Lincolnshire Naturalists' Union Transactions.

1924.

Edited by
ARTHUR SMITH,
F.L.S., F.E.S.,
AND
R. W. GOULDING,
F.S.A.

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Lincolnshire Naturalists' Union.

Founded June 12th, 1893.

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LINCOLNSHIRE NATURALISTS' UNION.

Statement of Account from 1st January to 31st December, 1924.

RECEIPTS.	£	s.	d.
Balance in Bank, 1st January, 1924	19	10	10
Balance in Secretary's hands, 1st January, 1924	0	2	10
"Transactions" sold	1	15	0
Special Donation from Mr. J. F. Musham, towards cost of printing List of Members ...	2	2	0
Members' Subscriptions	28	16	0
	£52	6	8

PAYMENTS.	£	s.	d.
Subscription to "The Naturalist"	0	15	0
Postages	3	6	11
Stationery, Printing of "Transactions," Blocks and Notices	31	19	6
Expenses of Meetings	2	6	5
Balance in Bank, 31st December, 1924	13	18	10
	£52	6	8

SEPARATE ACCOUNT.

Life Members' Subscriptions invested in P. O. Savings Bank.

	£	s.	d.
Amount shown on Balance Sheet for 1923	63	11	10
Interest for year 1923	1	6	3
	£64	18	1

January, 1925.

Examined and found correct,
A. E. GRAY, *Auditor.*

PRESIDENTIAL ADDRESS

TO THE

LINCOLNSHIRE NATURALISTS' UNION,

delivered at Lincoln, 27 November, 1924,

by H. B. Willoughby Smith, M.B., F.R.C.S.

THE MOORLAND AND UPLAND FLORA.

Doubtless many field naturalists have favourite sections of their particular branch of study. For instance, a geologist may prefer some particular formation or group of strata. As a very amateur botanist, I think that I have always found my special floral friends in the big group of plant associations which I have taken as a title for my address.

In the course of this address I use the word Moor in its northern sense, that is to say, as meaning heather-covered land and peat bog. In some parts of the country, and always in Germany, the word Moor is applied to swampy or bog land, whether it is clothed with heath vegetation or not.

The true Moor is a good example of a well-defined plant community association in which the Heather or Ling *(Calluna vulgaris)* is mostly dominant. The question is sometimes asked: Which plant is the true Heather? I have always maintained that *Calluna* is the real Heather, its fairly constant companions being Heath and Bell Heather (*Erica cinerea* and *E. tetralix*), the latter being so called from the shape of its flowers.

Mr. Frank Elgee (to whom I am indebted for much information), in his most interesting book *The Moorlands of N.E. Yorkshire*, speaks of *fat* and *thin* moors. In both, the geological and atmospheric conditions have produced a rooting medium of similar composition varying in degree. This composition is called peat, and it varies considerably in depth, from a few inches to several feet. It consists of vegetable matter, and is rich in organic acids. On a *fat* moor, with a deep layer

of peat, *Calluna* grows almost alone, maybe to the height of two or three feet; and under it, a big lichen, *Claydinia sylvatica*, is common. Other plants are an occasional root of the Bilberry *(Vaccinium Myrtillus)*, and in damp places an occasional tuft of Cotton-grass (*Eriophorum angustifolium* or *E. vaginatum*).

The Heather is a very variable plant, ranging in height from a few inches to three feet. It is usually glabrous, but it may be downy. The flowers vary in colour from deep crimson to bright pink, and of course white, which is the emblem of good luck—that is as may be, but I have always felt pleased when I have found some. I once found a root with double flowers.

On the edges of a *fat* moor, the Crowberry (*Empetrum nigrum*) is often found; and the biggest Bilberry plants occur where a moor abuts against a belt of Fir trees. On *fat* moors also we find peat-mosses, and these are wet boggy places with large masses of *Sphagnum*. A *fat* moor is always damp, as the peat holds moisture like a sponge.

As the peat gets thinner, the vegetation changes. The peat itself is usually more sandy, so that some parts of a *thin* moor may be quite dry. When this is the case, the two Heaths are more frequent, and where the peat is very sandy, the Purple Bell Heather *(Erica cinerea)* becomes dominant, as for example on Laughton Common. In wet places, the Pink Bell Heather (*Erica tetralix*) is the predominant plant. The Purple Bell Heather *(E. cinerea)* often covers large tracts of country. In colour (a deep crimson) it is very constant. It is occasionally found white, but in my experience it is the rarest form of ' white heather '. It never grows very tall, and is often not more than one or two inches. The Pink Bell Heather is the commonest in the white form.

On *thin* moors the Flying Bentgrass (*Molinia varia*) is frequent, and it prefers the wet places. *Scirpus caespitosus* is also common. On the edges of the moors, or where a cart-track goes across the Matgrass (*Nardus stricta*), *Juncus squarrosus* appears.

In the peat mosses, large areas are often covered with the Cotton-grasses. On the lower levels it is *Eriophorum angustifolium*, and at higher altitudes it is *E. vaginatum*. On the margin of these boggy places, the Sundew (*Drosera rotundifolia*) is often plentiful, and colours the spot red. So far as the North Yorkshire moors are concerned, I have found only this species of Sundew, but I have found *D. Anglicum* in peaty bogs in Wales and Hampshire. These little plants open their flowers only in sunshine. The two common species of *Juncus*, namely *conglomeratus* and *effusus*, though not necessarily moorland species, are common.

On the edges of the valleys in moorland country, where the peat is practically absent, and more particularly on the southern faces of the valleys, the Bracken covers long stretches of ground. On the slopes facing northward, the Bilberry (*Vaccinium Myrtillus*) and the Cowberry (*V. Vitis-idaea*) have their home, the former (which is also called Blaeberry in Scotland and the North, and Whortleberry in the South) being in some parts practically the only plant. It varies in size. When growing in the shelter of a belt of Fir trees, or on a sheltered bank, it will attain the height of two feet, with big fruit. On higher altitudes, as the situation becomes more exposed, it becomes shorter in growth, until on mountain tops it is a little scrubby plant about two inches high, and apparently never bearing fruit. *V. Vitis-idaea* is a less common plant, and never grows much more than about six or eight inches. It has thick evergreen leaves, and pretty creamy-coloured flowers of a waxy consistency. The fruit is bright scarlet. It has a bitter taste. It is said that in Sweden it is made into jelly, which is eaten with all kinds of roast meat. This species is sometimes erroneously called Cranberry.

Potentilla tormentilla is a frequent associate of the ericetal group, together with *Rumex acetosella*. The Dwarf Cornel (*Cornus suecica*) is a moorland plant in its only English station, the valley called the Hole of Horum, near Scarborough. On one occasion I found the Chickweed Wintergreen (*Trientalis Europaea*) growing amongst Heather. Another peat-soil plant

is *Rubus Chamaemorus*—it also grows amongst Heather, but I have not seen it under about 900 feet. The Hard Fern *(Blechnum spicant)* and the Common Clubmoss (*Lycopodium clavatum)* are found most frequently in moorland country. I have always associated the following plants with moorland, though they are not confined to it: *Solidago virga-aurea*, *Gentiana Pneumonanthe*, *Pinguicula vulgaris*, *Myrica Gale* and *Betula nana*.

One of the main characteristics of the moorland flora is power of growth and maintenance of wellbeing under unfavourable conditions. Though most of the species are found where there is abundance of moisture, the greater proportion of this is of no use to them, it being so highly charged with organic acids. Mr. Elgee tells us that the Heather, Heaths, Crowberry, &c. have their roots, and root-hairs enveloped by a fungus, the mycelium of which is able to break down the organic compounds in the peat, and pass the simpler products on the heath plants.

Another peculiarity that we notice is the fact that nearly all purely moor plants have small leaves; and in the Heaths, Heather and *Empetrum*, the edges of the leaf are rolled back till a tiny cylinder is formed. As the stomata through which transpiration takes place are mostly on the under-surface of the leaf, this fact of their being rolled back lessens the amount of transpiration, a very necessary factor, seeing that these plants grow in very exposed situations where wind and sun have full power to produce evaporation. The leaves of the moorland grasses are very narrow, and in many instances rolled.

Many moorland plants are of great antiquity, and are associated with glacial conditions. Among them are the following, several of which are to be found growing in Greenland:

Heather (*Calluna*).
Crowberry (*Empetrum nigrum*).
Cowberry (*Vaccinium Vitis-idaea*).
Cloudberry (*Rubus Chamaemorus*).
Dwarf Cornel (*Cornus suecica*).

Butterwort (*Pinguicula vulgaris*).
Sheep Sorrel (*Rumex acetosella*).
Matgrass (*Nardus stricta*).
Heath Rush (*Juncus squarrosus*).

Leaving the moorland flora, and proceeding to higher levels we often get extensive tracts of grass and masses of rock. This is the type of habitat where I have found Moonwort (*Botrychium lunaria*) and where *Saxifraga aizoides* occurs on the edge of rills, forming as it were an introduction to the mountain flora. In certain select places, at an altitude of about 1,000 feet, *Gentiana verna* and *Primula farinosa* may be found. The only time I found the tiny Bog Orchis (*Malaxis paludosa*) was at a considerable elevation. *Rubus saxatilis*, as its name implies, is most frequent in stony places, and at about 1,000 feet above sea-level. Above the level of 1,500—1,700 feet we begin to find a new set of plants. Whatever the new atmospheric or climatic conditions may be which are necessary to their wellbeing, the downward limit of existence of these plants appears to be sharply defined. On some mountains, *Alchemilla alpina* is very common, as soon as we reach its proper level, usually 1,700 feet; and the specimens of the ordinary down country plants that are present are all stunted. Above 1,700 feet appear *Oxyria reniformis*, *Sedum Rhodiola*, and *Saxifraga hypnoides*. In some places, the rarer Clubmosses (*Lycopodium Selago* and *L. alpina*) are very common, but as the altitude increases only *L. alpina* appears. In clefts of rock *Saxifraga stellaris* is common, and on rocky ledges we find *Dryas octopetala* and *Antennaria dioica*. *Cochlearia officinalis*, though usually a sea-coast plant, is frequently found on mountain-tops.

At an altitude of more than 2,500 feet I have found *Saxifraga oppositifolia*, and by the sides of springs *Juncus biglumis* and *Thalictrum alpinum*. The Bear-berry (*Arctostaphylos Uva-ursi*), is common at high altitudes, but it also occurs on moorland at lower levels.

The only Fern which I associate with mountain-tops is a stunted *Lastrea*, which grows in clefts of the rocks and in

sheltered places. The common grass of the high places is *Festuca ovina*, and it is frequently in the viviparous state. The Parsley Fern (*Allosorus crispus*) is a mountain fern, which grows only on certain rock-formations, but where the habitat is favourable it is very abundant. The Beech Fern (*Polypodium Phegopteris*) is often found at considerable altitudes, and I have seen it at 2,000 feet in a little glen, together with *Chrysosplenium oppositifolium* and *Geranium Robertianum*.

REPORT OF THE HON. SECRETARY, 1924.

The Field Meetings have been fairly well attended, and several records have been made of species new to the County in various branches of research.

The One-Hundred-and-Sixteenth Meeting was held at Scotton Common on June 19th. The study was chiefly botanical, and many plants native to the area, including Sundew and Cotton-grass were recorded. Several birds were noted, but insect life was not as plentiful as usual. Material was sent to Mr. E. J. Stream, M.A., for microscopical examination, with good results. The local arrangements were made by the President (Dr. H. B. Willoughby Smith), who conducted the members, and afterwards, with Mrs. Smith, entertained them to tea on their return to Gainsborough.

The One-Hundred-and-Seventeenth Meeting was held at Doddington Wood on July 17th. There was a good attendance, and many species were noted. The Wood Ant was plentiful, and several colonies were seen. Microscopical material was submitted to Mr. Stream for examination, several species not hitherto recorded for the County being determined.

The One-Hundred-and-Eighteenth Meeting was held at Kirton on August 21st. Those present considered this to be a very interesting meeting, and attention was paid by the botanists to the littoral flora. The conchological section found species not previously listed for South Lincolnshire; and

crustaceans were noted in the mud pools, one being a new record. Mr. H. W. Miles made the local arrangements, and tea was taken at the Agricultural Institute, after which Dr. Wallace took the members through the laboratories, and explained the work carried on at this very fine institution. On the return to Boston, Mr. S. J. Hurst conducted the visitors to ground beside the Docks, where there were many alien plants, among them being a fine species of *Inula*.

The One-Hundred-and-Nineteenth Meeting was held at Horncastle on September 25th. The forenoon was fine, but early in the afternoon rain began to fall, and it fell in torrents for several hours. However, those who were interested in wild flowers were well satisfied with the observations they made during the three fine hours. Local arrangements were made by Mr. Herbert Carlton and the Rev. F. S. Alston, and the former was the leader of the party. First, he took them to view part of the old Roman Wall, and the Church, and then a visit was paid to the garden of Mr. Stafford Walter, where many interesting trees, shrubs and plants were seen, as well as a number of birds. Thence they proceeded to boggy ground at Mareham-on-the-Hill, where they found Grass of Parnassus (*Parnassia palustris*) and Marsh Lousewort (*Pedicularis palustris*). They also found the Lesser Spearwort, Milkwort and Marsh Pennywort (*Hydrocotyle vulgaris*), the last-named being in leaf and fruit only. Devil's-bit Scabious was abundant, and *Scabiosa columbaria* was well represented. Some of the members saw Grass of Parnassus for the first time. Others had not seen it for a period of twenty-eight years. They recalled that this species and the Marsh Lousewort had been among the principal records of a meeting held in the neighbourhood of Great Cotes, conducted by the late Mr. John Cordeaux, in September 1896. On the way to Mareham, two not very common plants were observed, namely Swine's Cress (*Senebiera Coronopus*) and Wild Clary (*Salvia verbenaca*). In an arable field, the Night-flowering Catchfly was abundant. Some of the members visited Scrivelsby Park. After returning to Horncastle, they were entertained to tea by Mr. and Mrs.

Carlton, who did all in their power to mitigate the discomforts caused to their guests by the drenching rain. All present expressed their sincere gratitude to their host and hostess.

The Field Meetings were successful, and thanks are due to those who helped to organize them, as well as to those gentlemen who granted permission for their property to be visited.

The Annual Meeting was held at Lincoln on November 27th, when Dr. H. B. Willoughby Smith delivered his Presidential Address, entitled: "Moorland and Upland Flora". The Officers were re-elected, with the addition of Mr. C. S. Carter as Conchological Secretary. Thanks were accorded to Mr. J. F. Musham for a special donation of Two Guineas.

At this meeting Mr. H. Preston, F.G.S., exhibited examples of the mineral substances known as Zeolites, and, adverting to the chemical properties of South Lincolnshire waters, he said:—'In 1903 I read a paper on this subject before the British Association of Waterworks Engineers, and therein showed by diagram how the analysis of these waters changed in chemical properties as they travelled across the County. The following words appear in the Transactions of that Society, vol. VIII (1903), p. 114: "The amount of dissolved calcium carbonate decreases from west to east, notwithstanding the longer travel of the water through the Limestone Rock; whilst the amount of sodium carbonate held in solution increases from west to east". From the discussion on that paper, it was evident that the cause of these phenomena was at the time not very clearly understood. More has since been learned about Zeolites, which are silicates of alumina and metals which have the unique property of exchanging soda for lime and other salts in solution in water which passes over them. It is now generally agreed that waters which change their chemical constituents as they pass through the underground strata have come into contact with Zeolites, and have effected an exchange. In the case of the Lincolnshire waters, the lime carbonates in the waters on the western side of the

County have been exchanged for soda carbonates as they have passed along the strata to the east'.

Mr. Preston then shewed by experiment how certain artificial Zeolites of commerce are now being used for softening hard waters both for domestic and trade purposes—in fact how very hard water is being changed into perfectly soft water by passing it through a small bed of these artificial Zeolites, and stated:—'As soon as the softening material becomes inactive by reason of its having exchanged all its soda for lime, it can be regenerated by the simple process of passing through it a solution of common salt, during which operation the lime is again given off, in exchange for the soda in the salt, and runs to waste in any drain, whilst the softening material becomes fully active again. This change and re-change goes on times without number'.

Mr. Preston also gave an account of three Water-rails that had been found in the Witham Valley, near Grantham, in somewhat peculiar circumstances. He said that some ten years ago he met a youth in Grantham who had just picked up a Water-rail near some willows on the Witham Bank immediately above the Paper-mill. It was dead, having been choked by trying to swallow a minnow of too large a size. The fish was still fast in the throat, about one-half of it projecting from the beak. The second case occurred about a year ago, when one afternoon a bird of this species was seen on a filter-bed at Saltersford Pumping Station. It was observed to be still swimming there quite late in the evening, but on the following morning it was dead, and was floating on the water. The feet of this bird are not webbed, and hence it seems that it cannot rise to wing directly from the water. As all the walls of the filter were vertical, the bird was unable to find footing from which to take flight, and it had exhausted itself during the night in its vain attempts. It was brought to him on the following day, and he caused it to be preserved. A similar fate overtook another specimen a few weeks ago on another filter-bed. Generally speaking, the Water-rail is either rare, or very wary and shy. Mr. Preston said that he

had watched birds in the Witham Valley more or less for the past forty years, but had never, to his knowledge, seen a live Water-rail in the district—hence the interest of these three records.

Mr. Ashley K. Maples, of Spalding, states that in November and December two Otters were shot on Crowland Wash, and that two others were shot on Cowbit Wash in January 1925. He also reports that in November Mr. P. Tyrell, jun., caught a cream-coloured Common Plover in his plover-net.

During the year we have lost by death one of the few remaining original Members of the Union, Mr. J. S. Sneath, who for many years rendered good service as Hon. Treasurer. Reference to his death was made in a postscript to my report for the year 1923. We have lost other Members by resignation or removal from the County, the number on the roll, 31 December 1924, being 118 (including 7 Life Members).

Mr. E. J. Stream, of Grimsby, has sent a long list of species of microscopic pond life found in the County. It is hoped that the same will be published, together with records of further discoveries by himself and his colleagues. He hopes that members will send to him material for examination.

ARTHUR SMITH.

Since the close of the year, the death of our Member Dr. O. T. Olsen, of Grimsby, has occurred. He had attained a great age, but his interest in scientific research never flagged. He received honours and decorations from all parts of the world, and he actively supported and encouraged research-work in the North Sea, and particularly in the Grimsby area.

A. S.

SECTIONAL OFFICERS' REPORTS, 1924.

CONCHOLOGY.

J. F. Musham, F.E.S.

My report is again a brief one, consisting chiefly of the results of investigations made at the Field Meetings, and yielding some additional records for particular Divisional Lists.

The new records for Div. 17 N. made at Kirton foreshore were:—*Paludestrina stagnalis*, *P. ventrosa*, *P. Jenkinsi*, together with *Phytia myosotis*. These were also new records for Lincolnshire, South, the same area yielding *Hyalinia crystallina* as a new Divisional Record only, collected by our Secretary and Mr. H. W. Burchnall.

At the Mareham-on-the-Hill meeting, the following were collected by Mr. C. S. Carter and myself, and are therefore inserted in the list for Div. 10 N: *Helicella itala*, *Planorbis spirorbis*, *P. umbilicatus*, and *Pisidium subtruncatum*.

Mr. Carter also reports *Caecilioides acicula* at Grainthorpe, Div. 9, a new record for the Marsh.

Milax gagates, v. *plumbea* has become more abundant at Louth; and *Hygromia striolata*, a beautiful, translucent variety, was found by Mr. Beetlestone at Cadeby.

ENTOMOLOGY.

A. E. Musgrave.

I have not received many records, but, judging from my own experience, and the few notes I have been able to collect, I think that, entomologically speaking, 1924 has been slightly better than 1923, though still below the average. I have noticed, and Mr. L. H. Bond, of Grantham, also records, that *Rhopalocera* have been particularly scarce, probably owing to the unsettled weather during the summer. The only specimen

that I took worth recording was *Pyrameis cardui*, at the Pine Woods near Lincoln, in August. *Heterocera* have been rather more common, and some interesting species have been captured, but all of them are included in the published list.

Mr. L. H. Bond sends the following list of species found by him in the Denton district: the Dark Spectacle (*Abrostola triplasia*); the Burnished Brass (*Plusia chrysitis*); the Stout Dart (*Agrostis ravida*); and the Lilac Beauty (*Hygrochroa syringaria*). He also records the following larvae: Figure of Eight (*Diloba caeruleocephala*); Mullein (*Cucullia verbasci*); Lilac Beauty (*Hygrochroa syringaria*); and Cinnabar (*Hypochrita jacobaeae*).

One specimen of the Large Emerald (*Geometra papilionaria*) was taken at the Field Meeting at Doddington Woods, July 17th.

From June to December, I worked the Swanpool and Boultham district. Ragwort abounds in practically every open space in the district, and, as might be expected, the moths in greatest profusion were those in some way connected with that plant. There was a veritable plague of the larvae of the Cinnabar Moth (*H. jacobaeae*), and every plant appeared to be smothered. I collected several thousands in the hope that a yellow variety might be obtained. Three Pugs, all connected with Ragwort, were also taken, namely the Tawny Speckled Pug (*Eupithecia subfulvata*), the Wormwood Pug (*E. absinthiata*), and the Line Speck Pug (*E. oblongata*). The specimens were in perfect condition.

Among the specimens taken by *light* were: Flowered Rustic (*Luperina testacea*); Straw Underwing (*Cerigo matura*); Coxcomb Prominent (*Lophopteryx camelina*); Poplar Lutestring (*Palimpsestis or*); Chinese Character (*Cilix glaucata*); and Common Footman (*Lithosia lurideola*).

Dr. Wallace reports two new records for the County, namely a beetle, *Dytiscus circumcinctus* Ahr., a female specimen of which he took from the deep ponds in Irby Dale Wood, 1 December 1924.

His second record is a Dipteron, *Finlaya geniculata* Olivier, concerning which he writes: 'On June 3rd, 1924, I visited Grainsby Park, near Grimsby, in search of larvae of this species in water-filled holes at the base of trees. Beech and Chestnut trees each presented these facilities, but only from the former did I secure specimens of the larvae, and these were in the third and fourth instars. I visited adjacent Beech trees again on June 6th, armed with a brass syringe with wide nozzle, and found the larvae in each instar, and the pupae also. The first insect to emerge was a male, on June 12th. No other dipterous larvae were found with them, except those of *Eristalis.*

The following notes as to Lepidoptera seen in recent years have been communicated by Mr. G. Houlden, of South Somercotes Hall:

Cyaniris argiolus, Azure Blue, a badly damaged female in this garden, May 1919.

Colias edusa, on the wing in this garden, 27 August 1922.

Argynnis aglaia and *A. aurinia*, large numbers in two meadows near Red Leas in 1906, when they were quite as common as Meadow Browns usually are. None have been seen since.

Trochilium apiforme, on a poplar tree, June 1919.

Ino statices, Green Forester, July 1919.

Plusia festucae, Gold Spot, July 1918.

Hepialus hectus, Orange Swift, August 1919.

Gonopteryx rhamni, in this garden, 12th May 1919, and 15th September 1924.

BIRD NOTES, AUTUMN, 1924.

G. H. Caton Haigh, F.Z.S., M.B.O.U.

The weather conditions of last autumn closely resembled those of the previous year, but were even more unfavourable to the observation of migration on account of the continued prevalence of gales or strong winds from points between W. and S.

In September the unfavourable conditions were broken only on two occasions, and both only for short periods. The

first of these periods extended from the 3rd to the 6th, and was marked by a considerable influx of Redstarts and Pied Flycatchers. On the 5th, I obtained an immature Blue-throated Warbler, and on the 6th, I saw a single Ruff. On the 8th, Swallows were passing to N.W. along the sandhills and *fitties* in very large flocks. On the 15th again very large numbers of Swallows were passing in the same direction ; and in smaller quantities on the 17th.

On the 8th also some large flocks of Knots appeared on the sands, and a small flock of Curlew Sandpipers, while a larger flock of the latter birds appeared on the 24th.

On September 25th commenced the second period of favourable weather, which lasted until the 27th. Curiously enough, during this period the same two species (the Redstart and Pied Flycatcher) were the principal travellers, though on this occasion they were accompanied by a few Willow Wrens, Wheatears, Whinchats, Blackcaps, Meadow Pipits, and thousands of Starlings. Wild Geese came early, as on August 16th one of the professional wildfowlers reported a flock of fifty going S. over Tetney Cow Marsh; and another wild-fowler reported a flock of six going S.W. over North Cotes on September 6th. As usual, however, the great arrival of Geese took place from the middle of this month to the middle of October, and large flocks were seen on the 17th, 19th, 24th, 27th and 28th. The passage of the Peewit commenced on September 20th, and continued with little intermission till December 5th, with immense flights on October 23rd, November 5th, November 11th and December 5th. During the latter part of the winter, a great *camp* of Plovers formed in Tetney Cow Marsh—it must have numbered from 20,000 to 30,000 birds. Golden Plover were extraordinarily scarce throughout the winter. The first flight of Snipe took place on September 17th, but was unimportant, and Snipe were very scarce. The first Jack Snipe was shot on the 24th, and this species also was far less numerous than usual.

October came in with a few days of S.E. wind. A few Redstarts, Willow Wrens and Chiffchaffs then appeared, and

the first Woodcock was reported on the 6th. On the same day, a few Redwings and Blackbirds arrived on the coast. A few flocks of Rooks came in on the 11th, and others on the 20th and 30th, but the passage of these birds was not as heavy as usual. The first Grey Crow was reported on the 14th, and there were several small parties on the 23rd, but this species was extraordinarily scarce all through the winter.

From October 20th to the end of the month the weather conditions were more favourable, and a considerable number of our winter visitors were travelling, including Peewits, Rooks, Rock Pipits, Redwings, Blackbirds and Starlings. A few Goldcrests appeared on the 25th, and there was a small arrival of Fieldfares on the 29th and 30th. Two Mealy Redpolls were seen in a turnip field at Cadeby on the 24th ; and a Pied Flycatcher was at North Cotes on the 27th, a very late date for this species. The first Water Rail was seen on the coast on the 30th.

It was, however, from November 14th to 21st that the first great *rush* of the season took place. Fieldfares and Redwings came in by thousands, together with Blackbirds, Chaffinches, Peewits and Wood Pigeons. The immigration of the last-named began on the 19th, and lasted till December 6th, by which date they swarmed all over the district.

The autumn was a good one for birds of prey. Kestrels swarmed during September, and a good many Merlins and Peregrines accompanied the flights of migrants, especially that at the end of October and beginning of November. Three Peregrines were caught by the Plover decoymen, but unfortunately two of them were accidentally killed by the wire of the net. The third I sent to a friend who was interested in falconry. An adult male Hen Harrier was seen on November 12th, and I heard of one or two immature birds.

As will be seen by the foregoing notes, no rare visitors have appeared, and this season as a whole is more remarkable for the absence or scarcity of common species than for the advent of rare ones. For instance, no Swans were reported ;

during the winter only three White-fronted Geese were seen, and only a single Bean Goose at the end of February. Under half-a-dozen Brent Geese were seen, and none were shot. All Ducks, except Wigeon, were excessively scarce, Scaup and Tufted Ducks being practically absent, as were also all the Mergansers. The Waders, except Knots and Curlews, were equally scarce. Indeed, from the wildfowler's and naturalist's point of view, the season of 1924-5 may be written down as the worst of a lifetime.

BIRDS IN THE SKEGNESS DISTRICT, 1924.

Frank Hind.

In the early spring there were great numbers of Lapwings in the marshlands. Blackbirds and Blue Tits were numerous, some of the latter having pronounced yellow marking of the breast feathers, one specimen being completely yellow. Goldfinches were abundant. Two Kingfishers frequented a pool-side thicket in the vicinity, and Curlews were present in large numbers.

The first Sand Martin was seen on April 18th (Good Friday), and on the same day the Cuckoo was heard. About this time, I was shown a fine Bittern (*Botaurus stellaris*) that had been shot in the previous winter in our north marshland; also a specimen of the Nightjar (*Caprimulgus europaeus*). These two *rarae aves* were obtained by the same person. A Little Auk, captured on this part of the coast a few years ago, is in the possession of a friend living a few miles away.

The Swift appeared on April 30th, and on May 18th great numbers of Linnets, Larks and Greenfinches were seen at Gibraltar Point; also Dunlins, Redshanks and Ringed Plovers. Dotterels were abundant at Ingoldmells. On June 1st, hundreds of Swifts passed and re-passed, despite a strong S.W. wind and unceasing rain. They were still very abundant on July 1st, and if other districts were similarly visited, the tribe of *muscae* must have had a bad time. By the middle of August their number was considerably diminished. On the

23rd, I saw a score busily hawking, and training their young. On the 28th, a dozen or so were on the wing, despite heavy thunderstorms and strong winds. On September 7th, I saw only one; but on the 15th, I saw about eight.

On July 11th, I had an all-night bird-watch at Gibraltar Point. The first bird (apart from the nocturnals) to be on the move was the Blackbird, just before 3 a.m., quickly followed by the Thrush. A Brent Goose and several Shelducks flew over at dawn, and two Ravens were scouting around warily before 4 a.m. Many Curlews and two Whimbrel were seen.

On November 3rd, a skein of Geese (fifty-three in number) passed over from N. to S., and on the 11th, I counted more than one hundred flying S. On the 22nd, thirty-two passed over in one flight. On December 24th, there was a flock of Goldfinches (about thirty in number) on the sea-hills at Ingoldmells, where there was also a flock of Snow Buntings.

To these notes, I may add that in January of the present year (1925) the Grey or Royston Crow was plentiful, and it may be worth while to put on record the name by which it is known to some of our land-workers, that name being *Flannel Jacket*. In the same month I watched the flight of a rare visitant, the Sea Eagle (or British Erne), a bird that I have not seen in the district for many years.

OTHER NOTES ON BIRDS.

Mr. F. Kime, of Boston, writes: 'A Gadwall (*Anas strepera*) was shot in the Welland Channel in November, 1924. It was sent to *The Field* for identification, and thence to the Natural History Museum, South Kensington. On account of its rarity, the Museum Authorities asked to be allowed to retain it. So far as I can remember, I never saw one before'.

Mr. C. Street reports that there was a Waxwing at Metheringham Fen, 26 July 1924.

BOTANY.

Miss S. C. Stow.

The plants observed at the Field Meetings consisted chiefly of species already recorded for the Divisions in which the investigations took place.

Some 430 species from the Grantham district were shown on the flower table at the Grantham Museum. Among them, the following may be noted: The Wood Grass (*Triticum caninum*), a new record for Division 15; the Broad-leaved Blysmus (*Blysmus compressus*); *Galium ochroleucum* (a hybrid between *G. verum* and *G. Mollugo*), with pale lemon flowers, not previously recorded for the County.

Sambucus nigra v. *laciniata* is rather frequent in the Skegness district.

Miss J. Cooke, of Pinchbeck, has found the following: *Hesperis matronalis*, near Kirton Skeldyke; *Polygonum dumetorum*, in a potato field at Pinchbeck; and *P. maritimum* at Surfleet.

Miss M. Marshall, of Welton-le-Wold, reports *Lathyrus Aphaca* and *Lonicera Xylosteum* near Colsterworth, Grantham.

MARINE ZOOLOGY.

Arthur Smith & Frank Hind.

Ægа psora Linn., a fine Isopod Crustacean, was taken off the Lincolnshire coast with fish, June, 1924. It is a rare species, nearly two inches in length, and it clings to the skin of the Cod. At the Kirton meeting in August, *Exosphaeroma ruficauda* Leach, was observed in some numbers swimming in the mud-pools.

THE REV. FRANK S. ALSTON, M.A.,

PRESIDENT, 1921.

The Twentieth President

OF THE

Lincolnshire Naturalists' Union.

THE REV. F. S. ALSTON, M.A.

ONE is sometimes tempted to think that the keenest naturalists may be found amongst those who have been early used to town life rather than amongst the country born and bred. To the former everything in nature possesses the appeal of the new and unaccustomed. Attracted by this at first in a general way, they admire and contemplate, and grow aware, while so doing, of details, of what is prevalent and what is exceptional, and so on, and in some cases at all events, they find that interest in recognizing and accounting for variety, differentiation and rarity, which makes the naturalist, sooner than those to whom the face of nature is too familiar to arrest attention as something new and strange, which is worth stopping to look at and think about.

On the other hand, some of our best naturalists have hailed from the countryside; in their case, however, it has probably been some personal bent of instinct or genius, or something special in environment, that has given the lead to their interest in natural history.

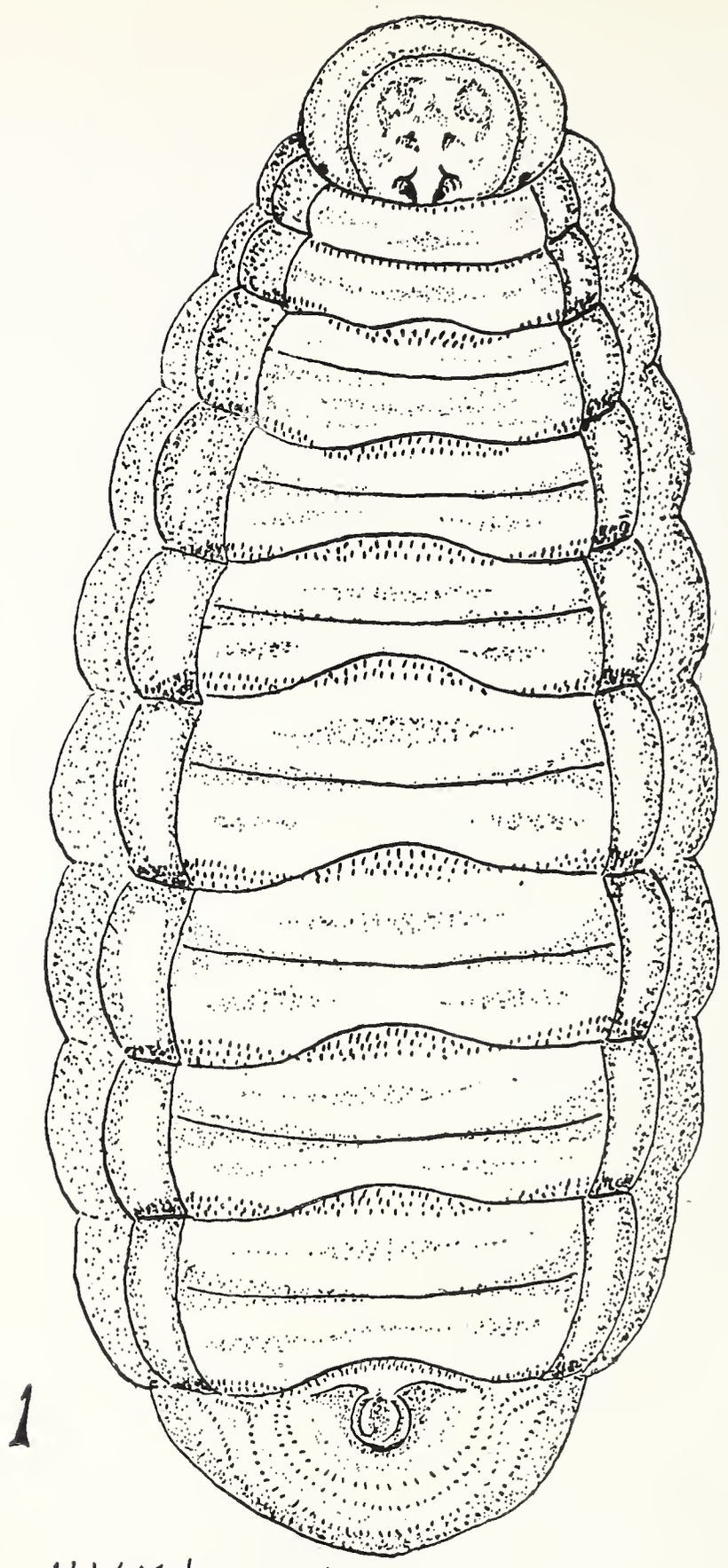
The Rev. Frank Simpson Alston, M.A., President of the Union in 1921, is one of the second category, his whole life having been spent in rural surroundings. He was born in 1863, being the eighth son and thirteenth child of the late Rev. Edward Constable Alston, Rector of Dennington, Suffolk, who died in 1871. He was for six years at Marlborough College, where we learn he found much interest in chemistry and allied subjects as taught by Mr. Rodwell, the then Science Master, and took a very active part in the School Natural History Society, which did a good deal of field work, and

made extensive records by means of a system of *Notices* in relation to the times of appearance of plants, birds and insects, and their variations from year to year. This Society was under the direction of one of the Masters, the Rev. T. A. Preston, an enthusiastic botanist. This did probably as much as anything to make our friend the naturalist we know him to be.

Proceeding to Exeter College, Oxford, and graduating there in 1885, Mr. Alston subsequently travelled round the world, calling at Port Said, Aden, Colombo, Batavia, and Thursday Island, and then spending eight months in Northern Queensland. This last being within the Tropics, he found the fauna and flora most interesting, and made a collection of beautiful Lepidoptera, which on his return were named for him at the South Kensington Museum. On his homeward journey, he visited Brisbane, Sydney, Auckland, Honolulu and San Francisco, crossing the United States to New York, and thence to Liverpool.

In 1887, he was ordained to the Curacy of Coningsby, and has since spent his life in pastoral work in mid-Lincolnshire, holding successively the benefices of Wispington, West Ashby and Scrivelsby. Not only has his long residence made him thoroughly familiar with our County, but his marriage, in 1892, to the only daughter of the late Canon Wright brought him into touch with the traditions of local history accumulated from generation to generation in more than one Lincolnshire family.

Soon after the inception of the Lincolnshire Naturalists' Union, he became a member, and he has been one of its most active and regular workers. But even before the foundation of the Union in 1893, the present writer remembers being on more than one occasion enlisted by him for a field excursion *à deux*, once to look for *Paris quadrifolia* in the Lawn Wood at Coningsby, and on another occasion to try to identify the swamp at Dogdyke, which the late Canon Streatfeild called 'as nearly a relic of the Fens as may be found in Lincolnshire'. Mr. Alston's work in the Union has been



1. Fully grown Tachinid Larva from *Orgyia antiqua*. Ventral View x 13.

largely done, he considers, under the inspiration of the late Rev. E. A. Woodruffe-Peacock. He has assisted by many records both botanical and entomological. For instance, the *Transactions* for 1918 record his re-discovery for the County of *Dianthus deltoides;* and in 1919 he contributed an interesting list of Alien Plants found at Woodhall Spa, of which many were new to the County, five of them being new to Britain. He chose *The Ash* for the subject of his presidential address, which was very interesting both for its scientific and for its historico-literary information.

Several notes in the *Transactions* are evidence that members of Mr. Alston's family, and especially Mr. Hugh Alston, of Lincoln College, Oxford, share their father's interests, and assist his work for the natural history of the County, but we may end by expressing our hope that he himself may long be spared to continue his active pursuit and encouragement of the studies which the Union exists to promote.

F. M. Y.

NOTES ON TACHINID FLIES.

By Herbert W. Miles, M.Sc.,
Biologist, Kirton Agricultural Institute.

The *Tachinidae* are a large family belonging to the Order *Diptera*, and are of special interest on account of their larvae being parasitic, and destroying the larvae of beetles, flies, moths, and sawflies.

Tachinid ffies are greyish or black and grey, and are covered with stout bristles. They vary in size, some species being smaller and others larger than the common housefly, which superficially, they somewhat resemble. Economically, the *Tachinidae* are important in that they help to check some of our important pests. They attack a considerable range of insects.

According to the investigations of Rennie & Sutherland (1) in Scotland, the Tachinid *Bucentes geniculata* parasitises the larvae of the Craneflies, *Tipula paludosa* and *T. oleracea*, as many as nine parasitic larvae being found in one 'leather-jacket'. In America *Blepharipa scutellata* and *Compsilura concinnata* are important parasites of the Gipsy Moth. During 1923 two species of Tachinids were reared at Kirton, *Meigenia floralis*, Fln. from the larvae of *Phaedon cochleariæ*, the Mustard Beetle, and *Compsilura concinnata*, Mg. from *Cucullia verbasci*, the Mullein Moth. The larva of *Meigenia floralis*, Fln., a species which has been known to attack the larvae of certain sawflies, formed a puparium inside the larval skin of the beetle grub, which shrunk and dried closely about it. The pupal period lasted about twelve days.

Compsilura concinnata occurred in 1923 and 1924, some numbers being reared during both seasons. The species, which is larviparous, is a well known parasite of Lepidoptera, and has been reared from sawfly larvae also. The adults are slightly smaller than the housefly, they are about three-tenths of an inch long and about half-an-inch across the wings. The thorax is black and gray, striped lengthwise, and the abdomen has several black and grey bands. The female fly is provided with a conspicuous curved sickle-like larvipositor, by means of which she deposits the small newly hatched larvae beneath the skin of the host caterpillar. The abdomen has serrations beneath, and these apparently help in gripping the host during the attack.

The parasites develop quickly and in about a fortnight or so, the host is destroyed and the maggots leave it. The larva on leaving the host is about three-tenths of an inch long, and yellowish white in colour.

Figure 1 is the ventral view of a Tachinid larva showing the development it attained before leaving the host, a Vapourer Moth Caterpillar. It is composed of a small head region, and eleven body segments. The mouth is small and situated on the ventral surface of the head region, and from it project two mandibular sclerites. The arrangement of the bucco-

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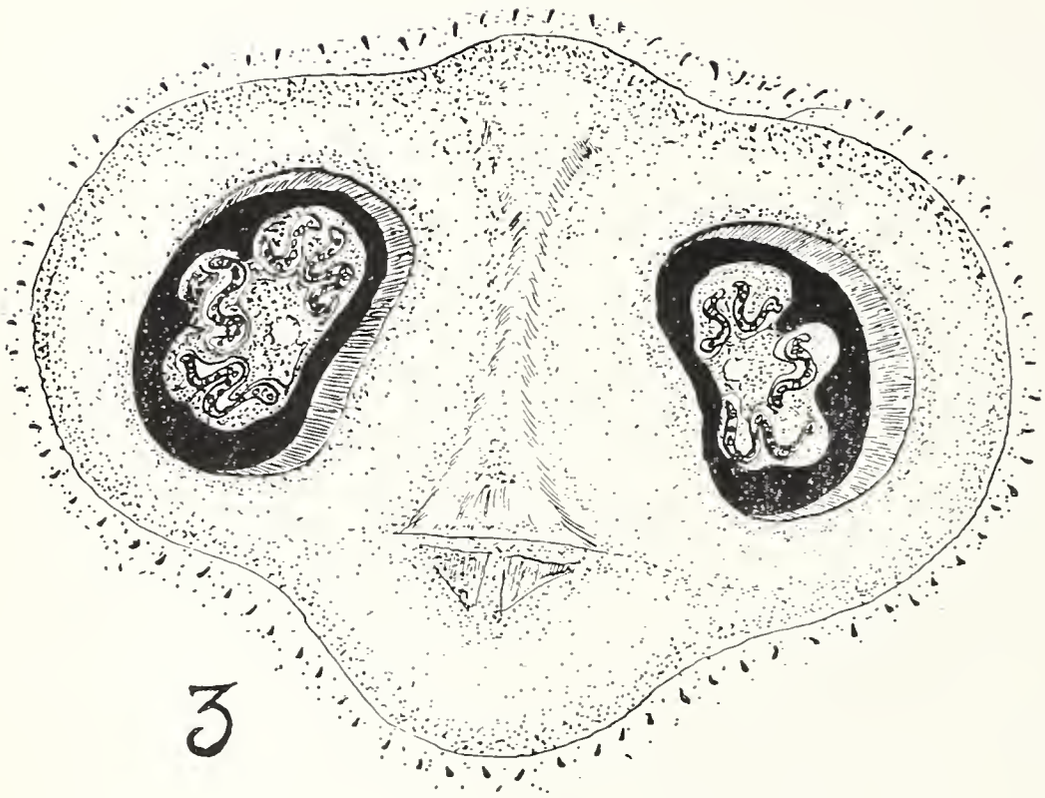

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Tachinid Larva from *Orgyia antiqua*.

2. Buccopharyngeal Armature of Larva. Lateral view. x 100.

3. Posterior Spiracles of Larva. x 80.

pharyngeal apparatus is shown in figure 2. Dorsal to the mouth are two antennal structures, and on the first body segment two anterior spiracles are located. The remaining body segments are contracted into numerous folds and bear small triangular chitinous spines arranged as shown in the figure. The terminal segment bears the conspicuous anal aperture and the posterior spiracles (figure 3).

When mature, the larvae contract and form reddish brown puparia from which in ten to fourteen days the adult flies emerge.

The procedure on emergence is as follows:—

The anterior end of the puparium is spasmodically lifted for some little time until a rupture occurs, which runs almost completely round the outer case. When nearly detached this cap-like portion is pushed away, and the bladder-like head vesicle, the ptilinum, which is inflated with liquid from the body, is seen to be violently contracting and expanding, thus exerting and releasing pressure against the ruptured surface of the case. The process is accompanied by shrinking of the body, and this, together with slight movements of the limbs and the backward pointing bristles, eases the emergence of the insect. When the head and prothorax are completely outside the case, the ptilinum is deflated and withdrawn into the head, leaving a scar called the frontal suture.

The emergence of the insect now depends on the movements of the limbs and abdomen, and within a few seconds the fly escapes. It is whitish yellow in colour, with the extremities grey, and becoming black; the limbs are also black. The period immediately following emergence is one of great activity, apparently to assist in the process of drying and hardening the chitinous exoskeleton. The wings are quite small and blue-grey in colour, and are folded and sac-like. After about seven minutes of violent activity, the insect settles down and appears to await developments. After two or three minutes' rest, the wings expand and open out with a continuous movement, until they attain normal size. Then, after a con-

siderable period of inactivity, the insect runs a little distance and pauses, continuing these tactics for ten to fifteen minutes, during which time it gradually darkens, until in twenty to twenty-five minutes after emergence, it appears quite normal and fully developed. During the first twelve hours the flies are somewhat sluggish, but after that time become very vigorous and energetic.

Compsilura concinna has several broods per annum, and according to Lefroy (2), has as many as fifty-eight European hosts. In America (3), this Tachinid is of considerable importance; in 1912-15 over 16,000 individuals were liberated at eight centres in New Brunswick, and New England, and in 1917, 15,725 puparia were reared from 78,484 caterpillars, collected from forty-five different localities.

Two other Tachinids were reared and identified at Kirton in 1924, viz.:—

Ptychomyia selecta, Mg. from the lava of *Pteronus ribesii* and *Zenillea roseana*, from a Tortrix larva taken on Apple foliage. I am informed by Mr. C. J. Wainwright, F.E.S., that *Ptychomyia selecta* has been recorded from a number of species of Phytophagous Hymenoptera and a few Lepidoptera, but that *Zenillea roseana* B.B. is less well known, though there are several British records of its occurrence on *Tortricidae* and *Geometeridae*.

The year 1924 seemed particularly favourable to the *Tachinidae*, for in addition to the above, puparia were obtained from the larvae of *Amphidasys betularia*, the Peppered Moth; *Mamestra persicariae*, the Dot Moth; *Hadena pisi*, the Broom Moth; *Orgyia antiqua*, the Vapourer Moth; and *Abraxas grossulariata*, the Magpie Moth.

To Mr. C. J. Wainwright, F.E.S., of Birmingham, and to Major E. E. Austin of the British Museum, I acknowledge my indebtedness for identification and notes of occurrences of the species taken at Kirton.

DESCRIPTION OF PLATES.

Figure 1. Fully grown Tachinid larva from *Orgyia antiqua*. Ventral view. X 13.

Figure 2. Buccopharyngeal armature of larva. Lateral view. X 100.

Figure 3. Posterior spiracles of larva. X 80.

REFERENCES:

(1) Rennie and Sutherland (1920) *Parasitology*, *xii.*, *3*, *p. 199.*
(2) Tothill (1916) *Agric. Gazette*, Canada, *iii.*, *pp. 111-116.*
(3) Lefroy (1923) *Manual of Entomology*, *p. 460.*

MOSSES ON THE LINCOLNSHIRE COAST.

G. H. Allison, Grimsby.

The following species of Mosses (which have been submitted to competent authorities for identification) have been found by members of the Grimsby Naturalists' Society on or near the sandhills on the coast of Lincolnshire extending from Grimsby for some twenty miles southwards:—

Bryum atro-purpureum W. & M. Near the Dock area; and South of Saltfleet.
B. pendulum Schp. Near Cleethorpes; and South of Saltfleet.
B. Warneum Bland. The same.
B. marratii Wils. The same.
B. mamillatum Lindb. The same.
B. inclinatum Bland. The same.
B. intermedium Brid. The same.
B. cæspiticium L. The same.
B. capillare L. The same.
B. pseudo-triquetrum var. *compactum* B. & S. South of Saltfleet.
B. lacustre Brid. The same.
B. murale Wils. In the mortar joints of brick walls inland from Skegness.

Leptobryum pyriforme Wils. South of Saltfleet.

Ulota phyllantha Brid. On willow-trees at Theddlethorpe.

Tortula papillosa Wils. The same.

T. muraliformis Dixon. Humberstone.

T. Vahliana Wils. Humberstone, the most northerly station for which this rare moss has been recorded.

T. aloides De Not. Along the coast.

Orthotrichum pulchellum Smith. On willow-trees (since cut down) at Theddlethorpe.

O. anomalum var. *saxatile* Milde. Near Tetney Lock.

O. cupulatum Hoffm. On the masonry of N. Thoresby Bridge.

Brachythecium albicans B. & S. Humberstone.

Hypnum cupressiforme var. *elatum* B. & S. Humberstone.

H. aduncum var. *aquaticum* Sanio. Along the coast.

Pottia Heimii Fürnr. Along the coast.

P. minutula Fürnr. Along the coast.

P. lanceolata C. M. Along the coast.

Barbula tophacea Mitt. Along the coast.

Climacium dendroides W. & M. Along the coast.

Phascum curvicolle Ehrh. Near Tetney Lock.

Trichostomum flavovirens Bruch. Near Tetney Lock.

Grimmia pulvinata Smith.

Webera albicans Schp.

Aneura pinguis L. Dum.

Pellia epiphylla L. Corda.

Polytrichum juniperinum Willd. Cleethorpes.

BOOK NOTICE.

Butterfly Lore, by H. Eltringham, M.A., D.SC. (Oxford: Clarendon Press).

A most interesting little volume, tracing the life-history of the butterfly; inquiring into the secrets of its structure and senses, its love-making, and its weapons of defence against the dangers which constantly beset it; with an account of the subtle arts by which (for the present at least) it maintains itself in a hostile world. It has a coloured frontispiece, and there are many illustrations in the text.