. Ussher*, 1893).

**Clangula glaucion** (Linn.) Golden-eye.

Regular winter visitor, frequenting especially the large inland lakes.

[The Buffel-headed Duck is believed to have been seen more than once by Sir. R. Payne-Gallwey (*Fowler in Ireland*, p. 110); but no specimen has as yet been obtained in Ireland.]



**Harelda glacialis** (Linn.) Long-tailed Duck.

Rare winter visitor in small numbers, chiefly occurring in the North of Ireland, on salt water.

**Somateria mollissima** (Linn.) Eider Duck.

Very rare winter visitor. Has been obtained some twelve to fifteen times in Ireland. Seldom seen on fresh water, but has been twice shot on Lough Neagh.

**Somateria spectabilis** (Linn.) King Eider.

Extremely rare winter visitor. Has occurred five times. In the counties of Antrim, Kerry (2), and Dublin (*Thompson*). A young male in Achill, December, 1892, (*Zoologist*, 1894, p. 151). The specimen from Kingstown is in the Trinity College Museum.

**Edemia nigra** (Linn.) Common Scoter.

Regular winter visitor, but local. Numerous about Belfast and Dundalk, rare in the South and West of Ireland.

**Edemia fusca** (Linn.) Velvet Scoter.

Rare winter visitor, occurring often far out at sea, chiefly found off the eastern coast.

**Edemia perspicillata** (Linn.) Surf Scoter.

Native of America. Has occurred four times in Ireland, viz., one in Belfast Bay, 19th September, 1846. (*Thompson*). Another, obtained at Clontarf, Dublin, Oct., 1880, is recorded by Sir R. Payne-Gallwey. (*Fowler in Ireland*, p. 113.) A young male shot at Crookhaven Harbour on the 5th November, 1888 (*Zoologist*, 1889, p. 32), is in the possession of R. M. Barrington. A female obtained in Achill and sent to me by Mr. J. R. Sheridan, shot 25th October, 1870 (*Zoologist*, 1894, p. 151).†

**Mergus merganser** (Linn.) Goosander.

Winter visitor in severe weather, and rather rare, occurring chiefly on fresh water.

\***Mergus serrator** (Linn.) Red-breasted Merganser.

Breeds regularly on most of the large lakes and estuaries in the North and West of Ireland, from Kerry, Tipperary, Westmeath, and Louth, becoming much more numerous in winter on the coasts, and wanders far up the tidal rivers.

**Mergus albellus** (Linn.) Smew.

Rare and uncertain winter visitor, occurring frequently on fresh, as well as salt, water. Old males are very scarce.

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† In addition to the above instances, Mr. Robert Warren records (*Irish Naturalist*, 1897, p. 59) the occurrence of a pair of Surf Scoters near Killala, in December, 1896, both of which he shot, and which are now in the Dublin Museum.

*Mergus cucullatus* (Linn.) Hooded Merganser.

Native of America. Has occurred five times in Ireland. One at Dingle Bay, in winter, about 1840. (*Thompson.*) One in Westmeath. (*Watters.*) Two obtained by Sir R. Payne-Gallwey, viz., one in Cork Harbour, Dec., 1878, and another in Kerry, Jan., 1881. (*Fowler in Ireland*, p. 121.) A fifth, obtained in the county of Cork, is in the collection of Mr. J. G. Millais.

## EXCLUDED SPECIES.

Birds which have been reported as Irish, but whose claims to be included in our List do not appear to be sufficiently established:—

Eagle Owl.	Pine Grosbeak.
Spotted Eagle Owl.	Martinico Gallinule.
Tawny Owl.	Collared Pratincole.
Blue Thrush.	Ruppell's Tern.
Nuthatch.	Gull-billed Tern.
Crested Titmouse.	Cape Pigeon.
Bearded Titmouse.	Brunnich's Guillemot.
Blue-headed Wagtail.	Red-breasted Goose.
Tree Pipit.	American Wigeon.
Crested Lark.	Buffel-headed Duck.
Cirl Bunting.	Membranaceous Duck.

Besides these, there are many birds common in England which have occurred so rarely in Ireland that they scarcely deserve to be included in our fauna, *e.g.*, Reed Warbler, Nightingale, Lesser Whitethroat, Wryneck, Red-backed Shrike, and Green Woodpecker.

## AN OBITUARY ARTICLE.

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## ALEXANDER GOODMAN MORE.

F.R.S.E., F.L.S., M.R.I.A.

IRISH Natural History has sustained the severest blow it could well receive in the death of Alexander Goodman More, for it may be truly said that no naturalist ever had the same reliable grasp of the flora as well as the fauna of this country as he possessed.

A. G. More was born in London on September 5, 1830. He was the son of Alexander More of Malvern, and grandson of Alexander More, Collector of Customs, Aberdeen, great grandson of Gilbert More of Readen, Aberdeen, and, on the grandmother's side, of Alexander Innes of Breda and Cowie.

From 1836 to 1841 he resided at Renens near Lausanne with his parents, and also with M. Germond, who was his tutor at Yvonnand and Echallens. At Renens he became acquainted with the Shawe-Taylors of Castle Taylor, Co. Galway. This intimacy, which was continued through life, was probably the primary cause of his coming to live in Ireland.

While in Switzerland his taste for Natural History early showed itself in the collection of butterflies. In 1841 he went to Mr. Bailey's school at Clifton, and there prepared for Rugby, to which he went in 1844, his parents residing in the Isle of Wight. Five years were spent at Rugby. More became head of his house (Rev. Robert B. Mayor's), and first Grecian Scholar.

In 1846 he tells us in a brief private diary—which will, hereafter, be frequently quoted—"Taste for birds first began from being anxious to know all about a Nuthatch I had shot, which I compared with, and found out in Bewick." In 1848 Eyton's supplement to "Bewick," Selby's "British Ornithology," and St. John's "Highland Sports," were purchased, and More "began to study birds more carefully."

He was now eighteen, and Westwood's "Butterflies," Jenyns' "British Vertebrates," Temminck's "Manual," and Turton's "British Land Shells," formed the nucleus of a well-read library which was rapidly enlarged by presents from friends who admired his ability and genius.

In 1850 he says "Walter (Mr. Walter Shawe-Taylor) carried me off to Ireland where I spent the summer and botanized for the first time." In the same year More entered Trinity College, Cambridge. The following summer, 1851, was spent at Castle Taylor, and *Viola stagnina* discovered in Ireland. He was introduced to Prof. Babington at Cambridge and elected Associate of the Ray Club. In 1852 he "began really to study botany," and purchased a number of valuable books dealing with the English and Continental floras.

At Cambridge he took a certificate in geology, but ill-health prevented his completing his college course and trying for the Natural Science Tripos—a circumstance always spoken of with keen regret in after-life. Fond of shooting and fishing, he also steered the head boat at Cambridge in May, 1853. At this time he joined the Botanical Society of Edinburgh, and progress in botany consisted chiefly "in the more careful comparison of plants with their descriptions," a study in which his critical eye subsequently excelled and in which he had few equals. Portions of 1854 and 1855 were spent in the West of Ireland, and his first botanical essay appeared, *i.e.* "Notes on the Flora of Castle Taylor." The following year he was elected F.L.S. In 1857, he was introduced to Mr. H. C. Watson, author of the "Cybele Britannica," and visited him subsequently at Thames Ditton.

In 1858, in conjunction with Mr. T. Boyd, a paper "On the Geographical Distribution of Butterflies in Great Britain" was published, on the plan of Watson's "Cybele Britannica." At the same time he made an analysis of De Candolle's "Naturalized Plants," and catalogued Dr. Bromfield's herbarium.

In 1859 some suggestive remarks on the migration of birds appeared in the *Zoologist*, and More, with the natural pride of a young botanist, says, "Gained the confidence of C.C.B." (Prof. Babington). This was his first year of critical work at botany.

In 1860 the appendix to Venables' "Isle of Wight Guide" appeared, and the following year he visited Waterton: his stay at Walton Hall with all its curiosities was always remembered with pleasure.

Watson's plan of the "Cybele Britannica," already applied to the butterflies by More, was now made use of for illustrating the distribution of birds in Great Britain during the nesting season, and materials were diligently collected. So highly was his paper on the subject thought of that Prof. Newton alludes to it thus in his article on Ornithology in the "Encyc. Brit.," 9th Ed., "Though contravening our plan we must for its great merits notice here Mr. More's series of papers in the *Ibis* for 1865."

Not content with the Butterflies and Birds of Great Britain, More in 1864 again visited Ireland, and to quote the diary, "proposed an Irish Flora to D. M." (Dr. David Moore of Glasnevin). Watson's "Cybele Britannica" did not include Ireland, and we have here the first germ of the "Cybele Hibernica," a work which will always form a conspicuous landmark in Irish Botany. Dr. Moore had much of the material already collected; the application of Watson's system to its arrange-

ment was assisted by More, who, in order to be near his friend, came to reside at Glasnevin. The authors worked with diligence for two years, mutual esteem and harmony prevailed, and the "Cybele Hibernica" was completed in August, 1866.

In 1867 he was appointed Assistant in the Dublin Natural History Museum, and for twenty years from that date his room there was the rendezvous of all naturalists who came to Dublin. Here introductions were made, jealousies dispelled, and friendships initiated and cemented. Every nerve was strained to encourage, stimulate, and assist the younger naturalists. More was their counsellor and guide, and the Natural History of Ireland had in him a most earnest advocate.

In 1877, he was made an Honorary Member of the Zoological and Botanical Society of Vienna.

By a gentle and gracious manner, unflinching courtesy, and wonderful tact, rare specimens were, over and over again, coaxed from the owners for the Museum, and difficulties overcome in their transfer by a sort of insidious persuasion which few could withstand.

In the old days, before the present National Library was built, most of the works on Natural History were collected in a lofty square well-lighted room, and here More often spent hours working at some moot point for the benefit of a friend down in the country. The trouble he took was amazing. For a quarter of a century, scarcely a pamphlet, paper, or book was published on the flora or fauna of Ireland in which the author did not acknowledge his assistance or advice. It always gave him greater pleasure to help others to write than to undertake the task himself. There was no lack of mental energy, but ill-health frustrated many a plan which would have been carried out had he been more vigorous.

In 1881, on the death of Dr. Carte, he was appointed Curator of the Museum, and occupied this post till a protracted illness caused him to retire on pension in 1887. His residence at Rathmines now became the frequented resort of botanists and zoologists, with whom he kept up a constant correspondence, making systematic entries of their notes in the "Cybele Hibernica," and in other books and papers which he had interleaved and annotated.

He was not a scientist of the modern type; the correct identification of a species, its habits, and geographical distribution were studied by him rather than its morphology and histology. He revelled in minute distinctions between well-marked varieties, and his critical opinion was respected in England and abroad. Familiar with every pamphlet and book on his favourite studies, he held a unique position as a referee in the bibliography of Irish and English Natural History, for he knew both zoological and botanical literature.

The short notes and papers which he has written are numerous, but, unlike many, he wrote less than he knew, rather than err by making unfounded statements. His "Outlines of the Natural History of the Isle of Wight," the valuable papers in the *Ibis* for 1865, the Supplement to the "Flora Vectensis," the "Cybele Hibernica" and its

Supplement, and last but not least his "List of Irish Birds" are the best known of his writings. From the Royal Irish Academy he received, from time to time, several grants for scientific purposes.

The errors which he corrected and saved others from making are scarcely less numerous than those many additions to the Irish Flora and Fauna which are solely due to his activity. After the scientific exploration of any district, More was the traveller's first confidant, and the delight with which he hailed a discovery gave a zest and enjoyment to field work which will be sadly missed in Ireland. What areas deserved attention—who had been there previously, and what had been done and left undone—were at his fingers' ends. He suggested many expeditions, checked others, and was consulted in the arrangement of all. Nobody can hope to fill his place; no one is equally familiar with birds, mammals, fishes, reptiles, flowering plants and ferns, a versatility which was happily combined with a sound judgment, great tact, and a suavity and gentleness of manner peculiarly attractive. His ability was perhaps best testified by the regard which was entertained for him by everyone. He has left a blank which can never be filled, and which will be more vividly realized every day by those who had the privilege of his friendship.

RICHARD M. BARRINGTON.

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LIST OF THE SCIENTIFIC WRITINGS OF THE LATE  
A. G. MORE.\*

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BOTANY.

1853. Effects of the late mild weather in the Isle of Wight. *Phytologist*, vol. iv., p. 874.
1854. *Filago spathulata* in the Isle of Wight. *Phyt.*, vol. v., p. 22.
1855. On the Flora of the neighbourhood of Castle Taylor, Co. Galway. *Proc. Edin. Bot. Soc.*, pp. 26-30.
1856. On some uncommon Plants observed at or near Tunbridge Wells in Kent. *Phytologist* (n. s.), vol. i., pp. 292-5, 345-8.
1857. *Anemone pulsatilla*. *Phyt.* (n. s.), vol. ii., pp. 215-216.
1858. Analysis of De Candolle's "Naturalized Plants." *t.c.*, pp. 449-462. [Not signed by A. G. M., but mentioned in his diary.]
1860. Remarks on the *Viola* of the coast sand-hills. *Phyt.* (n. s.), vol. iv., pp. 301-3.

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\* To the excellent list appended to Mr. Barrington's article in the *Irish Naturalist* a few unimportant additions only have been made. One article (that on *Sonchus palustris*) is omitted, as being more probably by another hand.

1860. Additional localities for some rare Hampshire plants. *t. c.*, pp. 80-82.
1860. Look after *Draba verna*. *t. c.*, p. 82.
1860. Remarks on the Annual Address. *t. c.*, pp. 103-4. [Not signed.]
1860. British *Capreolate Fumariæ* (abridged from Babington in *Linnean Journal*), *t. c.*, pp. 105-7.
1860. *Viola hirta* and *V. odorata*, *t. c.*, pp. 126-7.
1860. What is *Ranunculus heterophyllus*? *t. c.*, pp. 138-142. [Not signed.]
1860. Remarks on Harrow Plants. *t. c.*, pp. 170-2: [Signed, "A."]
1860. Chickweeds. *t. c.*, pp. 172-4. [Not signed.]
1860. British *Lepigona*. *t. c.*, pp. 193-7.
1860. Outlines of the Natural History of the Isle of Wight, being a supplement to Venables' "Guide." (Also issued separately with fresh pagination. London, Spottiswoode & Co.)
1860. Localities for some rare Plants observed in Ireland. *Nat. Hist. Review*, vol. vii., pp. 434-443.
1861. British *Lepigona*. *Phyt.* (n.s.), vol. v., pp. 81-3. Also *Thirsk Botanical Reports*, 1861, pp. 7-9.
1861. On the occurrence of *Festuca ambigua* in the Isle of Wight. *Trans. Linn. Soc. (Bot.)*, vol. vi., pp. 189-192.
- 1861-3. A Comparative List of British Plants, showing synonymous species in Babington, Lond. Cat., Hooker & Arnott, and Bentham. *Phyt.* (n.s.), vol. iv., pp. 321-330; vol. v., pp. 310-317; vol. vi., pp. 101-9, 370-381.
1863. The above, reprinted. London, Pamplin.
1862. On the discovery of *Gladiolus illyricus* in the Isle of Wight. *Four. Linn. Soc. (Bot.)*, vol. v., pp. 177-8.
1863. Unusually mild winter in the Isle of Wight. *Journal of Botany*, vol. i., pp. 57-8.
1865. Note on the discovery of *Neotinea intacta* in Ireland. *Trans. Edin. Bot. Soc.*, vol. viii., pp. 265-266.
1866. [Conjointly with DAVID MOORE]. Contributions towards a *Cybele Hibernica*, being Outlines of the Geographical Distribution of Plants in Ireland. Dublin and London.
1866. [Conjointly with DAVID MOORE]. On the Climate, Flora, and Crops of Ireland. *Proc. Bot. Congress*, pp. 165-176.
1868. Discovery of *Scirpus parvulus* in Ireland. *Journ. of Bot.*, vol. vi., pp. 254, 321-3, with plate.
1868. *Trifolium subterraneum* in Ireland. *t. c.*, p. 208.
1868. Note on *Equisetum Moorei*. *t. c.*, pp. 253-4.

1868. *Hippophae rhamnoides*. *t.c.*, pp. 255-6, 373.
1869. Discovery of *Aira uliginosa* at Roundstone, Co. Galway. *Journ. of Bot.*, vol. vii., pp. 265-6.
1870. Notes on *Scirpus parvulus*. *Trans. Edin. Bot. Soc.*, vol. x., pp. 160-1.
1870. On *Callitriche obtusangula* as a British plant. *Journ. of Bot.*, vol. viii., pp. 342-3.
1871. A Supplement to the Flora Vectensis. *Journ. of Bot.*, vol. ix., pp. 72-6, 135-145, 167-172, 202-211.
1871. On *Acorus calamus* as a Native. *t.c.*, p. 246.
1871. *Cerastium pumilum* in Jersey. *t.c.*, p. 371.
1871. On *Spiranthes Romanzoviana*. *Brit. Ass. Rep.*, xli., p. 129.
1871. On *Eriophorum alpinum* as a British Plant. *t.c.*, p. 133.
1873. Recent additions to Flora of Ireland. *Proc. Roy. Ir. Acad. (Sc.)* (2) vol. ii., pp. 256-293.
1873. Abridgment of above with additions. *Journ. of Bot.*, vol. xi., pp. 115-119, 142-148.
1873. *Panicum capillare* in Essex. *t.c.*, p. 141.
1874. New station for *Erica Mackayana*. *Journ. of Bot.*, vol. xii., p. 306.
1876. *Lycopodium inundatum* in Kerry. *Journ. of Bot.*, vol. xiv., p. 373.
1876. Report on the Flora of Inishbofin, Galway. *Proc. R.I.A.*, vol. ii., pp. 553-578.
1876. On the occurrence in Ireland of *Nuphar intermedium*. *Brit. Ass. Rep.*, xlvi., p. 144.
1877. *Najas flexilis* in Kerry. *Journ. of Bot.*, vol. xv., p. 350.
1878. [Conjointly with D. MOORE.] Catalogue of the Flowering-plants and Ferns of Dublin and Wicklow, for Brit. Assoc. Guide. Reprinted with corrections in *Sci. Proc. R.D.S. (n.s.)*, vol. i., pp. 190-227.
1880. *Trifolium maritimum* in Ireland. *Journ. of Bot.*, vol. xviii., pp. 233-4.
1882. *Sisyrinchium Bermudianum* in Kerry. *Journ. of Bot.*, vol. xx., p. 8.
1882. *Aira alpina* in Kerry. *t.c.*, p. 87.
1884. Pembroke and Glamorganshire Plants. *Journ. of Bot.*, vol. xxii., pp. 43-6.
1889. *Erica mediterranea* var. *hibernica* in Achil. *Journ. of Bot.*, vol. xxvii., p. 118.
1892. *Cuscuta epithimum* in Ireland. *Journ. of Bot.*, vol. xxx., p. 14.
1892. *Trichomanes radicans* in Spain. *t.c.*, p. 86.



1892. *Silene maritima* growing inland. *t.c.*, p. 87.  
 1892. *Vaccinium vitis-idaea* at low level. *t.c.*, p. 88.  
 189 $\frac{1}{2}$ . *Rubus chamæmorus* as an Irish plant. *t.c.*, p. 217.  
 1893. A sketch of Irish Botany, in Guy's "South of Ireland Pictorial Guide" (pp. 142-6). Reprinted with corrections. *Journ. of Bot.*, vol. xxxi., pp. 299-304.  
 1893. *Erica mediterranea*, flowering in October. *Irish Naturalist*, vol. ii., p. 322.

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 ZOOLOGY.

1849. *Regulus ignicapillus* at Bembridge. *Zoologist*, vol. vii., p. 2526.  
 1850. *Upupa epops* at Bembridge. *Zool.*, vol. viii., p. 2800.  
 1853. *Sylvia tithys* at Bembridge. *Zool.*, vol. xi., p. 3753.  
 1853. *Fratercula arctica* in winter in the Isle of Wight. *t.c.*, p. 3753.  
 1853. Note on the Black Redstart. *t.c.*, p. 3907.  
 1853. Correction of Error respecting *Regulus ignicapillus*. *t.c.*, 4014.  
 1853. Migratory Birds in the Isle of Wight. *t.c.*, p. 4094.  
 1854. *Vespertilio serotinus* in the Isle of Wight. *Zool.*, vol. xii., p. 4179.  
 1854. *Bartramia longicauda* as a British Bird. *t.c.*, p. 4254.  
 1854. *Zygæna minos*.—Note on, in Ireland, &c. *t.c.*, p. 4435.  
 1855. On three species of Divers. *Zool.*, vol. xiii., p. 4628.  
 1856. A glance over the Cliff of Moher. *Zool.*, vol. xiv., p. 4941 (signed "Hesperus").  
 1856. The great Sea-Serpent. *t.c.*, p. 4948.  
 1856. *Colias Edusa*. Early appearance of, at Ryde. *t.c.*, p. 5253.  
 1858. [Conjointly with T. BOYD.] On the geographical distribution of Butterflies in Gt. Britain. *Zool.*, vol. xvi., pp. 6018-6027.  
 1858. Migratory Birds in the Isle of Wight. *t.c.*, p. 6270.  
 1859. Remarks on the migration of Birds. *Zool.*, vol. xvii., pp. 6531-4.  
 1860. Outlines of the Natural History of the Isle of Wight. London. (See also under BOTANY.)  
 1860. Rare birds observed in the Isle of Wight. *Zool.*, vol. xviii., 6849-6860.  
 1860. Arctic Tern nesting on fresh water at Lough Carra, Mayo. *t.c.*, 6891.  
 1860. *Deilephila lineata* in the Isle of Wight. *t.c.*, p. 7107.  
 1860. *Calosoma sycophanta* in the Isle of Wight. *t.c.*, p. 7157.  
 1862. Early arrival of Migratory Birds. *Zool.*, vol. xx., pp. 8026-7.  
 1865. On the Distribution of Birds in Great Britain during the Nesting Season. *Ibis* (2), vol. i., pp. 1-27, 119-142, 425-458.

1865. *Colias edusa* on Howth, Dublin. *Zool.* (2), vol. 1., p. 151.
1869. Note on the Animal of *Limnæa involuta*. *Ann. Mag. Nat. Hist.* (4), vol. iv., p. 46.
1870. Golden Eagle on Snowdon. *Zool.* (2), vol. v., p. 2381.
1870. Report on the Collections made in Kerry. *Journ. R. Dub. Soc.*, vol. v., pp. 389-394.
1870. Report on Experiments made in 1869 with the Japanese Silk-worm, *Bombyx Yama-mai*. *t.c.*, pp. 486-9.
1871. Brown Trout in Salt Water. *Brit. Ass. Rep.*, xli., p. 133.
1871. Dredgings in Kenmare Bay. *t.c.*, p. 133.
1872. Food Plant of *Tæneocampa rubricosa*. *Zool.* (2), vol. vii., p. 3027.
1874. *Salpa spinosa* in the W. of Ireland. *Zool.* (2), vol. ix., p. 4202.
1875. *Dinoteuthis proboscideus*, a gigantic Cephalopod stranded at Dingle, Kerry, 200 years ago. *Zool.* (2) vol. x., pp. 4526-4532.
1875. *Architeuthis dux*, a gigantic Squid recently captured at Innish-boffin. *t.c.*, pp. 4569-4571.
1875. A gigantic Squid on the West Coast of Ireland. *Ann. Mag. Nat. Hist.*, vol. xvi., pp. 123-4.
1878. Lists of Fishes and Birds in the Fauna of Co. Dublin, for Brit. Assoc. Guide (pp. 71-90.) Dublin.
1878. *Delphinus albirostris* on the Irish coast. *Zool.* (3), vol. ii., p. 292.
1878. *Blennius galerita*, in Dingle and Connemara. *t.c.*, p. 297
1880. *Monticola cyanus* (Blue Thrush) in Ireland, an error. *Zool.* (3), vol. iv., p. 67.
1880. Does the Long-eared Owl Hoot? *t.c.*, p. 487.
1881. On the alleged former existence of the Ptarmigan in Cumberland and Wales. *Zool.* (3), vol. v., pp. 44-47.
1881. Hooting of the Long-eared Owl. *t.c.*, pp. 56-57.
1881. *Puffinus griseus* in Ireland. *t.c.*, p. 334.
1881. Sabine's Gull near Dublin. *t.c.*, p. 472.
1881. *Falco islandus* in Ireland. *t.c.*, p. 488.
1882. *Porzana Bailloni* in Waterford, erroneously supposed to be "*Crex pusilla*." *Zool.* (3), vol. vi., p. 113.
1882. Uncommon variety of grouse from Mayo. *t.c.*, p. 148.
1882. *Echinorhinus spinosus* (Spinous Shark) in Dublin. *t.c.*, p. 434.
1882. *Daption capensis* (the Cape Pigeon) in Ireland. *Ibis* (4), vol. vi., p. 346.
1883. Snowy Owl in Donegal. *Zool.* (3), vol. vii., p. 80.
1884. Greenland Falcon in Donegal. Bonito in Galway. *Zool.* (3), vol. viii., p. 31.
1885. A List of Irish Birds, showing the species contained in the Science and Art Museum, Dublin. Dublin.

1885. *Turdus varius* in Mayo. *Zool.* (3), vol ix., p. 111.
1885. *Echinorhinus spinosus* in Galway. *t.c.*, p. 311.
1885. Wood Sandpiper in Wicklow. *t.c.*, p. 438.
1887. Science and Art Museum, Dublin. Guide to the Natural History Department. Series 1, Vertebrate Animals (Recent), Mammals and Birds. Dublin.
- 1882-8 [Jointly with RICHARD M. BARRINGTON.] Reports on the Migration of Birds, as observed at Lighthouses and Lightships on the Irish Coast. London, West, Newman and Co., 1882-5. Edinburgh, McFarlane & Erskine, 1886-8. (Short Abstracts in *Brit. Ass. Rep.*, lii., p. 283; lii., pp. 229-233; liv., pp. 266-270; lv., pp. 685-9; lvi., pp. 264-7; lvii., pp. 70-73; lviii., pp. 146-9.)
1889. *Clupea finta* at Killarney. *Zool.* (3), vol xiii., p. 110.
1889. *Motella maculata* as an Irish fish. *t.c.*, p. 154.
1889. *Limnæa involuta* probably a variety of *L. peregrina*. *t.c.*, pp. 154-155.
1889. Parrot Crossbill in Ireland. *t.c.*, p. 181.
1889. *Athanas nitescens* in Ireland. *t.c.*, p. 236.
1890. A List of Irish Birds. 2nd edition. Dublin.
1890. The so-called "Martinico gallinule" in Ireland. *Zool.* (3), vol. xiv., p. 24.
1890. *Porphyrio smaragnotus* and *P. cœruleus* in Ireland. *t.c.*, p. 24.
- 1890 *Sylvia nisoria* in Ireland. *t.c.*, p. 310.
- 1891 *Falco cenchrus* in Ireland. *Zool.* (3, vol. xv.), p. 152. *Ibis* (6), vol. iii., pp. 297-8.
1891. Localities for Natterer's Bat in Ireland. *t.c.*, p. 304.
1892. Alleged former nesting of the Osprey in the English lake district *Zool.* (3), vol. xvi., pp. 1-3.
1892. Parrot Crossbill in Ireland. *t.c.*, p. 76.
1892. Recent additions to the List of Irish Birds. *Irish Nat.*, vol. i., pp. 3-4.
1893. Mammals, and Freshwater Fishes, in Guy's "South of Ireland Guide" pp. 134, 138-40.
1894. Supposed occurrence of *Vespertilio murinus* in England—Correction of an error. *Zool.* (3), vol. xviii, p. 148.

#### ERRATA.

- Page 22, line 8, for "1843," read "1853."  
" 58, " 25, for "White-winged" read "Whiskered."  
" 67, " 13, for "arcticus," read "auritus."  
" 250, " 37, for "would" read "could."  
" 301, " 17, for "Garrowmore," read "Carrowmore."  
" 368 (footnote), for "in Europe," read "in Ireland; if a true instance of migration, probably the first in Europe."

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