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A LIST OF THE BRYOPHYTES OF NORTHUMBERLAND

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A

(Watsonian Vice-Counties: 67, Northumberland South and 68, Cheviotland or Northumberland North)

> By J. B. DUNCAN, Past President and a Referee of the British Bryological Society.

INTRODUCTION.

The literature dealing with the Northumberland bryophytes is decidedly meagre.

The only list of the mosses of the county is that compiled by H. N. Dixon, M.A., "The Mosses of Northumberland" (*Proceedings of the Berwickshire Naturalists' Club*, 1905, Vol. XIX, Part III, pp. 305-326).

In this list are enumerated 291 species and varieties for the entire county, including records culled from the earlier writers N. J. Winch, "Flora of Northumberland and Durham" (*Trans.* of Northumberland, Durham and Newcastle Natural History Society, Vol. II, 1838); Dr. Johnston's "Natural History of the Eastern Borders" 1853, and Dr. James Hardy's "Moss Flora of the Eastern Borders" (*Trans. of Berwickshire Naturalists' Club*, 1868).

Except for a short list given in Winch's Flora, the Hepatics have been entirely neglected.

Volumes 25, 26 and 27 of the Transactions of the Berwickshire Naturalists' Club (1924-1930) contain under the title "Mosses and Hepatics of Berwickshire and North Northumberland," by J. B. Duncan, five lists of species and varieties which were at that time new vice-county records for V.C. 68.

These additions for the Northern section of the county (V.C. 68) and many additions for V.C. 67 are the result of my own work, while in V.C. 67 Miss E. M. Lobley has in recent years worked most assiduously and successfully to increase our list

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still further for the southern section of the county, and a few notes of these records have appeared in *The Vasculum*.

Miss Lobley has devoted special study to the Sphagnaceae and has been entirely responsible for the list of the species of this difficult order now published in the more recent and extended nomenclature of "The Handbook of British Sphagna," W. R. Sherrin, A.L.S., 1927. Like the Hepatics the Sphagna had been quite neglected. The present list must therefore be taken as a very incomplete one and much must be done before it can be considered a fair representation of this group in our large county.

For a period of 15 years I have been actively interested in this work and as practically all the records have been vouched for by specimens which have passed through my hands, the authenticity of all the recent records can be relied on.

In clearing up some doubtful items in the old lists I have had the advantage of being able to look over critically the Herbaria of Winch, Johnston, Hardy, Embleton and others.

Though it cannot be claimed that the large area of the county of Northumberland has been anything like exhaustively worked our list is a great advance and will form a good basis for future work.

There are species which should occur, but for which we have as yet no record. Future workers may hope to add to our list and also to the localities for the rarer species.

For Hepatics the list is probably much less complete, but for these no list has hitherto appeared, and particulars of only a very few Northumberland records were known, Winch's list being meagre and unreliable.

In recent years some very notable additions have been made to the county flora, among mosses, *Dicranum Bergeri* at Ford Moss, *D. montanum* and *D. strictum* on birch trunks at Woodend near Bowsden. *Dicranum strictum* has also been found on tree trunks and on sandstone rocks at Cragside, Rothbury. The Cheviots, as might be expected, have yielded rare species, *Splachnum vasculosum*, *Mnium cinclidioides*, *Bryum Duvalii*, etc.

Also from Cheviot comes the rare hepatic Chandonanthus setiformis var. alpinus, the first record for England, while the banks of the river Allen at Staward have supplied Lophozia obtusa, found south of the Tweed in only two or three other vice-counties, chiefly in Wales.

The eastern situation of our county with its comparatively low rainfall does not favour a very large bryophyte flora, especially hepatics, yet the extent of the area and the variety of its surface and long coastline are favourable factors, while the Cheviot mass provides something of a real alpine and subalpine area which yields many species not found elsewhere in the county.

HEPATICS :	Species	111,	varieties	J4,	total	125	
Sphagna :	Species	30,	varieties	40,	total	70	
Mosses :	Species	342,	varieties	86,	total	428	

Total 623

The nomenclature used is that of "The Handbook of British Sphagna," W. R. Sherrin, A.L.S. (1927), the "Students' Handbook of British Mosses," H. N. Dixon, M.A. (3rd Edition 1924) and the "Students' Handbook of British Hepatics" (2nd Edition 1926), S. M. Macvicar.

Mr. W. R. Sherrin, A.L.S., British Museum, and Mr. A. Thompson, B.Sc., Skipton, Referees for the British Bryological Society, have very kindly helped with the verification of the Sphagna and the late Mr. H. H. Knight, M.A., Cheltenham, with the more critical genera of the Hepatics.

To others in lesser degree are due recognition for notes of localities in various districts. For the Rothbury district the late Mr. E. H. Stevens has supplied much useful information, and Miss K. B. Blackburn, D.Sc., Miss Armitage, Mr. H. Tully, the late Mr. Wm. Philipson, and others have contributed occasional notes.

A young friend of mine, Mr. R. Hall, Berwick-on-Tweed, who has recently taken up bryology most enthusiastically and successfully, has already made a few good additions to our flora and noted new stations for some very rare species; his field work has been remarkable.

This word of recognition is very well earned.

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Finally my thanks are due to Miss Lobley for her help in preparing these lists for the publishers.

Abbreviations used in indicating sources of records :

Winch's Flora	
	(Winch)
Dr. Jas. Hardy's Flora	(Hardy)
H. N. Dixon's List	(H.N.D.)
E. H. Stevens (the late), Rothbury	(E.H.S.)
J. B. Duncan	(I.B.D)
Miss E. M. Lobley	(F M I)
W. R. Sherrin, A.L.S.	$(\mathbf{W},\mathbf{D},\mathbf{C})$
Miss K B Blackburn D.C	(W.R.S.) •
Diackburn, D.Sc.	(K.B.B.)

Sundry notes and contributions from others—names given in full.

1949.

J. B. DUNCAN, Berwick-on-Tweed.

Note.

In the Hancock Museum, Newcastle upon Tyne, there is a fairly comprehensive collection of bryophytes consisting of the "J. B. Duncan Collection." The older "Winch Collection" has been incorporated with this and others have supplemented it. This collection may be consulted by students at any time on application being made to the Curator.

E.M.L.

[In the spelling of "Dean" or "Dene" in the following pages an endeavour has been made to conform to local usage.—ED.]

BRYOPHYTES OF NORTHUMBERLAND

HEPATICS.

Riccia glauca L.

68, Fields near Berwick; Kyloe; banks of the Till at Weetwood Hall (J.B.D.).

R. sorocarpa Bisch.

68, Fields near Berwick; Norham; Weldon Bridge; Wark (J.B.D.).

R. crystallina L.

67, Banks of fish ponds at Wallington (Winch); dried edge of Hallington Reservoir (E.M.L.).

R. Huebeneriana Lindenb.

67, Dried floor of Colt Crag Reservoir (K.B.B.).

Reboulia hemisphaerica (L.) Raddi.

- 67, Gunnerton Crags; Staward; Tyne at Warden; Great Swinburn, North Tyne; West Allen (E.M.L.).
- 68, Easington Crag, Belford (J.B.D.).

Conocephalum conicum (L.) Dum. Frequent on damp rocks, 67. 68.

Lunularia cruciata (L.) Dum.

- 67, Whitton Tower, Rothbury (E.H.S.). Hexham; Corbridge; Stocksfield; The Riding, Allendale (E.M.L.). Longwitton Dean (E. Armitage). Warkworth (J.B.D.).
- 68, Rothbury (E.H.S.). Berwick ; Horncliffe Dean ; Norham Dean ; Marshall Meadows ; Till at Heton Mill ; Tweed at Tillmouth (J.B.D.).

Preissia quadrata (Scop.) Nees.

- 67, Garley Hill, Rothbury (E.H.S.). Rocks by Tyne, Styford (Bartlett).
- 68, Thrum rocks, Rothbury (E.H.S.). Holy Island; Ross Links; near Whitehall, College Water; Newham Bog (J.B.D.).

Marchantia polymorpha L.

- 67, Newbrough, near Haydon Bridge; Colt Crag Reservoir; Simonburn, N. Tyne; Hexham; Langley (E.M.L.). Longwitton Dean (E. Armitage).
- 68, Rothbury (E.H.S.). Berwick; Waren Mill; Cheviots; Kyloe hill; Tweed at Tillmouth (J.B.D.).

Aneura pinguis (L.) Dum. Bogs and watery places, frequent. 67. 68.

A. multifida (L.). Dum.

- 67, Prestwick Carr; Dilston Park; Benwell Dene (Winch). West Dipton; Ridley Hall Woods; Whitfield; Langley (E.M.L.).
- 68, Hetton Hall; Henhole, Cheviot (J.B.D.).

A. sinuata (Dicks.) Dum.

var. major Lindb.

- 67, Rothbury (E.H.S.). Longwitton Dean (E. Armitage). 68, Marshall Meadows; Norham Dean; Ross Links; Kyloe; Bamburgh; Tweed at Tillmouth (J.B.D.).

A. palmata (Hedw.) Dum.

68, On decaying logs in wet ground, Waren Burn (J.B.D.).

Metzgeria furcata (L.) Dum. Frequent.

- 67, Whitton Dean; Thrum Mill, Rothbury (E.H.S.). West Dipton; Whitfield; West Allen; Staward; Gunnerton Crags (E.M.L.).
- 68, Norham Dean; Twizell; Horncliffe Dean; Belford; Cheviots; Linbrig, Coquetdale; Usway Burn (J.B.D.). var. fruticulosa (Dicks.) Lindb.
- 68, Horncliffe Dean; Till at Twizell; Etal (J.B.D.). M. conjugata Lindb.

68, Heathpool Linn (J.B.D.).

- M. pubescens (Schrank) Raddi.
- 67, Waterfall, West Allen; Staward; Kirkside Wood, South Tyne (E.M.L.).
- 68, Dean at Warenford; Usway Burn, Coquetdale; Roddam

Moerckia Flotowiana (Nees) Schiffn.

68, Holy Island; Ross Links (J.B.D.).

Pellia epiphylla (L.) Corda. Common. 67, 68.

- P. Fabbroniana Raddi (J. calycina Tayl.) Common. 67, 68,
- 67, West Dipton, Hexham; Beldon Burn, Blanchland; River Allen, Ridley Hall (E.M.L.). 68, Horncliffe Dean; Dean at Warenford (J.B.D.).

Blasia pusilla L.

- 67, Westburnhope, Hexhamshire Common; Staward; West Dipton, Hexham; Catcleugh Reservoir; Ayle Common, South Tyne; Langley (E.M.L.). By R. Coquet, Rothbury (J.B.D.).
- 68, Marshall Meadows; Horncliffe Dean; Ross Links; R. Till at Weetwood Hall; Kyloe; Usway Burn (J.B.D.). Linshiel Bridge, Coquet (Bartlett).

Petalophyllum Ralfsii (Wils.) Gottsche Very rare. 68, Ross Links (J.B.D.).

Fossombronia pusilla (L.) Dum.

68. Welldon Bridge; Ross Links (J.B.D.).

F. Wondraczeki (Corda) Dum.

67, Little Whickhope Burn, North Tyne (K.B.B.). Colt Crag Reservoir (Miss C. M. Rob).

Gymnomitrium concinnatum (Lightf.) Corda

68, Cheviot (Hardy). Hardy's plant is G. obtusum; as yet there is no authentic record (J.B.D.).]

G. obtusum (Lindb.) Pears.

- 67, Sewingshields Crags; Crag Lough (E.M.L.).
- 68, Bizzle and Henhole, Cheviot (J.B.D.).

Marsupella ustulata Spruce

- 68, Head of the Bizzle Burn, Cheviot, on soft rock (J.B.D.). M. emarginata (Ehrh.) Dum.
- 67, Wardrew (Winch.). Sewingshields Crags; West Dipton; Allenheads; High Wood, Hexham; Ridley Hall woods; Blanchland (E.M.L.). Darden Lough (H. Tully). Knaresdale (J.B.D.).
- 68, Hedgehope, Cheviot (Winch). Lucker Moor; Shielhope, Chatton; Linbrig; Usway Burn (J.B.D.).

M. Pearsoni Schiffn.

68, Henhole, Cheviot (J.B.D.).

M. aquatica (Lindenb.) Schiffn.

68, Cheviot (J.B.D.).

- Alicularia compressa (Hook.) Nees
 - 67, Westburnhope Moor, Hexhamshire Common; Allendale Common; Potter Burn, Blanchland Moor (E.M.L.). Barrow Burn; Simonside (J.B.D.).

A. scalaris (Schrad.). Corda Very common. 67, 68.

Eucalyx obovatus (Nees) Breidl.

68, Hethpool Linn; Bizzle, Cheviot (J.B.D.).

- E. paroicus (Schiffn.) Macv.
- 68, Lyham Burn ; Waren Burn ; Shielhope, Chatton ; Linhope Spout (J.B.D.).

E. hyalinus (Lyell) Breidl.

- 67, Staward (E.M.L.). Coquet below Rothbury (J.B.D.).
- 68, Cragside, Rothbury (E.H.S.). Usway Burn (J.B.D.).

Aplozia crenulata (Sm.) Dum.

- 67, Ordley, Hexhamshire; Crag Lough; West Dipton; Beldon Burn ; West Allen ; Whitfield Moor (E.M.L.). Old Park, Netherwitton (E. Armitage).
- 68, Lyham Burn; Kyloe Woods; Waren Burn; Rothbury; Cheviot (J.B.D.).
- var. gracillima (Sm.) Heeg
- 67, Quarry, Fellside, Hexham; Dipton Foot, Riding Mill; Haltwhistle; Ayle Common, South Tyne (E.M.L.).
- 68, Kyloe Plantation; Ilderton (J.B.D.).
- A. sphaerocarpa (Hook.) Dum.
- 67, West Dipton, Hexham; River Allen at Plankey (E.M.L.). Barrow Burn, Coquetdale (J.B.D.).
- 68, Warenford Burn (J.B.D.).
- A. cordifolia (Hook.) Dum.
- 67, By stream, Allendale Common ; Burntridge Moor, Hexhamshire Common ; Gilderdale Burn, South Tyne ; Whitfield Moor (E.M.L.).
- 68, Bizzle and Henhole, Cheviot; Usway Burn (J.B.D.).

A. riparia (Tayl.). Dum.

- 67, Thrum Rocks, Rothbury (E.H.S.). Coquet near Warkworth (J.B.D.). Delf Burn (E. Armitage). Staward; Hareshaw Linn; West Dipton, Hexham; River Allen, Allendale (E.M.L.).
- 68, East Ord; Horncliffe Dean; Twizell; Marshall Meadows; Scremerston; Till at Weetwood; Lyham Burn; Usway and Lindhope burns; Cheviot (J.B.D.).

var. rivularis Bern.

68, Stream at Warenford (J.B.D.).

A. pumila (With.) Dum.

- 67. River Tyne at Warden; Staward; Crag Wood, Devil's Water; Hareshaw Linn; River Allen at Ridley Hall; Holms Linn, Allendale (E.M.L.).
- 68, Lambden Burn, Cheviot; Powburn (J.B.D.).

Gymnocolea inflata (Huds.) Dum.

- 67, Simonside (E.H.S.). Blanchland; Allendale Common; Fallowfield Fell; Killhope; Sweethope Lough; Whitfield Moors ; Sewingshields (E.M.L.).
- 68, Cragside, Rothbury (E.H.S.). Kyloe Hills; Old Quarry, Spittal; Thrunton Crag (J.B.D.).

Lophozia turbinata (Raddi) Steph.

- 67, Wark's Burn; Ordley, Hexhamshire; Crag Lough; Blanchland; Allenheads; River Allen, Ridley Hall (E.M.L.). Near Knaresdale (J.B.D.).
- 68, Horncliffe Dean; Dean at Warenford; Coldstream; Twizell; Alnwick (J.B.D.).

L. badensis (Gottsche) Schiffn.

- 67, Knowesgate, Longwitton (E. Armitage).
- 68, Marshall Meadows; Horncliffe Dean; Norham Dean; Scremerston; Ross Links; Holy Island; near Tweed, East Ord (J.B.D.).
- L. Muelleri (Nees) Dum.
- 67, Hareshaw Linn (E.M.L.).
- L. bantriensis (Hook.) Steph.
- 67, Wark's Burn; Eshells Moor, Hexhamshire Common (E.M.L.).
- 68, Cartington, Rothbury (E.H.S.).
- L. ventricosa (Dicks.) Dum. Common. 67, 68.
- L. alpestris (Schleich.) Evans
- 68, Bizzle, Cheviot (J.B.D.).
- L. bicrenata (Schmid.) Dum.
- 68, Cragside, Rothbury; by Swinhoe Pools (J.B.D.).
- L. excisa (Dicks.) Dum.
 - 68, Cragside, Rothbury (E.H.S.). Craster ; Marshall Meadows : Southern Knowe, College Water; Ross Links (J.B.D.).

L. incisa (Schrad.) Dum.

- 67, Beldon Burn; Crag Wood, Hexhamshire; Staward; Wark-on-Tyne; Greenshaw Plain, Hexham; Glendue Burn, South Tyne (E.M.L.). Smalesmouth, North Tyne (K.B.B.). Near Linsheeles Lake (J.B.D.).
- Cragside, Rothbury (E.H.S.). Hedgehope; Cheviot; 68. Dean at Warenford ; R. Alwin ; Thrunton Crag (J.B.D.).
- L. quinquedentata (Huds.) Cogn.
 - 67, Simonside, Rothbury (J.B.D.). West Allen; Sewingshields Crags; River Allen at Plankey (E.M.L.).
- Usway Burn ; wooded crag, Belford ; Lindhope Linn ; 68, Linbrig; Hethpool Linn; Bizzle, Cheviot (J.B.D.).
- L. Hatcheri (Evans) Steph.
 - 68, Kyloe Crags; R. Alwin; Usway Burn; Bizzle, Cheviot (J.B.D.).
- L. Floerkii (Web. et Mohr) Schiffn.
 - 67, Westburnhope, Hexhamshire Common; Crag Lough; Killhope; High Wood, Hexham; Wanney Crags; woods, Ridley Hall; Beldon Burn; Staward (E.M.L.). Smalesmouth, North Tyne (K.B.B.).
- 68, Linhope Spout (E.H.S.). Kyloe Hills; Hethpool Linn; Lambden Burn; Dod Law; Chillingham (J.B.D.).
- L. attenuata (Mart.) Dum.
 - 67, Staward and Ridley Hall Woods; Wark-on-Tyne; Allendale Common ; Sewingshields Crags ; West Dipton ; R. Tyne, Warden (E.M.L.). Simonside (J.B.D.). New
- Park, Netherwitton (Armitage).
- 68, Rothbury (E.H.S.). Kyloe Hills; Belford; near Southernknowe, College Water ; Ross Hill, Chillingham ; Usway Burn; Longridge Dean (J.B.D.). Alnwick Moor (E.M.L.).
- L. barbata (Schmid.) Dum.

 - 67, Staward; West Allen; Langley; Crag Lough (E.M.L.). 68, Langleeford; Craggyhall, Belford; Lambden Burn (J.B.D.).
- L. obtusa (Lindb.) Evans

67, By River Allen, Staward (E.M.L.). New to England.

Sphenolobus minutus (Crantz) Steph.

- 68, On decaying Leucobryum, heathy ground, Kyloe Plantations (J.B.D.).
- S. exsectiformis (Breidl.) Steph.
- 68, Marshall Meadows; Kyloe Plantation; Dod Law; Waren Burn; Ross Hill, Chillingham (J.B.D.).
- Plagiochila asplenioides (L.) Dum. Frequent on shady rocks. 67, 68.
 - var. minor Lindenb.
 - 67, Crag Lough; Staward (E.M.L.).
 - 68, Bizzle, Cheviot; Kyloe Hills (J.B.D.).
 - var. humilis Lindenb.
 - 67, Crag Lough; Allendale Common; Haydon Bridge; Ridley Hall Wood (E.M.L.).
 - 68, Ross Links; Spindlestone Hill; Roddam Dean (J.B.D.). var. major Nees. Frequent in damp woods. 67, 68. forma subintegerrima Schiffn.
 - 67, Longwitton Dean (E. Armitage).
- P. spinulosa (Dicks.) Dum.
 - 67, Dhu Gill near Knaresdale (J.B.D.). Hareshaw Linn, Bellingham (E.M.L.).
- Leptoscyphus Taylori (Hook.) Mitt.
 - 67, Harbottle Crags (E.H.S.). Sewingshields Crags; Whitfield Moors; Wark's Burn; Sweethope Lough; Brownley Hill, West Allen (E.M.L.). Fortherley Moss, Slaley (K.B.B.).
- 68, Cheviot; Thrunton Crag (J.B.D.).

L. anomalus (Hook.) Mitt.

- 67, Garley Hill, Rothbury (E.H.S.). Colt Crag Reservoir; Crag Lough; Killhope; Sewingshields Crags; Knar Burn, Slaggyford (E.M.L.). Ottercops Moss (K.B.B.). Near Alwinton (J.B.D.).
- 68, Ellingham; Detchant; Lyham Moor; Barmoor; Cheviot (J.B.D.).

Lophocolea bidentata (L.) Dum. Common.

- 67, New Park, Netherwitton (Armitage). West Dipton : Staward; etc. (E.M.L.).
- 68, Cragside, Rothbury (E.H.S.). Ross Links; Kyloe Hills (J.B.D.).

L. cuspidata Limpr. Common. 67, 68.

L. heterophylla (Schrad.) Dum. Frequent.

- 67, Gilsland (Winch). Corbridge; Stocksfield; West Dipton; Staward; woods near Elrington; Ordley, Hexhamshire (E.M.L.). Longwitton Dean (Armitage).
- 68, Twizell; Warenford; Langleyford; Etal; High Wood, Bowsden (J.B.D.).

Chiloscyphus polyanthus (L.) Corda

- 67, Gilsland (Winch). Simonside (E.H.S.). West Dipton; Haydon Bridge; River Tyne, Warden; Ridley Hall Woods; Blanchland (E.M.L.). Netherwitton (E. Armitage).
- 68, Kyloe Hills; Langleeford; Cheviot; Lucker Moor; Shielhope, Chatton; Usway Burn (J.B.D.).
- var. fragilis (Roth) K. Mull.

68, Cheviot (J.B.D.).

C. pallescens (Ehrh.) Dum.

67, By the Coquet near Warkworth (J.B.D.).

68, Norham Dean; Newham Bog (J B.D.).

Harpanthus scutatus (Web. et Mohr) Spruce 67, Hareshaw Linn, Bellingham (E.M.L.).

Saccogyna viticulosa (Sm.) Dum.

67, East Common Wood (Winch.).

Cephalozia bicuspidata (L.) Dum. Common. 67, 68. forma grandiflora Spruce

67, In a small stream, Simonside (J.B.D.). forma *conferta* Hüben.

68, Sandstone rocks, Kyloe Hills (J.B.D.).

C. connivens (Dicks.) Lindb.

67, Crane Moss, Alwinton (J.B.D.).

68, Lyham Moor (J.B.D.).

Winch's records are certainly errors, probably C. media (J.B.D.). C. media Lindh

- 67, Garley Hill, Rothbury (E.H.S.). West Dipton; Staward; Stocksfield; Hareshaw Linn; Gunnerton Crags; Wanney
- Crags; Wark's Burn; Haydon Bridge (E.M.L.).
 68, Kyloe Hills; Haydon Dean; Lucker Moor; Detchant; Lyham Moor; Dean at Warenford; Ford Moss, etc. (J.B.D.).

C. macrostachya Kaal. 67, Bog near Sewingshields, Roman Wall (E.M.L. & K.B.B.). 68, Ford Moss; Holborn Moss (J.B.D.). C. catenulata (Hüben) Spruce. 68, Ellingham, on moor (J.B.D.). C. fluitans (Nees) Spruce 67, Bloody Moss, Harbottle; Alwinton (J.B.D.). 68, Holborn Moss (J.B.D.). Nowellia curvifolia (Dicks.) Mitt. 67, Plankey, River Allen, on rotting tree trunk (E.M.L.). 68, Cheviot (Winch). Langleeford; Kyloe Plantation; Roddam Dean; Waren Burn, on wood and rocks; High Wood near Bowsden (J.B.D.). Cephaloziella Starkii (Funck) Schiffn. 67, 68, Frequent on dry moorlands. NOTE.—Others of this difficult genus of very small plants must occur, but have not been noted. Hygrobiella laxifolia (Hook.) Spruce 67, Coquet at Thrum Mill, Rothbury (J.B.D.). 68, Waren Burn (J.B.D.). Odontoschisma Sphagni (Dicks.) Dum. 67, Crag Lough; Sewingshields; Muckle Moss; Whitfield Moor (E.M.L.). Fortherley Moss, Slaley (K.B.B.). 68, Detchant Moor; Kyloe Hills; Barmoor; Ford Moss (J.B.D.). O. denudatum (Nees) Dum. 67, Harbottle Crags; Simonside (J.B.D.). Bog near Sewing-

shields (E.M.L.).
68, Kyloe Hills; Lyham Moor; Moss Plantation, Barmoor (J.B.D.).

Calypogeia Trichomanis (L.) Corda

- 67, Dilston, Corbridge; Slaley, Hexhamshire; Staward; Crag Lough; Allenheads; Font Burn (E.M.L.). Wanney Crags (K.B.B.). Netherwitton (E. Armitage).
- 68, Cragside, Rothbury (E.H.S.). Berwick; Scremerston; Norham Dean; Kyloe Hills; Dean at Warenford; Ross Links; Hedgehope; Chatton Hill; Edlingham; Ford Moss; Haydon Dean; Thrunton Crag (J.B.D.).

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- C. Neesiana (Carest et Massal.) Massal.
- 67, Knar Burn, Slaggyford (E.M.L.).
- 68, Cheviot; Kyloe Hills (J.B.D.).

C.-fissa (L.) Raddi

- 67, Coquet, near Warkworth (J.B.D.). Staward; West Dipton; Beldon Burn; Sewingshields Crags; Eshells Moor, Hexhamshire Common; R. Allen at Plankey; Elrington, Haydon Bridge (E.M.L.).
- 68, Cliffs near Berwick; Haydon Dean; Hethpool Linn (J.B.D.). Rothbury (E.H.S.).
- C. arguta Nees et Mont.
- 67, Longwitton (E. Armitage). Devil's Water, Hexhamshire (E.M.L.). East Woodburn (W. Philipson).
- 68, Rothbury (E.H.S.). Cheviot; Scremerston; sandstone, Berwick ; R. Alwin ; Lucker Moor (J.B.D.).
- Bazzania trilobata (L.) Gray
- 67, Wardrew moors; Murton Crags (Winch). Harbottle Crags (E.H.S.) Sewingshields Crags; Hareshaw Linn; Warks Burn ; Glendue Burn, S. Tyne (E.M.L.).
- 68, Shepherdskirk Hill, Kyloe; Thrunton Crag (J.B.D.).

Lepidozia pinnata (Hook.) Dum.

- 67, Sewingshields Crags; Warks Burn (E.M.L.). Simonside; Harbottle Crags (J.B.D.).
- 68, Kyloe Hills, on sandstone; Thrunton Crag (J.B.D.). var. minor Macv.

- 67, Harbottle Crags (J.B.D.). Warks Burn (E.M.L.). 68, Kyloe plantations, sandstone (J.B.D.).
- L. reptans (L.) Dum. Common. 67, 68. var. julacea Nees
- 67, West Dipton; Staward; Elrington, Haydon Bridge (E.M.L.). Simonside (J.B.D.).
- 68, Kyloe Hills; Dod Law; Waren Burn (J.B.D.). L. setacea (Web.) Mitt.

- 67, Rothbury (E.H.S.). Staward; Warks Burn; woods, Ridley Hall; Greenshaw Plain, Hexham; Muckle Moss (E.M.L.).
- 68, Hedgehope; Cheviot; Kyloe Hills; Lucker Moor; Cragside, Rothbury; Edlingham; Lyham Moor (J.B.D.).

Blepharostoma trichophyllum (L.) Dum.

- 67, Thrum Rocks; Garley Hill, Rothbury (E.H.S.). Warks Burn; West Dipton; Staward; Hareshaw Linn; Whitfield Moor; Blanchland (E.M.L.).
- 68, Waren Burn; Lyham Burn (J.B.D.). Black Burn, Rothbury (E.H.S.).

Chandonanthus setiformis (Ehrh.) Lindb.

- var. alpinus (Hook.) Kaal.
- 68. Among the boulders in the Bizzle and other parts on Cheviot. New to England (J.B.D.).

Ptilidium ciliare (L.) Hampe. Frequent on dry moors.

- 67, Crag Lough; Eshells Moor, Hexhamshire Common; Ayle Common, South Tyne; Whitfield Moor (E.M.L.).
- 68, Lindhope Burn near Kidland (E.H.S.). Belford ; Hedgehope ; Cheviot ; Barmoor, etc. (J.B.D.).

P. pulcherrimum (Web.) Hampe. Rare, usually on birch trunks.

- 67. West Dipton, Hexham; Staward; Dipton Wood at Woolev Sanitorium (E.M.L.).
- Cragside, Rothbury; Waren Burn; Hulne Park; High 68. Wood, Bowsden (J.B.D.).

Trichocolea tomentella (Ehrh.) Dum.

- 67, Gilsland woods (Winch). West Dipton (E.M.L.). Shaw Burn, East Woodburn (W. Philipson). Netherwitton (E. Armitage).
- 68, Haydon Dean, an old record; I failed to find it here (J.B.D.).

Diplophyllum albicans (L.) Dum. Very common. 67, 68.

Scapania compacta (Roth) Dum.

- 67, Sewingshields Crags; Gunnerton Crags (E.M.L.).
- 68, Spindlestone Hill; Easington Crag; Sea banks near Berwick; Linbrig, Coquet; Bamburgh (J.B.D.).

S. subalpina (Nees) Dum.

- 67, West Dipton ; Tyne near Haydon Bridge ; Westburnhope Moor, Hexhamshire Common; Staward (E.M.L.). R. Coquet, Rothbury (J.B.D.).
- 68, The Bizzle, Cheviot; Usway Burn (J.B.D.).

S. gracilis (Lindb.) Kaal.

- 67, Sewingshields Crags; Gunnerton Crags; Warks Burn; Hareshaw Linn (E.M.L.).
- 68, Sea banks near Berwick; Belford; Shielhope, Chatton; Bizzle, Cheviot (J.B.D.).

S. nemorosa (L.) Dum.

- 67, Westburnhope Moor, Hexhamshire Common; Allenheads; High Wood, Hexham; Allendale Common; Blanchland; Warks Burn, etc. (E.M.L.).
- Bizzle, Cheviot; crags, Belford; Chatton; woods, College 68. Water ; Cragside, Rothbury, Waren Burn ; Kyloe Woods (J.B.D.).

S. dentata Dum.

- 67, Thrum Rocks, Rothbury; Darden Burn (E.H.S.). Westburnhope Moor, Hexhamshire Common; West Dipton; Warks Burn ; Blanchland ; Allenheads ; Hareshaw Linn (E.M.L.).
- 68, Dean at Warenford; Lyham Burn; Hedgehope; Cheviot; Hethpool Linn; Shielhope, Chatton; Usway Burn; Till at Heton Mill (J.B.D.).
- var. ambigua De Not.
- 67, Knowesgate, Netherwitton (E. Armitage).
- 68, Wet rocks, cliffs near Berwick (J.B.D.).
- S. intermedia (Husnot) Pears.
 - 67, Staward; Dipton Foot, Riding Mill; R. Allen, Ridley Hall (E.M.L.).
 - 68, Dean at Warenford (J.B.D.).

S. undulata (L.) Dum.

- 67. Newbiggin Burn, Rothbury (E.H.S.). Westburnhope Moor, Hexhamshire Common; Langley Woods; Allenheads; Blanchland; Staward; Allendale Common; Greenshaw Plain, Hexham (E.M.L.).
- Cheviot; cliffs near Berwick; Rowting Linn; 68. Edlingham; Shielhope, Chatton (J.B.D.).

BRYOPHYTES OF NORTHUMBERLAND

S. irrigua (Nees) Dum.

- 67. Fallowfield Fell, near Hexham; West Dipton; Colt Crag; Crag Lough; Langley Woods; Westburnhope Moor; Tyne near Haydon Bridge (E.M.L.). Netherwitton (E. Armitage).
- 68, Sea banks, Marshall Meadows; Scremerston; Rothbury; Kyloe Plantation; Swinhoe Pools; Bamburgh (J.B.D.).

S. curta (Mart.) Dum.

- 67, Heddon-on-the-Wall (Herb. Winch). Allenheads, on old wall (J.B.D. & E.M.L.).
- 68, The Bizzle, Cheviot (J.B.D.).

S. umbrosa (Schrad.) Dum.

- 67. Coquet below Rothbury; South Tyne near Knaresdale (J.B.D.). Ridley Hall Woods, Bardon Mill; Hareshaw Linn; Roman Wall near Greenhead (E.M.L.).
- 68. Cragside, Rothbury; Waren Burn; Dod Law; Shielhope, Chatton ; Haydon Dean ; Thrunton Crags (J.B.D.).

Radula complanata (L.) Dum. Tree trunks, frequent. 67, 68.

R. Lindbergiana Gottsche Rocks, very rare. 68, Henhole, Cheviot (J.B.D.).

Madotheca laevigata (Schrad.) Dum.

67. By River Allen, Staward (E.M.L.).

M. platyphylla (L.) Dum.

- 67, East Common Wood; Dilston Park; Gilsland woods (Winch). West Allen (W. Philipson). Kirkside Wood, S. Tyne; old wall, Great Swinburn, N. Tyne; Featherstone, Park, Haltwhistle (E.M.L.).
- 68, Biddlestone woods, Rothbury (E.H.S.). Norham Dean; near Tweed below Norham; crags near Belford; Easington Crags; Dean at Warenford; Etal; Roddam Dean; Alwin Burn; Usway Burn (J.B.D.).

M. Cordeana (Hüben.) Dum.

- 67, Hexham (Pearson). Gunnerton Crags; Staward; Beldon Burn (E.M.L.).
- 68, Southernknowe, Cheviots; Crags at Easington (J.B.D.).

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B

Lejeunea cavifolia (Ehrh.) Lindb.

- 67, Hareshaw Linn; Darden Burn, near Hexham; Haydon Bridge; Staward; Westburnhope Moor; Whitfield; West Allen (E.M.L.).
- 68, The Bizzle; Southernknowe, Cheviot; Easington Crags; Dean at Warenford; Usway Burn; Lindhope Burn; near Bamburgh (J.B.D.).

var. heterophylla Carr.

68, Hethpool Linn (J.B.D.).

L. patens Lindb.

.Frullania Tamarisci (L.) Dum. Frequent, rocks and tree trunks.

- 67, Gilsland woods (Winch). Dye House, Hexhamshire; Staward; Allendale Common; Gunnerton Crags; Hareshaw Linn; Corbridge; Riding Mill; Slaggyford, S. Tyne (E.M.L.).
- 68, Coquet at Linshields (E.H.S.). Ross Links; College Water; Usway Burn; River Alwin (J.B.D.).

F. fragilifolia Tayl.

Bann

: ALLO STRATE

67, Staward woods (E.M.L.).

F. dilatata (L.) Dum. On trees, frequent. 67, 68.

Anthoceros punctatus (L.).

- 67, Roman Wall (A. Hancock, 1847).
- 68, By River Till at Weetwood Hall (J.B.D.).

Herman (Peprint). Connection Crees Stevens, Beldon

SPHAGNA.

This genus has been almost entirely neglected for Northumberland by previous botanists. The earliest records for V.C. 67 are four common species listed by N. J. Winch in "The Flora of Northumberland and Durham" (*Transactions of the Northumber*land, Durham and Newcastle Nat. His. Soc. 1836). Unfortunately these are unlocalised. In "The Mosses of Northumberland," by H. N. Dixon, M.A. (*History of the Berwickshire Naturalists' Club*, 1905), four species are listed for V.C. 67. A list of sphagna was published in *The Vasculum*, Nov., 1931, by myself, which brought the number of recorded species to 15, and the varieties 16. Since then 14 species and 18 varieties have been added, giving a total now for V.C. 67 of 29 species and 34 varieties, comparing now quite favourably with other vice-counties.

In V.C. 68 the earliest records for sphagna are five common species listed by Dr. J. Hardy in his "Moss Flora of the Eastern Borders" (*History of Berwickshire Naturalists*' *Club*, 1868) but only one of these species is localised. In "The Mosses of Northumberland" (*ibid*), Mr. H. N. Dixon is again the first to record the sphagna, giving a list of eight species. Nothing further has been published for sphagna for V.C. 68. During brief visits to North Northumberland I have collected 25 species and 24 varieties, considerably less than those listed for V.C. 67, not because the flora is poorer, but because so far V.C. 68 has been much less worked.

1949.

Evelyn M. Lobley. Hexham.

- Sphagnum fimbriatum Wils. Frequent, though some varieties more rare.
 - 67, Lilswood Moor, Hexhamshire Common; Acton Moor, Allendale Common; Greenshaw Plain, Hexham; Muckle Moss, near Bardon Mill; Shildon, Blanchland; Langley Reservoir.
 - 68, Cragside, Rothbury.
 - var. robustum Braithw.
 - 67, Muckle Moss, near Bardon Mill.

var. validius Card.

68, Cragside, Rothbury.

^{68,} Cheviot (J.B.D.).

67, Shildon, Blanchland; Brownley Hill, West Allen; Fortherley Moss, Slaley (K.B.B.). Fallowfield Fell, near Hexham (Wm. Philipson).

var. tenue Grav.

- 68, Ford Moss (J.B.D.).
- var. laxifolium Warnst.
- 67, Greenshaw Plain, Hexham; Dukesfield, Hexhamshire.
- var. flavescens Warnst.
- 67, Ottercops Moss, near Otterburn.
- S. Girgensohnii Russ. Frequent.
- 67, Eshells Moor, Hexhamshire Common; Swallowship Woods, Hexham; Crag Lough; Allendale Common.
- 68, Scald Hill, Cheviot; Alnwick Moor.
- var. robustum Warnst.
- 67, Westburnhope Moor, Hexhamshire Common; Muckle Moss; Allendale Common.
- 68, Scald Hill, Cheviot; Alnwick Moor.
- var. microcephalum Warnst.
- 67, Woods, Staward; Eshells Moor, Hexhamshire Common; Potter Burn, Blanchland; Swallowship Wood, Hexham; near Grindon Lough (H. Tully) ; Whitfield Moor.
- 68, Coldburn Hill, Cheviot.
- var. gracilescens Grav.
- 68, Alnwick Moor.
- S. Russowii Warnst. Not common.
- 67, Dipton Woods, near Corbridge; Westburnhope Moor, Hexhamshire Common. 68, Alnwick Moor.
- var. Girgensohnioides Russ.
- 67, Eshells Moor, Hexhamshire Common; Colt Crag Reservoir; Acton Moor, Allendale Common. 68, Alnwick Moor.
- S. fuscum Schp. Rare.
 - 67, Near Crag Lough.
- 68, Near the summit of Cheviot (H.N.D.). S. Warnstorfii Russ. Not common.
- 67, Eshells Moor, Hexhamshire Common; Allendale Common; 68.
- Henhole, Cheviot.

S. rubellum Wils. Frequent.

- 67, Sinderhope Moor, Allendale Common (W.R.S. & E.M.L.). Simonside, Rothbury; Muckle Moss near Bardon Mill; Eshells Moor, Hexhamshire Common ; Little Whickhope Burn, North Tyne (K.B.B.).
- S. acutifolium Ehrh. Very common.
 - 67, Crag Lough (H.N.D.); Hexhamshire and Allendale Commons; Simonside, Rothbury; Woodburn (H. Tully); Sweethope Lough, etc.
- 68, Black Lough, Alnwick Moor (H.N.D.). Cragside, Rothbury.
- S. quinquefarium Lindb. Not common.
 - 67, Eshells Moor, Hexhamshire Common; Swallowship Woods, Hexham; Knowesgate (E. Armitage).
 - 68, Henhole, Cheviot; Alnwick Moor.
- S. plumulosum Roell. Frequent.
- 67, Eshells Moor, Hexhamshire Common; Beldon Burn, Blanchland; Colt Crag Reservoir; Sweethope Lough; Whitfield Moor.
- 68, Bizzle, Cheviot; Cragside, Rothbury; Alnwick Moor.
- S. molle Sull. Rather rare.
 - 68, Cragside, Rothbury.
- S. compactum D.C. Frequent.
- 67, Westburnhope Moor, Hexhamshire Common; Whitfield Moor; Broomlee Lough; Allendale Common; Sweethope Lough.
- 68, Common Burn, Cheviot.
- var. subsquarrosum Warnst. Frequent.
- 67, Ottercops Moss, Otterburn; Acton Moor, Allendale Common; Muckle Moss; Westburnhope Moor, Hexhamshire Common.
- 68, Scald Hill, Cheviot; Alnwick Moor.
- var. imbricatum Warnst.
- 67, Potter Burn, Blanchland; Broomlee Lough; Colt Crag Reservoir; Simonside, Rothbury.
- 68, Common Burn, Cheviot.
- S. squarrosum Pers. Frequent.
 - 67, Westburnhope Moor, Hexhamshire Common; Beldon Burn, Blanchland; Whitfield Moor; Crag Lough; Langley Reservoir.
 - 68, Bizzle, Cheviot (Hardy).

var. spectabile Russ.

- 67, Eshells Moor, Hexhamshire Common; Brownley Hill, West Allen.
- 68, Scald Hill, Cheviot.
- var. subsquarrosum Russ.
- 67, Stagshaw Bank, Corbridge (Wm. Philipson). Crag Lough; Beldon Burn, Blanchland ; Westburnhope Moor, Hexhamshire, Common.
- 68, Coldburn Hill, Cheviot; Cragside, Rothbury. S. teres Angstr. Not common.
- 67, Eshells Moor, Hexhamshire Common; Sweethope Lough;
- Glendue Burn, South Tyne; Whitfield Moor. .68, Henhole, Cheviot.
- var. imbricatum Warnst.
- 67, Eshells Moor, Hexhamshire Common; Beldon Burn, Blanchland.
- 68, Henhole, Cheviot.
- var. subteres Lindb.
- 67, Eshells Moor, Hexhamshire Common; Glendue Burn, South Tyne.
- S. riparium Angstr. Very rare in Britain.
- 67, Colt Crag Reservoir, where it seems well established.
- S. amblyphyllum Russ. Not common.
- 67, Acton Moor, Allendale Common; Muckle Moss; Netherwitton (E. Armitage). 68, Scald Hill, Cheviot.
- var. mesophyllum Warnst.
- 67, Westburnhope Moor, Hexhamshire Common; Crag Lough ; Whinnetley Moss, near Bardon Mill (H. Tully). Acton Fell, Allendale Common.
- 68, Scald Hill, Cheviot.
- S. pulchrum Warnst. Not common.
- 67, Lamb's Rigg, Hexhamshire Common; Colt Crag Reservoir; Sweethope Lough; March Burn, Riding Mill. 68, Scald Hill, Cheviot.
- S. recurvum P. de Beauv. Very common, especially the var. majus.
- 67, Allendale and Hexhamshire Commons; Whitfield Moor; Blanchland Moor; Simonside, Rothbury; Sweethope
- 68, Henhole, Cheviot; Cragside, Rothbury.

- 67, Westburnhope Moor, Hexhamshire Common; Colt Crag Reservoir; Muckle Moss; Sweethope Lough; Whitfield Moor. 68, Henhole, Cheviot; Cragside, Rothbury; Alnwick Moor. var. majus Angstr. 67, Westburnhope Moor, Hexhamshire Common; Shildon, Blanchland; Whitfield Moor; Crag Lough; Simonside, Rothbury, etc. 68, Bizzle, Cheviot; Cragside, Rothbury; Alnwick Moor. var. parvulum Warnst. 67, Knowesgate (E. Armitage). Whitfield Fell. S. fallax Klinggr. Not common, the varieties rare. 67, Sinderhope Moor, Allendale Common (W.R.S. & E.M.L.). Sweethope Lough. 68, Scald Hill, Cheviot. var. plumosum Warnst. 67, Sinderhope Moor, Allendale Common (W.R.S. & E.M.L.). S. cuspidatum Ehrh. Frequent. 67, Listed by Winch but not localised.
 - Eshells Moor, Hexhamshire Common ; Acton Moor, Allendale Common; Whitfield Moor; Sweethope Lough; Allenheads (Wm. Philipson).
- 68, Black Lough, Alnwick Moor (H.N.D.). Coldburn Hill, Cheviot.
- var. falcatum Russ.

var. robustum Breidl.

- 67. Ayle Common, South Tyne; Sewingshields, Roman Wall; Muckle Moss; Whickhope Burn, North Tyne (K.B.B.).
- 68, Coldburn Hill, Cheviot; Alnwick Moor.
- var. submersum Schp.
- 67, Westburnhope Moor, Hexhamshire Common; Whitfield Moor; Simsonside, Rothbury; Acton Moor, Allendale Common.
- var. plumosum Bryol. germ.
- 67, Eshells Moor, Hexhamshire Common; Sewingshields, Roman Wall; Colt Crag Reservoir; Whitfield Moor; Ridsdale (K.B.B.).
- var. plumulosum Schp.
- 67. Ottercops Moss, Otterburn; Brownley Hill, West Allen.
- 68, Cragside, Rothbury.

S. molluscum Bruch. Frequent.

- 67, Walltown, Roman Wall; Prestwick Carr; Fortherley Moss, Slaley (K.B.B.). Crag Lough ; Simonside, Rothbury; Muckle Moss; Lilswood Moor, Hexhamshire Common.
- 68, Alnwick Moor.
- S. obesum Wils. Not common, the varieties rare.
- 67, Whitley Chapel, Hexhamshire; High Wood, Hexham. var. canovirens Warnst.
- 67, Westburnhope Moor, Hexhamshire Common; Knowesgate (E. Armitage).
- S. subsecundum Nees. Not common.
 - 67, Eshells Moor, Hexhamshire Common; Acton Moor, Allendale Common.
- 68, Dod Law (J.B.D.).
- var. intermedium Warnst.
- 67, Sinderhope Moor, Allendale Common (W.R.S. & E.M.L.). Eshells Moor, Hexhamshire Common. var. parvulum Grav.
- 68, Henhole, Cheviot.
- S. inundatum Russ. Frequent, the varieties not so frequent. 67, Greenrigg Moor, Hexhamshire Common; Simonside, Rothbury; Whitfield Moor; Colt Crag Reservoir; Allendale Common.
 - Henhole, Cheviot. 68.
- var. robustum (Warnst.) Sherrin
- 67, Westburnhope Moor, Hexhamshire Common; Acton Moor, Allendale Common. var. eurycladum (Warnst.) Sherrin
- 67, Low Ardley, Hexhamshire; Sweethope Lough; Muckle Moss; Shildon, Blanchland.
- var. densum (Warnst.) Sherrin
- 68, Bizzle, Cheviot; Alnwick Moor.
- var. lancifolium Warnst.
- 67, Colt Crag Reservoir (A. Thompson & E.M.L.). Muckle 68.
- Bizzle, Cheviot; Alnwick Moor. var. diversifolium Warnst.
- 67, Moors, Slaley, Hexhamshire.
- 68, Alnwick Moor.

BRYOPHYTES OF NORTHUMBERLAND

S. auriculatum Schp. Common, the varieties less common.

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- 67, Sinderhope Moor, Allendale Common (W.R.S. & E.M.L.). Simonside, Rothbury; Allenheads (Wm. Philipson). Eshells Moor, Hexhamshire Common. 68, Coldburn Hill and Scald Hill, Cheviot; Cragside, Rothbury. var. ovatum Warnst. 67, Westburnhope Moor, Hexhamshire Common; Swallowship Woods, Hexham; Sweethope Lough. var. laxfolium Warnst. 67, Westburnhope Moors, Hexhamshire Common; Whitfield Moor; Acton Moor, Allendale Common; Swallowship Woods, Hexham.
- var. canovirescens Warnst.
- 67, Colt Crag Reservoir; High Wood, Hexham; Eshells Moor, Hexhamshire Common.
- S. crassicladum Warnst. Frequent, the varieties not common.
 - 67, Westburnhope Moors, Hexhamshire Common; Acton Moor, Allendale Common ; Whitfield Moors.
 - 68, Scald Hill, Cheviot.
 - var. diversifolium Warnst.
 - 68, Cragside, Rothbury.
 - var. intermedium Warnst.
- 67, Westburnhope Moors, Hexhamshire Common.
- S. turgidulum Warnst. Rare.
- 67, Swallowship Woods, Hexham.
- S. contortum Schultz. Not common.
- 67, Eshells Moor, Hexhamshire Common.

S. papillosum Lindb. Common.

- 67, Eshells Moor, Hexhamshire Common; Simonside, Rothbury; Muckle Moss; Acton Moor, Allendale Common; Whitfield Moor.
- 68, Alnwick Moor; Cheviot (H.N.D.); Cragside, Rothbury.

var. normale Warnst.

- 67, Sinderhope Moors, Allendale Common (W.R.S. & E.M.L.). Colt Crag Reservoir; Simonside, Rothbury; Sweethope Lough; near Grindon Lough (H. Tully).
- 68, Coldburn Hill, Cheviot; Alnwick Moor.

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- 67, Sinderhope Moors, Allendale Common (W.R.S. & E.M.L.).
- Colt Crag Reservoir; Sweethope Lough; Sewingshields. 68.
- Coldburn Hill, Cheviot ; Alnwick Moor.
- S. cymbifolium Ehrh. Common.
 - 67, Gunnerton Crags (H.N.D.). Dipton Woods, Hexham; Sweethope Lough; Whitfield Moor; Acton Moor, Allendale Common ; Grindon Lough (H. Tully). Simonside, Rothbury, etc.
- 68, Cheviot (H.N.D.). Cragside, Rothbury; Alnwick Moor.
- S. magellanicum Brid. Not common.
- 67, Sinderhope Moors, Allendale Common (W.R.S. & E.M.L.). Colt Crag Reservoir ; Eshells Moor, Hexhamshire Common ; Walltown, Roman Wall; Little Whickhope Burn, North
- Tyne (K.B.B.). Crag Lough (H. Tully & E.M.L.). Black Lough, Alnwick Moor (H.N.D.). 68,

TRUE MOSSES.

- Andreaea petrophila Ehrh. Rocks, occasionally on walls, chiefly among the hills, abundant among the Cheviots.
 - 67, Simonside (Hardy). Crag Wood, Devil's Water ; Cuddy's Crag (J.B.D.). Sewingshields Crags; Gunnerton Crags; Warks Burn; Knar Burn, Slaggyford; boulders, Grindon Lough; Brownley Hill, West Allen (E.M.L.).
 - 68, Cheviot, Hedgehope, Newton Tor, etc. (Hardy). Biddlestone Hills (E.H.S.). Craggy Hall, near Belford; Usway Burn; Lyham Moor (J.B.D.). Kyloe Crags (R. Hall).
 - var. acuminata B. & S.
 - Roman Wall, Haltwhistle (H.N.D.). 67.
 - 68, The Bizzle, Cheviot (J.B.D.).
- A. alpina Smith Moist rocks on higher hills, rare. 68, Cheviot, in Henhole and the Bizzle (Hardy) (J.B.D.).
- A. Rothii Web. and Mohr Rocks on the hills, frequent.
 - 67, Simonside; by Linsheeles Loch, Alwinton (J.B.D.). Sewingshields Crags; Limestone Brae, West Allen; Roman Wall, near Haltwhistle (E.M.L.).
 - The Bizzle, Cheviot; Cragside, Rothbury (J.B.D.). 68. Biddlestone Hills; Wall above Shilmoor (E.H.S.).
 - var. falcata Lindb.
 - 67, Westburnhope Moor, Hexhamshire Common; Roman Wall, Burnhead, near Haltwhistle (E.M.L.).
- 68, The Bizzle, Cheviot (J.B.D.).
- Tetraphis pellucida Hedw. On rotten tree stumps, peaty soil in woods, occasionally on sandstone rocks. Fruit not uncommon.
 - 67, Top of Simonside (Hardy). Wallbottle and Scotswood denes, and in Oakwood and East Common Wood ; Murton Crags (Winch). Crag Lough (H.N.D.). Staward; Hareshaw Linn; West Dipton (E.M.L.).
 - 68. Hebburn Wood (c. fr.); Lyham Dean; Old Bewick Moor; Carey Burn; Langleyford; Cowledge Park; Alnwick Park (Hardy). Rothbury (E.H.S.). Shielhope, Chatton; Kyloe Hills; Belford Moor; Cheviot, on peat; Rowting Linn; dean at Warenford (J.B.D.).

T. Browniana Grev. Sandstone rocks, rare.

- 67, West Dipton, Hexham; Staward; Elrington near Haydon Bridge (E.M.L.). Stream, Simonside (E.H.S.). East Woodburn and Allenheads (W. Philipson). Crag Wood, Devil's Water (J.B.D.). Hareshaw Linn (H. Tully & E.M.L.).
- 68, Dean at Warenford (Greville). Lyham Burn (Hardy). Also on rocks further up the burn at Warenford (J.B.D.).
- Catharinea undulata Web. & Mohr On sandy soil or clay in woods, etc., common. 67, 68.

var. minor Web. & Mohr

67, Coastley Dene, near Hexham (E.M.L.).

68, Waren Burn (J.B.D.).

- Oligotrichum hercynicum Lam. Stony and gravelly soil on the hills, usually barren.
 - 68, Cheviot, in the Bizzle; Henhole (c. fr.); Dunsdale and Bellyside ravine (c. fr.), and above Harthope Linn (Hardy)
- Polytrichum nanum Neck. Sandy ground, woods and heaths,
 - 67, Newcastle, Town Moor; Heddon-on-the-Wall; East Common Wood, near Hexham (Winch). Whitton Dean Burn (E.H.S.). Swallowship Woods, Hexham (E.M.L.).
- 68, Hedgehope and Ilderton Dod (Hardy). Moor near Kyloe

- P. aloides Hedw. Earthy banks, disused quarries, etc., common. 67, Simonside (E.H.S.). Gunnerton Crags; Hareshaw Linn; River Font, Pigdon; Warks Burn; Allendale; West Dipton; Blanchland; Staward; Hexhamshire Common (E.M.L.). Knaresdale (J.B.D.).
- 68, Bizzle, Cheviot (Hardy). Cragside, Rothbury (E.H.S.). Lyham Burn; Crags near Belford; Rowting Linn; Warenford; Edlingham; Shielhope, Chatton; Usway and Alwin Burns (J.B.D.).

var. Dicksoni Wallm.

- 67, By River Font, Pigdon; Slaley, Hexhamshire; Glendue Burn, South Tyne; Westburnhope Moor, Hexhamshire Common (E.M.L.).
- 68, Banks of the Common Burn, Cheviot (J.B.D.).

BRYOPHYTES OF NORTHUMBERLAND

- P. urnigerum L. Dry and stony places, most common in hilly districts.
- 67, Near Pont Burn; Harlow Hill (Winch). Featherstone Park, Haltwhistle; Staward; Whitfield Moors; Gunnerton Crags; Potter Burn, Blanchland Moor; Chollerford (E.M.L.). Haltwhistle Burn (K.B.B.). Fallowfield Fell near Hexham (H. Tully).
- 68, Cheviot and Hedgehope (Winch). Rothbury (E.H.S.). Lyham Burn; near Swinhoe Pools (J.B.D.).
- P. alpinum L. Stony and grassy ground on the higher hills.
 - 67. Simonside; banks of the Beldon Burn (Winch). Haltwhistle Burn (K.B.B.). Crag Lough ; Knar Burn, South Tyne; Westburnhope Moor (E.M.L.).
 - 68, Cheviot; Hedgehope (Winch). Bizzle and Henhole, Cheviot (Hardy). Frequent (J.B.D.).

P. piliferum Schreb. Dry heaths and banks, common. 67, 68.

P. juniperinum Willd. Heaths and waste places, common. 67, 68.

P. strictum Banks. Wet heaths, rare.

- 67, Muckle Moss, Bardon Mill (R. B. Cooke). Near Sweethope Lough (K.B.B.). Bog near Sewingshields, Roman Wall (E.M.L.).
- 68, Black Lough, Alnwick Moor (H.N.D.). Top of Cheviot; Hedgehope; Lyham Moor, etc., (J.B.D.).
- P. gracile Dicks. Peaty moors, rare.
 - 67, Bloody Moss, Harbottle (J.B.D.).
- 68, Cheviot (Dr. Johnston's Herb, named P. alpinum, J.B.D.).
- P. formosum Hedw. Woods and dry banks, common in many places. 67, 68.
- P. commune L. Wet moors and peat bogs, common. 67, 68.
- Buxbaumia aphylla L. On peaty soil or rotting wood, very rare. 68, In the Bizzle, Cheviot, 1867, W. B. Boyd (Hardy).
- Diphyscium foliosum Mohr Rock crevices and earthy banks on the hills, rare.
- Glendue Burn, South Tyne (E.M.L.). 67,
- 68. Bizzle, Cheviot (Hardy).
- var. acutifolium Lindb.
- Bizzle, Cheviot (J.B.D.). **68**.

- Archidium alternifolium Schp. On wet bare soil in woods, and by moorland roads, not common.
- 68, Barmoor; Cragside, Rothbury; Kyloe plantations; Waren Burn (J.B.D.).
- Pleuridium axillare Lindb. On damp bare earth by ditches and pools.
 - 67. West Dipton, Hexham (Winch). High Wood, Hexham; Knaresdale, South Tyne (E.M.L.). Colt Crag Reservoir (K.B.B.).
- 68, Fields near Ross; by River Till at Weetwood Hall; Kyloe Plantations; Woodend, Bowsden (J.B.D.).

· P. subulatum Rabenh. Sandy heaths and moors, not uncommon.

- 67, Roman Wall at Denton Bourn; Prestwick Carr; East Common Wood; Newcastle, Town Moor (Winch). Whitton Dean; Garley Hill, Rothbury (E.H.S.). Warks Burn; Westburnhope Moor (E.M.L.).
- 68, Near Langleeford, and on Whiteside (Hardy). Rothbury (E.H.S.). Lucker Moor; Horncliffe; plantation, Berwick (J.B.D.).
- P. alternifolium Rabenh. Wet fields, not common.
 - 67, Near Haydon Bridge; field by River Tyne, Warden; Sewingshields, Roman Wall (E.M.L.).
 - 68, Cragside, Rothbury (E.H.S.). Fields near Berwick; by River Tweed, Twizell; Kyloe Plantations; River Till at Weetwood Hall; Weldon Bridge (J.B.D.).
- Ditrichum tenuifolium Lindb. Damp sandy ground, rare.
- 68, Biddlestone (E.H.S.); Upper Waren Burn (R. Hall).
- D. homomallum Hampe Sandy banks and crevices of subalpine rocks.
- 67, Simonside; East Common Wood near Hexham (Winch). Garley Hill (E.H.S.). Westburnhope Moor; Hexhamshire Common; Staward; Glendue Burn, South Tyne; Wolf Hills, Whitfield Moor (E.M.L.).
- 68, Kyloe Wood; Whiteside Hill; Henhole and Bizzle, Cheviot; Bellyside ravine, and Langleeford Hope, Cheviots (Hardy). Cragside, Rothbury (E.H.S.). Old quarry, Belford; Usway Burn; Alwin Burn, Coquetdale; Linhope Spout (J.B.D.).

D. zonatum Limpr. Rock crevices, very rare. 68, The Bizzle, Cheviot (J.B.D.).

D. flexicaule Hampe Calcareous rocks and soil, frequent.

- 67, Barcombe (H.N.D.). Garley Hill; Whitton (E.H.S.). Warks Burn; Westburnhope Moor; Sweethope Lough; Gunnerton Crags; Crag Lough; Staward; Glendue and Knar Burns, South Tyne; Ayle Common (E.M.L.).
- 68, Roddam Dean; Carey Burn; Langlee Crag Ravine and Bizzle, Cheviot (Hardy). Chillingham; Holy Island; Ross Links; Chatton Park Hill (J.B.D.).
- Swartzia montana Lindb. Crevices of mountain rocks, rarely on old walls.
 - 67, Tecket Wood (Winch). Chollerford (H.N.D.). Old wall, Beaufront Castle; Hareshaw Linn; Whitfield, West Allen (E.M.L.). Old wall, Newton Hall (H. Tully). Moor above Allenheads (J.B.D.).
 - 68, Hedgehope; Cheviot (Winch). The Bizzle (Hardy). (J.B.D.).
- S. inclinata Ehrh. Damp sandy ground by the sea, and stony ground in the hills, rare.
- 68, Holy Island; Ross Links; moorland road near Houghters Law, North Charlton (J.B.D.).

Seligeria Doniana C.M. Sandstone rocks, rare.

68, Norham Dean (J.B.D.).

S. pusilla B. & S. Rocks, rare.

67, Sandstone rocks, Hareshaw Linn, Bellingham (H. Tully and E.M.L.).

S. recurvata B. & S. Sandstone rocks, not common.

- 67, In Scotswood, Denton and Wallbottle denes (Winch). Pier of Roman Bridge, Chollerford (H.N.D.). By the Coquet, Thrum Mill, Rothbury; Lisle Burn near E. Woodburn; Whitton Dean (E.H.S.). West Dipton; Staward; Wall by Tyne, Hexham; Shildon, Blanchland (E.M.L.). Hareshaw Linn, Bellingham (H. Tully and E.M.L.).
- 68, Near E. Ord (Winch). Powburn (J.B.D.).

Brachvodus trichodes Fuernr. Sandstone rocks, rare.

- 67, Warks Burn (W. Philipson).
- 68, Lyham Dean (Hardy). The Bizzle, Cheviot (J.B.D.); quarry, south of Warenford (R. Hall).
- Ceratodon purpureus Brid. Sandy and peaty soil, very abundant and ubiquitous. 67, 68.
- Rhabdoweisia fugax B. & S. Rock crevices in the hills, rare.
 - 68, Bizzle and Henhole, Cheviot (Hardy). Biddlestone Hills (E.H.S.). Kyloe Hills (J.B.D.).
- R. denticulata B. & S. Rock crevices and overhanging peat ledges, rare.
 - 68, In the Bizzle and Henhole, Cheviot (J.B.D.).
- Cynodontium Bruntoni B. &. S. Rocks in the more hilly parts, not common. 67.
- Gunnerton Crags; Staward (E.M.L.). Quarry, Prospect Hill, Corbridge (R. B. Cooke). 68,
- Humbledon Dean; Rocks round the wishing well, and on Humbleheugh; Carey Burn rocks; near Newton Tor; sandstone at Rowting Linn; The Bizzle (Hardy). North Hills, Rothbury (E.H.S.). Kyloe Hills; near Tindal House, Etal; Linbrig, Coquetdale (J.B.D.).

C. Jenneri Stirt. Rock crevices and walls in hilly parts, rare.

68, Bizzle, Cheviot; also on walls at Langleeford and Goldscleugh; Kyloe Crags (J.B.D.).

In early days this form gave rise to erroneous records of C. polycarpum Schp. J.B.D.

- Dichodontium pellucidum Schp. Rocks by streams, common. var. fagimontanum Brid.

 - 68, Dry rocks, Bizzle, Cheviot (J.B.D.).
- var. compactum Schp.
- 67, Moors near Blanchland; Westburnhope Moor, Hexhamshire Common ; Whitfield Moor (E.M.L.).
- 68, Near old coal workings, Kyloe Hills (J.B.D.).
- D. flavescens Lindb. Rocks in the beds of streams, not common.
 - 67, Coquet at Rothbury and Windyhaugh (E.H.S.). Wolf Hills, Whitfield Moor (E.M.L.). Tyne at Chollerford (H.N.D.).
- Bizzle, Cheviot (Hardy). Dean at Warenford ; Rowting 68, Linn; stream near Shielhope; Priest Dean; Langleeford ; Lyham Burn (J.B.D.).

O

- var. interrupta B.& S.
- 67. Simonside (I.B.D.).
- var. sericea Schp.
- 68. Sandstone, Kyloe Crags; Lyham Burn; Rothbury (J.B.D.).
- D. cerviculata Schp. Peaty banks and sides of ditches, not common.
- 67. Prestwick Carr; Blanchland (Winch). Bloody Moss. Coquetdale (I.B.D.). Simonside, Rothbury (K.B.B.). Near Sewingshields Crags; Westburnhope Moor, Hexhamshire Common (E.M.L.).
- 68, Coldmartin Moss; Hetton Hall (Hardy). Black Lough (H.N.D.). Cragside, Rothbury (E.H.S.). Moors, Chillingham; Ford Moss (J.B.D.). Kyloe Hills (R. Hall).

D. crispa Schp. Wet sandy ground, rare.

- 67. Dean below Allerton Mill (Winch).
- 68, Ross Links; seabanks near Marshall Meadows; Holy Island (J.B.D.).
- D. secunda Lindb. Damp stony ground, very rare.
- 67. Staward ; Hareshaw Linn ; Eshells Moor, Hexhamshire Common; Glendue Burn and Ayle Common, S. Tyne (E.M.L.).
- 68, Linhope Spout (J.B.D.).
- D. rufescens Schp. Wet clay banks, not common.
- 67. Westburnhope Moor; West Dipton; Shildon, Blanchland; Ayle Common, S. Tyne (E.M.L.).
- S. Middleton Dean (Hardy). Cheviot; Weetwood Hall; 68. Lyham Burn; roadside, Linbrig (J.B.D.).
- D. varia Schp. Damp clay banks, common. 67, 68.

D. Schreberi Schp. Damp clay soil, not common.

- 67, Wallington (Winch Herb.). Barcombe (H.N.D.). Garley Hill (E.H.S.). Delf Burn (E. Armitage). Eshells Moor; by S. Tyne, Featherstone Park; quarry, Ninebanks, West Allen; Langley Reservoir (E.M.L.).
- Cragside, garden soil Rothbury (E.H.S.). Coldstream; 68. seabanks near Berwick; near Swinhoe Pools; by the Tweed near Tillmouth (J.B.D.).

Dicranella heteromalla Schp. Banks in woods, roadsides, etc., very common. 67, 68.

var. elata Schp.

- 67, West Dipton; Warks Burn; Blanchland; S. Tyne at Featherstone Park; Westburnhope Moor, Hexhamshire Common (E.M.L.).
- 68, Cartington, Rothbury; Kyloe Hill; Hetton Hall; Haydon Dean; moor near Warenford (J.B.D.).
- D. squarrosa Schp. By streams, and in moorland bogs among the hills, frequent.
 - 67, Simonside (E.H.S.). West Dipton; Eshells Moor; Greenshaw Plain near Hexham; Staward; Beldon Burn, Blanchland; Ayle Common (E.M.L.).
- 68, Hedgehope and Cheviot (Winch). Bogs between Prendwick and Alnham; Old Berwick Moor (Hardy). Rothbury; Barrow Burn, Coquetdale (J.B.D.).
- Blindia acuta B.& S. Wet mountain rocks and on stones in hill streams, frequent on Cheviot.
 - 67, Beldon Burn; East Common Wood, Hexham (Winch). Rothbury (E.H.S.). West Dipton; Staward; Hareshaw Linn; Sewingshields Crags; Riven Allen at Ridley Hall; Whitfield Moor (E.M.L.).
 - 68, Bizzle, Henhole and Harthope Linn, Langlee Crag Ravine, and Common Burn, Cheviots (Hardy). Usway Burn (E.H.S.). Waren Burn, Belford (J.B.D.).
- var. trichodes Braithw.
- 67, West Dipton; Staward (E.M.L.). Coquet, Thrum Mill, Rothbury (J.B.D.).
- 68, Usway Burn; Waren Burn; Henhole, Cheviot (J.B.D.).
 Dicranoweisia cirrata Lindb. On trees, fences, rocks, walls, etc., common. 67, 68.
- Campylopus flexuosus Brid. Turfy ground in woods, moors, and on sandstone rocks, common.
- 67, Prestwick Carr (Winch). Simonside (E.H.S.). Allendale and Hexhamshire Commons; Staward; Crag Lough (E.M.L.).
- 68, Hedgehope; Cheviot (Winch). Near Alnwick (Hardy). Cragside (E.H.S.). Kyloe Hills; Rowting Linn; sea banks near Berwick; Waren Burn; Chatton Moors; Moss Plantation, Barmoor. (c. fr.) (J.B.D.).

BRYOPHYTES OF NORTHUMBERLAND

35

- var. paradoxus Husn.
- 68, Whiteside Hill, Wooler (Hardy). Hedgehope (Herb. R. C. Embleton). Kyloe Hills (J.B.D.).
- var. zonatus Limpr.
- 67, Near Crag Lough; High Wood, Hexham; Warks Burn (E.M.L.). Horsley Plantation, Redesmouth (R. B. Cooke).
- 68, Kyloe Hills; rocks in wood, College Water (J.B.D.).
- C. pyriformis Brid. Peaty moorlands, woods and heaths, very common. 67, 68.
- C. fragilis B. & S. Sandstone rocks, and heathy ground, not uncommon.
 - 67, Simonside (E.H.S.). West Dipton; Sewingshields Crags; Warks Burn; Pigdon Woods; Hareshaw Linn; Glendue Burn, S. Tyne; High Wood Hexham; Prospect Hill, Corbridge (E.M.L.).
 - 68, Bizzle, Cheviot (Hardy). Kyloe Hills (H.N.D.). Cragside, Rothbury ; Eglingham (E.H.S.). Scremerston ; seabanks near Berwick ; Etal ; Shielhope, Chatton ; Ford Moss (J.B.D.).
- C. atrovirens De Not. Rocks and bogs in hill country, rare.

67, Marshy ground near Crag Lough (E.M.L.).

C. brevipilus B.& S. Wet moors, very rare.

67, Prestwick Carr (Winch Herb.).

Dicranum schisti Lindb. On rocks and boulders on higher parts of Cheviots.

68, The Bizzle and Henhole, Cheviot (J.B.D.).

D. spurium Hedw. Wet moors, very rare.

- 68, Lyham Moor (W. B. Boyd, 1869) (J.B.D., 1930).
- D. Bergeri Bland. Peat mosses, very rare.
- 68, Ford Moss (J.B.D.).
- D. Bonjeani De Not. Bogs and moors, common.
- 67, Dilston Park and East Common Wood near Hexham; near Crowhall (Winch). Rothbury; Kidland (E.H.S.). Crag Lough; Warks Burn, Blanchland and Westburnhope moors; Allenheads; Muckle Moss; West Dipton; Knar Burn and Ayle Common, S. Tyne (E.M.L.).

- J. B. DUNCAN ON
- 68, Langleeford; Common Burn; Broadstruther (Hardy). Usway Burn (E.H.S.). Goswick Links; Lyham Moor; Chatton Park Hill; Ford Moss; Newham Bog (J.B.D.).
- var. juniperifolium Braithw.
- 68, Near summit of Cheviot (H.N.D.).
- var. rugifolium Bosw.
- 67, Eshells and Burntridge Moors, Hexhamshire Common (E.M.L.). Bloody Moss and Crane Moss, Harbottle (J.B.D.)
- 68, Ross Links; moor above Warenford (J.B.D.).
- D. scoparium Hedw. Woods, moors, rocks, and tree trunks, common. 67, 68.
 - var. paludosum Schp.
- 67, Muckle Moss (R. B. Cooke).
- 68, Ford Moss; Newham Bog (J.B.D.).
- var. orthophyllum Brid.
- 68, Kyloe Crags; Holy Island (J.B.D.).
- var. spadiceum Boul.
- 67, High Wood, Hexham; Eshells Moor; Allendale Common; Crag Lough ; Whitfield (E.M.L.).
- 68, Holy Island; Spindlestone Hills; Kyloe Hills; Ford Moss (J.B.D.).
- D. majus Turn. Shady rocks, woods and deans, frequent. 67, 68. 67, Crag Lough (H.N.D.). Swallowship and West Dipton woods, Hexham; Staward; Colt Crag Reservoir, etc. (E.M.L.).
- 68, Cragside, Rothbury (E.H.S.). Sea banks, Berwick and Marshall Meadows; Harthope Linn; Langlee Crags; Linhope Linn; Roddam Dean; Dunsdale Wood; Yeavering Bell; Bizzle, etc. (Hardy). Crags near Belford; Haydon Dean; Warenford Dean; Thrunton Crag (J.B.D.).
- D. fuscescens Turn. On dry rocks in the hilly parts, and on tree trunks in damp woods.
 - 67, Heddon-on-the-Wall (Winch). Crag Lough (H.N.D.). Simonside; Garley Hill (E.H.S.). Harbottle Crags; Dhu Gill near Knaresdale (J.B.D.). West Dipton; Staward; Hareshaw Linn; Muckle Moss; Warks Burn; Simonburn, N. Tyne, etc. (E.M.L.).

68, Henhole and Bizzle, Yeavering Bell, Cheviots; Dunsdale Wood (Hardy). Cragside, Rothbury (E.H.S.). Chillingham; Kyloe Crags and Hills; Haydon Dean; dean at Warenford; Hedgehope; Thrunton Crag; Longridge Dean; High Wood, Bowsden (J.B.D.).

(A curious form of this very variable species, suggestive of a "new variety," has been found on an old birch trunk at High Wood, Bowsden, along with the typical species (R. Hall). J.B.D.)

- var. falcifolium Braithw.
- 67, Harbottle Crags (J.B.D.).
- 68, Cheviot (H.N.D.). Hedgehope; Kyloe Crags (J.B.D.).
- D. Scottianum Turn. Sandstone rocks, rare.
- 67, Linshiels Lough, Coquetdale (J.B.D.).
- 68, Cragside, Rothbury (E.H.S.). Kyloe Hills; Shielhope, near Chatton (J.B.D.).

D. elongatum Schleich.

68, Among short heather, a little below the eastern summit of Hedgehope (Hardy, 1868). First record of this rare moss in Britain. Not seen since. (I.B.D.)

D. strictum Schleich. Sandstone rocks and tree trunks, very rare.

- 67, On birch trunk by River Coquet, Thrum Mill, Rothbury (J.B.D.).
- 68, On rocks, Cragside, Rothbury; High Wood, Bowsden (J.B.D.). Sandstone Crags near Holborn Moss (R. Hall).
- D. montanum Hedw. Base of tree trunks and rotting stumps, very rare.

68, High Wood near Bowsden, on birch trees (J.B.D.).

Leucobryum glaucum Schp. Common on all the moors. 67, 68.

Fissidens exilis Hedw. Stiff clayey soil in woods, rare.

- 67, Staward; West Dipton, Hexham; woods, Langley (E.M.L.). Viewley Bank, Hexhamshire (R. B. Cooke).
- 68, Kyloe Plantations (J.B.D.). Norham Dean (R. Hall).

- F. viridulus Wahl. Clay banks and rocks in shady situations, not common.
 - 67, Bolam Lake (K.B.B.). Woodley Field Dean, Hexham (E.M.L.).
- 68, Horncliffe Dean; Rowting Linn; stream at Low Linn (J.B.D.). Norham Dean; near Duddo (R. Hall).

var. Lylei Wils.

- 67, Wallington (Winch Herb.).
- 68, Warkworth (H.N.D.). Plantation, Berwick (J.B.D.).
- F. pusillus Wils. Shady sandstone rocks, not common.
 - 67, Camp Hill, Gunnerton (H.N.D.). Woodley Field Dean, Hexham (E.M.L.).
- 68, Cragside, Rothbury; Horncliffe Dean; by River Till at Heton Mill; near Tweed at Norham; Rowting Linn; Etal (J.B.D.).
- F. incurvus Starke Clay banks, rare.

68, By River Till below Etal (J.B.D.). Norham (R. Hall).

- F. bryoides Hedw. Clay banks, woods, etc., common. 67, Roman Bridge, Chollerford (H.N.D.). Rothbury (E.H.S.). Hexham; Staward; Allendale; Hareshaw Linn; Beldon Burn, etc. (E.M.L.).
- 68, Warkworth (H.N.D.). Rothbury (E.H.S.). Marshall Meadows; Norham Dean; Kyloe Hill; Lyham Burn; College Water (J.B.D.).
- F. Curnowii Mitt. Wet earthy banks, rare.
- 68, Warkworth near Hermitage (H.N.D.). Cragside, Rothbury (E.H.S.).
- F. crassipes Wils. Rocks in beds of rivers, rare.
 - 67, Coquet, Rothbury (J.B.D.).
- 68, Warkworth (H.N.D.). Aln at Alnwick; Tweed at Cornhill (J.B.D.).
- F. osmundoides Hedw. Wet rocks and moorland bogs, rare. 67, Prestwick Carr; Dilston Park; moors near Blanchland West Dipton; Crag Lough; Eshells Moor; Glendue Burn, S. Tyne (E.M.L.). Staward;
- 68, Bizzle and Henhole, Cheviot (Hardy). Rothbury; Usway Burn (E.H.S.). Hethpool Linn; Waren Burn ; Lindhope Burn (J.B.D.).

- F. adiantoides Hedw. Wet rocks and boggy ground, not uncommon.
- 67, Sewingshields (H.N.D.). Simonside (E.H.S.). Staward : Allendale Common ; Hexhamshire Common ; Hareshaw Linn (E.M.L.).
- 68, Cheviot, etc. (Hardy). Holy Island; Belford; Newham Bog; Shielhope, Chatton; Bamburgh (J.B.D.).
- F. decipiens De Not. Damp rocks by streams, not common.
- 67, Hareshaw Linn; Peel Crag, near Crag Lough; Great Swinburn (E.M.L.).
- 68. Dean at Warenford ; Easington Crags ; River Till below Etal ; Usway Burn ; rocks near coast, Bamburgh (I.B.D.).
- F. taxifolius Hedw. Bare soil in woods, hedgebanks, etc., very abundant. 67, 68.
- Grimmia apocarpa Hedw. Rocks, stones, walls, very common. 67, 68.
- var. alpicola Hook & Tayl. Rocks by streams.
- 67, Boulders in Tyne, Chollerford (H.N.D.). Tyne at Warden; S. Tyne near Knaresdale; River Allen at Staward; N. Tyne at Barrasford (E.M.L.).
- 68, River Tweed at Norham, Twizell and Coldstream : Usway Burn (J.B.D.).
- var. rivularis W. & M. Stones in streams.
- 67, Coquet at Warkworth; S. Tyne near Knaresdale (J.B.D.). River Tyne at Warden and Barrasford; River Allen at Staward (E.M.L.).
- 68, Henhole, Cheviot (H.N.D.). Usway Burn ; Langleeford ; Rothbury; River Alwin (E.H.S.). Chatton; College Water; Lambden Burn; Warenford; Coquet, Linbrig; Tweed at Cornhill (J.B.D.) .
- var. gracilis W.& M.
- 68, Bizzle and Henhole, Cheviot (Hardy).
- G. maritima Smith Rocks on the coast, fairly frequent, and abundant in some localities.
- 68, Farne Islands; Berwick (Winch). Dunstanburgh (H.N.D.) (J.B.D.).
- G. incurva Schwaeg. Mountain rocks and boulders, only on Cheviot.
- 68, Bizzle (c. fr.); Bellyside Hill and Henhole, Cheviot (Hardy). Top of Mid Hill (J.B.D.).

- G. pulvinata Smith Walls and rocks on the low ground, very common. 67, 68.
- G. trichophylla Grev. Rocks and walls, not uncommon.
 - 67, Sewingshields and Gunnerton Crags; West Dipton; Greenshaw Plain, Hexham; Staward; Warks Burn; Newton Hall; Corbridge; Allendale (E.M.L.).
- 68, Alnwick Moor (Winch). Maiden Well, Wooler (Hardy). Kyloe Crags (H.N.D.). Linshiels (E.H.S.). Hethpool Linn ; Belford ; Spindlestone ; Swinhoe Crags ; Rowting Linn; Usway and Alwin rivers (J.B.D.).
- G. Stirtoni Schp. Siliceous rocks, rare.
- 68, Kyloe Crags (J.B.D.).
- G. decipiens Lindb.
- 68, Hethpool, College Water (R. Hall).
- G. Hartmani Schp. Siliceous rocks by river banks, rare.
 - 67, River Allen at Staward (E.M.L.).
- 68, Henhole, Cheviot (H.N.D.). Lambden Burn; Hethpool Linn; Linshiels; Usway Burn; Coquet at Linbrig; shady wall under Kyloe Crags; Linhope Spout (J.B.D.).
- G. patens B.&S. Siliceous mountain rocks, rare.
- 68, Bizzle and Henhole, Cheviot; House of Crag (Hardy). Hedgehope (Herb. Embleton) (J.B.D.).
- G. Doniana Sm. Siliceous rocks and walls in the hilly parts.
- 67, Wall at Sewingshields Farm ; Gunnerton Crags (E.M.L.). 68, Bizzle and Henhole, Cheviot; Whiteside Hill, Wooler (Hardy). River Alwin above Kidland (J.B.D.).
- G. ovata Schwaeg. Basaltic rocks, very rare.
- 68, Kyloe Crags (Hardy). Swinhoe Crags (J.B.D.).
- G. elongata Kaulf. Mountain rocks, very rare. 68, The Bizzle, Cheviot (1931, J.B.D.).
- Rhacomitrium aciculare Brid. Rocks in streams in the higher ground, very common. 67, 68. R. protensum Braun. Wet rocks in the hills.
- 67, Peel Crag and Housesteads, Roman Wall; Westburnhope, Hexhamshire Common (E.M.L.). Simonside, Rothbury

- 68, Henhole, Cheviot (H.N.D.). Lindhope Burn; Bizzle, Cheviot (J.B.D.).
- R. fasciculare Brid. Rocks and walls, usually in hilly districts, frequent.
 - 67, Simonside (Winch). Roman Bridge, Chollerford (H.N.D.). Garley Hill (E.H.S.). Warks Burn ; Slaley ; Greenshaw plain, Hexham; Allenheads; Hareshaw Linn (E.M.L.). Newton Hall (H. Tully). Prospect Hill, Corbirdge (R. B. Cooke).
 - 68, Hedgehope and Cheviot (Winch). Cragside, Rothbury; Windyhaugh (E.H.S.). Kyloe Crags; Bizzle, Cheviot; walls, Berwick; River Alwin (J.B.D.). Wall at Cornhill (R. Hall).
- R. heterostichum Brid. Rocks and walls in hilly country, common. 67, 68.
 - var. alopecurum Huebn.
 - 68, Cheviot (H.N.D.).
 - var. gracilescens B.&S.
 - 68, Henhole and Bizzle, Cheviot (J.B.D.).
- R. sudeticum B.& S.
- 68, Bizzle, Cheviot (J.B.D.).
- R. lanuginosum Brid. Dry stony ground, moors, walls and rocks, common in the hills. 67, 68.

R. canescens Brid. Stony and barren places in the hills, frequent.

- 67, Simonside (Winch). Crag Lough (H.N.D.). Allenheads; Coalcleugh, West Allen; Westburnhope, Hexhamshire Common (E.M.L.).
- 68, Cheviot; Hedgehope (Winch). Langleeford vale (Hardy). Rothbury; Linbrig (E.H.S.). Lyham Moor; Lambden Burn and College valley (J.B.D.).

var. ericoides B.& S.

- 67, Westburnhope, Hexhamshire Common; Allendale Common (E.M.L.). Fallowfield Fell (W. Philipson). Prospect Hill, Corbridge (R. B. Cooke).
- Cheviot (A. Thompson). Wooler Water (Herb. Hardy). 68. Rothbury (E.H.S.). College Water ; Linbrig ; Usway Burn (J.B.D.).

- Ptychomitrium polyphyllum Fuern. Siliceous rocks and walls in the hilly parts, frequent,
 - 67, Near Blanchland (Winch). Roman works, Corstopitum (E.H.S.). Hexham; Allendale; Staward (E.M.L.).
- 68, Near Maiden Well, Wooler (Hardy). Cragside, and on walls, Rothbury (E.H.S.). Kyloe Crags (J.B.D.).

Campylostelium saxicola B. & S. Sandstone rocks by streams, rare.

- 67, Linbrig, upper Coquet (E.H.S.).
- 68, Lyham Burn (I.B.D.).
- Hedwigia ciliata Ehrh. Siliceous rocks and walls in the hilly districts, frequent.
 - 67, Sewingshields Crags, Roman Wall (E.M.L.).
 - 68, Bizzle, Cheviot (Hardy), Linshiels; Cragside, Rothbury (E.H.S.). Embleton (R. C. Embleton). Wooler; Kyloe Crags; Spindlestone Hill; Swinhoe Crags; College Water; Alwin river; Shilmoor (J.B.D.).

- Acaulon muticum C.M. Bare earth in fields and on wall tops, rare. 68, Scremerston; Berwick; near Belford; wall, Etal road, Tweedmouth (J.B.D.).
- Phascum cuspidatum Schreb. Fallow fields and waste places, common.
 - 67, Rothbury (E.H.S.). Hexham (E.M.L.).
 - Weldon Bridge (E.H.S.). Berwick; Twizell; Norham; 68. Holy Island; Warenford; Weetwood Hall (J.B.D.).
- var. piliferum Hook. & Tayl.
- 67, Hexham (Winch, 1838).
- 68, Sea banks, near Berwick and Scremerston (J.B.D.).
- P. curvicolle Ehrh. Earth-capped walls, very rare.
- 68, Etal road, Tweedmouth (J.B.D.).
- Pottia bryoides Mitt. Sandy ground, very rare. Old limeworkings, Scremerston (R. Hall). 68,
 - Close to the shore at the gravel works, Scremerston. (The sea has now encroached at this point and the plant has disappeared, J.B.D.).
- var. Thornhillii Wils.
- 67, Old stubble fields near Newcastle (Thornhill, 1841).

- P. Heimii Fuernr. Sea banks and salt marshy ground, not common.
- 67. Heddon-on-the-Wall, near Wylam; Cullercoats (Winch).
- 68. Tweed estuary. Berwick ; E. Ord ; coast at Berwick and Marshall Meadows; near Embleton; Farne Islands (I.B.D.).

P. truncatula Lindb. Fallow fields, etc., very common. 67, 68.

- P. intermedia Fuernr. Fallow fields, etc., frequent.
- 67. Killingworth and West Denton (Winch). Bardon Mill; Hexham (E.M.L.). Corbridge (R. B. Cooke).
- 68. Rothbury (E.H.S.). Horncliffe Dean; Berwick; wall top, Etal road, Tweedmouth; Weldon Bridge (I.B.D.).
- P. crinita Wils. Rocks and banks on the coast, not common. 68, Berwick-on-Tweed; Dunstanburgh (I.B.D.).
- P. minutula Fuernr. Stony ground, rare.
- 67, Among crazy paving, Southlands, Hexham (E.M.L.).
- 68. Scremerston, on the coast (J.B.D.).
- P. lanceolata C.M. Calcareous ground and earthy wall tops, not common.
- 67. On wall, Great Swinburn (K.B.B. & E.M.L.).
- 68, Near Alnwick (Herb. Embleton). On wall near Lyham village (Hardy). Knocklaw Bank, Rothbury (E.H.S.). Scremerston ; wall tops, Etal road, Tweedmouth (J.B.D.)
- Tortula pusilla Mitt. Calcareous banks, wall tops, etc., local and rare.
- 67, On walls near Benwell, Denton and Newcastle (Winch).
- On earth-capped dykes, Berwick (Dr. Johnston) (J.B.D., 1925). Scremerston; Lowick (J.B.D.).
- T. rigida Schrad.
- 68, On a dry wall near Belford. Recorded by Boyd but I think this must be an error. A plant gathered by him so named proved to be T. ambigua J.B.D.]
- T. ambigua Angstr. Calcareous ground and wall tops, rare.
- 67, Rothbury (E.H.S.). Gunnerton Crags (E.M.L.).
- 68, Old limeworks, Scremerston; Lowick (J.B.D.).
- T. aloides De Not. Calcareous rocks, banks and walls, not uncommon.
- 67, Rothbury (E.H.S.). Quarry, Fourstones, Hexham; Ayle Common, S. Tyne; limestone quarry near Grindon Lough (E.M.L.).

- 68, Hudshead, Spittal; Scremerston (Hardy). Berwick (J.B.D.).
- T. atrovirens Lindb. Earthy banks by the sea, rare. 68, Seabanks at Berwick and Spittal (J.B.D.).
- T. muralis Hedw. Rocks, walls and stones, very common in the low ground. 67, 68.
 - var. rupestris Schultz
 - 67, Bardon Mill; Gunnerton Crags; quarry, Ninebanks, West Allen (E.M.L.).
 - 68, Rocks by Tweed, Cornhill (J.B.D.).
 - var. aestiva Brid.
- . 68, Cliffs near Berwick (J.B.D.). Norham (R. Hall).
- T. subulata Hedw. Sandy banks, common.
 - 67, Walls of Roman station, Borcovicus (H.N.D.). The Chesters; Brinkburn (E.H.S.). Coquet at Warkworth (J.B.D.). Hexham; Ninebanks, West Allen; Knar Burn, S. Tyne; Whitfield (E.M.L.).
 - Langlee Crag ravine (Hardy). Rothbury (E.H.S.). 68. Berwick; Scremerston; Holy Island; Bizzle, Cheviot; Roddam Dean; Craster; Warenford; Embleton; Norham (J.B.D.).
- T. angustata Wils. Exposed sunny banks, rare.
 - 67, Hedgeside, Southlands, Hexham (E.M.L.).
 - 68, Banks of River Till below Etal ; by River Tweed, Cornhill (J.B.D.).
- T. mutica Lindb. Base of trees, rocks and stones by the larger rivers, frequent.

 - 67, Coquet, Rothbury (E.H.S.). Near Warkworth (J.B.D.). 68, Coquet, Rothbury, etc. (E.H.S.). Till at Twizell; Heton Mill, Etal and Weetwood Hall; Coquet at Weldon Bridge; Tweed at Norham and E. Ord; Aln at Alnwick (J.B.D.).
- T. laevipila Schwaeg. Trunks of trees, frequent.
 - 67, Chollerton (H.N.D.). Wark-on-Tyne; Rothbury (E.H.S.). Westburnhope; Ninebanks and Whitfield, West Allen; Knaresdale, Barhaugh, and Featherstone Park, S. Tyne
- 68, Wooler Water (Hardy). Twizell Mill; Weldon Bridge (J.B.D.). Trees at Cornhill (R. Hall).

- T. intermedia Berk. Calcareous rocks and soil, frequent.
 - 67, Stamfordham; Glendue Burn, S. Tyne; near Grindon Lough; Great Swinburn, N. Tyne (E.M.L.). Seaton Sluice (Skinner).
 - 68, Dunstanburgh (H.N.D.). Berwick Castle; Holy Island; walls near Belford (J.B.D.). Norham Castle (R. Hall).
- T. ruralis Ehrh. Stony ground, walls and thatched roofs, frequent
 - 67, Dilston (Winch). Chollerford (H.N.D.). Staward ; Whitfield ; Allendale ; Gunnerton Crags ; Knaresdale, Glendue Burn and Ayle Common, S. Tyne (E.M.L.).
 - 68, Roadside, Belford moor ; thatched roof, Wark-on-Tweed (J.B.D.). Rothbury (E.H.S.).
- T. ruraliformis Dixon. Sand dunes and near coast, common on all sandy shores. 67, 68.
 - (The three preceding species were much confused by the older botanists, including Winch, J.B.D.).
- T. papillosa Wils. Trunks of trees, not common.
 - 68, Norham Dean; Till near Etal; Goldscleugh, Cheviot (J.B.D.). By the Tweed, Cornhill (R. Hall).
- Barbula lurida Lindb. Rocks and walls, generally near water, not uncommon.
- 67. Ridlees Burn; Rothbury (E.H.S.).
- 68, Rocks by Coquet, Rothbury (E.H.S.). Tweed at Twizell ; E. Ord; (c. fr.) Norham Dean; Bridge over the Aln, Alnwick ; Horncliffe Dean ; Till at Etal ; Waren Burn ; Canty's Bridge, Berwick (J.B.D.).
- B. rubella Lindb. Rocks, stony places, walls, frequent.
 - 67, Rothbury (E.H.S.). Chollerford (H.N.D.). Warkworth (J.B.D.). Hexham; Allendale; Whitfield; Staward; Warks Burn, etc. (E.M.L.).
 - 68, Coast near Berwick; East Ord; Roddam Dean; Hethpool, Bizzle, Henhole, and Harthope Linn, Cheviots (Hardy). Norham Dean; Holy Island; Scremerston; Kyloe Hill; Langleeford; Lowick; Etal; Usway Burn (J.B.D.).
- B. tophacea Mitt. Wet calcareous rocks and banks, common, especially near the sea. 67, 68.
- var. acutifolia Schp.
- 68, Sea banks, Berwick; Spittal; Scremerston; Ross Links; Waren Burn (J.B.D.).

- B. fallax Hedw. Clay banks, waste places, walls, common. 67, 68.
 - var. brevifolia Schältz.
- 68, Waren Burn (J.B.D.). Old limeworks, coast at Scremerston (R. Hall).
- B. recurvifolia Schp. Sandy ground, rare.
- 67, Ayle Common, S. Tyne, and at Featherstone Park (E.M.L.).68, Ross Links (J.B.D.).
- B. spadicea Mitt. Rocks and boulders by streams, not uncommon.
 - 67, Bogs near Blanchland (Winch Herb.). Chollerford (H.N.D.). Garley Hill, Rothbury (E.H.S.). Simonburn; Staward; quarry, Fourstones, Hexham; Holms Linn, Allendale; Barrasford, N. Tyne; Slaggyford and Ayle Common, S. Tyne, etc. (E.M.L.).
- 68, Alnwick Park; Lucker; Roddam Dean (H.N.D.). Horncliffe Dean; Norham and Warenford Deans; Lyham Burn (J.B.D.). Cowledge Burn, Alnwick (E.M.L.).
- B. rigidula Mitt. Walls and rocks, frequent.
 - 67, Walls, Rothbury (E.H.S.). Haydon Bridge; Warks Burn; W. Dipton Dean; Staward; Gunnerton and Sewingshields Crags; Font Burn, Pigdon; Slaggyford and Ayle Common, S. Tyne, etc. (E.M.L.).
 - 68, Scremerston; Alnwick; Lyham Burn; Haydon Dean; Lowick; Rothbury; Wark-on-Tweed; Waren Burn; Kyloe Hills (J.B.D.).
- B. Nicholsoni Culmann. Rocks and boulders by river banks, not common.
- 67, Coquet near Rothbury, and near Warkworth (J.B.D.).
- 68, Tweed at Norham, Twizell, Cornhill, Wark, Horncliffe and East Ord; Till at Hetton Mill; Aln at Alnwick; Usway Burn; Coquet at Rothbury and Linbrig (J.B.D.). Aln at Hawk Mill, Lesbury (W. E. Nicholson).

This form though treated by Dixon as a sub-species and by Mönkemeyer (Laubmoose Europas) as a variety of *Barbula rigidula* Mitt., I have always considered must be a form or variety of *Barbula lurida* Lindb.

The plant is well known to me and is frequent by the rivers Wye, Severn and others further north in Yorkshire and Northumberland and also in the Tweed. Intermediate forms accur, connecting *Barbula lurida* with the taller *B. Nicholsoni* whose habitat is on river banks where it is subject to periodic submergence in floods; its fruit has not been seen.

Barbula rigidula has a very different habit, growing on dry rocks and walls in small tufts or patches. Its leaves when dry are flexuose and twisted, quite unlike those of *B. Nicholsoni*. It frequently fruits, and invariably produces characteristic stalked gemmae in the axils of the upper leaves, these I have never observed in *B. Nicholsoni*. J.B.D.

- B. cylindrica Schp. Walls, rocks, banks of streams, very common.
 67, 68.
- B. vinealis Brid. Sandstone walls and rocks, not common.
 - 68, Walls, Alnwick; Tweedmouth; Alnmouth (J.B.D.). Norham; Holy Island (R. Hall).
- B. sinuosa Braithw. Walls and rocks, rare.
 - 68, Horncliffe Dean; Wark-on-Tweed, on rocks overlooking river (J.B.D.). Norham Dean (R. Hall).
- B. Hornschuchiana Schultz Roadsides, old quarries, etc., not common.
 - 67, Rail station, Rothbury (E.H.S.). Wall near Chollerford (E.M.L.).
- 68, Hetton Law (W. B. Boyd). Cragside, Rothbury (E.H.S.). East Ord; Scremerston; Bamburgh; Belford; Sanson Seal, Berwick; Doddington (J.B.D.).

B. revoluta Brid. On mortar of walls, common.

- 67, Chollerford (H.N.D.). Hexham; Haydon Bridge; Catcleugh Reservoir; Whitfield; limestone rocks, Melkridge Common (E.M.L.).
- 68, Bamburgh (Hardy). Holy Island (c. fr.) (H.N.D.). Rothbury (E.H.S.). Berwick ; Scremerston ; Alnwick (J.B.D.).

B. convoluta Hedw. On the ground and on wall tops, frequent.

- 67, The Chesters, Chollerford (H.N.D.). Hexham; Newton Hall; Allenheads; Whitfield; Ridley Hall, Bardon Mill (E.M.L.).
- Near Wooler (Hardy). Cragside, Beggars Rigg, Rothbury (E.H.S.). Chillingham; Holy Island; Goswick Links; Kyloe Hill; Lowick; Waren Burn (J.B.D.).

J. B. DUNCAN ON

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B. unguiculata Hedw. Banks, walls and bare ground, very common. 67, 68.

var. cuspidata B. & S.

68, Scremerston (J.B.D.).

Leptodontium flexifolium Hampe Peaty soil, not common.

- 67, Shaftoe Crags (E.H.S.). Westburnhope and Eshells moors, Hexhamshire Common; moor above Lowgate, Hexham; Muckle Moss; Ayle Common, S. Tyne; Hareshaw Common, Bellingham; Simonside (E.M.L.).
- 68, Trickley Wood, Whiteside Hill (Hardy). North Hills and Cragside, Rothbury (E.H.S.). Chatton Hill (c. fr.); Kyloe Hills; moors, Edlingham; Ross Hill, Chillingham; Lyham Moor (J.B.D.).

[Weisia crispa Mitt. Calcareous ground.

67, West Dipton, Hexham (Winch, 1838).]

[W. rostellata Lindb.

67, Noted in Moss Cen. Cat. Source unknown. J.B.D.]

This and the preceding species are very old records going back to Winch's time and must be regarded as very doubtful and requiring confirmation. J.B.D.

Weisia squarrosa C.M.

68, Fallow field, Warenford (R. Hall).

- W. microstoma C.M. Dry banks, frequent.
 - 67, Garley Hill, Rothbury ; base of Simonside (E.H.S.). High Wood, Hexham ; Whitfield ; Great Swinburn (E.M.L.).
- 68, Berwick; Scremerston; Usway and Alwin burns; Kyloe Crags (J.B.D.).

W. viridula Hedw. Dry banks, frequent.

- 67, Dilston Park; Fallowlees Burn (Winch). Rothbury (E.H.S.). Bardon Mill (H.N.D.). West Dipton; Staward; Haydon Bridge; Warks Burn, etc. (E.M.L.).
- 68, Henhole and Bizzle, Cheviot (Hardy). Rothbury (E.H.S.). Berwick; Horncliffe; Etal; Cornhill (J.B.D.). Kyloe Crags (R. Hall).

var. densifolia B. & S.

67, Coalcleugh, West Allen (K.B.B. & E.M.L.).

W. mucronata B. & S. Clay banks, very rare.

68, Old quarry, Haydon Dean; near Duddo (R. Hall).

Hardy records this from a number of localities but I think certainly in error. J.B.D.

W. tenuis C.M. Faces of damp sandstone or calcareous rocks.

- 67, Rothbury; Linbrig (E.H.S.). Hareshaw Linn, Bellingham; quarry, Fourstones, Hexham; Ridley Hall, Bardon Mill; Pigdon Woods (E.M.L.).
- 68, Ord Mill, Berwick (Dr. Johnston). Limestone, coast at Scremerston; Lyham Dean (Hardy). Biddlestone Woods; Cragside, Rothbury (E.H.S.). Horncliffe Dean; River Till at Twizell, Heton Mill and Etal; Craster (J.B.D.). Norham Castle (R. Hall).

W. rupestris C.M. Damp calcareous rocks, not common.

- 67, West Dipton; Staward; Hareshaw Linn; Warks Burn; Potter Burn, Blanchland Moor; Knar Burn and Kirkside Wood, S. Tyne; Sewingshields Crags; Holms Linn, Allendale (E.M.L.).
- 68, Roddam Dean (H.N.D.). Kyloe Hill; burn at Shielhope Chatton (J.B.D.).

W. curvirostris C.M. Wet cliffs, rare.

- 67, Hareshaw Linn, Bellingham (E.M.L.).
- 68, Cliffs near Needle's Eye, Berwick ; by the River Till at Twizell (J.B.D.).
- var commutata Dixon
- 68, Cliffs near Berwick; near Howick; dripping rocks by River Till at Twizell (J.B.D.).

In the Berwick and Twizell localities for this variety, the plant forms large cushions quite two inches deep, the stems showing several periods of growth with all the leaves exhibiting the wellmarked characters of the variety while the young growth at the apex of the same stem is entirely normal and that of the type in every detail.

This unusual occurrence would seem to suggest that this variety may be more properly regarded as a "habitat" form.

J.B.D.

D

- 67, Warden Mill; Dilston; Cullercoats; Ouse Burn (Winch). Chollerford (H.N.D.). Allerdene, Rothbury (E.H.S.). Lilswood, Hexhamshire; Middle Burn, and Warks Burn, N. Tyne; Staward (c. fr.) Hareshaw Linn; Riding Mill (E.M.L.).
- Twizell Bridge (Dr. Johnston). Berwick; Warenford 68, Dean (c. fr.), Rowting Linn; Horncliffe Dean (c. fr.), Priest Dean (c. fr.) (J.B.D.). Cawledge Burn near Alnwick (H. Tully & E.M.L.).
- Trichostomum crispulum Bruch Calcareous rocks and banks, especially near the sea, not common.
- 67, Hareshaw Linn, Bellingham (E.M.L.).
- 68, Dunstanburgh Castle (W. B. Boyd). Sea banks, Marshall
- Meadows; Scremerston; Holy Island; Spindlestone Hills; Bamburgh (J.B.D.). By Tweed at Cornhill (R. Hall).
- T. mutabile Bruch Rocks and banks chiefly on the coast, frequent.
- 67, Thrum Rocks, Rothbury; Gunnerton Crags (J.B.D.). Grindon Lough; Sewingshields Crags; Great Swinburn, N. Tyne (E.M.L.).
- 68, Dunstanburgh Castle (W. B. Boyd). Rothbury (E.H.S.). Sea banks, Berwick ; Holy Island (J.B.D.). var. littorale Dixon
- 67, By the Coquet, Rothbury (J.B.D.). Ninebanks, West Allen (E.M.L.).
- 68, Alwinton (Hardy). Kyloe Hills (H.N.D.). Cragside, Rothbury; Berwick; hills, Belford; Lyham Burn; Rowting Linn; Linbrig, Coquetdale; Bamburgh (J.B.D.).
- T. tenuirostre Lindb. Damp shady rocks by streams, rare.
 - 67, Hareshaw Linn; Glendue Burn, S. Tyne; Wolf Hills, Whitfield Moor (E.M.L.).
- 68, By a small stream joining River Till below Etal (J.B.D.).
- T. flavovirens Bruch Sandy ground and banks by the sea,
 - 67, Near Seaton Sluice (H. Tully).
 - 68, Berwick (Hardy). Dunstanburgh Castle (W. B. Boyd). Scremerston, Marshall Meadows (J.B.D.).

A form with tapering acute leaves is not uncommon. J.B.D.

- T. tortuosum Dixon Rocks, chiefly in calcareous districts, not common.
 - 67, Near Wylam; near Hexham (Winch). Sewingshields (H.N.D.). Carshield, West Allen; old wall, Whitfield; Allendale and Allenheads; Gunnerton Crags; Hareshaw Linn; Grindon Lough (E.M.L.). Garley Hill, Rothbury (E.H.S.). Seaton Sluice (H. Tully).
 - 68, Cheviots-Bizzle, Henhole, Carey Burn Rocks and Langlee Crag ravine (Hardy). Cragside, Rothbury (E.H.S.). Dean at Warenford; cliffs at Berwick; River Till near Etal; rocks near coast, Bamburgh (J.B.D.).
- Cinclidotus fontinaloides P. Beauv. Rocks and boulders in streams, frequent.
- 67, Wansbeck at Wallington and Kirkwhelpington (Winch). Tyne at Chesters (H.N.D.). Coquet at Warkworth and Rothbury (J.B.D.). Type at Warden and Barrasford; S. Tyne at Kirkside Wood; River Allen at Staward; Ham Burn, Hexhamshire; Haltwhistle Burn (E.M.L.).
- 68, Tweed at Carham and Cornhill (Winch). Cawledge Burn, Alnwick; Coquet at Alwinton (Hardy). Coquet at Rothbury; Usway Burn (E.H.S.). Tweed at Twizell and Norham; Low Linn Mill (J.B.D.).

Encalypta vulgaris Hedw. Walls and calcareous banks, frequent.

- 67, Dilston Park; near Ovingham (Winch). Garley Hill, Rothbury; Whitton (E.H.S.). Haltwhistle (K.B.B.). Hexham; Bellingham; Matfen; Langley; Grindon Lough ; Ayle Common, S. Tyne ; Great Swinburn (E.M.L.)
- 68, Dykes above Prior House, Etal road, Tweedmouth (Thompson). Alnwick ; near Kyloe ; Lyham and Henlaw, on walls; Roddam Dean; Kettle Camp, Wooler; Langlee Crag ravine (Hardy). Rothbury; near Felton (E.H.S.). Lowick; Edlingham; Carham; Berwick (J.B.D.).

E. ciliata Hoffm. Mountain rocks, rare.

68, Bizzle, Cheviot (Hardy). Usway Burn (E.H.S.). Lindhope Burn (J.B.D.).

- E. streptocarpa Hedw. Calcareous rocks and mortar of walls, not uncommon.
 - 67, Roadley, near Wallington (Winch). Chollerford (H.N.D.). Garley Hill; Whitton (E.H.S.). Ladle Walls, Hexhamshire Common; Hexham; Staward; Humshaugh; Grindon Lough; Stamfordham; Haydon Bridge, etc. (E.M.L.).
- 68, Roddam Dean; S. Middleton Dean (Hardy). Lowick; Chatton Park; Usway Burn (J.B.D.).

Zygodon lapponicus B.&S. Mountain rocks, rare.

- 68, The Bizzle, Henhole and Langlee Crag ravine, Cheviot (Hardy). The Bizzle (J.B.D., 1925).
- Z. Mougeotii B. & S. Damp rocks in the hilly parts, not common, fruit extremely rare.
 - 67, Burn east side of Garley Hill (E.H.S.). Westburnhope, Hexhamshire Common; Langley; Staward; Crag Lough; Hareshaw Linn; Warks Burn; Beldon Burn; Glendue Burn, S. Tyne; Ridley Hall Woods (E.M.L.).
- 68, Bizzle, Henhole, Hethpool Linn, Common Burn, Carey Burn Rocks, Langlee Crag ravine, Harthope Linn, Cheviots; Linhope Linn; Hawise Burn, near Alwinton (Hardy). Usway Burn; Wholehope Burn, Kidland; Black Burn, Rothbury (E.H.S.). Coquet at Linbrig; River Alwin (J.B.D.). The Bizzle, Cheviot (c. fr.) (R. Hall).
- Z. viridissimus R. Brown Trees, occasionally on rocks, common.
 - 67, Wallington; Lee Woods (E.H.S.). Sewingshields and Gunnerton Crags; Greenshaw Plain, Hexham; Staward and Ridley Hall Woods; Knaresdale and Featherstone Park S. Tyne; Ninebanks, West Allen; Chollerford (E.M.L.).
- 68, Roddam Dean; Hethpool Linn (Hardy). Horncliffe Dean; Twizell; Alnwick; Holy Island; Newwaterhaugh, Berwick; Etal; Carham; Fenwick wood (c. fr.) Rowting Linn (J.B.D.).
- var. rupestris Hartm.
- 67, Allendale Common; quarry, Ninebanks, West Allen (E.M.L.).
- 68, Rocks near Warenford (R. Hall).

BRYOPHYTES OF NORTHUMBERLAND

- Z. Stirtoni Schp. Rocks chiefly near the sea, frequent.
 - 68, Norham Dean; Twizell; Roddam Dean; Lindhope Burn (J.B.D.).
- Ulota Drummondii Brid. Trees, chiefly hazel, in damp hilly deans, rare.
- 67, Near Rothley Lake, Wallington (Dixon's list). Trevelyan
- (1835). In a small dean near Barrow Burn, south of Harbottle Crags (J.B.D. & E.H.S.). Staward (E.M.L.).
- 68, Alder trees below Langleeford (Dr. Johnston). Langlee Crag ravine; Lyham Dean (Hardy). Roddam Dean (H.N.D.). Waren Burn, Belford, on hazel (J.B.D.).
- U. Bruchii Hornsch. Trees usually by streams, frequent.
 - 67, Hart Burn (E. Armitage). Pigdon Woods ; West Dipton ; Staward and Ridley Hall Woods ; Barhaugh and Featherstone Park, S. Tyne ; Langley (E.M.L.).
 - 68, Langlee Crag ravine; Dunsdale wood, on heather (Hardy). Twizell; Horncliffe Dean; Belford; Langleeford; Priest Dean; Detchant wood (J.B.D.).

U. crispa Brid. Trees in damp woods, frequent.

- 67, Whitton Dean; burn, Garley road, Rothbury (E.H.S.). West Dipton; Staward and Ridley Hall woods; Ninebanks, West Allen (E.M.L.).
- 68, On mountain ash in Bizzle and Bellyside ravine (Hardy). Chatton; College Water; Waren Burn; Roddam Dean; Detchant wood (J.B.D.).
- var. intermedia Braithw.
- 67, Halliwell Dean, Devil's Water; Staward (E.M.L.).
- 68, Howick Woods (Herb. R.C.E.). Black Burn, Rothbury (E.H.S.). Alnwick Park (H.N.D.). Tweed, East Ord; Belford; Langleeford; College Water; Rowting Linn; Dean at Warenford; Etal; Priest Dean; Detchant wood (J.B.D.).
- U. phyllantha Brid. Trees and rocks near the sea, not uncommon.
 - 68, Dunstanburgh (H.N.D.). East Ord; Belford; Haydon Dean; Etal; Newham Bog (J.B.D.). Staple Island, Farnes (E.M.L.).

67, Staward (E.M.L.).

- 68, Rocks at Carham and Wark (Winch). Rocks at Easington House below Belford (Dr. Johnston). Near Maiden Well, Wooler (Hardy). Thrum rocks, Rothbury; above Shilmoor (E.H.S.). Waren Mill; near Bamburgh; College Water; by Tweed below Norham (J.B.D.).
- O. anomalum Hedw. Siliceous rocks, very rare; the var. frequent 68, Hethpool Linn (Hardy).
 - var. saxatile Hedw.
- 67, Chollerton (H.N.D.). Peckriding Br. Allendale; Warks Burn; Humshaugh; Gunnerton Crags; Fourstones, Hexham; Styford-on-Tyne; Langley Castle; Ninebanks, West Allen; Great Swinburn (E.M.L.).
- 68, Knocklaw Bank; bridge on Alnwick road, Rothbury (E.H.S.). Canty's Bridge, Berwick; Tweed at Horncliffe; Southern Knowe, College Water; Warenford; Carham (J.B.D.).
- O. cupulatum Hoffm. Rocks and walls, most commonly on boulders on river banks, frequent.
 - 67, Gunnerton (H.N.D.). Coquet near Warkworth (J.B.D.). Delf Burn (E. Armitage). Chipchase Castle; Staward; West Dipton; Fourstones, near Hexham; Great Swinburn, N. Tyne (E.M.L.).
- 68, Carham (Winch). Walby Hill, Rothbury (E.H.S.). Horncliffe; Haydon Dean; near Tweed, East Ord; Warenford; Linbrig, Coquetdale (J.B.D.).
- var. nudum Braithw.
- 67, Boulders in Tyne, Chollerford (H.N.D.). River Tyne, at Styford Hall; River Allen at Plankey (E.M.L.). Greenlee Lough, Roman Wall (H. Tully).
- 68, Whitadder, near Berwick; Warenford; Tweed at Cornhill (J.B.D.).
- O. leiocarpum B.& S. Trees, rare.
- 67, Slaggyford, S. Tyne; Whitfield (E.M.L.).
- 68, Wood near Little Mill (Herb. Embleton). Langleeford (H.N.D.). College Water (J.B.D.).

BRYOPHYTES OF NORTHUMBERLAND

- O. Lyellii Hook. & Tayl. Trunks of old trees, frequent. Fruit rare.
 - 67. Knaresdale, Barhaugh, and Featherstone Park, S. Tyne; Whitfield, West Allen (E.M.L.).
 - 68, Wooler; Old Middleton wood; Roddam Dean; near Earl (Hardy). Twizell; Warenford; Goldscleugh; Etal (J.B.D.).
- O. affine Schrad. Trees, occasionally on stones and walls, very common. 67, 68.
 - var. rivale Wils.
 - 67, Chollerford (H.N.D.). Trees by Coquet, Rothbury; near Warkworth (J.B.D.).
 - 68, Trees over a burn, Bowsden (J.B.D.).
- O. rivulare Turn. Rocks and tree roots on river banks, not common.
- 67, Coquet, Rothbury (E.H.S.). Coquet near Warkworth (I.B.D.). By Tyne at Barrasford (E.M.L.).
- 68, Old Middleton Burn; Roddam Dean; Common Burn above Watchlaw: Hethpool Linn (Hardy). River Alwin above Kidland Lee (E.H.S.). River Till at Heton Mill: Aln at Hulne Park (J.B.D.).
- O. Sprucei Mont. Trees on river banks, rare.
- 68, Coquet at Weldon Bridge (E.H.S.). By the Till at Weetwood Hall, Etal, and Tillmouth (J.B.D.).
- O. stramineum Hornsch. Trees, frequent.
- 67, Ninebanks, West Allen (E.M.L.).
- 68, Middleton Hall (Hardy). Alnwick Park; Roddam Dean (H.N.D.). Usway Burn; Chillingham; Etal; Horncliffe Dean; College Water; Goldscleugh; Rowting Linn; Warenford; Fenwick wood; Norham Dean (J.B.D.).
- O. tenellum Bruch Trees, rare.
- 67, Knaresdale, S. Tyne; Sewingshields, Roman Wall (E.M.L.).
- O. pulchellum Bruch Trees in damp situations, not uncommon. 67, Behind Fenham on Newcastle Town Moor (1803, Winch). By Coquet near Warkworth (J.B.D.). Haltwhistle Burn;
 - River Allen at Plankey; Eshells, Hexhamshire (E.M.L.). 68, Longridge Dean, Berwick (Winch). Langleeford; Dunsdale Wood, Cheviot (Hardy). Horncliffe Dean; Twizell; Havdon Dean ; Dean at Warenford ; Etal ; Southern

Knowe, College Water; Newham Bog (J.B.D.).

O. diaphanum Schrad. Trees, fences, walls, common.

- 67, Gosforth; Fenham (Winch). Whitton, Rothbury (E.H.S.). Hydro., Hexham; by Tyne, Corbridge; Wark; Bardon Mill, etc. (E.M.L.).
- 68, Near Earl; Whiteside (Hardy). Cartington, Rothbury (E.H.S.). Horncliffe; Berwick, etc. (J.B.D.).
- Oedipodium Griffithianum Schwaeg. Earthy crevices of mountain rocks, very rare.

68, Bizzle and Henhole, Cheviot (Hardy) (J.B.D.).

- Splachnum ampullaceum L. On cattle dung in boggy ground, rare. 67, Prestwick Carr; Muckle Moss (Winch). Catcherside near Cambo (Trevelyan). Bog near Sewingshields, Roman Wall (E.M.L.).
- 68, Kemping Moss (J.B.D.).
- S. sphaericum Linn. fil. On sheep droppings on the higher moors. 67, Holliwell Moss; Ebchester; Prestwick Carr; Catcherside near Cambo (Winch). Darden Lough (E.H.S.). Near Sweethope Lough; Ladle Wells, Hexhamshire Common; Killhope (E.M.L.).
- 68, Cheviot (Winch). Hedgehope (J.B.D.).
- S. vasculosum L. Mountain springs, very rare.

68, Bizzle, Cheviot, but not fruiting (May, 1933, J.B.D.).

- Tetraplodon mnioides B.& S. On decaying animal matter, rare.
 - 67, Allenheads (Bartlett). Crag Lough (E.M.L.).
- 68, Cheviots (Hardy). Kyloe Crags (J.B.D.).

Discelium nudum Brid. Clay banks, rare.

67, Steep clay bank of river, S. Tyne, Haltwhistle (K.B.B.

- Ephemerum serratum Hampe Fallow fields, not common. 67, Colt Crag Reservoir (E.M.L.).
- 68, Fields near Berwick (Dr. Johnston). Newwaterhaugh, Berwick (J.B.D.).

Physcomitrella patens B.& S. Margins of ponds on dried mud,

- 67, Colt Crag Reservoir; near Ridsdale (K.B.B.).
- 68, Edlingham Castle; pond at Doddington (J.B.D.).

- Physcomitrium pyriforme Brid. Clay banks and sides of ditches, not common.
 - 67, Near Lemington, Benton and Gosforth (Winch). Near Hexham (H.N.D.). Rothbury (E.H.S.). The Hatchery, Barrasford-on-Tyne (E.M.L.).
- 68, Embleton (R. C. Embleton, 1840). Hetton Hall (Hardy). Sea banks near Berwick; by River Till at Weetwood Hall (J.B.D.).

Funaria fascicularis Schp. Fallow fields, rare.

- 67, Near Hexham (H.N.D.).
- F. ericetorum Dixon Sides of wet ditches on the moors, not common.
 - Simonside; Garley Hill, Rothbury (E.H.S.). Eshells 67. moor, Hexhamshire Common ; Warks Burn (E.M.L.).
 - 68, Near Dunsdale; Bizzle and Henhole, Cheviot; Linhope Spout ; Old Bewick Moor (Hardy). Lucker Moor (J.B.D.). Waren Burn (R. Hall).
- F. Templetoni Sm. Banks of streams, rare.
- 68, Cragside, Rothbury; Waren Burn, Lucker (J.B.D.).
- F. hygrometrica Sibth. Heaths, banks, etc., especially where the ground has been burned, very common. 67, 68.
- Amblyodon dealbatus P. Beauv. Boggy ground, rare.
- 67, Muckle Moss (Winch). Simonside (E.H.S.).
- 68, Cartington, Rothbury (E.H.S.). Holy Island; Ross Links; near Bamburgh (J.B.D.).

Meesia trichoides Spruce Boggy ground on the hills, rare.

- 67, Holliwell Moss; Muckle Moss (Winch).
- 68, Common burn, Cheviot, below the shepherd's cottage (Hardy). Hethpool (Hardy, 1868).
- Aulacomnium palustre Schwaeg. Bogs and wet moors, very common. 67, 68.
- 67, Rothbury (c. fr.) (E.H.S.).
- A. androgynum Schwaeg. Banks, rotten stumps and sandstone rocks, not common.
 - 67, Prestwick Carr; Muckle Moss (Winch). Tree trunk, Thrum rocks, Rothbury (E.H.S.). Gosforth Park (Bartlett). Rothley (E. Armitage). Staward; Warks Burn; Blanchland; Westburnhope Moor (E.M.L.).
 - 68, Hebburn wood (Hardy). Rothbury (E.H.S.). Kyloe Hills; Rowting Linn (J.B.D.).

- Catoscopium nigritum Brid. Damp sandy ground on the cast, rare.
 - 68, Holy Island; Ross Links (J.B.D.).
- Bartramia ithyphylla Brid. Rock crevices in hilly districts, frequent.
 - 67, Allendale; Blanchland (Winch). Staward; Knaresdale, S. Tyne (E.M.L.).
 - Hethpool, Bizzle and Henhole, Cheviots; Humbleton 68, Dean; Carey Burn rocks; Roddam Dean (Hardy). Heton Mill; Kyloe Hills; Spindlestone Hill; Langleeford; Twizell; Linbrig, Coquetdale (J.B.D.).
- B. pomiformis Hedw. Rock crevices and sandy banks, frequent. 67, Banks of River Irthing near Wardrew; Fallowlees Burn (Winch). Sewingshields (H.N.D.). Gunnerton Crags; Dhu Gill, S. Tyne, Knaresdale (J.B.D.). West Dipton; Staward and Ridley Hall Woods; Warks Burn; Hareshaw Linn (E.M.L.).
- Langleeford, Cheviot (H.N.D.). Rothbury ; Windyhaugh, 68. Coquetdale (E.H.S.). Kyloe Hills; crags near Belford; Easington ; Usway Burn ; Alwin Burn ; Bizzle, Cheviot (J.B.D.).
- var. crispa B.& S.
- 67, Rocks near the S. Tyne at Slaggyford (J.B.D.). Sewingshields Crags; rocks, Wolf Hills, Whitfield Moor (E.M.L.).
- 68, Cheviot (Thompson). Henhole, Cheviot (J.B.D.).

- Philonotis fontana Brid. Bogs, springs and river banks, frequent. 67, Housesteads (H.N.D.). Simonside (E.H.S.). By Coquet near Warkworth (J.B.D.). Allendale Common ; Whitfield Moor; Blanchland Moor; Westburnhope and Eshells Moors, Hexhamshire Common, etc. (E.M.L.).
- 68, Cartington, Rothbury (E.H.S.). Cheviot; Warenford;
- Usway Burn; Dod Law, etc. (J.B.D.). P. caespitosa Wils. Wet rocks, very rare.
- 67, Near a spring on moors, south of Rothbury Golf Course (E.H.S.).
- P. calcarea Schp. Calcareous bogs and springs, not common. 67, Base of Ravensheugh, Simonside (E.H.S.). S. Tyne near Knaresdale; Allendale Common; Burntridge Moor, Hexhamshire Common; Ayle Common, S. Tyne (E.M.L.).

- 68, Hebburn Wood (Hardy). Cartington, Rothbury; Coquet at Windyhaugh (E.H.S.). Seabanks, Marshall Meadows; Newham bog; Rowting Linn; Roddam Burn (J.B.D.).
- P. capillaris Lindb. Clefts of rocks by springs, damp pathways, etc., not common.
- 68, Henhole, Cheviot (H.N.D.). Coquet, Windyhaugh; Cragside, Rothbury (E.H.S.). Bizzle, Cheviot ; Southern knowe, College Water ; Lyham Burn ; Kyloe Plantation ; Usway Burn (J.B.D.).

Breutelia arcuata Schp. On wet moors, rare and local.

- 67, Eshells, Burntridge and Westburnhope Moors, Hexhamshire Common; Crag Lough (E.M.L.).
- Cheviot and Hedgehope (Winch). Bizzle, Henhole, 68. Cheviot; Carey Burn (Hardy). Lyham Moor (J.B.D.).

Orthodontium gracile Schwaeg. Sandstone rocks, very rare.

68, Kyloe Hills; Belford Moor (J.B.D.).

var. heterocarpum Watson.

- 67, On decaying wood and peaty soil near Elrington, Haydon Bridge ; in wood under fir trees, Woodley Field, Hexham ; Colt Crag Reservoir (E.M.L.). Prestwick Carr (K.B.B.).
- Leptobryum pyriforme Wils. Sandstone rocks, often in hothouses. not uncommon.
- 67, Quarry, Folly Tower, Rothbury (E.H.S.). Greenhouse, Hexham (E.M.L.).
- 68, Hetton Hall (Hardy). Cartington Castle walls ; Rothbury (E.H.S.). Tweedmouth ; by River Till, Weetwood Hall ; Usway Burn; Lindhope Linn; St. Cuthbert's Cave, Holborn (J.B.D.).

Webera polymorpha Schp. Mountain rocks.

68, Bizzle and Henhole, Newton Tor; and Harthope Linn (Hardy).]

This must be considered as very doubtful and probably an error. J.B.D.

Webera elongata Schwaeg. Clefts of rocks in higher hills, rare.

- 67, Glendue Falls, near Haltwhistle (K.B.B.).
- Bizzle rocks, Cheviot (Hardy) (J.B.D.). Sandstone rocks on the coast near Berwick. (Barren and a little doubtful, (J.B.D.).

- W. cruda Schwaeg. Clefts of rocks in the hilly parts, frequent.
 - 67. Sewingshields Crags; Gunnerton Crags; Staward; Holms Linn, Allendale; Crags near Sweethope Lough; Slaggyford, S. Tyne ; rocks, Whitfield Moor (E.M.L.). Corbridge (R. B. Cooke).
- 68, Henhole and Bizzle; Newton Tor; above Langleeford, Cheviot ; Humbledon Dean ; Carey Burn rocks ; near Coldgate Mill; Roddam Dean; Lindhope Linn; Alwinton (Hardy). Usway Burn (E.H.S.). Kyloe Crags; crags near Belford (J.B.D.).
- W. nutans Hedw. Peaty and sandy soil, woods and moors, very abundant. 67, 68.
- var. longiseta B.& S.
- 67, Fortherley Moss, Slaley; Prestwick Carr (K.B.B.). Colt Crag Reservoir (E.M.L.).
- 68, Shepherdskirk Hill, Kyloe; moors Edlingham; Ford Moss (J.B.D.).
- W. annotina Schwaeg. Sandy places, not common.
 - 68, Bamburgh (H.N.D.). Cragside, Rothbury; Southern knowe, College Water (J.B.D.). var. erecta Correns
- 68, Kyloe plantations on roadway; Waren Burn (J.B.D.).
- var. bulbifera Correns
- 68, Lyham Burn; Rothbury; Kyloe Plantation; Weetwood Hall, by River Till; Ross Links; River Alwin; Waren Burn (J.B.D.).
- W. proligera Bryhn Sandy ground and rocks, not common.
- 67, River Allen at Staward; Crag Wood, Devil's Water; Warks Burn; Potter and Beldon Burns, Blanchland; Hareshaw Linn; Gilderdale Burn and Ayle Common, S. Tyne; High Wood, Hexham; River Tyne, Haltwhistle (E.M.L.).
- 68, Roadside, Southern knowe, College Water (J.B.D.).
- W. Ludwigii Schp. Only on Cheviot, very rare.
- 68, Near the source of Bizzle Burn, Cheviot (J.B.D.).
- W. carnea Schp. Clay banks by streams, not uncommon.
 - 67, Dilston, Hexham (Winch). Rothbury (E.H.S.). Ham Burn, Hexhamshire; Holms Linn, Allendale; Wolf Hills, Whitfield Moor (E.M.L.).

- Dunstanburgh (H.N.D.). Cartington, Rothbury (E.H.S.). 68. Sea banks near Berwick; Norham Dean; by the Tweed near Berwick (J.B.D.). Waren Burn (R. Hall).
- W. albicans Schp. Clay banks, springs, etc., frequent.
- 67. Chollerford (H.N.D.). Rothbury (E.H.S.). Near Warkworth (J.B.D.). Hexham; Ham Burn, Hexhamshire (c. fr.); Warks Burn; Haltwhistle Burn; Staward; Allenheads; Gilsland; Blanchland; Grindon Lough; Whitfield Ayle Common, and Glendue Burn, S. Tyne (E.M.L.).
- 68. The Bizzle, Common Burn, Newton Tor, Cheviot : Roddam Dean ; Lindhope Linn (Hardy). Roddam Dean (c. fr.) (H.N.D.). Embleton (c. fr.) (R. C. Embleton, 1837). River Alwin, Kidland; River Coquet, Windyhaugh; Usway Burn (E.H.S.). Chillingham (J.B.D.).
- Plagiobryum Zierii Lindb. Clefts of moist mountain rocks, rare.
- 67, Sandstone rocks, Staward ; Sewingshields Crags (E.M.L.).
- 68, Bizzle and Henhole, Cheviot (Hardy) (1925, J.B.D.).
- Bryum filiforme Dicks. Wet rocks in hill streams, rare.
 - 67, Thrum rocks, Rothbury (J.B.D.). S. Tyne at Featherstone Park (E.M.L.).
 - Bizzle, Hethpool Linn, Common Burn, Carey Burn and 68. Langlee Crag ravine, Cheviots (Hardy). Usway Burn (E.H.S.). Henhole, Cheviot (J.B.D.).
- Sandy ground walls and dry heaths, not B. pendulum Schp. common.
- 67, Druridge Bay; Rothbury (E.H.S.).
- 68, Bridge, Langleeford, Cheviot (H.N.D.). Goswick Links; Ross Links; Holy Island; Berwick (J.B.D.).
- B. calophyllum R. Br. Damp sandy hollows near the sea, very rare.
- 68, Holy Island (Boyd) (J.B.D.).
- B. lacustre Brid. Damp sandy places by the sea, very rare. 68, Ross Links (J.B.D.).
- B. inclinatum Bland. Dry heaths, rocks and walls, not common. 67, Seaton Sluice (Skinner).
 - 68, Bizzle, Cheviot; Bamburgh Castle (J.B.D.).
- B. uliginosum B.& S. Damp sandy places, rare.
 - 68, Roddam Dean (H.N.D.).

- B. pallens Sw. By streams and wet places, common.
 - 67, Prestwick Carr; Scotswood; Beldon Burn; Muckle Moss (Winch). Chollerford (H.N.D.). Rothbury (E.H.S.). Near Warkworth (J.B.D.). Close to water, River Tyne, N. Wylam, a form app. var. euryphyllum Jones (R. B. Cooke). River Allen at Staward ; Ridley Hall and Allendale; Hareshaw Linn; by River Tyne at Hexham and Haydon Bridge; S. Tyne at Haltwhistle and Slaggyford (E.M.L.).
- 68, Cragside; Kidland, Coquetdale (E.H.S.). Berwick; Ross Links; Lyham Burn; Cheviot; Roddam Dean; Usway Burn (J.B.D.).
- B. Duvalii Voit Springs on hills, very rare.
- 68, Springs on east side of Hedgehope (1925, J.B.D.).
- B. turbinatum Schwaeg. Sandy ground, rare.
- 67, Thrum Rocks, Rothbury (E.H.S.).
- B. pseudo-triquetrum Schwaeg. Bogs and wet places, frequent, especially in the hills. 67, 68.
 - var. compactum B.& S.
- 68, Ross Links (J.B.D.).
- B. bimum Schreb. Bogs and pools, rare.
- 68, Holy Island (R. Hall).
- B. pallescens Schleich. Rocks and walls in hill districts, rare.
- 68, Near Wooler (specimen J. Hardy, fide Dixon).
- B. intermedium Brid. Damp sandy ground, walls, etc., frequent. 67, Sand dunes, Hauxley, Amble (E.M.L.).
- 68, Ross Links; Bamburgh (J.B.D.).
- B. caespiticium L. Rocks and walls, common. 67, Sewingshields (H.N.D.). Rothbury (E.H.S.). Oakwood, Hexham; Featherstone Park and Slaggyford, S. Tyne; Allendale, etc. (E.M.L.).
- 68, Berwick; Scremerston; Holy Island; Yeavering; Langleeford (Hardy). Rothbury (E.H.S.). Kyloe Hill; Kirknewton, etc. (J.B.D.).
- B. capillare L. Walls, rocks, tree-trunks, abundant. 67, 68. var. macrocarpum Huebn.
- 67, Beaufront Castle; Staward; West Allen; Great Swinburn (E.M.L.). Walls, Haltwhistle (K.B.B.).
- 68, Damp rocks near Kyloe (J.B.D.).
- var. elegans Braithw.
- 68, The Bizzle, Cheviot (R. Hall).

- B. erythrocarpum Schwaeg. Sandy heaths, not common, or overlooked.
- 68, By the River Till, Tiptoe; Goswick (J.B.D.).
- B. atropurpureum W. & M. Roadsides, wall-tops, waste places, very abundant. 67, 68.
- var. gracilentum Tayl.
- 67, By River Tyne, Wylam (K.B.B.).
- 68, Cragside, Rothbury (E.H.S.). East Ord; Etal; seabanks near Berwick (J.B.D.).
- B. murale Wils. Mortar of walls, rare.
- 68, Wall between Knocklaw and Burnfoot, Rothbury (E.H.S.).
- B. alpinum Huds. Wet rocks, chiefly in the hills, not common.
- 67, Sewingshields (Winch). Crag Lough ; near Roman Wall towards Gilsland (E.M.L.).
- 68, Bizzle, Henhole, Dunsdale, Carey Burn, Hethpool Linn, Harthope Linn, Cunion Crags and Dunsmore, Cheviots (Hardy). Wholehope burn, Kidland (E.H.S.). Near Easington, Belford (J.B.D.).
- var. viride Husn.
- 68, Hethpool by the College Water (J.B.D.).
- B. argenteum L. Waste ground, roofs, etc., abundant, 67, 68. var. lanatum B.& S.
- 67, Quarry, Acomb, Hexham; Greenshaw plain, Hexham; Cocklaw quarry, Chollerford ; Hauxley, Amble (E.M.L.). 68, Kyloe Crags (J.B.D.).
- B. roseum Schreb. Shady banks in woods and among rocks, rare.
 - 67, Scotswood and Wallbottle denes (Winch). Sewingshields
- Crags (E.M.L.). Dipton Wood, Corbridge (R. B. Cooke). 68, Langlee Crag ravine; Hazelton Rigg wood (Hardy). Kyloe Woods (R. Hall).
- Mnium affine Bland Boggy ground and shady crevices amongst rocks, not common.
 - Chollerford (H.N.D.). Near Whitton Burn, Rothbury 67, (E.H.S.). River Allen at Staward ; Colt Crag Reservoir (E.M.L.).

- 68, Bog near Hetton Hall (Boyd). Warkworth (H.N.D.). Wholehope Burn; north end of Debdon Lake, Cragside (E.H.S.). Cartington, Rothbury; under Kyloe Crags; Swinhoe Crags (J.B.D.).
 var. elatum B.& S.
- val. $elulum D. \alpha S.$
- 67, Swamp near Pauperhaugh Ford, Rothbury (E.H.S.).
- 68, Boggy ground, Haydon Dean (R. Hall).
- M. cuspidatum Hedw. Damp ground in woods, not common.
 - 67, Tree trunk by Coquet, Brinkburn (J.B.D.). West Dipton, Hexham; Hauxley, Amble (E.M.L.).
 - 68, Near Maiden Well, Wooler (c. fr.) (Hardy). Woods near Alnwick (c. fr.) (R. C. Embleton, Winch). Haydon Dean (Dr. Johnston). Cragside woods; Coquet bank near Black Burn (E.H.S.). By Tweed, Twizell (J.B.D.).
- M. rostratum Schrad. Rocks and banks by streams, common.
 - 67, Near Wallington (Winch). Rothbury (E.H.S.). Dilston woods; West Dipton; Staward; Haydon Bridge; Beldon Burn; Whitfield; Bywell; Featherstone Park, S. Tyne (E.M.L.).
- 68, Bizzle Burn; Roddam Dean (Hardy). Norham Dean; East Ord; Till at Heton Mill; Horncliffe and Warenford Deans; Etal; Ross Links; Hulne Park; Paston Lake (J.B.D.).
- M. undulatum L. Woods, abundant. 67, 68.
- M. hornum L. Woods, rocks, roots of trees, very abundant. 67, 68.
- M: serratum Schrad. Rocks, usually by streams, not common.
 - 67, Rocks by River Coquet below Rothbury; Roman Bridge, Chollerford (H.N.D.). Warkworth (J.B.D.). River Allen at Staward; Glendue Burn, S. Tyne; River Tyne below Acomb, Hexham (E.M.L.).
 - 68, Hethpool Linn; Old Middleton Burn; below waterfall, Langlee Crag; Roddam Dean; Hetton Burn (Hardy). Chillingham; River Till at Heton Mill; Coquet below Weldon Bridge; Tweed near Cornhill (J.B.D.).

M. stellare Reich. Rocks by streams and in shady places, frequent.

67, Warkworth (H.N.D.). Rothbury (E.H.S.). West Dipton; Staward; Holm's Linn, Allendale; Langley Woods; Sweethope Lough; Beldon Burn; Tyne at Hexham; Gunnerton Crags (E.M.L.). 68, Hetton Burn; below lower falls at Linhope (Hardy).
Brinkburn; Biddlestone woods; Cragside, Rothbury (E.H.S.). Chillingham; Dean at Warenford; Norham Dean; Till at Heton Mill; Rowting Linn; Low Linn; Etal; Roddam Dean; Lindhope Burn (J.B.D.).

M. cinclidioides Huebn. Mountain bogs, very rare.

68, Wet sandy detritus on banks of Common Burn, Cheviot (May, 1933, J.B.D.).

M. punctatum L. Rocks and stones by streams, common, 67, 68. var. elatum Schp. Spring heads.

68, Bizzle and Henhole, Cheviot (R. Hall).

M. subglobosum B.&S. Bogs, rare.

- 67, Eshells Moor, Hexhamshire Common (E.M.L.).
- 68, Swampy ground, Edlingham (E.H.S.). Newham Bog, abundant (J.B.D.).

Hardy mentions this from the Bizzle and Henhole, Cheviot, but no doubt his plant was a form of *M. punctatum*. J.B.D.

Fontinalis antipyretica L. Rivers, ponds and pools, common. 67, 68.

var. gracilis Schp.

68, Alnwick Moor (H.N.D.). Bizzle Burn; Lambden Burn, Cheviot (J.B.D.).

F. squamosa L. Hill streams, rare.

- 67, Glendue Burn, S. Tyne; Wolf Hills, Whitfield Moor (E.M.L.).
- 68, Langleeford (H.N.D.). Linhope Spout (c. fr.); Lambden Burn, Cheviot (J.B.D.).

Cryphaea heteromalla Mohr Tree trunks, rare.

67, Near Wardrew (Winch).

Neckera crispa Hedw. Dry rocks, rare.

- 67, Wardrew; Fallowlees burn (Winch). Gunnerton Crags; near Grindon Lough; Glendue Burn, S. Tyne (E.M.L.). Hareshaw Linn (H. Tully & E.M.L.).
- 68, Bizzle and Henhole, Cheviot (Hardy) (J.B.D.).

var. falcata Boul.

67, Limestone rocks near Grindon Lough (E.M.L.).

N. complanata Huebn. Trunks of trees, banks and rocks, frequent.

67, 68, "From the sea banks to the Bizzle and Henhole, Cheviot" (Hardy).

64

65

E
Homalia trichomanoides B.&S. Trunks of trees, rocks and banks in the shade, frequent.

- 67, Chollerford (H.N.D.). Rothbury (E.H.S.). By the Coquet near Warkworth (J.B.D.). Devils Water at Swallowship; Hareshaw Linn; River Allen at Plankey (E.M.L.).
- 68, Hetton Burn (Hardy). Warkworth (H.N.D.). Coquet near Weldon Bridge; Rothbury; Tillmouth (J.B.D.). Hethpool Linn (R. Hall).
- Pterygophyllum lucens. Brid. Wet banks by streams and among rocks. Widely distributed.
 - 67, Scotswood and Heaton denes (Winch). Rothbury (E.H.S.). West Dipton; Warks Burn; Eshells Moor; Hareshaw Linn; woods, Whitfield (E.M.L.). Dhu Gill near Knaresdale (J.B.D.).
- 68, Longridge Dean (A. Baird). Hudshead, Spittal (Dr. Johnston). Bizzle, Henhole; Linhope Fall; Common Burn, Hethpool Linn, Cheviot; moors, Kyloe (Hardy). Cragside, Rothbury (E.H.S.). Haydon Dean; Dean at Warenford; Priest Dean, etc. (J.B.D.).
- Leucodon sciuroides Schwaeg. Trunks of trees, occasionally on rocks, rare.
 - 67, Dilston Park (Winch). Sycamore by Coquet, Brinkburn (E.H.S.). Irees, Whitfield, West Allen (E.M.L.).
- 68, On rocks, Henhole, Cheviot (J. B. Boyd).

Pterogonium gracile Swartz Rocks and trees, rare. 68, Hethpool Linn (Hardy). College Burn (E.H.S.).

- Antitrichia curtipendula Brid. Trees, walls and rocks, rare. 68, The Bizzle, Harthope Linn, Cheviot; House of Crag; Hazeltonrigg Wood ; Hetton Hall (Hardy). Powburn
- Porotrichum alopecurum Mitt. Shady woods, walls and rocks by waterfalls, common. 67, 68.

Leskea polycarpa Ehrh. At the base of trees by water, frequent. 67, Beaufront near Hexham (Winch). Chollerford (H.N.D.). Brinkburn (E.H.S.). Warkworth (J.B.D.). River Tyne at Barrasford, Warden, Styford and Corbridge; Gilderdale Burn, S. Tyne (E.M.L.).

- 68, Coquet at Rothbury; Norham Dean; Till at Twizell; and Weetwood Hall; Aln at Alnwick; Tweed at East Ord and Tillmouth (J.B.D.). High Wood, Bowsden, away from water (R. Hall).
- Anomodon viticulosus Hook. & Tayl. On dry shady rocks, not common.
- 67, Lee Woods; Rothbury (E.H.S.). High Wood, Hexham; Hareshaw Linn; River Allen at Staward; by River Tyne near Chollerford ; Kirkside Wood, and Glendue Burn, S. Tyne; old wall, Whitfield (E.M.L.).
- 68, Humbledon Dean, Wooler (Winch). Roddam Dean (Hardy). Coquet, Rothbury and Weldon Bridge (E.H.S.). Dean at Warenford ; Hulne Park, Alnwick (J.B.D.).

Pterigynandrum filiforme Hedw. Dry rocks, very rare.

- 68, Hethpool Linn on south side of waterfall (Hardy). (Has not been seen since Hardy's time. J.B.D.).
- Heterocladium heteropterum B.& S. Wet rocks by streams, chiefly in the hills, not common.
 - 67, Rocks, Westburnhope Moor, Hexhamshire Common; Allendale Common ; Warks Burn ; Bellingham ; Sewingshields Crags; Staward; Greenshaw Plain, Hexham; Crag Lough; Glendue Burn, S. Tyne; Elrington near Haydon Bridge; Whitfield Moor (E.M.L.).
 - 68, Bizzle; Henhole; Bellyside ravine; ravine on Newton Tor ; Carey Burn rocks ; Langleeford-hope ; Linhope Linn (Hardy). Dean at Warenford ; wooded crag near Belford ; Shielhope, Chatton (J.B.D.).

var. fallax Milde.

- 67, Coastly Dean, Hexham; Hareshaw Linn; Pigdon Woods near Morpeth ; Elrington near Haydon Bridge ; by River Allen at Plankey (E.M.L.). Dhu Gill, Knaresdale (J.B.D.).
- 68, Dean at Warenford (J.B.D.).

H. Macounii Best Rock crevices, very rare.

68, The Bizzle, Cheviot (R. Hall).

I do not think this can be considered a good sub-species. Our plant, though the material is meagre, compares very well

with specimens from other stations in Britain, most of which I have seen, and with a specimen of Macoun's from Vancouver which is in my herbarium. J.B.D.

- Thuidium tamarascinum B&S. Shady woods, very common. 67, 68.
- T. delicatulum Mitt. Boulders in damp woods, very rare.
 67, Boulders, in woods by River Allen at Plankey (E.M.L.).
- T. Philiberti Limpr. Calcareous rocks and soil, very rare.
 - 67, Old limestone wall, above Allenheads (1,600 ft.); Haltwhistle Burn; Great Swinburn (E.M.L.). Capheaton (K.B.B.).

Climacium dendroides W. & M. Marshy ground, frequent.

- 67, East Common Wood, etc. (Winch). Westburnhope Moor; Warks Burn; Allendale Common; Bellingham; Crag Lough; Grindon and Sweethope Loughs; Ayle Common, etc. (E.M.L.).
- 68, Common Burn, Cheviot (Hardy). Cartington, Rothbury (E.H.S.). Goswick Links; Ross Links; Holy Island; Usway and Alwin rivers (J.B.D.).

Cylindrothecium concinnum Schp. Calcareous ground, rare.

67, Limestone quarry near Grindon Lough, and Great Swinburn, N. Tyne (K.B.B. & E.M.L.).

Pylaisia polyantha B. & S. Trees, rare.

- 67, Stamfordham (H. Tully). By River Tyne at Styford and Corbridge (E.M.L.).
- 68, Dean at Twizell (Baird—Winch). Hazelridge Dean (W. B. Boyd, 1869). On willow at Low Lynn Mill; elm at Coldstream bridge, and elders by River Till at Etal (J.B.D.).
- Camptothecium sericeum Kindb. Trunks of trees, rocks and stone walls, very common. 67, 68.
- - 67, Gunnerton Crags; Barcombe Fell, Bardon Mill; quarry at Fourstones, Hexham; West Allen; Great Swinburn, N. Tyne (E.M.L.).

- 68, Rothbury (E.H.S.). Scremerston; Holy Island; Ross Links (J.B.D.).
- C. nitens Schp. Upland bogs, very rare.
- 67, Burntridge Moor, Hexhamshire Common (E.M.L.).
- 68, Haydon Dean (Dr. Johnston). Hetton Hall (Hardy). Cartington, Rothbury (E.H.S.).

Once frequent this handsome species is now all but extinct, as the result, I believe, of increased drainage and cultivation.

J.B.D.

- Brachythecium glareosum B. & S. Calcareous banks and walls, not common.
 - 67, Lee Woods ; Whitton, Rothbury (E.H.S.). By River Tyne, Styford, Corbridge, Warden and Barrasford ; Ninebanks, West Allen ; Housesteads, Roman Wall ; Kirkside Wood, Wood, S. Tyne ; Whitfield Moor (E.M.L.). Ryall (K.B.B.).
 - 68, Walls, Rothbury (E.H.S.). Tweedmouth, on wall; Lowick; Scremerston; Hetton Hall (J.B.D.).

B. albicans B. & S. Sandy soil, frequent.

- 67, Garley Hill, Rothbury (E.H.S.). Westburnhope Moor; Allenheads; by River Tyne, Corbridge; Grindon Lough; Great Swinburn; Featherstone Park, Haltwhistle; Seaton Sluice (E.M.L.).
- 68, Holy Island; Scremerston Links (Winch). Bamburgh (H.N.D.). North Hill, Rothbury (E.H.S.). Berwick; Goswick Links; Belford; Embleton (J.B.D.).
- B. salebrosum B. & S. Sand dunes, base of trees, rocks, etc., rare.
 68, Bamburgh (H.N.D.).

var. palustre Schp.

- 68, Spittal (Dr. Johnston's Herb.). Holy Island; Goswick Links (J.B.D.).
- B. rutabulum B. & S. On earth, rocks, walls and trees, very common. 67, 68.
- B. rivulare B. & S. Rocks and stones by streams, often submerged, frequent.
 - 67, Housesteads (H.N.D.). River Coquet, Brinkburn (E.H.S.). Warks Burn; West Dipton; River Tyne at Haydon Bridge and Corbridge; Devils Water at Ordley, and Ham Burn, Hexhamshire; River Allen at Ridley Hall (E.M.L.).

J. B. DUNCAN ON

- Rothbury (E.H.S.). Abundant by streams and springs, 68, Cheviot; Hetton Hall (Hardy). Horncliffe Dean and stream at Warenford, etc. (J.B.D.).
- var. latifolium. Husn.
- 68, Bizzle Burn, Cheviot (J.B.D.).
- B. velutinum B. & S. Rocks and banks, not uncommon.
 - 67, Rothbury (E.H.S.). Haydon Bridge; Staward; West Allen; by River Tyne, Hexham; West Dipton; Corbridge ; Bardon Mill ; Whitfield (E.M.L.). Stocksfield (H. Tully).
- Wooler (H.N.D.). Edlingham; Rothbury (E.H.S.). 68. Horncliffe Dean; sea banks, Marshall Meadows; Etal; Newham bog, on trees (J.B.D.).
- B. populeum B. & S. Walls and stones in shady places, frequent. 67, Scotswood, Horsley and Jesmond denes; Dilston Park (Winch). Rothbury (E.H.S.). By River Tyne, Acomb, Hexham; Kirkside Wood and Featherstone Park, S. Tyne; Sewingshields Crags; by River Tyne, Barrasford; Ridley Hall Woods (E.M.L.).
- 68, Biddlestone; Rothbury (E.H.S.). Norham Dean; Berwick; Dean at Warenford; Spindlestone Mill; Belford ; Rowting Linn ; Etal ; Cornhill ; Bamburgh (J.B.D.).
- B. plumosum B. & S. Rocks in and near streams, frequent. 67, Heaton and Scotswood denes; Oakwood; Dilston Park (Winch). Chollerford (H.N.D.). Harbottle (E.H.S.). West Dipton; Warden; Haydon Bridge; Staward; Warks Burn; Blanchland; Hareshaw Linn; Langley, etc. (E.M.L.). 68.
 - Henhole and Bizzle, Cheviot (Hardy). Coquet and Black Burn, Rothbury (E.H.S.). Horncliffe Dean; Belford; Rowting Linn; Easington; stream at Fenwick (J.B.D.).
- B. caespitosum Dixon Rocks and tree roots by river banks, rare. 68, Banks of River Tweed above Tillmouth and near Cornhill (J.B.D.).
- B. purum Dixon Grassy banks, woods and moors, very common

Hyocomium flagellare B. & S. Rocks by streams in the hills, rare.

- 67. Ravensheugh; Thrum Rocks, Rothbury (E.H.S.). Barrow Burn, Alwinton (J.B.D.). Ham Burn, Hexhamshire : Staward; West Dipton; Allenheads; Hareshaw Linn; Blanchland; Glendue Burn, S. Tyne (E.M.L.).
- Below lower Linhope Linn (Hardy). Black Burn; 68. Cragside, Rothbury (E.H.S.). Stream near Shielhope, Chatton; Linhope Spout (J.B.D.).
- Eurhynchium piliferum B. & S. Woods and banks, frequent.
- 67. Warkworth (H.N.D.). Brinkburn; Allerdene, Rothbury (E.H.S.). Swallowship Woods, Hexham (E.M.L.).
- 68, Horncliffe Dean; Haydon Dean; Detchant; Etal; Priest Dean (J.B.D.).
- E. crassinervium B. & S. Rocks and stones in shady ground, not uncommon.
- 67, Chollerford (H.N.D.). Lea Woods; Wagtail Farm by Coquet, Rothbury (E.H.S.). River Coquet above Warkworth (I.B.D.). Dipton (R. B. Cooke). Bardon Mill; by Tyne, Warden; Great Swinburn, N. Tyne (E.M.L.).
- 68. Thrum Rocks, Rothbury (E.H.S.). River Aln at Alnwick; Hethpool Linn; River Till at Tiptoe; Waren Burn; Cornhill; Etal (J.B.D.).
- var. turgescens Mol.
- 68, Rocks in River Coquet, Thrum Mill, Rothbury (J.B.D.).
- E. speciosum Schp. Stones near water, very rare.
- 68, Lyham Dean (W. B. Boyd). An old record.
- E. praelongum Hobk. Banks, hedgerows, woods, very abundant. 67, 68.
- var. Stokesii Brid.
- 67, Ridley Hall, Bardon Mill; Staward; Pigdon Woods, near Morpeth; Langley Woods (E.M.L.). Newton Hall (H. Tully).
- 68, Langleeford (H.N.D.). Waren Burn (J.B.D.).
- E. Swartzii Hobk. Wet fields and rocks by streams, frequent.
- 67, River Coquet, Rothbury (E.H.S.). Hareshaw Linn; Pigdon Woods; Old Ridley, Stocksfield; Devils Water at Nunsbrough; Whitfield, West Allen (E.M.L.).
- 68, Bizzle, Cheviot; Hetton Burn (Hardy). Rothbury (E.H.S.). Horncliffe; Marshall Meadows; Twizell; Norham Dean; by River Aln, Huln Park (J.B.D.).

- 72
 - var. rigidum Boul.
- 67, Brinkburn (E.H.S.). River Tyne, Warden; River Allen at Staward; Glendue and Gilderdale Burns, S. Tyne; Langley Woods (E.M.L.).
- 68, Warkworth (H.N.D.). Horncliffe Dean; River Till at Heton Mill; by River Tweed at Cornhill and Berwick (J.B.D.).
- E. abbreviatum Schp. Sandstone rocks, and marly soil, rare.
- 67, By River Coquet at Warkworth (J.B.D.).
- 68, Twizell; East Ord; Roddam Dean; River Till near Etal; small dean at Cornhill (J.B.D.).
- E. pumilum Schp. Rocks and stony ground in shady situations, not uncommon.
- 67, By the Coquet near Warkworth (J.B.D.). Dipton Wood (R. B. Cooke). Langley Woods (E.M.L.).
- 68, Warkworth (H.N.D.). Horncliffe and Norham Deans (J.B.D.).
- E. Teesdalei Schp. Wet rocks in the beds of small wooded streams, rare.
- 67, Coastley Dean, Hexham; River Allen, Ridley Hall and Staward (E.M.L.). 68.
- Warkworth ; Horncliffe Dean (H.N.D.). Coquet below Weldon Bridge ; near Tweed below Norham (J.B.D.).
- E. tenellum Milde Calcareous rocks, rare.
- 68, Scremerston; Horncliffe Dean; Dean at Warenford (J.B.D.).
- E. myosuroides Schp. Rocks and tree trunks, especially in hill districts, common.
 - 67, Dilston Park; East Common Wood; Fallowlees Buru (Winch). Barcombe (H.N.D.). East Garley, Rothbnry (E.H.S.). West Dipton; Staward; Hareshaw Linn; Whitfield (E.M.L.).
- 68, Bizzle, Cheviot (Hardy). Cragside, Rothbury (E.H.S.). Horncliffe Dean; Norham Dean; Shielhope, Chatton

E. myurum Dixon Trunks of trees, and rocks, common. 67, Chollerford (H.N.D.). Brinkburn; Rothbury (E.H.S.). West Dipton ; Hareshaw Linn ; Staward ; Allendale, etc. (E.M.L.).

- 68, Bizzle and Henhole, Cheviot (Hardy). Usway Burn (E.H.S.). Horncliffe Dean; Hethpool Linn; Etal, etc. (I.B.D.).
- E. striatum B. & S. On rocks, ground in woods and hedgebanks, common. 67, 68.
- E. rusciforme Milde Rocks and stones in and near streams, very common. 67, 68.

var. atlanticum Brid.

- 67, Haydon Bridge ; Hareshaw Linn ; by fall on River Allen, Allendale (E.M.L.). Little Harle, near Knowesgate (R. B. Cooke).
- 68, Roddam Dean (J.B.D.).
- E. murale Milde Rocks and walls in shady situations, frequent.
- 67, Walls near Bywell; Wallbottle Dene (Winch). The Chesters, Chollerford (H.N.D.). Rothbury (E.H.S.). Limestone Brae, West Allen; wall, Hexham (E.M.L.).
- 68, Twizell Dean; Horncliffe and Norham Deans; Alnwick (J.B.D.).
- var. julaceum B. & S.
- 67, Barcombe Fell, Bardon Mill; Old Bridge, Featherstone Castle, S. Tyne (E.M.L.).
- 68, Norham Dean (J.B.D.).
- E. confertum Milde Walls, stones, tree stumps, in shady places, common. 67, 68.
- Plagiothecium depressum Dixon Shady calcareous rocks and stones, not common.
- 68. Chillingham; Horncliffe Dean; near Tweed below Norham (J.B.D.).
- P. elegans Sull. Siliceous rocks, and on ground in woods, frequent.
- 67, Crag Lough (H.N.D.). Simonside ; Ravensheugh (E.H.S.). Staward; West Dipton; Gunnerton Crags; Corbridge; Langley, etc. (E.M.L.).
- 68, Langleeford; Hepburn wood (Hardy). Cragside, Rothbury (E.H.S.). Norham Dean; Kyloe Crags; Belford; Bizzle and Henhole, Cheviot; Etal (J.B.D.).
- P. pulchellum B. & S. Among mosses and in rock crevices, on the hills, rare.
- 67, West Dipton; Staward and Ridley Hall woods; Westburnhope, Hexhamshire Common; Beldon Burn; Gilderdale Burn, S. Tyne (E.M.L.).

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- 68, Henhole and Bizzle, Cheviot; Hethpool Linn; Carey Burn rocks; Harthope Linn (Hardy). Usway Burn (J.B.D.).
- P. denticulatum B. & S. On ground roots of trees, rocks, chiefly in woods, common. 67, 68.
 - var. aptychus Spruce
 - 68, Waren Burn (J.B.D.).
 - var. majus Boul.
- 67, Westburnhope, Hexhamshire Common (E.M.L.).
- 68, Springs, Bizzle, Cheviot (R. Hall).
- P. silvaticum B. & S. Rocks and banks in woods and deans, frequent.
- 67, Roman Bridge, Chollerford (H.N.D.). Rothbury (E.H.S.). Hexham; Staward (E.M.L.).
- Warkworth (H.N.D.). Biddlestone wood; Weldon Bridge (E.H.S.). Horncliffe Dean; Till at Heton Mill; Dean at Warenford; Belford; Rowting Linn (J.B.D.).
- P. undulatum B. & S. Upland woods and moors, sea banks to Bizzle, frequent. 67, 68.
- Amblystegium compactum Aust. Damp calcareous rock ledges, rare.
 - 68, Marshall Meadows; sea banks near Berwick; Horncliffe Dean; Norham Dean; below Norham Castle; by the Till at Twizell Bridge and Etal (J.B.D.).
- A. serpens B. & S. On the ground, stones, decaying wood, etc., very common. 67, 68.
 - var. salinum Carr.
- 68, Holy Island; Ross Links; near Bamburgh; sea banks near Marshall Meadows (J.B.D.).
- A. Juratzkanum Schp. Damp rocks, roots of trees by water, not common.
 - 67, Hawick Plantation, near Sweethope (R. B. Cooke).
 - 68, Seabanks near Berwick; near Warenford; by River Till, Weetwood Hall; Paston Lake (J.B.D.). Norham Dean (R. Hall).
- A. varium Lindb. On the ground or tree stumps in moist situations, rare.
 - 67, Bearl Wood, Bywell (R. B. Cooke).

BRYOPHYIES OF NORTHUMBERLAND

A. irriguum B. & S. Rocks and stones in streams, not common.

- 67, River Coquet, Rothbury (E.H.S.). Blagdon; Tyne at Wylam (K.B.B.). Hallington Reservoir (E.M.L.).
- 68, Warkworth; Alnwick (H.N.D.). Horncliffe and Norham deans; Till near Heton Mill; Low Lynn; Lindhope Linn; Tweed at Wark and Cornhill; Till at Weetwood Hall; Linhope Spout; Paston Lake (J.B.D.).
- A. fluviatile B. & S. Rocks and stones in beds of streams, not common.
- 67, Coquet near Warkworth (J.B.D.). Tyne at Wylam (K.B.B.).
- 68, Biddlestone Burn, Rothbury (E.H.S.). River Tweed at Cornhill and Twizell; College Water at Hethpool (J.B.D.).
- A. filicinum De Not. Damp ground, stones and rocks near streams, bogs, etc., common. 67, 68.
- var. vallisclausae Dixon
- 67, Spring at Anick, near Hexham; Gilderdale Burn, S. Tyne (E.M.L.).
- var. trichodes Brid.
- 68, Horncliffe Dean; Coldstream; Cliffs near Berwick; River Till at Twizell (J.B.D.).
- var. Whiteheadii Wheldon
- 68, Ross Links (J.B.D.). Holy Island (R. Hall).
- Hypnum riparium L. Roots of trees, stones, etc., near water in the low ground, not uncommon.
- 67, Housesteads (H.N.D.). In trough, King's College, Newcastle upon Tyne (K.B.B.). Near Grindon Lough (E.M.L.).
- 68, Swinhoe Pools; Scremerston; Tweed at Tillmouth; pond, Doddington; River Till at Weetwood Hall; Pool at Haggerston; Tappee Loch, Berwick Castle (J.B.D.).
- var. longifolium Schp.
- 68, Trough at Thrunton (J.B.D.).
- *H. elodes* Spruce. Marshy ground and damp sandy hollows on coast, rare.
- 68, Holy Island; Ross Links; Newham Bog (c. fr.) (J.B.D.).
- H. polygamum Schp. Wet sandy hollow by the coast, not common.
 68, Holy Island; Ross Links; Bamburgh; near Berwick (J.B.D.).
- var. stagnatum Wils.
- 68, Ross Links; Holy Island (J.B.D.).

J. B. DUNCAN ON

H. stellatum Schreb. Bogs and wet ground, frequent.

- 67, Prestwick Carr; Blanchland (Winch). Rothbury (E.H.S.). Eshells Moor, Hexhamshire Common; Warks Burn; Chollerford; Staward; West Dipton; Grindon Lough, etc. (E.M.L.).
- 68, Henhole and Bizzle, Cheviot (Hardy). Berwick; Scremerston; Holy Island; Ross Links; Newham Bog (c. fr.) (J.B.D.).
- var. protensum Roehl
- 67, Roman Bridge, Chollerford (H.N.D.). Tecket Linn, near Wark; Gunnerton Crags; Ayle Common, S. Tyne; Ninebanks, West Allen; Grindon Lough (E.M.L.).
- 68, Sea banks, Spittal; Berwick; Scremerston (J.B.D.).
- H. chrysophyllum Brid. Calcareous ground and rocks, not common.
 - 68, Old limeworks, Scremerston; Holy Island; Rothbury (J.B.D.). Sea banks, Berwick (R. Hall).
 - var. erectum Bagnall
- 68, Ross Links (R. Hall).
- H. aduncum Hedw. non L. Marshes and pools, not common.
 - 67, Seaton Sluice (Skinner). Hauxley, Amble (E.M.L.).
 - 68, Cheviot (Hardy). Scremerston; Newwaterhaugh, Berwick; Holy Island; Ross and Goswick Links; pool near Beal (J.B.D.).
- var. paternum Sanio
- 68, Ross Links (J.B.D.).
- H. Sendtneri Schp. Wet sandy hollows, rare.
- 68, Ross Links (J.B.D.). Holy Island (R. Hall).
- H. Wilsoni Schp. Bogs, very rare.
- 68, Ross Links; Holy Island (J.B.D.).
- H. lycopodioides Schwaeg. Bogs, very rare.
- 67, Prestwick Carr (Winch).
- 68, Ross Links (J.B.D.).
- H. fluitans L. Peat bogs, pools, not uncommon.
 - 67, Muckle Moss; Prestwick Carr (Winch). Simonside (E.H.S.). Bloody Moss (J.B.D.). Sweethope Lough; Brownley Hill, West Allen; Whitfield Moor (E.M.L.).
- 68, Haydon Dean; top of Whiteside Hill; pools on the summit of Cheviot; near Harthope Linn (Hardy). Moors, Rothbury (E.H.S.). Kyloe Hills (J.B.D.).

- var. Jeanbernati Ren.
- 68, Lyham Moor (J.B.D.).
- var. gracile Boul
- Simonside; Eshells Moor, Hexhamshire Common; Ayle Common, S. Tyne (E.M.L.). Bloody Moss, Harbottle (J.B.D.). Near Ridsdale (K.B.B.).
- 68, Ford Moss; Chatton Park Hill (J.B.D.).
- var. falcatum Schp.
- 68, Black Lough, Edlingham (J.B.D.). Summit of Cheviot (H.N.D.).
- var. Arnellii Sanio (Near this variety, W. R. Sherrin).
- 67, Eshells Moor, Hexhamshire Common (E.M.L.).
- H. exannulatum Gümb. Upland bogs, frequent.
- 67, Moors above Sinderhope, Allendale Common; Whitfield Moor (E.M.L.).
- 68, Edlingham Moors (J.B.D.).
- H. uncinatum Hedw. Rocks and walls in more hilly parts, frequent.
- 67, Thrum Rocks, Rothbury (E.H.S.). Chollerford (H.N.D.). Beaufront Castle, Hexham; old wall, Whitfield, and Ninebanks, West Allen; River Allen at Plankey, etc. (E.M.L.).
- 68, Near Alnwick (Embleton). Langleeford (Hardy). Biddlestone; Cragside, Rothbury (E.H.S.). Lucker Moor; Kyloe Hills; Barmoor; Usway Burn; Embleton Bog, on trees (J.B.D.).
- H. revolvens Swartz Bogs, frequent in hilly parts.
- 67, Prestwick Carr; Blanchland moors (Winch). Garley Hill, Rothbury (E.H.S.). Delf Burn (E. Armitage). Eshells Moor, Hexhamshire Common; Allendale Common; Brownley Hill, West Allen (E.M.L.).
- 68, Henhole, Bizzle and Dunsdale, Cheviot (Hardy). Lucker Moor; Ross Links; Usway Burn; Newham Bog; Bamburgh (J.B.D.).

H. intermedium Lindb. Bogs, rare.

- 67, Eshells Moor, Hexhamshire Common (E.M.L.). Delf Burn (E. Armitage). Sweethope Lough (R. B. Cooke).
- 68, Edlingham (E.H.S.). Ross Links (J.B.D.).
- H. commutatum Hedw. Calcareous bogs and dripping rocks, common. 67, 68.

67. Simonside (E.H.S.). Housesteads (H.N.D.). West Dipton;

68. Black Burn; Cragside, Rothbury; Edlingham (E.H.S.).

67, Crag Wood, Devil's Water (J.B.D. & E.M.L.). Hareshaw

67, Devils Water in Dilston Park; River Irthing at Gilsland

Bizzle, Cheviot; stream near Lucker Moor; Shielhope,

(Winch). Chollerford (H.N.D.). Garley Hill; Coquet,

Rothbury (E.H.S.). River Allen at Allendale, Staward and Ridley Hall; West Dipton; Hareshaw Linn (E.M.L.).

Roddam Dean (H.N.D.). Coquet at Linshiels; Alwyn

near Kidland (E.H.S.). Horncliffe Dean; Chillingham;

East Ord ; Norham ; Scremerston ; Twizell ; Rowting

Staward; Hareshaw Linn; Gunnerton Crags; Great

Chillingham; Holy Island; Kyloe Hill; Usway Burn;

- H. falcatum Brid. Bogs, not uncommon.
 - 67, Rothbury (E.H.S.). Allenheads ; Eshells Moor ; Brownley Hill, West Allen ; Whitfield Fell (E.M.L.). Sweethope Lough (R. B. Cooke).
- 68, Cheviot; Detchant Moor; Newham Bog; Bamburgh (J.B.D.).
- H. cupressiforme L. Trees, walls, rocks, etc., abundant. 67, 68. var. resupinatum Schp. Frequent. 67, 68.
- var. filiforme Brid. Trees, frequent.
- 67, Rothbury (E.H.S.). West Dipton ; Staward ; Allenheads; Hareshaw Linn ; Pigdon Woods ; Beldon Burn ; Kirkside Woods, S. Tyne (E.M.L.).
- 68, Roddam Dean (H.N.D.). College Water; Horncliffe Dean (J.B.D.).
- var. ericetorum B. & S. Moors and heaths, common. 67, 68. var. tectorum Brid. Rocks, walls, roofs and sandy ground by sea, frequent.
- 67, Dyehouse and Lilswood, Hexhamshire; Blanchland; Allenheads; Gunnerton Crags; Ayle Common, S. Tyne; Grindon Lough (E.M.L.). Rothley (E. Armitage).
- 68, Berwick; Scremerston; Ross Links; Holy Island, etc. (J.B.D.). var. elatum B. & S. Rare.
- 67, Allenheads (W. Philipson). Dipton Foot ; Hexham (R. B. Cooke). Lime quarry, Fourstones, Hexham; Coalcleugh, West Allen (E.M.L.).
- 68, Spindlestone Hill (J.B.D.).
- H. imponens Hedw. Damp heaths, rare.
- 67, Moor, near Alwinton (J.B.D.).
- 68, Rocks, Rothbury (E.H.S.). Lyham Moor; Chatton Park Moor; Kemping Moss (J.B.D.).
- H. Patientiae Lindb. On ground in woods on clayey soil, not
- 67, Chollerford (H.N.D.). Simonside (E.H.S.). Eshells Moor; Warks Burn; Greenshaw Plain, Hexham; by Tyne, Barrasford, Acomb and Riding Mill (E.M.L.). 68.
- Cragside, Rothbury (E.H.S.). Scremerston; Detchant; Kyloe Plantation; West Kyloe; Belford Moor (J.B.D.).
- H. callichroum Brid. Shady rocks in the hills, rare. 67, Among boulders by waterfall, Dhu Gill near Knaresdale (J.B.D.).

- Linn; Till at Weetwood Hall, etc. (J.B.D.). H. eugyrium Schp. Rocks in hill streams, rare.
 - 68, Coquet at Linshiels (J.B.D.).

var. condensatum Schp.

68,

68.

- var. Mackayi Schp.
- 68, Henhole, Cheviot (H.N.D.).
- H. ochraceum Turn. Rocks in hill streams, plentiful where it does occur.
- 67, Stream near Harbottle crags; Crag Wood, Devils Water; Linshiels Loch (J.B.D.). River Tyne at Wylam (K.B.B.). Redesdale (R. B. Cooke). River Allen at Staward ; Tyne at Warden ; S. Tyne at Kirkside Wood ; River Wansbeck at Pigdon; Beldon Burn (c. fr.) (E.M.L.).
- Henhole and Bizzle, Cheviot; Wooler Water; Langlee-68. ford (Hardy). Biddlestone Burn; River Alwin (E.H.S.). Usway Burn; Linhope Spout (J.B.D.).

H. scorpioides L. Bogs, not common.

67, Prestwick Carr (Winch). Crag Lough (a very slender form). (H.N.D.). Rothbury (E.H.S.). Sweethope Lough (R. B. Cooke).

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Swinburn, N. Tyne, etc. (E.M.L.).

Newham Bog; Bizzle, Cheviot (J.B.D.).

Linn; River Allen at Allendale (E.M.L.).

H. palustre Huds. Rocks in and by streams, frequent.

Chatton; Waren Burn; Priest Dean (J.B.D.).

J. B. DUNCAN ON

Cheviots (Hardy). Towards Cartington, Rothbury 68. (E.H.S.). Holy Island (J.B.D.).

H. stramineum Dicks. Hill bogs, not common.

- 67, Simonside (E.H.S.). Acomb Fell; Ottercops Moss; Allenheads; Muckle Moss; Knar Burn, S. Tyne; Whitfield Moor ; Brownley Hill, West Allen ; Harwoodshield Fell and Eshells Moor, Hexhamshire Common (E.M.L.).
- Cheviot ; near Carey Burn rocks (Hardy). Harton Moor 68. (c. fr.) (W. B. Boyd, 1869). Cragside, etc., Rothbury (E.H.S.). Hedgehope; Lyham Moor; Bizzle, Cheviot (J.B.D.).

H. cordifolium Hedw. Bogs and pools, not common.

- 67, Newcastle Town Moor; Muckle Moss; Prestwick Carr (Winch). Limestone Bank, in fosse of Roman Vallum (H.N.D.). Grindon Lough ; Crag Lough (E.M.L.).
- Whiteside Hill (Herb. Hardy). Pit in plantation near 68. Rowting Linn (J.B.D.).

H. giganteum Schp. Moorland bogs and ditches, not common.

- 67, Simonside (E.H.S.). Prestwick Carr (K.B.B.). Burntridge Moor, Hexhamshire Common; Langley Dam; Grindon Lough (E.M.L.).
- 68, Lucker Moors; Hetton Hall; head of Lyham Burn (J.B.D.).
- H. cuspidatum L. Wet ground, very common. 67, 68.
- H. Schreberi Willd. Dry woods and heathlands, very common. 67, 68.
- Hylocomium splendens B. & S. Heaths and woods, common. 67, 68.

var. gracilius Boul.

68, Sandhills, Goswick; Ross Links (J.B.D.).

- H. brevirostre B. & S. Rocky woods, rare.
 - 67, Hareshaw Linn, Bellingham (H. Tully & E.M.L.). Staward and Ridley Hall; Glendue Burn, S. Tyne (E.M.L.).

H. loreum B. & S. Woods, frequent. 67, 68.

- H. squarrosum B. & S. Grassy banks, abundant. 67, 68.
- H. triquetrum B. & S. Woods, hedge banks, sandhills, very common. 67, 68.

ORNITHOLOGICAL REPORT ON THE FARNE ISLANDS FOR 1952

Compiled by

GRACE WATT, M.A., M.B.O.U.

Since the first ornithological report for the Farnes was compiled by the late T. R. Goddard in 1946 similar reports have been published annually by the Farne Islands Local Committee of the National Trust. That committee has afforded the Natural History Society of Northumberland, Durham and Newcastle upon Tyne facilities for the development of scientific work on the islands; and this makes it appropriate for future reports to be included among the Society's Transactions where they will appear in association with reports on other biological work in the region. By this means they will not only be more readily available to students, but will also have a considerably wider distribution. The greatly increased knowledge of the bird life, resulting from more continuous observation, particularly outside the breeding season, may confer on the reports themselves a correspondingly wider appeal.

Another change is the use of the Wetmore order of classification, as given in the Check-list of the Birds of Great Britain and Ireland (1952).

Much of the information in this report has been supplied by members of the Society, help given by E. A. R. Ennion, of Monks' House Bird Observatory, being particularly valuable. Another important contributor is W. J. Lewis, head light-keeper of the Longstone lighthouse and a member of the Farne Islands Committee.

The year has been notable for the addition of eight new species to the systematic list of birds recorded for the islands. These are the shoveler Spatula clypeata (L.), Bewick's swan Cygnus b. bewickii Yarr., wood sandpiper Tringa glareola L., nuthatch Sitta europaea L., bluethroat Cyanosylvia s. svecica (L.), yellowhammer Emberiza citrinella nebulosa Gengler, corn bunting Emberiza c. calandra L., and Lapland bunting Calcarius l. lapponicus (L.). The most interesting of these additions are the nuthatch, bluethroat and Lapland bunting. Furthermore, both Leach's petrel and the buzzard, previously included in the systematic list by inference rather than by actual identification, have now been definitely identified.

Rare vagrants include the long-tailed skua, hoopoe, redbacked shrike and twite. It is interesting, too, to find that birds such as the lesser whitethroat, grey wagtail, siskin, linnet and lesser redpoll, which in the past have been identified on only a few occasions, appear to be much more common than had been thought.

The usual species, chiefly cormorants and shags, mallard, teal, wigeon, eiders, oystercatchers, ringed plovers, turnstones, redshanks, dunlins, greater and lesser black-backed gulls and herring gulls, wintered on, or near, the islands.

A small movement of starlings was recorded at the Longstone on January 21st, but otherwise there was little change in the bird life during the early part of the year. It was very cold at the end of January, the temperature falling to the unusually low figure of 25°. There were occasional arrivals during the second half of February and March.

Although there was a single wheatear on Inner Farne on April 8th, the main spring passage did not start until April 11th; migrants continued to arrive until the end of May, but the temporary light installed on the Longstone during the change from oil to electric power was not strong enough to attract birds to the lantern. On certain nights large numbers arrived, and once, when the weather was foggy, the birds remained for two days. Among the migrants were swallows and martins, redstarts, warblers, flycatchers and wagtails, while waders seen on spring passage included ringed plovers, four wood sandpipers, redshanks, one or two greenshanks and a few knots.

The breeding season was, on the whole, good, the most satisfactory feature being the lessening of damage done by gulls. Early in May rifles were issued to W. J. Lewis, and to the watchers, and these were used to pick off the ring-leaders; in addition W. J. Lewis pricked a number of gulls' eggs and found that the parents not only left the terns alone, but also kept away visiting gulls. Sandwich terns did extremely well, although on Longstone End at least fifty eggs did not hatch out, probably owing to disturbance by visitors. The hatching rate of roseates on both Longstone End and the Northern Hares was good. The rearing of young arctics was less satisfactory : on both Inner Farne and Brownsman there was considerable mortality among birds of all ages from downlings to practically fully-fledged young. It was also fairly high on Longstone End. W. J. Lewis thinks that some of these birds, especially the late-hatched ones, die of starvation, and this seems a probable explanation.

The exceptionally high tides of July 8th did a certain amount of damage. Several of the kittiwakes' nests were destroyed and the young drowned; some of the terns' eggs were washed away.

The increase in nesting eiders, mainly on the Longstone, is most satisfactory. This increase is undoubtedly due to the fact that the Longstone is now to a large degree a sanctuary and, in consequence, birds from outlying islands seek refuge there.

The 1952 autumn passage of waders was the largest ever recorded by W. J. Lewis. He saw three turnstones on July 7th and more turnstones, redshanks and dunlins arrived during the month. By August 9th large numbers of turnstones, some dunlins and sanderlings, two dozen redshanks, several ringed plovers, purple sandpipers, a few knots and a little stint were present on the Longstone. It is interesting to find that both green and curlew sandpipers, last seen in August 1914, have again been recorded.

The new Longstone light is now in operation and migrants are once more attracted to the lantern. Rushes occurred on the nights of September 14th, 21st, 22nd, 23rd, 27th, 28th and 29th, the majority of birds being starlings, redwings, thrushes, blackbirds, robins, chaffinches, goldcrests and a few firecrests. Further large movements of starlings, redwings, fieldfares, bramblings, thrushes, blackbirds, robins, meadow pipits, woodcock and snipe took place on October 29th, 30th and 31st. There were again rushes on November 10th and 15th, the birds taking part being starlings, blackbirds, redwings, thrushes, robins, snipe and meadow pipits.

By November the usual winter residents could be seen on the islands, among them being an occasional blackbird. Unusual visitors, however, were a party of linnets. BLACK-THROATED DIVER. One was in Sunderland Hole on November 23rd.

GREAT NORTHERN DIVER. Seen occasionally during winter. A bird which was near Longstone End on August 4th provides an unusually early autumn record.

RED-NECKED GREBE. Single birds were seen on February 16th, September 16th and November 24th.

LEACH'S PETREL. One was seen near Brownsman on November 1st.

STORM PETREL. During autumn small numbers were seen occasionally at the Longstone. Some of these were caught uninjured and were later released.

MANX SHEARWATER. Four were seen on June 19th, while single birds were recorded on August 29th and September 1st.

FULMAR. Ten pairs attempted to nest. Six were on Inner Farne, and here at least one chick hatched out. Four pairs laid eggs on Staple Island, one being in the exact spot where the bird nested last year. Another was inside the old beacon lighthouse, but this egg, despite special vigilance by the watchers, disappeared, and is believed to have been taken by a visitor. The remaining three pairs also lost their eggs, probably to gulls.

According to the watchers a bird tried to nest, but did not hatch off, in the Brownsman beacon lighthouse; this bird may, however, have merely been "prospecting."

GANNET. Parties of varying size were observed throughout the year, but the greatest number was seen in April when there was a marked northward passage.

CORMORANT. As in 1950 birds attempted to nest on the East Wideopens, the site chosen being on the west side where there was little danger from storms. On May 23rd and 26th two hundred and two nests were counted; one hundred and thirty contained only eggs, thirty-eight had young birds (up to a week old) and thirty-four had eggs and newly-hatched young. The clutch numbers were small: in the western colony the average for forty-three nests was 3.0, while in the eastern colony the average for thirty-two nests was 2.2. Only one clutch of five was found. The twelve nests nearest to the sea contained either a single egg or one young bird. These figures suggest that the colony had been raided from time to time.

On May 27th an organised raid was made by a party of men and children from Holy Island and most of the young birds were killed. The eggs—all on the point of hatching—were collected. E. A. R. Ennion, who is a member of the Farne Islands Committee, took steps to deal with the raiders and some of the eggs were replaced, but only six pairs settled down again. Two of these reared young. The remainder joined the Megstone colony, bringing the numbers there up to three hundred and fifty pairs. They nested on the lower part of the island and this time reared young successfully.

SHAG. Large numbers of both adult and immature birds were present during winter; they greatly outnumbered the cormorants. By February 24th several birds had started nestbuilding and on April 8th there were four nests, one of which contained two eggs, while each of the others had a single egg in it.

Ninety-six nests were counted : eight were on Brownsman, seventeen on Inner Farne and seventy-one on Staple Island. There was once again a nest on Skeney Scar.

HERON. Five or six wintered on the islands.

MALLARD and TEAL. An occasional teal was among the flocks of mallard seen during autumn and winter.

WIGEON. During winter large flocks, sometimes numbering several hundred birds, were seen near the Inner Group.

SHOVELER. On June 26th three drakes and a duck were seen flying over the Wideopens.

LONG-TAILED DUCK. One was in Staple Sound on November 29th.

COMMON SCOTER. Small flocks seen occasionally.

EIDER. Some five hundred and thirty-two ducks nested, of which twelve were on Staple Island, one hundred and eighty on Brownsman, one hundred and fifty on the Longstone rocks and

one hundred and ninety on the Inner Group. This represents an increase of about eighty-seven on the 1951 figures, mainly on the Longstone where W. J. Lewis recorded on May 19th that "the eiders seem to have nested all over the place." It must be remembered, however, that these are merely approximate figures as it is quite impossible, under present conditions, to make an accurate count of nests on islands such as Inner Farne.

The first egg was laid on Longstone End on April 15th and the first young were hatched on this island on May 20th. Young ducklings were seen on the Longstone as late as July 29th.

RED-BREASTED MERGANSER. Four were off Inner Farne on June 22nd.

SHELD DUCK. Small numbers were seen from time to time, but there was no proof of nesting.

GREY LAG GOOSE. A party of ten, all adults, again visited the North Wamses in July. They were first noticed on June 30th, and before they left, at the end of July, they were joined by two or three other birds.

BRENT GOOSE. On August 4th one flew over the Longstone.

BARNACLE GOOSE. On October 9th four were seen circling the Wamses.

BEWICK'S SWAN. One was on the Northern Hares on November 22nd; it later flew off towards Holy Island.

BUZZARD. One was seen in flight over the Longstone lighthouse on August 8th.

SPARROW HAWK. One flew over the Longstone on February 27th.

PEREGRINE. An adult male was seen frequently on the islands in early spring; its prey included redwing, blackbird, curlew, snipe, redshank and kittiwake. On August 3rd a peregrine chased two pigeons into the Longstone buildings; it was, however, mobbed by terns and driven away.

KESTREL. One visited the Longstone on August 2nd and 8th.

WATER RAIL. Two birds spent the winter of 1951-52 on Inner Farne; they remained until mid-April.

OYSTERCATCHER. Parties of up to a dozen were seen on several of the islands during winter, and on June 22nd there were at least twenty, many in winter plumage, on the Scarcars.

Approximately thirty-eight pairs nested. Seven were on Brownsman, three on Staple Island, six on Inner Farne, ten on Knoxes Reef and twelve on the Longstone rocks.

There was again a clutch of abnormal eggs on Inner Farne. Unfortunately, they were taken by a gull before they could be photographed, but Archbold reported that they were in the same place as in 1951. One of the eggs was pale blue, while the second was putty-coloured with the usual blotches.

A scrape found on Brownsman on June 12th contained two oystercatcher's eggs and one arctic tern's.

LAPWING. One was on the Longstone on January 27th, while on November 24th a flock of over fifty flew south-westwards over this island.

RINGED PLOVER. Ringed plovers were among the waders which wintered on the Longstone; others which arrived during April were obviously on passage.

Twenty-two pairs nested : three were on Staple Island, five on Brownsman, five on Inner Farne and nine on the Longstone rocks. A bird laid three eggs on the path leading up from the Inner Farne landing stage, but these disappeared within a few days.

A party of over thirty, seen on Inner Farne on August 7th, may have been on passage.

TURNSTONE, REDSHANK, PURPLE SANDPIPER, DUNLIN and SANDERLING. Turnstones, redshanks, dunlins, and a few purple sandpipers and sanderling, wintered as usual on the islands. During April their numbers were increased by passage birds, the majority being redshanks, but by early May most had left. Turnstones and dunlins were again seen in early July, and their numbers continued to increase. Later in the month first redshanks, then purple sandpipers and sanderling appeared, but the last two species were present only in small numbers. The main passage of redshanks was in mid-August. SNIPE, JACK SNIPE and WOODCOCK. There are no spring records of woodcock and only two of snipe : these were birds seen on Inner Farne on February 28th and April 15th. A single jack snipe was on this island on April 27th. Both woodcock and snipe were, however, seen in fairly large numbers in autumn.

CURLEW. Flocks, sometimes of considerable size, were seen during winter. At the end of the breeding season the birds collected, as usual, on the Longstone, and on July 17th there were at least two hundred and eleven on this island.

BAR-TAILED GODWIT. Single birds were on the Longstone on May 7th, August 17th and 19th.

GREEN SANDPIPER. Single birds were on Brownsman on August 7th and on Staple Island on August 12th. Although these are the first records since 1914, prior to that date this species had been recorded annually on the Inner Farnes for at least twenty years.

WOOD SANDPIPER. Four birds, which seemed to be very tired, were seen resting on the Longstone main rock on April 23rd.

COMMON SANDPIPER. Single birds were seen on April 29th and July 1st, while on July 17th there were eight on Longstone End.

GREENSHANK and KNOT. Seen in small numbers in spring and autumn.

LITTLE STINT. One arrived on the Longstone on August 3rd.

CURLEW SANDPIPER. Two were on Brownsman on November 1st and on November 29th one was with other waders on the Longstone.

GREY PHALAROPE. Two were near Longstone End on November 12th.

ARCTIC SKUA. Single birds were seen near Inner Farne on July 5th and 26th.

GREAT SKUA. One was off Brownsman on July 26th.

LONG-TAILED SKUA. One visited the Longstone on August 10th ; it was mobbed by terns and driven away. GREAT BLACK-BACKED GULL. Seen in small numbers throughout the winter. Occasional in summer.

LESSER BLACK-BACKED GULL and HERRING GULL. During winter numbers of gulls, many of them immature, were seen about the islands. A characteristic feature of winter afternoons is the steady passage of birds from the mainland to their roosts on the Inner Group.

It is difficult to estimate the relative percentage of the two species during the breeding season, but on the Wamses it was probably fifty-fifty. On the Megstone there appeared to be only herring gulls, and on the Wideopens only lesser black-backs. In the early part of the season the eggs were collected systematically and only two clutches were hatched on Brownsman. On July 17th there was a number of nests on the Harcar; most of these contained one or two eggs. Many of the eggs were destroyed, but on August 29th E. A. R. Ennion ringed sixty young lesser black-backs on the nearby Wamses. This suggests that, if the number of young gulls reared is to be reduced, measures must be taken to collect the eggs in late summer at a time when normal collecting by fishermen has ceased.

Although the gulls did comparatively little damage to the nesting terns W. J. Lewis saw one herring gull kill, and eat, an adult tern.

GLAUCOUS GULL. One was on the Longstone on October 30th.

BLACK-HEADED GULL. A few were on the Longstone on May 16th.

KITTIWAKE. As early as January 6th three birds were seen near the islands and by February 24th there were fourteen on Inner Farne. Communal gathering of nesting material was observed on May 2nd, and the first chick was hatched on May 31st. By July 10th one of the young birds was on the wing. The number of nests continues to increase.

COMMON TERN. Common terns nested with arctic terns on the Longstone rocks. On Brownsman there was a small colony near the upper garden.

ARCTIC TERN. Large numbers nested on Brownsman and Inner Farne, though there were again fewer birds than usual in St. Cuthbert's Cove. About a dozen pairs nested on the rocks to the N.W. of the tower. None of these eggs was laid on the bare rock, but in most cases a crevice, containing a little vegetation, was chosen. One egg was laid straight on to the grass with no attempt at a scrape. A bird in the cove had an unusual nest: instead of a scrape she had thrown up a small mound with a slight hollow on top and the eggs were laid in this hollow.

On the Longstone there were mixed colonies of arctic and common terns totalling over twelve hundred pairs. There were just over four hundred pairs on the main rock and most of the others were on the Northern Hares.

Two scrapes on Brownsman contained pale blue, unmarked eggs.

On the Outer Group the first egg was laid on May 20th and on the Inner Group on May 28th.

ROSEATE TERN. At least thirty-one pairs were present. On Inner Farne one pair had a nest in the cove, just under an old tree trunk, where it could be readily picked out; there were probably two other pairs on this island. Three pairs were on Brownsman; two of these were on the dry bed of the lake, but although a careful search was made of the wash-out under the bank only one scrape was found and that was not a typical roseate's. Nine pairs nested on Longstone End, quite close to the Shining Face, thus affording an excellent opportunity for visitors to study this species. On the Northern Hares there was a group of fifteen nests at the top of the shingle, close to the sandy beach; three of these had clutches of three, while the others each contained two eggs. There was a single nest on the main rock. The number of young reared on the Longstone rocks was considerably greater than in 1951.

On July 17th a bird was seen which still showed a marked, and quite unfaded, rosy blush.

LITTLE TERN. On May 14th W. J. Lewis saw a pair of little terns on the Longstone. At the beginning of July he again noticed a pair and later found what he believed to be their nest. After examination of one of the eggs, however, experts are of the opinion that it is a common tern's, and there is, therefore, still no proof that this species has bred on the islands.

SANDWICH TERN. Sandwich terns were first seen at the islands on April 19th, and although no accurate count was made on Brownsman, the numbers nesting were greater than in 1951. A large colony of about seven hundred pairs settled on Brownsman, to the west of the upper garden, and laid eggs there on May 20th. In mid-June a second colony of about one hundred and fifty pairs arrived, and on July 17th many of these still had eggs. It is possible that these birds had already attempted to nest elsewhere, but had been disturbed.

There were over four hundred nests on the Longstone, chiefly on Longstone End. Colonisation started on May 11th (the same date as in 1951) and eggs were laid a week later, on May 18th.

RAZORBILL. Occasional birds were seen near the islands during winter.

Although more birds than usual were present during summer there seems to have been little increase in breeding pairs. About half a dozen nested on Inner Farne and there were two pairs on Staple Island.

LITTLE AUK. Single birds were seen occasionally in winter.

GUILLEMOT. Some were seen on Staple Island on January 6th, an unusually early date for a return, although only a temporary one, to their breeding site. On June 12th there was at least one young bird on the Pinnacles.

BLACK GUILLEMOT. Seen occasionally in spring and summer.

PUFFIN. By February 21st quite a number had returned and at the beginning of April there were large flocks on the water. In the Inner Group the West Wideopens seemed to have the largest breeding population.

STOCK DOVE. One was on the Longstone on December 6th.

CUCKOO. One was seen on Inner Farne on April 27th and May 9th and on June 26th a male was heard calling repeatedly from the tower. On July 26th a young bird was on the Longstone.

BARN OWL and LONG-EARED OWL. A barn owl spent several days on the Longstone at the end of October and the beginning of November, and a long-eared owl visited this island on November 15th. Both these owls appeared to prey on the resident waders.

SWIFT. One or two were seen in July and August.

HOOPOE. One was outside the Longstone lighthouse on May 5th.

SKYLARK. Seen occasionally, in small numbers, throughout the year.

SWALLOW, HOUSE MARTIN and SAND MARTIN. A swallow, seen on April 11th, was the first of the 1952 migrants recorded at the Longstone. Swallows, house and sand martins were seen on passage up to the end of May, and a single swallow was on Inner Farne on July 6th. A sand martin was on Staple Island on August 12th.

CARRION CROW. An occasional visitor.

HOODED CROW. One was on Inner Farne on April 15th.

ROOK. Throughout April parties of varying size were recorded at the Longstone. On April 18th, in fine but foggy weather, over fifty were seen flying S.W. towards the mainland.

JACKDAW. Small numbers were seen occasionally on the Longstone in April.

NUTHATCH. A nuthatch was among a number of migrants seen on the Longstone on May 2nd. W. J. Lewis described its under-parts as "rufous-buff," but it is impossible to say to which race it belonged.

WREN. Seen occasionally during early spring and autumn.

MISTLE THRUSH, FIELDFARE, SONG THRUSH, REDWING, RING OUZEL and BLACKBIRD. Small parties of blackbirds and redwings were seen occasionally in winter and spring. During April and early May fieldfares were recorded from time to time on Inner Farne; the largest flock, observed on April 27th, numbered about thirty. There are a few records of mistle thrushes and song thrushes on Inner Farne in winter and early spring, and it is probable that a song thrush spent most of the summer on the islands. A female ring ouzel was seen several times at the end of April and a male was present at the beginning of May. Large numbers of redwings, thrushes and blackbirds, with smaller numbers of fieldfares, were included in the autumn rushes, a blackbird being seen on Staple Island as late as December 21st. WHEATEAR. The spring passage of wheatears was recorded between April 8th and May 24th; the parties varied from single birds to flocks of about twenty. On June 20th two young birds were on Staple Island, but no other birds were seen until August 12th. The autumn passage continued until mid-September. Two of the Greenland form were identified on September 16th.

STONECHAT. A few were among migrants which arrived on the Longstone on April 26th and a single bird was on this island on May 12th.

WHINCHAT. Small numbers seen on passage in spring and autumn.

REDSTART. Small numbers were seen on passage between April 15th and May 26th. A juvenile was on Inner Farne on July 11th and single birds were recorded on August 18th and September 16th.

BLACK REDSTART. Two females spent from May 3rd to 5th on the islands.

BLUETHROAT. W. J. Lewis caught, and later released, an adult male on the Longstone on April 27th.

ROBIN. A few were seen from time to time in winter and spring and considerable numbers were included in the autumn rushes.

SEDGE WARBLER, BLACKCAP, WHITETHROAT, LESSER WHITE-THROAT, WILLOW WARBLER, CHIFFCHAFF and WOOD WARBLER. Passage movements of warblers were recorded throughout the second half of April and the first part of May ; the birds sometimes spent a day or two on the islands. The earliest, seen on April 12th, were blackcaps, willow warblers and a single chiffchaff. Willow warblers were recorded as late as May 26th, while a blackcap was on Inner Farne on June 9th. Whitethroats and willow warblers were most numerous, but blackcaps were seen fairly frequently. Chiffchaffs were observed on April 22nd, wood warblers on April 23rd, and lesser whitethroats on April 27th and May 6th. The return passage was first noticed on August 4th when two willow warblers were on Inner Farne ; a lesser whitethroat was seen on the Longstone on August 11th and next day there was one on Inner Farne. On the same day, August 12th, both wood and willow warblers were on the Longstone. A sedge warbler was definitely identified by W. J. Lewis on August 17th, the bird being examined in the hand, but his sight record of a "reed warbler" on April 24th is open to doubt as it, too, may have been a sedge warbler.

GOLDCREST and FIRECREST. There are only two spring records of goldcrests, but considerable numbers were seen at the Longstone during the September rushes. They were accompanied by a few firecrests.

SPOTTED FLYCATCHER and PIED FLYCATCHER. The spring passage of flycatchers was recorded at the Longstone between April 13th and 26th. On May 9th a female pied flycatcher was seen on Inner Farne; this seems to have been a stray bird as there were, at that time, no flycatchers among the migrants on the Longstone. Another female pied flycatcher, which spent from August 15th to 17th on the Longstone, is the only record of the return migration.

MEADOW PIPIT. There were occasional small parties on Inner Farne between mid-April and the end of June. Considerable numbers were seen on passage in autumn.

ROCK PIPIT. Seen throughout the year on most of the larger islands. Nine pairs nested on Inner Farne, and there were at least six pairs on Brownsman and three on Staple Island. Twelve nests were found on the Longstone rocks, but as rock pipits are double brooded it is impossible to give the exact number of breeding pairs. On Inner Farne the average of fledged young was 4.9 per pair for the season.

PIED WAGTAIL. None bred, but passage birds were recorded at the Longstone during April, May and August.

WHITE WAGTAIL. Four were on Inner Farne on May 31st.

GREY WAGTAIL. Single birds were on the Longstone on April 24th, May 14th and August 5th.

YELLOW WAGTAIL. Five were on Inner Farne on April 5th, one on the Longstone on April 27th and two on Inner Farne on May 6th. [GREAT GREY SHRIKE]. A bird, probably of this species, was seen by one of the light-keepers on the Longstone on April 21st.

RED-BACKED SHRIKE. One was seen on the Longstone on April 27th and May 2nd.

STARLING. Small movements of starlings were recorded at the Longstone in spring, while large numbers were seen on the autumn passage. As usual a few pairs nested.

GREENFINCH. Single birds were on the Longstone and Inner Farne at the end of April.

SISKIN. One was on the Longstone on April 24th, while a few were on this island on May 2nd.

LINNET. Twelve flew over Inner Farne on February 24th. A few were recorded on both the Longstone and Inner Farne at the end of April and the beginning of May, while a flock of about twenty were seen several times on the Outer Group in November and December.

TWITE. A twite, first identified as a linnet, was on the Longstone on May 2nd.

LESSER REDPOLL. One was on Inner Farne on February 24th and a few were on the Longstone on May 1st and 2nd.

BULLFINCH. A cock was on the Longstone on April 27th.

CHAFFINCH. Cocks seen on the Longstone on May 5th provide the only record of the spring passage. Considerable numbers were, however, present during the autumn rushes.

BRAMBLING. Seen on passage at the end of October.

YELLOWHAMMER. A cock was on the Longstone on May 1st.

CORN BUNTING. Single birds were on the Longstone on May 1st and on Inner Farne on September 16th.

LAPLAND BUNTING. A cock in full breeding plumage spent from May 3rd to 6th on Inner Farne.

SNOW BUNTING. Single birds, both females, were seen on Inner Farne on February 16th and September 12th.

RINGING

Ringing activities have been considerably extended and 2,769 birds, comprising 2,630 nestlings and 139 adults, have been ringed. The numbers of individual species are as follows:

Starling 11; rock pipit 65; willow warbler 5; whitethroat 4; song thrush 1; wheatear 1; whinchat 2; redstart 6; black redstart 1; swallow 1; cormorant 104; shag 89; gannet 1; fulmar 3; ringed plover 4; oystercatcher 2; Sandwich tern 874; roseate tern 18; common tern 24; arctic tern 874; herring gull 3; lesser black-backed gull 84; kittiwake 485; guillemot 66; puffin 41.

The following brief reports indicate some special aspects of the work :

- 1. Organised ringing parties, largely made up of members of the Natural History Society, visited the islands on four days between June 26th and July 17th. Most of the birds ringed were nestlings, although a few adults were caught. In addition, much valuable work has been carried out by E. A. R. Ennion and his students; this included ringing young guillemots and cormorants on the Megstone.
- 2. During April a number of nesting shags were marked by E. A. R. Ennion and some of these were later re-captured. Other birds, ringed in 1951, were also caught and afterwards released. A continuation of this work should add considerably to our knowledge of Farne Island breeding shags.
- 3. Experiments in trapping both adult and young puffins were carried out on Inner Farne by some of E. A. R. Ennion's students. It is hoped to extend this work in the future.
- 4. As part of his investigations into the behaviour of arctic terns, M. Cullen, of the Department of Zoology of Oxford University, ringed and colour-ringed a number of adult and nestling terns in St. Cuthbert's Cove. This work will be continued in 1953.
- 5. Due largely to the efforts of E. A. R. Ennion a Heligoland trap has been constructed on Inner Farne. Although not yet complete thirty-one birds have been caught and ringed.

6. E. A. R. Ennion has begun a special study of nesting rock pipits. In addition to collecting information about their nesting sites, clutch and brood numbers, etc., he has started a system of colour-ringing by which birds from different islands, and from the mainland, can be readily recognised. The colours used are: mainland, blue; Inner Farne, green or greenish-yellow; Staple Island and Brownsman, pink; Longstone and outer islands, red.

Up to the present only two of these colour-ringed birds have been seen; both were from Inner Farne. One was on Brownsman and the other on the mainland beach. E. A. R. Ennion thinks that by mid-September most of the young birds reared on the Farnes have moved south; at this time there is, however, a considerable influx of unringed birds, including many juveniles. Many of the parent birds seem to remain on the islands.

It is particularly desirable that any information about colour-ringed rock pipits be sent to Dr. Ennion.

RECOVERIES

During the year there have been fifty-eight recoveries. Analysis of cormorant recoveries shows that of birds ringed in 1951 14.7% are now dead, while the corresponding figure for 1952 is 7.7%. Most of these birds were shot. Castejou de Monegros is unusually far inland for a lesser black-backed gull and as such is an interesting recovery.

The common tern recovery is the first of a Farne Island ringed bird, while the arctic tern found at Shipley Hall Farm (approximately thirteen miles S.S.W. inland from the Farnes) is an interesting example of a local movement by a juvenile at a comparatively early age. As usual several Sandwich terns have been recovered along the west coast of Africa, but the bird killed at Caorle, Venezia, is of particular interest, for it represents the most easterly recovery of a Farne Island Sandwich tern.

RECOVERIES OF RINGED BIRDS

Date ring	ed Place recovered	Det
CORMORAL	NT	Date recovered
4.8.51	Berwick-on-Tweed (chat)	
	Beccles Suffells	4.12.51
	Holy Island (initial 1 1 1	16.12.51
	Alpmonth (chick)	Mid-Oct.52
3.9.51	Montroace (she t)	1.11.52
0.0.01	Wallsond	10.11.51
13.6.52	Berwick on T 1/1	2.52
	Berwick on T l (1	15.9.52
9.7.52	Berwick on T d (shot)	20.10.52
	R Tay below D (shot)	30.9.52
	Langstone He L	9.10.52
	Berwick on T	ot) 14.12.52
	Fllon Abarda di (shot)	22.12.52
31.7.52	Newbiggin h (1)	27.12.52
	rewbiggin-by-the-Sea	3.10.52
SHAG		
10.7.50	Staple Island (next:	
29.7.50	Brownsman	29.4.52
28.6.51	Carponatio A (1 - 1)	8.4.52
1240 (YOZ -	destroyed)	29.3.52
	Staple Island (nesting adult-129064)	19.4.52
	Staple Island (nesting adult—129040)	29.4.52
	Staple Island (nesting adult—129066)	29.4.52
	Staple Island (nesting adult-129036))	26.6.52
	Staple I-1	aired
	Staple Island (nesting adult-129067)	26.6.52
	Staple Island (nesting adult-129035))	1.7.52
5.7.51	Staple John L (aired
	6m S F of J	1.7.52
	seine net)	12.51
	Staple Island (
	Staple Island (nesting adult—129019)	29.4.52
27.7.51	Ballintore Foot B	1.7.52
	salmon nets)	6.3.52

Date ringed	Place recovered	Date recovered			
SHAG—continued					
29.4.52	Staple Island (nesting adult—508426)	2.7.52			
1.7.52	Bridlington (found exhausted, restored	24.11.52			
	and released)				
ESSER RIA	CK-BACKED GULL				
27 8 51	Antwerp	17,12,51			
3.9.51	Castejou de Monegros, Huesca, N.E.	1.1.52			
0.0.01	Spain (killed)				
TITIWARE					
OD C EO	At any off I on Sables d'Olonno, Vandée	11 19 51			
29.6.50	At sea off Les Sables d'Olonne, vendee	16 19 51			
0.7.01	Clacton-on-Sea, Essex	Nov 52			
20.0.32	(presumed dead)	1107.02			
1752	Off Pasaies Guipuzcoa, N. Spair	15.11.52			
1.1.02	(presumed dead)				
3.7.52	Nr. Vadero light, W. Sweden	early Dec.52			
	(released)				
14.7.52	Blyth	14.9.52			
Галина /Т.					
JOMMON II	ERN	1 10 70			
31.7.52	Castro Urdiales, Santander, Spain	1.10.52			
	(presumed dead)				
ARCTIC TEI	RN				
13.7.50	Wideopens	6.6.52			
10.7.52	Shipley Hill Farm, nr. Alnwick	17.7.52			
	2				
Sandwich Tern					
13.7.48	Villagarcia, nr. Vigo (killed)	17.2.52			
13.7.50	Mossamedes, Angola (? released)	17.3.52			
5.7.51	Keta, Gold Coast (killed)	30.12.51			
	Winneba, Gold Coast (killed)	12.1.52			
	Pointe Noire, French Equatorial Afric	a 23.3.52			
10 5	(killed by hawk)	16 1 59			
12.7.51	Cape Coast, Gold Coast (Killed)	10.1.94			
	Mossamedes, Angola (? released)	17.5.52			
	" " (probably dead)	19.9.04			

Date ringed	Place recovered	Date recover
SANDWICH	Tern—continued	,
21.7.51	Mossamedes, Angola Ada, Gold Coast (presumed deed)	25.3.52
2.7.52	Nr. Accra, Gold Coast (released, but	11.1.52 17.11.52
3.7.52	Gibraltar (released, but ring removed)	11.10.52
10.7.52	Caorle, Venezia (killed)	$\frac{18.12.52}{28.10.52}$
GUILLEMOT	Dakar, Senegal (caught)	31.10.52
9.7.52	Oksöy lighthouse, nr. Kristiansand, Norway (shot)	29.9.52
ROCK PIPIT	(bitty boundary)	
28.5.52	Monks' House (released)	10.9.52
Unless o	therwise stated all birds have been foun	d dead.

ORNITHOLOGICAL REPORT FOR NORTHUMBERLAND AND DURHAM FOR 1952

Compiled from the records and reports of members of the Natural History Society of Northumberland, Durham and Newcastle upon Tyne and many other local observers,

by

GEORGE W. TEMPERLEY, HON.M.Sc., M.B.O.U.

More than 150 observers have contributed to this Report. Their names are recorded at the end of the Report and, where their records are quoted in the text, their initials are given. It is obvious that only a small proportion of the records sent in by so many observers spread over so wide an area (3,000 sq. miles) can be quoted; but every one of them is of value in assessing the status of any species and the many generalisations contained in this Report are based upon such detailed evidence as is provided. All notes and observations are most welcome. Notes should be tabulated under the name of the species concerned. A circular showing exactly how notes should be arranged may be obtained free of charge on application.

It is essential that these Reports should maintain a high standard of accuracy and reliability. For that reason it is occasionally necessary to omit or to place in square brackets a "sight" record about which, owing to the unfavourable conditions under which it was made or owing to the inexperience of the observer, some doubt exists as to the accuracy of the identification. Square brackets are also used where there is some doubt as to whether the bird observed was truly wild.

It will be noted that this year the order of classification of the birds in this Report has been changed to bring it into line with modern practice. The new order, known as the Wetmore order, has now been adopted in most parts of the world, the British Ornithologists' Union has followed it in the latest edition of the *Check-list of the Birds of Great Britain and Ireland*, published in 1952, and, with some slight modifications, it will in future be the order followed by *British Birds*. (See *B.B.*, Vol. XLVI, p. 1.)

Readers may find some little difficulty at first in adapting themselves to the new order—which begins with the Divers and ends with the Passerines—but its reasonableness is beyond doubt.

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In order to make the change as simple as possible, the *Handbook* numbers are retained in the "Classified Notes," but they *follow* the name of each species instead of preceding it. To avoid any confusion, the scientific names, from the new *Check-list*,* have been inserted.

Abbreviations used :—N=Northumberland; D=Durham; B.B.=British Birds; O.R.=Ornithological Report; F.I.O.R.= Farne Islands Ornithological Report.

All notes and communications should be addressed to G. W. Temperley, "Restharrow," Stocksfield, Northumberland.

RECORDS OF UNUSUAL INTEREST IN 1952

Full details will be found below of the following records of special interest :—Leach's Petrel (12), White Stork (40), Greenwinged Teal (46), Goshawk (94), Marsh Harrier (99), Quail (117), Terek Sandpiper (168), Avocet (185), Hoopoe (261), Golden Oriole (278), Golden Mountain Thrush (White's) (309), Yellowbrowed Warbler (360), Blue-headed Wagtail (382), Lesser Grey Shrike (385), Red-backed Shrike (388), Lapland Bunting (422).

WEATHER CONDITIONS AND MIGRATION

The year began with a cold spell, but there was no severe wintry weather. Garden plants and shrubs were held back and bloomed later than in the previous year and it was well into March before much growth began. In the latter half of March and early April weather conditions improved ; but during that period winds were not favourable for spring migration. The very first migrants reported were three Sand-martins, which were seen near Durham on March 31st flying north over the snow, and five Yellow Wagtails seen on the Inner Farne on April 5th. A sudden change occurred on April 9th when favourable winds brought the first arrivals of several species in rapid succession. On the 8th came the first Willow-warblers and on the 9th Blackcaps, Treepipits, more Yellow Wagtails, White Wagtails and Swallows. The next day came Redstarts, Greenland Wheatears, House-

* Obtainable direct from Messrs. H. F. & G. Witherby Ltd., 5 Warwick Court, W.C.1, price 7/6, plus 6d. for postage, etc., or through any bookseller. martins and Sandpipers; on the 13th Pied and Spotted Flycatchers; by the 14th the Whinchat and Cuckoo, followed next day by the Grasshopper Warbler. The Wood-warbler was seen on the 24th and on the 27th the first Corncrake was heard and a Red-backed Shrike appeared on the Longstone, Farne Islands. It is seldom that all the spring migrants arrive so quickly after one another and it suggests that there must have been a "hold-up" keeping back the earlier species. After a lull, another very favourable spell of weather occurred in early May, when migrants arrived in very large numbers and the following unusual species were recorded—on May 3rd an Avocet, on the 4th Black Terns, on the 6th a Hoopoe and on the 11th a Golden Oriole.

The early part of the summer was cool and sunless, but breeding birds were fairly successful. Tits, Redstarts and Pied Flycatchers in nesting boxes reared larger broods than in the previous summer and in early autumn family parties of many species were observed. Except for a very few warm sunny days in mid-July, the summer was cool throughout, with chill winds and little sunshine, though without much rain.

Autumn passage migrants were recorded early :-- On June 28th Greenshanks (2), on July 5th Arctic Skuas and a Black Guillemot, on the 15th Ruffs, on the 19th Sanderling (60), on the 23rd Green Sandpipers, on the 26th Great Skua and Knots (11) and on the 28th Wood Sandpipers. In the first half of August a short spell of S.E. wind brought more passage migrants and winter visitors to our shores. September was very cold with northerly winds which brought Fieldfares, Redwings, Bramblings and Snowbuntings in numbers before the end of that month. The earliest of the two former were actually reported on August 24th. On October 5th the first Shore-larks were seen ; though no more were heard of until the end of the year. On October 19th Great Grey Shrikes were reported; but, unexpectedly, there were practically no Waxwings and few Siskins. Grey Geese were about a fortnight earlier than usual and many Whoopers arrived, the first being noted on September 14th, an early date. In spite of the cold weather, however, many of the summer visitors remained late. On October 3rd and 4th a considerable movement of small passerines was observed along the coast. October 10th and 11th was another period of activity. At the end of October there were prolonged gales from the S.W., when the "wreck" of Leach's

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Fork-tailed Petrels on the west coast took place, some of the birds being carried as far as our two counties. November was, for the most part, cold and wet and December opened with a spell of frost which brought wildfowl down from the exposed loughs and reservoirs to the rivers and lowland ponds. Large flocks of Lapwings, Golden Plover, Fieldfares, Redwings and other winter residents moved down to the coastal strip to escape the frost. Whoopers and Bewick's Swans were in larger numbers than usual. A milder spell provided a "green Christmas," but by the close of the year there were two or three inches of snow.

It will be noted that in the Classified Notes which follow, more than usual attention is given to migration records, both to the arrival and departure of summer and winter visitors and to passage migration. With the Monks' House Bird Observatory in the north, more vigilant watching at South Shields and also at Teesmouth in the south, it is now possible to trace the movements of migrants along the coast with more accuracy than hitherto. The dates given will serve for comparison in future years.

BIRD-RINGING

More ringing has been carried out than in any previous year. This is part of an extensive scheme for obtaining more information about the migratory movements of birds in this country and abroad. Its success depends upon the number of such birds recovered in different parts of the world. It therefore behoves every ornithologist to keep a continual look out for ringed birds and to report their presence when found. No dead bird seen should be passed by without undergoing a thorough examination for a possible ring. Many birds winter in this country from northern Europe where much ringing is now being done annually, both of summer breeding species and of birds on passage migration.

The total number of birds ringed on the Farnes in 1952 was 2,769. Numbers in previous years were :--1949, 836; 1950, 1,469; 1951, 1,748; showing a very marked increase from year to year. Plans have been made for further developing the work of ringing birds in the Forestry Commission's plantations, both in Northumberland and Durham. This year 87 birds were ringed, chiefly nestlings in the nesting boxes. The grand total of birds ringed under the auspices of the Society in 1952 was 3,577; this includes birds of 52 different species.

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NESTING BOX EXPERIMENTS

In the Forestry Commission's plantations near Hamsterley, Co. Durham, 312 nesting-boxes were put up for the 1952 season. Of these only 78 were occupied, as compared with 88 last year and 108 in 1950.

	No. of nests	Broods reared	Young reared	Average brood size
Pied Flycatcher	. 18	15	84	5.6
Redstart	. 13	12	69	5.75
Great Tit	. 30	21	149	7.1
Blue Tit	. 9	9	72	8.0
Coal Tit	6	6	48	8.0
Creeper	2	2	9	4.2
	illua a nn ar is	international	uso r ni noi	nden
stantion of the sector	78	65	431	
Last year .	88	74	438	

As compared with last year, nine fewer broods were reared, but owing to the average clutch size being greater, only seven fewer young were reared.

Of the 78 boxes occupied, only 22 were more than 50 yards away from the nearest stream. The most distant Pied Flycatcher was 130 yards; but a few Great and Blue Tits were found up to 180 yards, a Redstart at 200 yards and one Coal Tit at 220 yards.

We are indebted to C. H. Longstaff for the above report.

As compared with other species, Pied Flycatchers appear to be losing ground, as the following figures show :—

7	<i>lear</i>	1949	1950	1951	1952
Pied Flycatcher		28	40	20	18
Redstart		14	16	15	13
Great Tit		29	27	19	30
Blue Tit		9	17	12	9
Coal Tit		2	4	8	6
Creeper		0	0	0	2
		-			
Total		82	104	74	78
Percentag	e of				
Pied Flycatchers		34%	38.5%	27%	23.5%

BRITISH TRUST FOR ORNITHOLOGY ENQUIRIES

- 1. Heronry Census. This annual count of breeding Herons continues to be made. Counting is very difficult at some heronries as the nests are built very high up in close-growing pine trees. No increase in numbers has been established as compared with last year.
- 2. Breeding Distribution Survey. The object of this enquiry was to discover with accuracy the breeding status of 30 species of birds throughout Great Britain. The country was divided into 25 sq. kilometer plots ($c. 9\frac{1}{2}$ sq. miles) and observers were asked to estimate the breeding status of each species in one or more of these areas. In Northumberland and Durham, with their 3,000 sq. miles, there are about 320 such plots. The bird population in many of them is quite unknown to any of our members; however, 54 plots, or c. 500 sq. miles of the area was covered, which is about one-sixth of the whole.
- 3. Breeding Distribution of Pied Flycatcher. This was an investigation into the status, distribution, habitat, plumage, breeding and dispersal of this interesting species. The information required was obtained, by members and others, from ten different areas in the two counties (Northumberland 6, Durham 4), where this species breeds. Dr. Bruce Campbell, Secretary of the B.T.O., who is directing the investigation, visited the district at the end of May and saw many of the breeding birds.
- 4. Wintering of Gulls in Britain. Several members are taking part in counting the roosting flocks of gulls of various species which are wintering in the two counties. It is too early, as yet, to give any figures.

WILDFOWL CENSUS

This Census is now in its fifth year. Members of the Society and others who are co-operating continue their monthly counts along the coast and on inland waters. Thirty census-takers are at work and usually 34 schedules are completed monthly all through the season. Unfortunately, counting has occasionally been held up in exposed places owing to wintry weather and in one or two instances the foot and mouth disease "stand-still" has prevented access to some inland waters. A Report on the progress and results of this internationally organised Census has been issued by the International Wildfowl Research Institute. Copies can be obtained on application at the Hancock Museum, price 2'. The local organisation of the Census is now in the hands of Miss U. M. Grigg, Dove Marine Laboratory, Cullercoats, to whom all communications should be addressed.

MOULT MIGRATION OF SHELD-DUCK

Although several members kept watch during the late summer, no migrating flocks were seen in the Tyne valley.

HOMING EXPERIMENTS WITH SHEARWATERS

Assistance was given in these experiments, conducted by Dr. G. V. T. Matthews of Cambridge, by our member Mr. W. Johnson, of Haydon Bridge. On May 25th and again on June 22nd consignments of breeding Shearwaters, 20 on each occasion, were sent from the Island of Skokholm, off the Pembrokeshire coast, and liberated on New Alston Fell, north of Haydon Bridge. Full details are not yet available, but one bird from the first consignment reached its burrow in 13 hours, a distance of about 250 miles in a straight line. It was noticeable that practically every one of them took up a southerly course before it left the Fell.

OILED BIRDS

The Royal Society for the Protection of Birds, in conjunction with the British Section of the International Committee for Bird Preservation, is carrying out a systematic census of the oiled birds found along the coasts of this country. Members have been asked to co-operate and schedules have been distributed to those who are able to take part.

GOSFORTH PARK BIRD SANCTUARY

The lake, reed-beds and surrounding woodlands continue to be very attractive to breeding and visiting birds. As will be seen from the Classified Notes which follow, many interesting species have been seen there during the year, notably a Golden Oriole (278) Black Terns (212) and some Bewick's Swans (86). From the

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"hides" members are enabled to watch at close quarters birds which are too wary to approach elsewhere. The difficulties of maintaining a sanctuary almost surrounded by a built-up area are obvious and the Society is concerned at the amount of trespass and the resultant destruction. The decision to fell the old trees at the north of the Park may make the sanctuary less attractive to some species. Another difficulty is the tendency of "vermin," chiefly Carrion Crows, Jays and Magpies, to take advantage of the security which the sanctuary offers and it is not easy to keep them in check without scaring away other species, particularly the wildfowl which winter on the lake.

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POTTED BIRDS

The Royal Society for the Prefaction of Firds in computerous with the Pridish Section of the Prefaction of Committee for Bird desarration, its carrying out a "articulation denses of the oded prize tound along the coasts of the Commit. Members have been asked to co-operate and schedules have been distributed to these

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CLASSIFIED NOTES

1. BLACK-THROATED DIVER Colymbus arcticus L. (378)

A few off the coast in January, February and March. On January 27th at Holy Island, eight; some badly oiled. (R.H.) On November 20th after a gale, one was stranded on the road near Seahouses, N. It was taken to Monks' House Bird Observatory, ringed, and released next day after a breakfast of whiting ! (E.A.R.E.).

Inland—On November 1st on Colt Crag Reservoir, N., one was watched at close quarters : this species is not often recorded on fresh water here. (K.I.)

2. GREAT NORTHERN DIVER Colymbus immer Brünn. (376)

More numerous than usual off the North Northumberland coast during January and February. On January 27th at Holy Island twenty were counted, some of them on the shore badly oiled. (R.H.) Also a few in October and November, maximum eight on November 12th off Monks' House. (E.A.R.E.)

5. GREAT CRESTED GREBE Podiceps cristatus (L.) (370)

On an inland lough in Northumberland a pair bred successfully on a second attempt; four eggs were laid, but only two young were reared. (K.I.)

7. SLAVONIAN GREBE Podiceps auritus (L.) (373)

A few were reported on the coast in October and November (E.A.R.E.); maximum number ten, on January 27th off Holy Island. (R.H.) On the Tweed estuary one was seen to bring up a 9" to 10" fish crosswise in its bill and to swallow it head first. (F.B. & H.F.C.)

8. BLACK-NECKED GREBE Podiceps caspicus Hablizl (374)

A few coastal records in January, February and March and again in November. (E.A.R.E.) Not seen on the ponds in Co. Durham where it bred a few years ago. (T.S.D.)

12. LEACH'S PETREL Oceanodroma leucorhoa (Vieillot) (351)

At the end of October, during a prolonged period of gales from the S.W., a very large number of birds of this species was driven ashore on the west and south-west coasts of the British

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Isles. Many of them were carried across country by the wind and picked up dead far inland. The following were recorded locally; it is probable that those picked up inland had been blown across the Pennines from the west.

Northumberland—On October 23rd, two days before the S.W. gales of 25th/26th which were the main cause of the "wreck," one was seen flying south off Monks' House, Seahouses, N. (E.A.R.E.) On the 28th one was picked up on Holy Island (R.H.); on the 29th one was found dead near Berwick (F.B.); on the 30th one was picked up at Chollerton (K.I.), another at Wark, North Tyne (M.P.), and a third on Slainsfield Moor near Etal (Lord Joicey). On November 1st one was seen near the Brownsman, Farnes (*F.I.O.R.*) and a day or two later one was found dead at Ford; on November 29th the decomposed body of another was picked up in a roadside ditch north of Haltwhistle. (M.P.)

Durham—On October 29th one was found in the grounds of Polam Hall School, Darlington. (Miss Martineau)

It is probable that more may have reached Northumberland and Durham without being detected and identified. Six of these birds were sent to the Hancock Museum for identification.

14. STORM-PETREL Hydrobates pelagicus (L.) (350)

Small numbers were caught on the Longstone, Farnes, in the autumn; the majority were uninjured and released. (F.I.O.R.)

16/21. SHEARWATERS sp?

On December 13th, off Seaton Sluice, N., a Shearwater was seen flying north which was judged to be larger than a Manx and with light brownish upper parts and wings. On the 27th off Holy Islands, two birds were seen flying north ; they were of a uniform sooty black colour, their under parts being no paler than their backs, the only lighter colouring being on the undersides of their wings. They were thought to be Sooty Shearwaters. (W.D.R. & B.L.)

Dark forms of the Balearic Shearwater, *Procellaria puffinus mauretanicus* (Lowe), so closely resemble the Sooty Shearwater in general colouring that it is difficult to distinguish between the two species when seen flying off shore. The Sooty Shearwater is

a very rare visitor to the N.E. coast; but the Balearic is appearing more frequently. For further information on the identification of the Shearwaters observers should consult B.B., Vol. XLV, p. 49, where illustrations of the various species are given.

16. MANX SHEARWATER Procellaria puffinus Brünn. (355)

Single birds and small parties, maximum eight, were seen flying off shore from June to early November, usually passing north. On May 25th and again on June 22nd, twenty Manx Shearwaters from Skokholm, Pembrokeshire, were released on New Alston Fell, north of Haydon Bridge, N., on behalf of Dr. G. V. T. Matthews of Cambridge, in connection with his "homing" experiments. (W.J.)

26. FULMAR Fulmarus glacialis (L.) (368)

On the Farnes ten pairs attempted to breed, but few young were reared. (F.I.O.R.) On April 27th one or two birds were haunting a cliff south of Cresswell Coastguard Station, N., the first time that they have been seen there. (D.M.R.C.) On the cliffs north of Hartley, N., three or four chicks were reared. (B.L.) On the Durham coast, between the Tyne and the Wear, 80 young were counted. (F.G.G.) The last young left the Marsden cliffs between September 17th and 22nd. (J.C.C.)

Inland sites :—On Spindlestone Heugh, west of Bamburgh, one nestling was reared. Birds were seen visiting Greensheen Hill on Belford Moor six miles from the open sea. (E.A.R.E.) For three or four years a few birds have haunted Ratcheugh Crag near Alnwick, about three miles from the sea; this year, on May 2nd, 22 birds were counted; no eggs have ever been seen here, but the ledges are easily accessible to climbers. (J.E.R.)

Adult birds returned to their nesting ledges at Bamburgh on November 18th, when eight were counted; a month earlier than in the previous year. (E.A.R.E.) At Cullernose Point, N., two were present as early as November 2nd and considerable numbers by the 22nd. (W.S.C.)

29. SHAG Phalacrocorax aristotelis (L.) (348)

On the Farnes 95 nests were counted, compared with 85 last year and 59 in 1950. Eggs were seen as early as April 8th. (F.I.O.R.)

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30. HERON Ardea cinerea L. (389)

Northumbrian Heronries :—Longridge, Berwick, on April 24th seven nests were counted : in thick coniferous trees in another part of the wood nine nests were seen, but it was impossible to see how many of these were occupied. (H.F.C.) Chillingham, nine occupied nests. (C.B.) Boundary Wood, Alnwick, five or six occupied nests. (J.E.R.) Trewhitt, near Thropton, one or two occupied nests. (T.G.W. & R.C.) Blagdon, no nest found though a pair of birds present. (M.W.R.) Grey Court, Riding Mill, no breeding proved. (F.S.)

Durham Heronries :—On the Wear near Harperley a small heronry of three occupied nests has been found for the first time. (C.H.L.) Dyance Wood, Gainford, nine occupied nests, from which six pairs bred successfully. (C.J.G. & K.B.) It is probable that other small heronries or single nests exist but have not yet been discovered and reported.

Now frequently observed at Gosforth Park, maximum five in September; one was seen to swallow a live Moorhen. (E.K.)

38. BITTERN Botaurus stellaris (L.) (297)

From February 3rd to 6th one was flushed on several occasions from a runner of open water near Fowberry Tower, Chatton, N. (A.W.M.) On December 12th near Little Harle Tower, Kirkwhelpington, N., one was flushed by beaters during a pheasant drive. It rose at less than 20 yds. and flew quite low over the guns. It was flushed from rough bracken and willow-herb on the steep sides of a dene and far from any marshland. (R.Y.)

40. WHITE STORK Ciconia ciconia (L.) (285)

On May 16th on the river Breamish, below Ingram, N., one was watched, under very favourable conditions, for 10 to 15 minutes. It was first noted flying east, a little above tree-top height, over Brandon Farm, where it was mobbed by Rooks and Jackdaws. Followed by these birds it alighted within 50 yds. of the road, where it could be plainly seen. Its red bill and legs, its black primaries, contrasted with its otherwise white plumage, could be clearly seen. It flew with its neck fully extended. (B.C.E.R.) It is possible that this bird may have escaped from captivity; but no evidence for this is forthcoming. It was reported in the local press as a "Pelican."

45. MALLARD Anas platyrhynchos L. (317)

In Dues Hill wood, near Hepple, Coquetdale, a Mallard's nest was found in the old nest of a Carrion Crow situated 30 ft. high in an oak-tree. (E.G.T.) A Mallard was recovered in the Tees estuary in August, 1951, which had been ringed as a breeding bird in West Flanders on June 9th of the same year. (*B.B.*, Vol. XLV, p. 458.)

46. GREEN-WINGED TEAL Anas crecca carolinensis Gmelin (320)

On April 10th a drake, in company with a party of Common Teal, was identified on the pool at Monks' House, N. It remained off and on for ten days. The earlier occurrence of an American Wigeon (November, 1951) supports the wild origin of this bird. (E.A.R.E.)

47. GARGANEY Anas querquedula L. (322)

From April to August single birds and pairs were seen on several inland waters :—Holy Island lough, two pairs (F.G.G.); Annstead, Gosforth Park, N., Boldon Flats, Brasside Ponds, Cowpen Marsh, D. At Boldon Flats, D., a pair successfully reared ten young (N.R.), and on July 17th no less than 14 birds were flushed there, so possibly two pairs may have bred. (F.G.G.)

52. PINTAIL Anas acuta L. (325)

Reported from various inland waters and along the coast in every month of the year except May and June.

53. SHOVELER Spatula clypeata (L.) (326)

Reported in increasing numbers on various inland waters in every month of the year; also occasionally observed off the coast. Most frequently noted in April. Breeding suspected on Holy Island (R.H.) and near Monks' House (E.A.R.E.).

55. SCAUP Aythya marila (L.) (331)

Remarkably scarce for the last two winters. On January 8th at Teesmouth a female. (D.S.) On July 19th, 20th and 24th at Teesmouth a drake—an unusual date. (D.S., W.H.J. & O.C.H.) On September 15th off Beadnell, N., a drake with Eiders and on November 14th to 18th at Budle Bay, N., a female. (E.A.R.E.)

57. POCHARD Aythya ferina (L.) (328)

Remarkably few reported each winter, as compared with previous years. In April a pair was seen on the pond in Co. Durham where, a few years ago, breeding occurred, but no nest was found or young noted. (T.S.D.)

61. LONG-TAILED DUCK Clangula hyemalis (L.) (334)

Very few indeed reported. In January, between Bamburgh and Seahouses, thirteen, eleven of them drakes. (A.B.) From October 23rd to 28th off Gull Bank, Holy Island, up to six. (A.M.M.) In November off Bamburgh maximum twelve. (E.A.R.E.) On November 29th off Seaton Sluice Point an adult drake flew in to feed within four yards of the beach. (B.L.) This is the first record for the South Northumberland coast for many years.

67. EIDER Somateria mollissima (L.) (337)

It was estimated that some 532 ducks nested on the Farnes; a considerable increase on the previous year. The first eggs were seen on April 15th. (F.I.O.R.) On Holy Island "Eiders bred earlier this year than I have ever known them to do." (R.H.) On Coquet Island the usual 60 to 70 ducks nested. (A.E.G.) On another small island off the coast eight nests with eggs were found in July; it is not known whether young were reared. (F.G.) On May 10th a nest with eggs was found on the rocks near Dunstanburgh. (W.R.L.)

70. GOOSANDER Mergus merganser L. (342)

Early nesting.—On March 23rd in Coquetdale, in a nesting site used in the previous year, three eggs were found : assuming that the first egg had been laid on March 21st, this is more than a month earlier than last year, when the first egg was found on April 22nd. (E.G.T.) On April 29th, in Coquetdale, a nest was found with eleven eggs which later hatched off. On May 31st another nest was found with eggs just hatching. (R.C.) On June 8th, also in Coquetdale, a nest, with four newly-hatched young, was found in a hollow stump nearly two feet deep, with no holes at the bottom and with very smooth sides. Later in the day the birds had all gone. Does the duck lift her young out? (T.G.W.) In winter very numerous on reservoirs and loughs; on December 23rd on Whittle Dene Reservoirs 39 were counted. (L.M.)

71. SMEW Mergus albellus L. (344)

Only one recorded—an adult female which spent some days on the Whittle Dene Reservoirs; first reported January 26th, still present February 3rd. (A.M. & A.J.C.)

73. SHELD-DUCK Tadorna tadorna (L.). (315)

No certain evidence of west-east "moult-migration" flight obtained.

75/78. "GREY GEESE" spp? (303/307)

Many skeins of unidentifiable geese have been reported flying in various directions in many parts of both counties. These movements were particularly noticed on October 3rd, 4th and 5th, when most of the flocks were heading south-west; except that over Haltwhistle two large flocks were seen flying due east as though coming from the Solway. (M.P.) Many of the other movements reported were probably merely due to flocks changing their local feeding grounds.

75. GREY LAG-GOOSE Anser anser (L.). (303)

In 1951-52, the usual flock wintered on Holborn Moss. On February 24th on Fenham Flats 68 birds were shot, out of a flock of c.125, by two shots from a punt-gun. (per F.B.)

On June 30th, on the Wamses, Farne Islands, ten adults arrived and were later joined by two or three more. They all left by the end of July. (F.I.O.R.) This is the fourth year in which such a summer party has been present on the coast. (See O.R., 1949-51.)

In the autumn the Holborn Moss flock was first seen on October 12th numbering c.60 (E.A.R.E.); by the 27th there were 90 (W.B.A.); and by mid-November c.300. (F.B.) During the last six weeks of the year a flock of c.20 spent much time about Plessey and Stannington; one was shot and definitely identified as a Grey Lag. (J.W. & J.W.S.)

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76. WHITE-FRONTED GOOSE Anser albifrons (Scop.) (304)

On January 30th six were seen flying S.S.W. past Monks' House at 150 yds. in a good light (E.A.R.E.); the only record for the year.

78. PINK-FOOTED GOOSE

Anser arvensis brachyrhynchus Baillon. (307)

Most of the flocks of "grey geese" seen flying high in skeins were probably of this species, but few were definitely identified. First reported in autumn on October 3rd and 4th. Numbers reported from Holy Island were—October 3rd, 31; 19th, 63; December 14th, 100. (R.H.)

80. BRENT GOOSE Branta bernicla (L.) (312-313)

Winter of 1951-52.—As already reported a single bird arrived at Holy Island on December 10th, 1951; this was followed by two more on January 4th and one on the 26th: two of these were still there up to March 23rd. (R.H.) The only records for the winter.

On December 14th at Holy Island, three (R.H.)—the only record up to the end of the year; but in January, 1953, large numbers arrived.

81. BARNACLE-GOOSE Branta leucopsis (Bechstein) (311)

On February 9th in Blyth Bay, N., one seen flying north. (F.G.G.) On September 15th, an early date, near the Long Nanny, Embleton, N., eight seen feeding. (E.A.R.E.) On October 4th on Fenham Flats, N., a flock of 25/30. (N.R.) On October 8th from Monks' House, sixteen flying S.W. over the shore and on the 9th on the Wamses, Farnes, four. (E.A.R.E.) On the 19th at Holy Island, nineteen. (R.H.)

Inland :---On December 17th near Ponteland, N., an immature female, changing into adult plumage, was shot. It was sent to the Hancock Museum. (P.H. per S.E.C.)

[82. CANADA GOOSE Branta canadensis (L.) (314)

On May 8th on Greenlee Lough, N., one seen. (R.C.) Possibly a stray from captivity.]

85. WHOOPER-SWAN Cygnus cygnus (L.) (300)

Numerous and well distributed. Small parties often wintering on quite small ponds in Northumberland.

First arrival in autumn :—On September 14th on Holywell Ponds near Monkseaton, N., one, an early date. Afterwards joined by others up to a maximum of 18, which spent the winter there. On December 28th this flock visited Gosforth Park Lake. (L.M., E.K., & L.G.H.) A single bird spent the summer on the lake at Hartburn Grange; it was seen in July, August and September. (U.M.G.)

86. BEWICK'S SWAN Cygnus bewickii Yarrell (301)

Very few reported. On January 4th at Blagdon, N., a party of five "almost certainly of this species." (M.W.R.) On February 24th on Fenham Flats, N., two identified out of a flock of Whoopers and Mutes. (F.B.) On March 23rd on Budle Bay, N., one. (G.P.)

On November 22nd on the Northern Hares, Farnes, a single bird. (F.I.O.R.) On December 13th to 25th on Holywell Ponds, three, with Whoopers. (W.D.R., &c.) On the 29th these three visited Gosforth Park Lake. (B.J.)

91. BUZZARD Buteo buteo (L.) (269)

On January 4th in Lambton Park, D., one seen. (M.W.R.) On February 17th near Holystone, Upper Coquetdale, N., one seen. (E.G.T.) On March 30th near Eggleston, Teesdale, two. (W.A.W.) On August 8th one flew over the Longstone Lighthouse. (F.I.O.R.) On the 12th one was seen soaring over the sea at Whitburn, D. (E.W.), and on the 15th one was over Boldon Flats, D. (W.D.R.)

On April 30th, in Teesdale, on the Yorkshire side, a nest was found with three eggs; later the eggs were taken. "This is the first time that I have known the Buzzard to lay eggs in Teesdale, though I have often known them to build nests on both the Durham and Yorkshire sides of the river." (H.W.)

93. SPARROW-HAWK Accipiter nisus (L.) (277)

Three pairs nested in Gosforth Park Sanctuary. (W.D.R.& B.L.)

94. GOSHAWK Accipiter gentilis (L.) (275)

On May 16th at Bamburgh, N., a female of this species was seen circling lazily over the golf-course. It was pursued intermittently by Carrion Crows, which provided a useful index as to its size. (E.A.R.E.) (A Goshawk was recorded from Norfolk about a month earlier.)

99/102. HARRIER spp? (272/273)

On July 20th a bird was seen on Ross Links that was almost certainly a hen Hen-Harrier; though from the date it would be more likely to have been a Montagu's. (E.A.R.E.) On November 10th a cock Harrier was seen on the Wolsingham moors probably a Hen-Harrier. (R.M.)

99. MARSH-HARRIER Circus aeruginosus (L.) (271)

On January 18th at Holy Island, one seen. (R.H.) On November 29th at Holywell Ponds, N., a large dark Harrier was seen and watched for some time, under favourable conditions, both in flight and when perched on a tree and on a telegraph pole. From detailed notes on its plumage, taken on the spot, it was, without doubt, an immature Marsh-Harrier. (E.K., L.G.H. & L.M.)

102. MONTAGU'S HARRIER Circus pygargus (L.). (272)

Northumberland :—On May 5th and 12th a single male was seen on a moor in South Northumberland. (J.H.A.) On the 25th a pair was seen on this site. Plucking places were found containing the remains of young birds of several species and of a lizard, also some pellets enclosing fragments of bones and beetles. The pair was seen together on several occasions, but no nest was located. One June 2nd and 10th two cocks were present together. (A.J.C.) On the 21st the empty shells of three Harriers' eggs were found lying together on one of the plucking sites, no doubt carried there by the hen, thus showing that young had been hatched. (J.H.A.) Both birds were present up to June 25th, after which date they were not seen again. This is the first recorded attempt at breeding in the county for at least half a century.

On May 15th two cocks were seen in the North Tyne district (P.F.G.), and on August 28th a pair was seen in that area. (J.H.A.)

Durham :—On the Durham site, where breeding has occurred in previous years (see O.R., 1947-51), a single male was seen on April 21st and subsequent dates ; but it was not until May 21st that a hen was seen. Up to May 24th both birds were still present, but that was the last date on which either of them was seen. (W.M.B.) On August 22nd, on another Durham moor, a pair was seen feeding three well-fledged young already out of the nest ; the cock bringing food and dropping it to the hen who rose from the heather to catch it in the air. The cock was seen to capture a pipit. On the 24th the cock was still present with one young ; but on subsequent dates none was seen. (C.G. & D.B.)

A game-keeper reported that a single bird had spent the summer on another moor in the S.W. of County Durham. (H.W.)

105. PEREGRINE Falco peregrinus Tunstall (259)

Northumberland :—A single bird wintered on the Farnes. It was still present on March 23rd. Another is wintering there this year. At one breeding site a clutch of three eggs was seen on April 11th, but later they were missing; on May 7th the same pair had three eggs on a neighbouring site, but no young were reared. At another eyrie two eggs were seen on April 20th, where later one of them was seen to be chipping; neither of the eggs was hatched and later one was found broken some distance from the nest. The plucking sites of this pair were found on the tops of large boulders and on the branch of a pine tree, all of them at more than a mile from the eyrie. (E.G.T., R.C., N.A.R.) In a more isolated Cheviotland eyrie a pair successfully reared two young. (E.A.R.E.)

Durham :—Late in the season, June 14th, a clutch of three eggs was found on a crag in Co. Durham. On July 12th two of the eggs were still present, but on the 13th the ledge was empty. (T.F.T.) This pair had already made two unsuccessful attempts to breed in Yorkshire where, on April 8th, on one site four eggs were seen but were afterwards missing and on April 30th at another site four eggs were seen and later found missing. (H.W.)

107. MERLIN Falco columbarius L. (262)

Two nestlings were ringed in an old nest of a Carrion Crow near Cheviot, N. An unusual site. (E.A.R.E.)

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110. KESTREL Falco tinnunculus L. (263)

A pair nested in the tower of King's College, Newcastle, and reared one young. (J.A.)

113. BLACK GROUSE Lyrurus tetrix (L.) (513)

In Upper Coquetdale, once common, now, almost extinct. (E.G.T.) On July 29th on Muckle Moss, Bardon Mill, N., a party consisting of a cock, hen and four well-grown young was seen. Few, if any, had been seen in that area of late years. (M.P.) On June 18th on Waskerley Park Moor, D., a hen with seven young was flushed, followed by a cock : it is unusual to find a cock in attendance on a family party. (M.C.)

117. QUAIL Coturnix coturnix (L.) (520)

One June 15th one was heard calling from the fields behind the houses in Polworth Road, Gosforth. (R.G.G.) The only record for the county; but on June 24th one was heard near Edrom in Berwickshire.

120. WATER-RAIL Rallus aquaticus L. (509)

A regular resident at Gosforth Park, where it is more often heard than seen, owing to its skulking habits. On April 24th a nest was found containing 12 eggs, from which young were successfully hatched on May 10th. (B.L.) Also bred successfully near Holywell Ponds. (N.F.) In all probability two wintered on the Inner Farne, in a small patch of iris near the landing, where they were seen on many occasions, as late as March 28th. One also seen there on October 26th. (E.A.R.E.) An uncommon bird now in S.W. Northumberland; but one was caught and released near Haltwhistle on December 8th. (M.P.)

121. SPOTTED CRAKE Porzana porzana (L.) (505)

On April 27th at Boldon Flats, D., one seen (F.G.G.); about a month earlier one had been heard there. (H.M.S.B.) On July 30th at Primrose, near Jarrow, one seen. (F.G.G.)

125. CORNCRAKE Crex crex (L.) (504)

For many years Corncrakes have been rare summer visitors, fewer and fewer being reported each year until the summer of 1946, when a slight increase was recorded. Since that year numbers have very slowly increased, until in 1951, a more than usual number was heard. In 1952, however, previous records were exceeded and the year will be remembered as a "corncrake year." Many people heard the "craking" for the first time in their lives and reports of this came in from many parts of the two counties, while in some instances proof of breeding was definitely established.

Northumberland :- The earliest report was of a bird calling on April 27th on the banks of the Coquet near Rothbury (R.C.) and later several other birds were heard in the Rothbury area (W.A.W.) and in Upper Coquetdale. (E.G.T.) Further north birds were heard near Budle Bay and North Sunderland (E.A.R.E.), two were heard on the outskirts of Alnwick (J.E.R.) and two at Blagdon. (M.W.R.) Several were reported from North Tynedale (K.I.) and from the upper meadows of the South Tyne, where the first was heard at Haltwhistle on April 29th. (M.P.) "This has been the greatest Corncrake year in South-west Northumberland since the decline more than 20 years ago. I have listened to them continually at Bardon Mill, Melkridge, Coanwood, Greenhead and at four places just outside Haltwhistle and have had reports from Haydon Bridge, Fourstones, Hexham, Stagshaw and Humshaugh." (M.P.) Several were heard about Hexham, Corbridge (T.F.H.), Riding Mill, where young were seen (D.J.W-A.), and right down the Tyne valley, particularly about Throckley and Denton, where a nest was found. (W.A.W.) The Shaftoe Trust School Naturalists' Club at Haydon Bridge marked on a map the location of birds recorded by its members; these were 26 in number, extending over an area from Alston, Allendale and Simonburn, where a nest of 12 eggs was found, down the Tyne to Lemington. One or two of these 26 may also have been recorded by M.P. and others (see above), but for the most part they were in new localities. (per L.C.C.)

Durham :—Birds were reported from near Blaydon, where young were seen (L.P.H.), Derwenthaugh (L.G.H., E.K., & B.L.), Hamsterley (C.H.L.), Witton-le-Wear (E.H.T.), and near Barnard Castle. (A.P.C.) In the Middleton-in-Teesdale district several were heard (H.W.) and on Darlington Sewage Farm a pair bred. (per K.B.)

131. OYSTERCATCHER Haematopus ostralegus L. (452)

Inland :---On February 21st, on the Coquet haughs above Rothbury, one; but by the 25th two pairs. (E.M.) On May 18th on a four mile stretch of the Coquet above Rothbury, nine pairs

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were counted: many were nesting away from the river and these were not counted. One nest in a field of young oats was half a mile from the river. (E.G.T.) On February 26th on the Tyne shingles near Haltwhistle, one pair. Last year the first arrived on March 12th, which is the average date, but this year they were up to strength by March 3rd. Six pairs were counted on one mile of river. (M.P.) Now breeding in the valley of the South Tyne as far up as Knaresdale and occasionally beyond. They come up in parties of five or six and stay together until breeding begins. (J.D.P.)

Two pairs bred successfully on Coquet Island. (A.E.G.) Attempted to breed at Teesmouth, but eggs destroyed by gulls. (K.B.)

On August 18th at 11.15 p.m. B.S.T. on the Newcastle to Bergen sea route, 70 miles out from the Tyne, three birds were seen flying fast (12 to 14 knots) at a height of c.5 to 20 ft. above the sea, in a north-easterly direction against a head wind. They were under observation for some 15 minutes, during which time they were calling continuously. (A. R. Snead.)

133. LAPWING Vanellus vanellus (L.) (449)

During February 19th a continuous northward movement of Lapwings was noted at Sunderland. It continued from 9 a.m. until 5 p.m. Numbers varied from single birds up to flocks of c.80. Wind strong from N.W. After this date birds were very common in the Boldon district; on March 1st a flock of 400/500 was seen there. (T.S.D.) On February 22nd a single bird on the Coquet near Sharperton, on the following day 30. (E.M.) Well up to their usual numbers in the Haltwhistle area. On March 24th the first nest with four eggs was found—an early date. (M.P.) On August 11th near Haltwhistle a Lapwing was found with two downy young, only a few days old. "The latest brood I have ever found." (M.P.)

Breeding Census :—During April and May in the neighbourhood of Blagdon, N., over an area of about 50 acres, a census of nests was taken. All the nests counted were on unploughed pasture-land, so the figures take no account of damage done to nests by modern farming methods. Number of nests attempted **41**; number of eggs laid 150 (an average of 3.6 per nest); eggs hatched 68 (45%); deserted 4; infertile 4; chick died on hatching 1; destroyed 73. Of the 73 destroyed probably few were taken by humans, the bulk by carrion crows and magpies and a few trodden on by horses or cattle. Sixty-seven young were ringed. It was estimated that c.25 pairs of Lapwings were responsible for all the nests. (N.R.)

A Lapwing, ringed as young at Wolsingham, D., on May 21st, 1949, was found dead near Bedburn Beck, Hamsterley, D., on May 2nd, 1952.

A Lapwing, ringed as a nestling at Monks' House, N., on June 6th, 1951, was killed in early March, 1952, near La Tranche, Vendée, France, whilst a large passage of Lapwings was taking place. (E.A.R.E.)

134. RINGED PLOVER Charadrius hiaticula L. (435)

On May 18th on a four mile stretch of the Coquet above Rothbury 22 pairs were counted. (E.G.T.) Young were seen here in June. (U.M.G.) Again a pair attempted to breed on the Durham coast near Sunderland; on April 23rd a nest with four eggs was found, but later it was washed away by the tide; in August however a recently-hatched young bird was seen there. (T.S.D.) At Teesmouth at least four pairs attempted to breed, eggs were laid and a few young were reared. (D.S. & M.D.C.)

139. GREY PLOVER Charadrius squatarola (L.) (444)

Larger flocks than usual reported from the coast in autumn.

140. SOUTHERN GOLDEN PLOVER Charadrius a. apricarius L. (440)

On February 3rd on Plenmellor Fells near Haltwhistle, N., a single bird was seen flying over the breeding haunt and uttering its spring cry. An early date. (M.P.) On June 13th a nest with three eggs was found at the same place—a late date ! (M.P.)

"At Blagdon a few birds were seen as early as July 30th, quite a number by the end of August and at least 60 on September 4th. It seems that the Golden Plover has become a regular winter visitor here in the last two or three years, not merely a passage migrant. Before the war it was an extremely rare occurrence and only stray birds were seen at long intervals; but now several flocks, usually in company with Lapwings, are always to be found on open fields all the winter, even in hard frosts. It appears that these breed in the county. On January 31st at

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Blagdon an adult bird was shot which had been ringed as a nestling on May 24th, 1949, at Elsdon, N. This suggests that at least some of our locally-bred birds do not go further south to winter. It is hard to suggest reasons for this change of habit, but the increase in arable land since the war may have had something to do with it. They are also very fond of the bare open expanses of water-logged mud, left after open-cast mining has 'restored' the land. They do not much frequent grassland." (M.W.R.)

142. DOTTEREL Charadrius morinellus L. (446)

On April 11th on Ross Links, N., two, and on May 6th on Holy Island, two, probably the same birds. (E.A.R.E.)

150. CURLEW Numenius arquata (L.) (388)

"At Blagdon, N., our flock of about 150 birds was first seen in early February before they paired off to breed. They do not usually arrive so early." (M.W.R.) In the Haltwhistle area large numbers were on their breeding haunts on the hills by March 3rd, an early date. From the 26th to 29th the weather was bitterly cold with driving snow. During this spell, Curlews came in to a wide sweep of the Tyne east of Haltwhistle at dusk. They came in to this point from all directions to feed and bathe in the shallows. With them came many Redshanks and Lapwings. (M.P.) During the latter part of July and the first three weeks in August, Curlews left for the coast in small parties of three or four. They all went *west*, flying at about 2,000 ft. with constant loud calls. (M.P.)

In November flocks of birds were still present on the upper Coquetdale haughs—on the 13th a party of 25 in Woodhall fields and on 21st 45 hear Holystone. (E.M.) On June 3rd near Butsfield, Co. Durham, a nest with four eggs—a late date. (G.A.C.) On the shingle beds of the Tyne near Haltwhistle three nests with eggs have been found which were merely scrapes in the gravel without any lining whatever, in no way differing from those of the Oystercatchers nesting close by. (M.P.)

151. WHIMBREL Numenius phaeopus (L.) (389)

Few spring records, but unusually plentiful in autumn. First seen July 20th at Monks' House. (E.A.R.E.) Reported from many other places on the coast before the end of the month. Many during August and September; last seen October 11th.

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154. BLACK-TAILED GODWIT Limosa limosa (L) (387)

More frequently reported now than formerly, both on spring and autumn passage.

On April 12th at Grindon Lough, N., a party of three in full breeding plumage (R.T.G. & E.M.L.); not present on the 13th (T.F.H.), but two there on the 14th (H.R.O.) Parties on spring passage have been seen at this lough in 1939, '44, '46, '47 and '49, always in April. On April 14th on the shore near Newton, N., one. (W.S.C.) On April 18th at Monks' House, one, and on May 3rd and 5th at Budle Bay, one. (E.A.R.E.) On April 25th at Teesmouth, D., one. (F.G.G.)

On July 11th on Monks' House pool, two, in full breeding dress, apparently a pair, arrived and stayed for eight days. On August 23rd and September 1st, one. (E.A.R.E.) On September 3rd at Whittle Dene Reservoirs, two, changing to winter dress. (R.T.G. & E.M.L.) Single birds at Teesmouth, D., in August and early September. (W.H.J., P.E., &c.)

156. GREEN SANDPIPER Tringa ocrophus L. (424)

Very infrequently reported on spring passage, but on April 9th one was seen at Ingram, N. (E.A.R.E.)

Particularly numerous on the autumn passage. First arrival on July 9th at Whiteleas, South Shields, two, and on the 19th one. (F.G.G.) Many reported throughout August, particularly on the 7th, 8th and 9th, and in September and October. Last record on November 22nd near Teesmouth, at least two. (D.S.)

157. WOOD-SANDPIPER Tringa glareola L. (423)

There was an unusual passage of this species in the British Isles in early autumn. A few more than usual were reported in our two Counties.

Northumberland :--Monks' House Bird Observatory, by the pool; August 8th six present, by the 18th only two remained, on the 21st all gone. (In the previous year only two were present, arriving on August 24th and staying for four days.) (E.A.R.E.)

Durham :—Primrose Ponds, Jarrow, on August 5th, 6th, 8th and 11th one; on the 12th and 14th three; on the 16th one. (F.G.G., E.W. & W.D.R.) (None noted here in the previous year.) Boldon Flats, near Sunderland, on May 7th one (T.S.D.), on July 28th and August 2nd one, on the 4th two, on the 10th three,

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the 13th one, the 15th two, and the 17th one. (F.G.G., E.K. & E.W.) It is not possible to state how many birds were involved. Three birds may have been present all the time or each observation may refer to a different bird or birds. (In the previous year the first was not recorded until August 21st and birds were noted up to September 26th, maximum number at any one time five.) Teesmouth marshes, on August 13th two, on the 14th one, on the 17th and 24th one. (F.G.G., D.S. & K.B.) (None reported from here in the previous year.)

159. COMMON SANDPIPER Tringa hypoleucos L. (421)

First seen—on March 1st on the Coquet near Warkworth, N. —an early bird ! (E.A.R.E.) No more reported until April 10th, 12th and 13th. Early nesting—on May 7th on the Coquet near Holystone, N., a bird was flushed from a clutch of four eggs; as she feigned injury she was probably incubating. (E.G.T.)

162. SPOTTED REDSHANK Tringa erythropus (Pallas) (431)

On spring passage :—From April 27th to May 4th on Boldon Flats, D., one in full black breeding plumage. (F.G.G., H.M.S.B., &c.) On May 3rd and 6th at Beal Road Ends, N., one. (F.G.G. & H.C.)

On autumn passage :—From August 11th to October 20th single birds were reported from various places in both counties.

165. GREENSHANK Tringa nebularia (Gunnerus) (432)

Seldom recorded on spring passage; but on April 10th at Monks' House, N., one (E.A.R.E.), and on May 3rd near Beal Point, N., two. (F.G.G.) Very numerous and widespread on autumn passage. First reported on June 28th at Monks' House, one, and on June 29th, on Budle Bay, two (G.L.S.)—very early dates. Many during August and September and a few in October and November. Last seen December 28th on Fenham Flats, N. (W.D.R. & B.L.)

168. TEREK SANDPIPER Xenus cinerea (Güld). (420)

On September 27th and 28th, on Cowpen Marsh, Teesmouth, D., a single bird was seen. On the 27th it was under observation for about 45 minutes at c. 35 yds. range through a x35 telescope, so every distinguishing feature was clearly noted; particularly its very long up-tilted black bill and its bright orange-yellow legs. On the 28th it was seen again for 10 minutes at 50 yds. It spent most of its time asleep, with bill completely tucked under scapulars. It did not wade in the water, as did the Dunlins beside it. When moving it usually hopped on one leg, but later ran quickly along the shore. It only once "bobbed" like a Common Sandpiper and once crouched when alarmed. When disturbed on the ground and in flight it uttered a disyllabic "quee-quee" with a suggestion of a Dunlin-like quaver. When asleep it appeared about the same size as the Dunlin beside it; but standing upright it was appreciably taller and more slender. (P.E.)

This is the first record for Co. Durham and only about the tenth for the British Isles. Previous occurrences have been on the south coast in May or June. (For recent records and a photograph see B.B., Vol. XLV., p. 36.)

169. KNOT Calidris canutus (L.) (403)

A bird recovered in Budle Bay, N., on April 20th, 1950, had been ringed as a migrant at Jaeren, S. Norway, on September 3rd the previous year. (B.B., Vol. XLV., p. 458.)

171. LITTLE STINT Calidris minuta (Leisler) (407)

Very few indeed reported; only half-a-dozen in all. One on spring passage at Monks' House pool, on April 10th. (E.A.R.E.) In autumn single birds, on the Longstone August 3rd, Monks' House September 7th and October 4th, and at Teesmouth on August 28th and September 3rd.

178. SOUTHERN DUNLIN Calidris alpina schinzii (Brehm) (404)

On June 1st in the Rothbury area, at a small colony of about four pairs, a nest with four eggs was found. (E.G.T.) Many scattered pairs breed on the wide moorland bogs to the north of Haltwhistle, N. They breed singly or not more than two pairs together and the nests are most difficult to find. (M.P.) On May 26th near the Weel, Upper Teesdale, at least ten were present and the display flight was seen. (K.B.) At a colony in Upper Teesdale, three day-old young were seen and at another colony a deserted nest with eggs was found. (H.W.)

179. CURLEW-SANDPIPER Calidris testacea (Pallas) (406)

Very few indeed reported—not more than 16 birds throughout the year and usually single birds or at most two. On May 30th on Holy Island, one in breeding plumage. (E.A.R.E.) No more

reported until August 31st at Seaton Carew, Teesmouth, two. (C.G. & D.B.) A few birds in early September on Jarrow Slake, D. (W.D.R. & F.G.G.), and Budle Bay, N. (L.G.H.) Then, in November, two and one on the Farnes (F.I.O.R.), and two on Longhoughton Steel, N. (B.L.)

184. RUFF Philomachus pugnax (L.) (417)

128

None recorded on spring passage; but numerous and well distributed in autumn. First arrival on July 15th on Boldon Flats, D. (F.G.G. & E.W.), and on the 19th at Monks' House. (E.A.R.E.) Thereafter also reported from several places. Last seen October 27th on Boldon Flats.

185. AVOCET Recurvirostra avosetta L. (451)

On May 3rd on the Low near Beal Road Ends, N., two (F.G.G.); not there on May 5th nor subsequently. (F.B.)

194. GREAT SKUA Stercorarius skua (Brünn.) (491)

On March 15th off Souter Point, D., a single bird flying north in a N.E. wind. (T.S.D.) Single birds seen off the coast during July, August and September.

195. POMARINE SKUA Stercorarius pomarinus (Temminck) (492)

On August 3rd off Dunstanburgh, N., an adult bird seen chasing Kittiwakes. (W.S.C.)

196. LONG-TAILED SKUA Stercorarius longicaudus Vieillot (494)

On August 10th one visited the Longstone, Farnes. (W.J.L. in F.I.O.R.)

200. HERRING-GULL Larus a. argentatus Pontopp. (482)

On July 6th at Cullernose Point, N., two young were seen on the ledges. This is a new breeding place for this species on the Northumberland coast. (W.S.C.) Several young were hatched out on the Dunstanburgh cliffs. (W.S.C.) At Marsden, D., very little increase in numbers. (J.C.C.)

202. GLAUCOUS GULL Larus hyperboreus Gunnerus (487)

On January 6th a third winter bird at Seahouses Harbour, joined next day by a first winter bird; another second winter joined about January 16th, which, with an adult which came intermittently, adds up to at least four birds present on and off throughout the winter. One remained until April 6th and a second bird (first or second winter) arrived for a few days on April 29th. (E.A.R.E.)

On January 3rd on the rocks just S. of St. Mary's Island, an adult was under observation for 20 minutes. Still there on the 5th. (E.K. & L.G.H.) On January 14th one was seen at sea three miles east of Blyth, N. (U.M.G.) On January 31st an adult was seen off the coast at Whitburn, D. (T.S.D.) On February 2nd off the North Gare, Teesmouth, one seen. (K.B.) On May 10th on Cowpen Marsh, Teesmouth, a single immature bird was seen. (T.S.D.) This is a late date; but recently there has been a tendency for immature birds to remain on the coast well into the summer months. The first appearance in the winter was an adult bird on Boldon Flats on October 12th (R.M.P.), and a first winter bird on Monks' House beach on November 1st. (E.A.R.E.)

203. ICELAND GULL Larus glaucoides Mayer (488)

In July, 1951, a gull was found dead at Seaton Carew, near the Teesmouth, bearing a ring that showed that it had been ringed as young in West Greenland on August 14th, 1949. (*B.B.*, Vol XLV, p. 458.)

It will be remembered that a specimen of this very rare winter visitor was identified near Whitburn, D., by H.M.S.B. on April 13th, 1951, a very late date. It is possible that this may have been the same individual. (See O.R., 1951)

207. LITTLE GULL Larus minutus Pallas (477)

On January 20th on Ross Sands, N., one, immature. "Flew and hovered over inlet of the sea, frequently diving into the water from a height of a few inches, to a few feet, submerging to carpal joints of raised wings from greater heights. Flew over same beat repeatedly for some twenty minutes." (F.B.)

211. KITTIWAKE Rissa tridactyla (L.) (489)

At the North Shields colony, on warehouse window-ledges, 31 young were ringed. At Marsden, D., 1,046 nests were counted on the "Rock" and on the mainland cliffs 305—total 1,351 nests. This gives a minimum nesting population of 2,700 birds; and it is estimated that c. 200 birds were not breeding. (J.C.C.) On July 25th out of 271 birds counted 71 were juveniles or 26%; on October 3rd out of 245 birds counted only six were juveniles or

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c. 2.4%. This supports conclusions from last year's counts, that the fledged juveniles leave the district before the adults. (J.C.C.)

Of three young birds ringed on the Farnes on June 29th, 1950, one was recovered at Wallasey, Cheshire, on June 27th, 1951, another off The Skaw, Jutland, Denmark, on June 30th, 1951, and the third off Les Sables d'Olonne, France, on December 11th, 1951. (B.B., Vol. XLV, p. 352.)

212. BLACK TERN Chlidonias niger (L.) (462)

Spring passage :—On May 4th at Gosforth Park Sanctuary, two present all the afternoon ; seen by many observers. (R.G.G., &c.) On May 10th at Cowpen Marsh, Teesmouth, D., two seen feeding over a marshy pool. (T.S.D.)

Autumn passage :--On August 12th at Teesmouth, one (W.H.J.), and on the 31st at Seaton Carew, Teesmouth, 40, hawking over the sea and resting on the sands. (C.G. & D.B.) On September 1st on the beach at Monks' House, one, and on the 7th, one feeding off shore. (E.A.R.E.)

217. COMMON TERN Sterna hirundo L. (469)

On the Farnes a few pairs nested with the Arctics on the Longstone and there was a small colony on the Brownsman. (F.I.O.R.)

On the Northumberland coast a new colony was discovered consisting of at least eight pairs. Five young were seen. (E.A.R.E.) In the Teesmouth area at least three colonies were found. At the first of these about 70 adults were present on July 5th and eleven nests were found ; but a fortnight later the site was empty, having probably been flooded out. At another site nine nests were found with eggs and at a third four nests. It is not known how many young were successfully reared, if any. (T.S.D., P.L.H. & D.S.)

218. ARCTIC TERN Sterna macrura Naumann (470)

Very large numbers bred successfully on the Farnes. (F.I.O.R.) At another point on the Northumberland coast about 20 to 25 pairs bred and several young were successfully reared. (F.G.)

On September 19th after severe N.E. winds, the remains of an Arctic Tern were found in the Moorhouse Nature Reserve on the Durham-Westmorland border. (J.A.S. per R.M.P.) Does this indicate an overland migration or was it a storm-blown waif? A bird, which had been ringed as young at Maklappen Island, Scania, Sweden, on May 29th, 1933, was found dead at the mouth of the Tyne, D., on July 7th, 1949; it was thus in its 16th year. (*B.B.*, Vol. XLV, p. 458.)

219. ROSEATE TERN Sterna dougallii Montagu (468)

At least 31 pairs were present on the Farnes. (F.I.O.R.)

222. LITTLE TERN Sterna albifrons Pallas (471)

On the Northumberland coast a colony was found on a new site. Four pairs were present, eggs were laid and one chick in down was ringed. (E.A.R.E.)

In the Teesmouth area several colonies were attempted. At the largest a total of 18 nests were found, but many of these were destroyed. Some of the colonies were on much frequented beaches where successful breeding was impossible; however, on one site two young were hatched and ringed. (E.Y., C.G. & D.B. & T.D.S.)

223. SANDWICH TERN Sterna sandvicensis Latham (467)

First noted on coast on April 7th. (E.A.R.E.) Bred in very large numbers on the Farnes, more numerous than in the previous year. (F.I.O.R.)

A bird ringed as young on the Farne Islands was recovered in Aberdeenshire, 120 miles *north*, two months later. (B.B,Vol. XLV, p. 349.)

226. LITTLE AUK Plautus alle (L.) (502)

On January 19th a badly oiled but living bird was found on Seaton Sluice Links. It was treated at Whitley Bay Police Station, but died. (E.K.) On March 20th on the links at North Blyth, the decomposed remains of one were found. (C.J.G.) Single birds seen on January 6th and 20th, February 3rd, 4th, 8th, 16th and 24th. Again on November 11th and 15th. (E.A.R.E.)

227. NORTHERN GUILLEMOT Uria a. aalge (Pontopp.) (498)

On November 17th an oiled bird of this race was brought in to the Monks' House Bird Observatory. (E.A.R.E.) In May, 1950, one was picked up at West Hartlepool, D., that had been ringed as an adult on July 27th, 1940, on the Murmansk coast of Russia. It was thus 10 years of age. (*B.B.*, Vol. XLV, p. 458.)

229. BLACK GUILLEMOT Uria grylle (L.) (501)

On February 3rd off Holy Island, one (E.A.R.E.); and on the 26th and 27th off Sandon Bay, Holy Island, one. (A.M.M.)

On July 5th off Dunstanburgh, one (E.P.L.), also seen on the 12th (F.G.G.), and the 25th (J.E.R.) at the same place. On July 11th off Brownsman, Farnes, one. On August 6th one at sea off Seahouses. (S.S. per E.A.R.E.) On November 15th one was wrecked in Seahouses Harbour. (S.S.)

234. WOOD-PIGEON Columba palumbus L. (380)

Birds ringed as nestlings at Blagdon, N., during the summer of 1948 were shot during January and February, 1952, at the following places :—One where ringed, one at Morpeth, one 10 miles N.E. of Newcastle, one at Usworth, near Sunderland. (A. & R.)

235. TURTLE-DOVE Streptopelia turtur (L.) (383)

South Northumberland :—Seen and heard in the Tyne Valley near Stocksfield and near Dipton Wood in May and June, but no breeding proved. (G.W.T.)

Durham :—At least one pair spent the summer in the Hurworth Burn area, but no proof of breeding obtained. (P.L.H.) Seen and heard near Piercebridge throughout the summer. (K.B.)

237. CUCKOO Cuculus canorus L. (240)

First heard :--On April 14th at Mindrum, Cornhill-on-Tweed ---an early date ! On the 18th at Sunderland, (per J.W.), and on the 20th at Boldon. (F.G.G.) Reported from many places on the 23rd and 24th.

On June 15th, near Haltwhistle, a well-fledged juvenile was flushed with attendant Meadow-pipit foster-parents; at the same time adult Cuckoos were calling on the fells around. "This is the first time that I have seen a young Cuckoo on the wing while the adults were still calling clear voiced." (M.P.)

On the moors near Wolsingham, D., a Meadow-pipit's nest was found containing an albino Cuckoo; it was later seen on the wing. (R.M.)

246. LITTLE OWL Athene noctua (Scop.) (249)

Reported breeding from new areas. On January 10th and again on December 5th at Bardon Mill, in the Tyne valley, birds were picked up dead on the railway track, no doubt killed by passing trains. (M.P.)

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247. TAWNY OWL Strix aluco L. (253)

In April and May in an area immediately N.W. of Bamburgh, N., eight adults and nestlings were ringed. One was recovered at Moffat, Dumfriesshire, on November 4th. (E.A.R.E.) A bird ringed as a nestling at Blagdon, N., on June 17th, 1948, was found dead where ringed in February, 1952, nearly four years later. (A. & R.)

248. LONG-EARED OWL Asio otus (L.) (250)

At least three pairs bred in Gosforth Park Bird Sanctuary. (W.D.R. & B.L.) One pair bred on Ross Links, N.; many pellets were analysed, of which one showed undoubted evidence of Kestrel as prey. (E.A.R.E.)

249. SHORT-EARED OWL Asio flammeus (Pontopp.) (251)

Single birds were reported at various points along the coast, particularly in autumn, and pairs noted from inland moors where successful breeding took place. On October 25th near Newton-bythe-Sea, N., one was seen to come straight in off the sea. (W.S.C. & J.E.R.), and on the same day one was seen to reach land at Coves Bay, Holy Island. (F.G.G.)

255. Swift Apus apus (L.). (225)

First seen :—On April 23rd at Holy Island, one. (U.M.G.) Single birds on the 28th and 29th ; with more reports on May 1st from several areas. On May 2nd returned to nesting sites in Sunderland—" never seen so early before" (J.W.)—and in South Gosforth. (L.A.M.) First autumn passage noted on June 26th at Teesmouth (D.S.), and Marsden. (T.S.D.) Last record :— October 8th, one at High Heaton. (W.D.R.)

258. KINGFISHER Alcedo atthis (L.) (234)

More frequently reported than for some years. During January, February and March one was seen on the River Wear, on the Banks, in Durham City. (R.M.P.) In April, August and December one was seen on the Ouse Burn, Newcastle, *below* Jesmond Dene. (W.A.W. & W.D.R.) On September 25th one was picked up alive on Newcastle Quay.

261. Ноорое *Upupa epops* L. (232)

On May 5th on the Longstone, Farnes, one. (F.I.O.R.) On May 30th two miles north of Kiddrington, N., one seen walking about on the road. (K.N.B. per E.A.R.E.)

263. GREATER SPOTTED WOODPECKER

Dendrocopos major (L.) (237)

Now a frequent visitor to built-up areas. During February one frequently visited a garden at Woodside, Hexham, taking food (coconut and suet) hung up for Tits. (R.T.G.) At least three pairs nested at Gosforth Park. (W.D.R.) In August, October and November one was reported in Jesmond Dene, Newcastle, and on November 3rd one was seen in a garden in Grosvenor Road, Newcastle (G.H.), and reported from other gardens in Jesmond. On December 1st one was seen in some allotment gardens near the centre of Sunderland. (T.S.D.)

264. LESSER SPOTTED WOODPECKER

Dendrocopos minor (L.) (238)

On March 27th at Whitworth Park, D., on old trees, two seen; on the 30th and on April 9th the cock seen again; but breeding not proved. (C.G. & D.B.)

273. SHORE-LARK Eremophila alpestris (L.) (72)

On October 5th in Warkworth estuary, N., at high tide, two seen. (P.B. & R.J.D.) On December 21st near Greatham Creek, Teesmouth, at least five with Skylarks and Snow-Buntings. Numbers increased after the turn of the year when small flocks were reported from both banks of the Tees. (P.E.)

274. SWALLOW Hirundo rustica L. (220)

First reported on April 9th from Monks' House, Ingram, Craster, the North Tyne at Haughton Ferry and in Upper Teesdale. Reported from many areas on the 10th, including Haltwhistle, "where it was two days earlier than any previous record for forty years." (M.P.)

On April 19th one returned to a byre in Upper Coquetdale where it had nested last year. In this byre one pair reared three broods, the last hatching as late as September 6th. (E.M.)

In an out-house at Whitworth Park, D., a pair built on the glass shade of an electric light, which swung to and fro every time the birds flew off. Young were successfully reared. (C.G. & D.B.)

Swallows are now nesting as far up Teesdale as Widdybank Farm at c. 1,050 ft. (T.F.T.)

First autumn passage noted at Teesmouth on August 17th; a heavy passage on the 31st. (D.S.) Many birds lingered until the end of October. The last seen was on November 3rd at Craster. (W.S.C.)

A pale grey albino swallow with reddish-buff underside and brown legs, was fledged from a nest at Monks' House on June 22nd; the three others of the brood being normal. It was trapped and ringed. It was reported from points three to four miles S.S.W. up to three weeks afterwards. (E.A.R.E.)

276. HOUSE-MARTIN Delichon urbica (L.) (222)

First seen :---On April 5th circling over house in Sunderland, two. (J.W.) Reported from several places on the 10th.

Increasing in Co. Durham; nesting in Durham City. (R.M.P.) At Colt Crag Reservoir, N., in a boat house, 52 nests were counted, most of them containing young on July 20th; on August 17th 20 nests still contained young. (R.T.G. & E.M.L.) Still breeding in Upper Teesdale at an elevation of 1,150 ft. as recorded by J. Backhouse in 1885. (T.S.D.) Many remained well into October; on the 23rd young were still being fed in a nest on Bamburgh Castle. (E.A.R.E.) Last seen October 28th.

277. SAND-MARTIN Riparia riparia (L.) (223)

First seen :—On March 31st near Durham City, three flying north over snow. (R.M.P.) On April 6th at Monks' House. (E.A.R.E.) On April 9th generally reported ; at Gosforth Park a flock of c.50 came in to roost in the reeds. (B.L.)

Near the mouth of the Ouse Burn, Newcastle, near waste ground, a concrete retaining wall is pierced by drainage holes at regular intervals at about 12 ft. above ground level. These holes are being used by Sand-Martins. On June 25th eight birds were still present and young were being fed in the holes. (W.A.W.) Sand-Martins are nesting in the piles of stone-dust and ashes left by the crusher at the edge of the road c.400 yds. above High Force Hotel, Teesdale. (T.F.T. & K.B.)

First autumn passage noted at Teesmouth on July 19th. (D.S.) Last reported on October 8th when many present over pool at Monks' House. (E.A.R.E.)

278. GOLDEN ORIOLE Oriolus oriolus (L.) (17)

On May 11th a cock was seen in the Gosforth Park Sanctuary. It was perched on the top branches of a bare tree from which it made hawking flights for insects. It was watched for about fifteen minutes in a good light with x8 glasses as near as 10 yds. On three or four occasions it uttered a short harsh scream. (R.G.G., R. J.D.)

279. RAVEN Corvus corax L. (1)

Northumberland :—Nine well-known nesting sites were visited. (R.C., E.G.T., T.G.W., B.P.H., D.A.R.) At four of these the nests were robbed ; at one the adult birds were shot ; at two eggs were laid and young were almost certainly raised ; at two it was not possible to look into the nest. One new site was found, a nest in a tree where four young were successfully fledged and ringed. In another part of the county an old nest was found in a tree. The molestation of cliff sites may be causing the birds to resort to trees.

Durham :—It is some years since breeding has been attempted in the county; but this year, at an old site, a nest was built and five eggs were laid, but no young reared. This pair usually breeds in a Yorkshire site; but its nest there had been robbed earlier in the season. On another old site in Durham a nest is often repaired in early spring, but has not been used for many years: this year it was occupied by a Kestrel which laid five eggs.

280. CARRION-CROW Corvus corone L. (3)

In January, on the Wear below Durham Cathedral, a Crow was seen to attempt to catch food by diving, as Black-headed Gulls were doing. It managed to clear itself from the water after a struggle. (J.C.C.)

On Coquet Island a pair nested on the ground. (A.E.G.) On May 10th on Middleton Moors, D., a nest with three eggs was found in a low bare tree at an altitude of over 1,500 ft. (M.C.)

281. HOODED CROW Corvus cornix L. (2)

As stated in the last Report, very few birds wintered in 1951-52, and those which were seen were nearly all on the coast. Some, however, stayed late—on May 6th five, with 20 to 30 Carrions, were seen to set out from Holy Island as if to cross the North Sea. (E.A.R.E.) There was some evidence of inter-breeding : on August 14th near Little Harle, N., three birds were seen together, one a purebred Hooded, the other a pure-bred Carrion and the third obviously a hybrid. (H.M.S.B.) In autumn more were in evidence, both on the coast and inland.

283. JACKDAW Corvus monedula L. (5)

On February 2nd near Stanley, D., a flock of 20 birds were seen to be "smoke bathing." They were repeatedly flying through a thin column of smoke issuing from the chimney of a house. (R.M.P.)

288. GREAT TIT Parus major L. (98)

An adult, ringed at Blagdon, N., on February 6th, 1949, was re-trapped where ringed on February 19th, 1952, three years later. (A. & R.)

293. WILLOW-TIT Parus atricapillus L. (108)

Distribution still imperfectly known. Northumberland :--On April 3rd at Alnwick Park, N., one, identified at close range. (E.A.R.E.) Not seen in Upper Coquetdale. (E.G.T.) Regularly seen in Gosforth Park. On February 23rd at Plessey Dene, one. (C.J.G.) Occasionally seen in South Tynedale about Knaresdale. (J.D.P.) Identified near Stocksfield. (M.G.R.) Durham :--On October 12th at Boldon, one; first record for the South Shields area. (J.C.C. & E.W.) On October 15th on the Banks, Durham City, one. (R.M.P.) On June 26th, at Billingham Bottoms, two seen. (D.S.)

294. LONG-TAILED TIT

Aegithalos caudatus rosaceus Matthews (111)

On November 5th at Monks' House, N., a party of nine visited the garden for a short time. This is the first occasion on which this species has been recorded there ; they were almost certainly immigrants, as there is no lead-in for residents. (E.A.R.E.)

296. NUTHATCH Sitta europaea L. (96)

Northumberland :—On February 28th at Blagdon, one trapped and ringed. "Not seen before or since." (M.W.R.) On March 16th at Gosforth Park, one. (W.D.R.) On May 2nd on the Inner Farne, one. (F.I.O.R.)
Durham :—Seen frequently on the Banks, Durham City, where a pair probably bred, as two birds were seen with a juvenile on more than one occasion. (R.M.P. & J.C.C.) In April at Whitworth Park, D., a pair was seen building, but successful breeding was not proved. (C.G.) Two pairs bred in a wood near Middleton-in-Teesdale. (H.W.)

298. TREE-CREEPER Certhia familiaris L. (93)

At the Forestry plantations near Hamsterley, D., two broods were reared in nesting-boxes. One nest was composed of a small quantity of dead wood-rush and the other of small twigs of larch. (C.H.L.)

On migration :—On September 28th, October 5th and 8th single birds were present in Monks' House garden. The two last were caught and ringed. These are almost certainly immigrants, as there is no lead-in for residents and the site is most unlikely. (E.A.R.E.) On October 20th at Marsden, D., one. (J.C.C. & E.W.)

A single bird, which was probably of the Northern form, was seen on October 19th at Cleadon, South Shields. "I was immediately struck by the pure white of the throat and breast and by the white eye-stripe. Creepers are not resident anywhere near this area. There was a large influx of immigrants on that day—many Redwings, Fieldfares, Goldcrests and numerous Blackbirds and a Great Grey Shrike." (F.G.G.)

300. DIPPER. Cinclus cinclus (L.) (218)

At Rothbury, N., a nest was found in a tree overhanging the river at $6\frac{1}{2}$ ft. above water-level. (R.J.D.)

302. FIELDFARE Turdus pilaris L. (173)

On January 2nd, during a snowstorm, large flocks mixed with Redwings, were flying west over Haltwhistle, N. (M.P.) Many remained late; on May 3rd near Stocksfield, N., c. 300 (G.A.C.); at Chatton, N., c. 30; from the 8th to 11th on the Inner Farne three and on the 13th on Ross Links, a few. (E.A.R.E.)

First seen in autumn :—On August 24th near Wolsingham, D., a flock in company with Redwings (R.M.); on the 30th near Holystone, N., a party of 12. On October 12th a heavy passage over the coast all morning. (E.A.R.E.) A considerable migration on October 18th and 19th. (F.G.G.)

303. Song-Thrush Turdus ericetorum Turton (175)

One of a brood of four nestlings ringed at South Shields, D., on May 14th, 1951, was recovered at Cire d'Aunis, near La Rochelle, France, on December 24th of the same year. (F.G.G.)

An adult, ringed on the Isle of May on October 18th, 1951, was recovered at Sunderland, D., on February 3rd, 1952, 100 miles S.S.E. (*B.B.*, Vol. XLV, p. 271.)

304. REDWING Turdus musicus L. (178)

Throughout January, in the Berwick area, very common; many in very distressed condition owing to hard weather. (F.B.) On the 27th many were observed on the coast north of Sunderland feeding on the cliffs and beach, while small flocks were continually coming in off the sea from a N.E. direction. It was estimated that c. 300 came in off the sea in an hour. (T.S.D.) Last seen May 1st. (T.S.D.)

First seen :—On August 24th near Wolsingham, D., a flock in company with Fieldfares. (R.M.) On October 3rd at Craster, N., several flocks coming in off the sea (W.S.C.), and c. 300 on Holy Island. (E.A.R.E.) On the 4th first arrivals in the Haltwhistle area were flying S.W. on migration (M.P.) On the 18th and 19th further arrivals along the coast. On November 6th on the Brownsman, Farnes, two. (C.G.)

307. RING-OUZEL Turdus torquatus L. (182)

On April 12th in Upper Coquetdale, a pair. (B.L.) On May 2nd, 9th and 11th on the Inner Farne, a cock ; probably the same bird each time. (E.A.R.E.)

On migration :--On October 3rd at Marsden Quarry, one, on the 4th two. (J.C.C.) On the 24th and 27th near South Shields, single cocks. (F.G.G.) On the 22nd at Bamburgh, N., a cock, and on the 28th on Holy Island, two. (E.A.R.E.)

308. BLACKBIRD Turdus merula (184)

Increase in numbers. On January 27th between Berwick and Belford, unusually common and widespread, even amongst snow and heather on moors; largely first winter birds. (F.B.) More common and widespread in the Haltwhistle district than ever before. For several winters there has been a large communal roost on Scots pines in the Blenkinsop Estate. In 1952 there were

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several hundreds by mid-August, flying in from all directions at dusk, old and young. (M.P.)

At Biddlestone, N., a hen laid six clutches of eggs during the summer, but failed to rear a brood (A.R. per E.M.)

On migration :—In South Shields, D. area, first noted September 30th, on October 3rd many more and again on the 12th, 19th and 26th. (J.C.C. & F.G.G.) At Sunderland very plentiful with Song-thrushes from September 29th to October 1st; all passed on by October 2nd; but further arrivals about the 22nd. (T.S.D.) At Gosforth Park and at Hartley, N., large numbers on October 11th. (E.K. & L.G.H.) At Dunstanburgh on October 18th an adult cock was seen to come in off the sea. (W.S.C.)

Reference has been made in these Reports to the presence of Blackbirds on the Farne Islands in winter. This year on the Brownsman three were seen on November 29th and four on December 6th. (C.G.) It would be interesting to know what food is available for them at this time of year.

An adult female ringed at South Shields on January 9th, 1951, was trapped and released at Torslanda, Göteborg, South Sweden, on March 31st, 1952. (J.C.C.)

309. GOLDEN MOUNTAIN-THRUSH

140

Turdus dauma Latham (White's Thrush 172) On April 26th at 5.30 p.m. a couple of White's Thrushes alighted upon a low wall in front of the windows of Foulmartlaw, Belsay, N. The owner, Mr. L. E. H. Hyde-Clarke, and his nephew, Mr. Maurice Lacy, of Ampton Hall, Bury St. Edmunds, Suffolk, watched the birds with binoculars from a window c. 20 yards away for fully ten minutes, before they left the wall-top to feed in the field. The birds sat on the wall very quietly as though exhausted. Mr. Lacy is very familiar with White's Thrush, as on December 3rd, 1928, one was shot on the Ampton Hall estate and is in his possession. (See B.B., Vol. XXII, p. 330.)

On the following day a search was made in the neighbourhood of Foulmartlaw by A.A. and G.W.T. but the birds were not seen again. The only previous record for Northumberland was a bird seen by Miss E. L. Turner on November 2nd, 1914, on Holy Island. There is also one record for County Durham : a bird shot at Castle Eden Dene on January 17th, 1872, and now in the Hancock Museum. 311. WHEATEAR Oenanthe o. oenanthe (L.) (186)

At the end of January, a somewhat dejected cock spent a few days on a farm on the coast near Howick, N. Frosts were severe at the time. (E.A.R.E.)

First seen :—On March 19th at Monks' House one, 23rd one, April 2nd plenty passing north. (E.A.R.E.) On March 23rd at Teesmouth one (P.L.H.), and at Rothley Lake one. (U.M.G.) On March 29th at Haltwhistle, a cock ; in falling snow and cold N.E. wind. Last year two seen in similar weather on March 28th. (M.P.)

Autumn migration :--On June 30th on Staple Island, two juveniles; on the 31st about Monks' House, ten, not bred in immediate vicinity. (E.A.R.E.) On July 10th at North Sunderland, N., a pair found with a brood of four three-day old young; several juveniles were present which were probably the first brood of this pair, which strongly suggests that this species may be double-brooded at times in Northumberland. (E.A.R.E.) During July, flocks noted at the Tanfield Ponds, Stanley, D., maximum 28 on the 29th. (R.M.P.) On October 23rd and 24th at Monks' House, one still present. (E.A.R.E.) Two pairs lingered on the Wolsingham moors well into November. (R.M.)

A nestling, ringed on Cheviot on June 16th, 1952, was recovered in the Pyrenees on August 24th. (E.A.R.E.)

311. GREENLAND WHEATEAR

Oenanthe o. leucorhoa (Gmelin) (187)

On April 10th at Tanfield Ponds, Stanley, D., a cock. (R.M.P.) On April 24th at Boldon Flats a cock, on May 1st at Whitburn two cocks, on May 3rd on Holy Island two cocks and a hen, and on the 10th on Boldon Flats two cocks and a hen. (F.G.G.)

At Monks' House none noted on spring passage, but several on autumn. On September 16th three, 26th one and another at Howick, others elsewhere, a definite passage of this form in progress. On October 4th one, 21st one, 23rd one. Five were caught at the Observatory and found to have wing measurements of 102 to 105 mm., well outside average for the Common species. (E.A.R.E.)

317. STONECHAT Saxicola torquata (L.) (198)

More reported from the coast than for many years past. The following cases of breeding were recorded :—A cock wintered near

Bamburgh, N. It was joined by a hen on January 30th and later four young were fledged. (E.A.R.E.) Near Craster, N., on April 5th a pair was seen; in May they were carrying food and on June 29th a brood of at least three well-grown young was seen. (W.S.C.) On August 5th at Alnmouth a pair was seen with immature young. (E.K.) At South Shields a pair reared two broods of three and six young. (F.G.G.) On July 8th a nest with five eggs was found on the moors on the Durham-Westermorland border. (J.A.S. per R.M.P.) Single birds, almost invariably cocks, were reported on the coast, usually in winter.

318. WHINCHAT Saxicola rubetra (L.) (197)

First seen :—April 14th at Haltwhistle. (M.P.) April 16th on Holystone Haughs, Upper Coquetdale, N., a pair (E.M.), and at Teesmouth, D., two cocks. (F.G.G.) At least two pairs bred within the South Shields area. (F.G.G.) In the Cheviot area a total of 67 nestlings was ringed. (E.A.R.E.)

320. REDSTART Phoenicurus phoenicurus (L.) (201)

First seen :—On April 10th at Monks' House a cock, and on the 11th at Spindlestone, N., one. (E.A.R.E.) On the 13th at Hamsterley, D., a cock (C.G. & D.B.), and in Upper Coquetdale (B.L.)

At Monks' House a' first winter cock was present from August 16th to October 25th—a late date. (E.A.R.E.)

On migration :—On October 3rd in the South Shields area, five. (J.C.C.) An adult was recovered on Holy Island on May 11th, 1951, that had been ringed as a migrant on the East Frisian Islands on May 18th in the previous year. (B.B., Vol. XLV, p. 458)

321. BLACK REDSTART

142

Phoenicurus ochrurus gibraltariensis (Gmelin) (202) On March 23rd at Bamburgh, on the cliffs below the Castle, one. (W.A.W.) On May 4th on the Longstone, one (W.T.L.), and from May 3rd to 5th on the Inner Farne, two hens. (E.A.R.E.)

On October 28th on Holy Island, one. (E.A.R.E.)

324. RED-SPOTTED BLUETHROAT Cyanosylvia s. svecica (L.) (205)

On April 27th on the Longstone, Farnes, an adult cock was caught and released. (F.I.O.R.)

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325. ROBIN Erithacus rubecula (L.) (208)

On migration :—No movement on the coast comparable with that of last year. (See O.R., 1951.) On October 1st at Marsden Quarry, South Shields area, one, on the 3rd four. (J.C.C.)

One ringed at South Shields on September 19th, 1951, was recovered at Darlington on July 10th, 1952. (J.C.C.)

327. GRASSHOPPER-WARBLER Locustella naevia (Bodd.) (145)

First seen :--On April 15th on Holy Island, one was clearly seen at close range running about in sparse cover. (E.A.R.E.) Heard singing in Gosforth Park from April until July 5th. (C.J.G., E.K. & B.L.)

337. SEDGE-WARBLER Acrocephalus schoenobaenus (L.) (153)

First seen :---On April 23rd at Brasside, D., one (F.G.G. & T.S.D.); on the 24th at Boldon, D., one. (T.S.D.)

A late date :---On October 13th at Tanfield Ponds, Stanley, D., two were heard singing and on the 20th one was still present. (R.M.P.)

A bird ringed at Monks' House on May 23rd, 1951, and recaptured there on July 11th, and therefore probably breeding locally, was caught again at the same place on May 1st, 1952. (E.A.R.E.)

343. BLACKCAP Sylvia atricapilla (L.) (162)

Wintering birds :—During January a cock came regularly to the bird-table at Howick Hall, N. In February it was joined by another cock; the two birds being seen at the table together. On March 9th one of these birds was found dead, having flown against a window. (W.S.C.)

First seen :---On April 9th at Monks' House, one caught in trap. (E.A.R.E.) On the 10th at Craster, N., one. (W.S.C.)

On migration :—In the South Shields area a large movement in early October ; on the 3rd nine, seven of them in an elder bush feeding on the berries. (J.C.C.)

346. GARDEN-WARBLER Sylvia borin (Boddaert) (161)

First seen :—On April 7th on the Banks, Durham City, one, an early date. On the 11th numerous in the woods round Greencroft Ponds, Annfield Plain, D. (R.M.P.)

On migration :—A larger passage this season than last in the South Shields area; on September 16th one, October 3rd at least six, skulking under cover. (J.C.C.)

347. WHITETHROAT Sylvia communis Latham (163)

First seen :—On April 15th at Craster (W.S.C.), and at Monks' House. (E.A.R.E.) On the 17th at Cleadon, South Shields. (F.G.G.) Last seen :—On October 3rd at Monks' House. (E.A.R.E.)

348. LESSER WHITETHROAT Sylvia curruca (L.) (164)

On May 5th at Linhope, N., one, and on the 15th at Swinhoe, Belford, N., one. (E.A.R.E.) On May 11th at Stocksfield, N., one seen and heard, but not subsequently. (H.R.O.) On May 15th near Morpeth a nest with five eggs (R.C.); proof of breeding in this county is seldom obtained. During June, on some waste ground near Tanfield Ponds, Stanley, D., an unmated bird was frequently seen. (R.M.P.) In July a pair was seen near Blagdon which had probably bred. (M.W.R.)

On migration :--On August 12th on the Inner Farne, one. (E.A.R.E.) On October 12th in Westoe Village, D., one. (J.C.C.)

354. WILLOW-WARBLER Phylloscopus trochilus (L.) (132)

First seen :—On April 8th at Stocksfield, one (W.E.O.); on April 9th at Hexham, one (E.M.L.), and at Monks' House, one, caught in trap. (E.A.R.E.) On the 10th reported from many places.

Last seen :---On October 3rd at Monks' House one, and on the 9th on Holy Island, one. (E.A.R.E.)

356. CHIFFCHAFF Phylloscopus c. collybita (Vieillot) (129)

[On January 31st, in front of the County Hotel, Hexham, a bird was seen, at a range of from one to two yds., flying about the dead shrubs planted in tubs in front of the hotel and close to the road. Rain and sleet were falling at the time. It was certainly a leaf-warbler and most probably a Chiffchaff. (E.G.T.)]

First seen :--On March 22nd near Stocksfield. (H.R.O.) On April 11th in Westoe Village, South Shields (J.C.C.), and near Alnwick. (J.E.R.) On April 12th on the Inner Farne, one. (E.A.R.E.) 145

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On June 4th a nest was located in a rhododendron bush quite three feet from the ground. (C.G. & D.B.)

Last seen :—On October 3rd on Holy Island, one (E.A.R.E.), and one heard singing in the South Shields area. (J.C.C.)

356. SCANDINAVIAN CHIFFCHAFF

Phylloscopus c. abietinus (Nils.) (130)

On October 1st at Westoe Village a Chiffchaff was heard to give the characteristic notes of this species. On the 19th a bird was seen in Marsden Quarry which, from its plumage, was judged to be of this species; but it was not heard to utter a note of any kind. (J.C.C.) (See O.R., 1951, p. 115.)

357. WOOD-WARBLER Phylloscopus sibilatrix (Bechst.) (135) First seen :---On April 24th near Alnwick. (J.E.R.)

359. ARCTIC WARBLER

Phylloscopus borealis (Blasius) (Eversmann's Warbler 136)

On September 9th, 11th and 12th, 1951, on Holy Island, a single bird of this species was under observation in a sycamore spinney, when full descriptions of its characteristic features were noted by N. W. Cusa and A. H. White. Owing to its wings being "greenish rather than brownish" it was judged to be a bird of the year. (See B.B., Vol. XLV, p. 414.) This is only the second record for Northumberland. The first, an adult cock, was obtained by the late W. G. Watson on Holy Island on September 27th, 1924, and is now in the Hancock Museum.

360. Yellow-browed WARBLER

Phylloscopus inornatus (Blyth) (137)

On September 14th, in a garden in Westoe Village, South Shields, D., a single bird was identified by its call and later all the distinguishing features were noted at a range of 15 ft. It remained until the 17th. (J.C.C., H.M.S.B. & F.G.G.) The bird was within 25 yds. of the spot where one was seen on October 4th in the previous year. (See O.R., 1951.)

364. GOLDCREST Regulus regulus (L.) (126)

On migration :—In South Shields area first influx September 15th, Marsden Quarry, two, 17th Westoe Village, two. Next influx on the 30th, three at each place. On October 19th at Cleadon,

a number on migration and on the 30th c.30 in Westoe and four at the Quarry. (J.C.C. & F.G.G.) First seen at Monks' House September 26th; present in large but dwindling numbers during the first and second weeks of October on Holy Island and elsewhere. (E.A.R.E.)

365. FIRECREST Regulus ignicapillus (Temminck) (128)

On October 11th on Holy Island, one. (J.M.C. per E.A.R.E.)

368. PIED FLYCATCHER Muscicapa hypoleuca (Pallas) (123)

First seen :—On April 13th at Hamsterley, D., a cock, and on the 23rd at least three pairs. (C.G. & D.B.) From April 13th to 26th one on the Longstone, Farnes. (*F.I.O.R.*) On April 14th at Alnwick. (J.E.R.) Passage dates in Monks' House area May 5th, 7th and 9th. (E.A.R.E.) From two nests in Dipton wood, N., young had flown by June 12th, an early date. (A.J.C.) At Blagdon two pairs bred successfully; one in a nesting-box from which a brood of young Tree-creepers had already been reared. (M.W.R.) Near Alnwick a nest containing five young was "adopted" by a cock Redstart. He was frequently seen at the nest feeding the young between June 12th and 18th inclusive. The Flycatchers did not resent his visits. (J.E.R.) In the Haltwhistle area greatly on the increase, wherever deciduous trees abound, with a preference for sites near streams. (M.P.)

Passage dates :—In Monks' House area September 6th and October 3rd, when two on Holy Island. (E.A.R.E.) In Westoe Village, South Shields, on September 13th three, 15th five, 17th still five, but none on 18th; from October 3rd to 5th one, a hen. (J.C.C.)

371. HEDGE-SPARROW Prunella modularis (L.) (211)

On June 6th and subsequently a complete albino was observed near Craster. (W.S.C.) In April near Harbottle, Coquetdale, a curiously marked bird was seen. Its head was a very pale grey, wings, mantle and rump a pale sandy colour, fading almost into white on the tips of the wings and on the tail, breast very pale grey, belly streaked as in a normal bird, but on a pale background. (B.C.E.R.)

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373. MEADOW-PIPIT Anthus pratensis (L.) (76)

On migration :—On September 7th on the Tanfield Ponds, Stanley, D., a flock of c. 100. (R.M.P.) On the 16th over Nortonon-Tees, D., flocks of 30 and nine birds going south with light S. wind after days of northerly wind; and on the 28th a considerable passage south through Teesmouth. (D.S.)

A bird ringed at Monks' House, N., on October 21st, 1951, was recovered at Bridlington, Yorks., in February, 1952. (E.A.R.E.)

Correction.—In O.R., 1951, the item under Tree-Pipit reading "Numerous on the cliffs at South Shields on October 1st to 3rd " referred to Meadow-Pipits.

380. WHITE WAGTAIL Motacilla a. alba L. (91)

On January 2nd at South Shields, one. (H.M.S.B.) On April 10th at Monks' House one cock, and on May 31st on the Inner Farne, four. (E.A.R.E.) On April 16th at Teesmouth a party of five and on the 25th eight. (F.G.G.) Observed on several occasions on Boldon Flats, D., from April 9th to the end of the month, maximum eight on the 24th. (F.G.G. & T.S.D.) On November 21st at Monks' House, one. (E.A.R.E.)

382. YELLOW WAGTAIL Motacilla flava flavissima (Blyth) (88)

Early records :—On March 30th at Middlestone Moor, D., one seen near its usual breeding haunt. (C.G.) On April 5th on the Inner Farne, N., five. (F.I.O.R.) On April 9th on Boldon Flats, D., one. (F.G.G., T.S.D.) On the 12th in Upper Coquetdale a cock. (B.L.) Thereafter well distributed and numerous.

Does not breed in the Seahouses, N., area. On April 11th two cocks were seen at Monks' House; on the 12th six flew in from the sea, from the direction of the Farnes; and on the 20th there were five on the Inner Farne. (E.A.R.E.)

In S.W. Northumberland it is now nearly as numerous a breeder as the Pied. Breeds on all the river-flats as well as on high lying hill pastures. On August 22nd a roost of c. 60 birds was counted in willows overhanging a stream. (M.P.) On May 2nd near Haltwhistle, N., a hen was flushed from a nest containing five eggs—a very early date. The nest was in a thorn hedge between a ploughed field and the road and was placed two feet above the ground level of the field—a most unusual situation for

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this ground-nesting species. Unfortunately the nest was torn out and the eggs taken before it could be photographed. (M.P. & G.W.T.)

In an oat-field near Boldon Flats, D., three pairs bred. By the time the birds had young the oats were a foot high and presented so uniform an appearance that the adults on several occasions were unable to locate their nests. (T.S.D.)

On migration :—On July 21st on waste ground near Tanfield Ponds, D., at least 100 in company with c. 50 Pied; they roosted in the reeds, but were gone next day. On the 24th c. 60 were present, on the 26th c. 50 and on September 3rd c. 30; last seen September 14th. (R.M.P.)

382. BLUE-HEADED WAGTAIL Motacilla flava flava L. (84)

On April 18th on Holy Island, a cock in full breeding plumage was seen at close range and all the distinguishing features were clearly noted. (F.G.G.) On May 14th on Boldon Flats, D., a cock. (F.G.G.)

The only certain previous record for this species in Northumberland was that of a pair seen on April 23rd, 1880, on Ross Links by the late George Bolam.

383. WAXWING Bombycilla garrulus (L.) (120)

Only three records at the beginning of the year. On January 4th in Berwick, three in hawthorns, not seen again. (F.B.) On the 26th in a garden at West Hartlepool, one feeding on over-ripe peaches put out for Blackbirds and Thrushes. (per P.L.H.) On April 5th at Craster, N., one. (J.M.C.)

Very few indeed reported in the winter. On November 22nd near Chollerton, N., two, and on the 28th one. (K.I.) On the 29th in Darlington a single bird. (K.B.) On December 19th and 21st in a garden at Apperley Dene, Stocksfield, two. (G.A.C.)

384. GREAT GREY SHRIKE Lanius excubitor L. (114)

On March 11th near Little Mill Station, N., one seen. (W.S.C.) On April 21st on the Longstone, Farnes, the light-keepers reported a bird which was probably of this species. (F.I.O.R.)

On October 19th at Bamburgh, N., one was seen to come in from the sea and was watched for half-an-hour before it flew inland. Others were reported up and down the east coast about this time. (E.A.R.E.) On the same day one was seen at Marsden Quarry, and probably the same bird, at East Garth, South Shields. It was an adult and when seen at East Garth had already commenced a "larder," where a small passerine was seen suspended in a crotch in a bush. This was removed by the Shrike in its bill. (H.M.S.B., F.G.G., J.C.C. & E.W.) On December 18th near Alnwick, one seen. (J.E.R.)

385. LESSER GREY SHRIKE Lanius minor Gmelin (113)

On September 13th a first winter male appeared in the garden of Monks' House Bird Observatory, N. It remained overnight and the following morning it was trapped and ringed. It was watched catching bumble bees from the garden fences and in a neighbouring potato field. It was last seen on September 28th. On October 15th this bird was recovered, dead, in Aberdeen, where it had fallen down a chimney into a house ! (E.A.R.E.) This is the first definite record for the species in Northumberland.

388. RED-BACKED SHRIKE Lanius collurio L. (119)

On April 27th and again on May 2nd, one was seen on the Longstone, Farnes. (F.I.O.R.)

389. STARLING Sturnus vulgaris L. (14)

On June 9th already c. 150 roosting communally in Bents Park, South Shields, D. (F.G.G.) The roost near Sherburn Village, D. (see O.R., 1951) was re-formed in mid-September, 1952. On December 29th it was estimated to contain over half-a-million birds, most of them coming from the direction of Sunderland and Hartlepool. Large flocks were seen flying to this roost from distances of 12 and 15 miles. On November 15th a completely albino bird was seen to fly into this roost. A few Magpies and Blackbirds and also a flock of c. 50 Fieldfares have been seen to use this roost. (R.M.P.) In November and December a huge flock roosted in the reeds in Gosforth Park lake, estimated to number 100,000 birds. (W.D.R.) When these birds are flying in and wheeling over the lake, other species often get caught up in their flocks: Teal, Wigeon, Mallard and Woodpigeons have been involved. (B.L.) At Sunderland, roosts of up to 2,000 birds have been noted on the girders of most of the large shipyards. (T.S.D.)

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An adult ringed at South Shields, D., on February 2nd, 1950, was found dead at Nyborg, Island of Fyen, off the east coast of Denmark, on July 7th, 1951. Another adult, ringed at the same place on December 29th, 1950, was recovered at Larsnes, Norway, about 62° North, on May 21st, 1952. (F.G.G. & J.C.C.)

393. GOLDFINCH Carduelis carduelis (L.) (20)

Appear to be increasing in North Northumberland. Three pairs bred in the Bamburgh area and autumn flocks of c. 100 birds have been seen. (E.A.R.E.) On June 8th at Biddlestone, Coquetdale, a flock of c. 30, some juveniles. Could these have been locally bred? (T.G.W.) At Blagdon, N., "more numerous than ever, and now quite common; it was almost unknown here ten years ago." (M.W.R.)

394. SISKIN Carduelis spinus (L.) (21)

Very few indeed reported in either winter.

396. TWITE Carduelis flavirostris (L.) (29)

On June 1st in the Darden Burn Valley, N., five seen. (E.G.T.) "In inland areas of South Northumberland forty years ago the Twite was a frequent winter visitor, arriving in October and November; now it is rarely seen. I have not seen one during the past two winters and at no time have I ever met with them in summer." (M.P.) Above High Force, Teesdale, D., a pair was seen feeding young, out of the nest, by the riverside. (R.C.) In June a cock was seen twice on telegraph wires near Bamburgh, N., but no breeding recorded there, nor in the Cheviot area, this season. (E.A.R.E.)

On migration :---On September 14th two in stubbles near the shore at Monks' House, N. (E.A.R.E.) No others reported.

404. CROSSBILL Loxia curvirostra L. (36)

On February 24th and March 2nd in Dipton Wood, a pair seen building; March 9th nest had two eggs; March 19th four eggs, hen sitting; March 21st and 23rd hen sitting, cock feeding her on nest; 26th one egg hatched, young about two days old; March 30th one young only, two addled eggs in nest, one broken; April 1st cock feeding hen at nest; April 12th no adult birds to be seen, young one dead in nest. (A.J.C.)

ORNITHOLOGICAL REPORT FOR 1952

On May 11th near Harbottle, Upper Coquetdale, a nest was found that had obviously been used this season. (E.G.T.)

410. CORN-BUNTING Emberiza calandra L. (43)

Now quite absent from S.W. Northumberland, where it was formerly a common resident. (M.P.)

422. LAPLAND BUNTING Calcarius lapponicus (L.) (58)

On February 28th on Holy Island, N., one, probably a hen, seen. (A.M.M.) On April 20th at Embleton, N., a cock. (G.H.) On May 2nd to 6th on the Inner Farne, N., a cock, in full breeding plumage, seen. (E.A.R.E.) On September 18th on Quarryhouse Moor, Chillingham, N., on a bare stony field, three seen. (H.J.F.S.) This is the first time for several years that this species has been definitely identified in Northumberland.

423. SNOW-BUNTING. Plectrophenax nivalis (L.) (59)

Very numerous early in the year. Some lingered late, well into April. More numerous still in the autumn and winter, large flocks being reported from many parts of the coast. First arrivals September 6th to 13th.

NOTE.—The following species, escaped from captivity, were recorded in Northumberland :—

BATELEUR EAGLE Terathopius ecaudatus, a native of middle and southern Africa. On November 4th one was shot near Budle Bay, N. It had escaped from Dudley Zoo, near Birmingham.

CRANE Megalornis grus (L.) On July 19th one was reported from Grindon Hill Farm, north of Bardon Mill, N., by the farmer, Mr. A. Hall. It was identified by Col. R. Allen, of Haydon Bridge. It remained in the district for some days and was last reported from Paddaburn, Irthing Burn Head, about 12 miles further N.W. It was at first thought to have been a truly wild bird; but it has since transpired that Cranes are kept in an unpinioned state at Pippingford Park, Nutley, Essex, and that some of these had lately been missed. By a strange coincidence the sole previous record of a Crane in Northumberland, which may also have been an escape, was a bird seen on October 20th, 1908, flying near Park Dam, which is within two miles of Grindon Hill Farm !

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Key to the initials of those contributing to the above Report :

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THE PAST AND PRESENT STATUS OF SQUIRRELS IN NORTHUMBERLAND AND DURHAM

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Rodentia Rod Scintus V Ulgaris

> Compiled by George W. Temperley, hon.m.s.

The Red Squirrel in Northumberland: Its distribution in the past; Its distribution in the present.

The Red and Grey Squirrels in Durham : Distribution of the Red Squirrel in the past ; Distribution of the Red and Grey Squirrels in the present.

Possible reasons for the decrease in the number of Red Squirrels during the past 35 years.

Effect of the severe winter of 1946-47.

Some observations on the habits of the Red Squirrel.

An inquiry into the distribution of the Grey Squirrel in County Durham, on behalf of the Bureau of Animal Population, has provided an opportunity for a survey of the past and present status of both species in the Counties of Northumberland and Durham. References have been extracted from such past records as exist and a questionnaire was sent out to various country members of the Natural History Society asking for reports on the present status of both species. The following account has been compiled from replies received from many correspondents, to whom the writer is greatly indebted.

It is a satisfaction to know that the alien Grey Squirrel has not yet penetrated Northumberland and that, although it has gained a footing in south Durham just north of the River Tees, it is making very little headway in that county. The Red Squirrel is locally fairly common in suitable woodlands in Northumberland. Such changes in its distribution as there are, are for the most part

due to the felling of old woodlands and the planting of new areas. In general the result of this has been that many lowland areas have lost their woodlands and their squirrels while outlying tracts, formerly moorlands, are now tree-clad and able to support a squirrel population. In County Durham, except in the southwest, the Red Squirrel is now very rare and in industrial areas quite extinct.

There is much evidence to show that the present population of Red Squirrels in both counties is considerably smaller than it was half-a-century or even 25 years ago. Various theories have been put forward to account for this, the most likely one being that early in this century the natural enemies of the species were being kept down by gamekeepers and the normal food supply was being supplemented from artificial sources. It is probable, therefore, that the population reached its peak at that time; numbers being considerably greater than they have been either before or since. A more recent decrease in some areas has been attributed to the severe winter of 1946-47, but some recovery from this loss is now being reported.

A key to the initials following quotations from correspondents will be found at the end of this paper.

THE RED SQUIRREL IN NORTHUMBERLAND

ITS DISTRIBUTION IN THE PAST.

The "Father" of North Country natural history, the Rev. John Wallis, in his *Natural History and Antiquities of Northumberland*, 1769, made no reference whatever to the Squirrel. Nor did he mention the Rabbit and some other common mammals, so it may be assumed that these were so common and well distributed that they required no comment, as compared with the rarer Wild-cat, Pine-marten, and Polecat of which he gave a most interesting account.

Mennell and Perkins in their "Catalogue of the Mammalia of Northumberland and Durham"—*Transactions of the Tyneside Naturalists' Field Club*, Vol. VI (1863-64), p. 170—stated that the Red Squirrel was "Abundant in many parts of our district, especially about Riding Mill, Hexham and Shotley Bridge and in the woods north of Morpeth, but not by any means universally distributed." They quoted the Rev. J. F. Bigge who wrote that the Red Squirrel "appeared a few years ago at Matfen, Cheeseburn Grange and Dissington." This suggests that it was extending its range in Northumberland at that time.

So far as the writer can discover, there are no further published references to the local status of the Red Squirrel in the 19th century.

Coming to more recent times, within living memory, we have the following records from correspondents. " In the North Tyne and Allen valleys between 1900 and 1915 the Red Squirrel was really numerous. It was to be found not only in the wooded valleys but in every coniferous plantation away out on the hills up to altitudes of 1,100 feet. They even built their dreys in every tall hedgerow and I remember counting 30 Squirrels in the late autumn of 1915 in two big thorn bushes on the Building Farm, Fourstones. I am pretty sure that the population was then not less than four to the acre of woodland." (M.P.) "At Coldrife, four miles south of Rothbury, I had a long residence. In early days it was surrounded by woodlands ; but these were cut down during the first World War (1914-18). Before that, the Red Squirrel was very numerous there. I remember the winter of 1886, one of the severest on record, when many birds were frozen to death, but no dead Squirrels were ever seen, showing how hardy they are. Many fine trees still remain, beech, oak, elm, etc., and my son who lives there now often sees Squirrels feeding on the hawthorn berries. I am of the opinion that the Red Squirrel is on the increase in the north of England." (W.T.R.)

ITS DISTRIBUTION IN THE PRESENT.

North Northumberland.

Present in most plantations about Swinhoe and Kyloe, also about Ford, Etal and Cornhill. (F.B., &c.)

Wooler District.—Coupland Castle.—" Two or three pairs of Red Squirrels frequent the woods about this house. One of them, occasionally accompanied by a second, visits the kitchen daily, via the window, for scraps." (W. de L.A.)

North-east Northumberland.

Chathill.—" Squirrels are rarely seen around here now. Before the war I saw them in Chathill woods quite often; but since these have been cut down the Squirrels have gone. I think that it must be about eight years since I saw one here." (A.M.)

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Craster.—" Only seen occasionally now, though up to 1916 several pairs were in residence. Last proof of breeding was in 1948 when an adult was found dead on the road with a young one beside it." (J.M.C. per A.M.)

Fallodon.—" There are still plenty of Red Squirrels in the woods here; but they are no longer tame and just run the woods. About four years ago I picked up two young ones and kept them tame in the house for some months and then liberated them; but they are now indistinguishable from others that frequent the garden." (H.G.O.B. per A.M.) When Viscount Grey lived at Fallodon, wild Squirrels used to come into his library and hide their nuts behind the books on his shelves.

Alnwick.—" Common about these parts, particularly in Hulne Park; but to be found in all suitable woodlands around Alnwick. Since 1938, when I came here, I have noticed no decrease in numbers." (J.E.R.)

East Bolton, west of Alnwick.—" In 1947-49 there were Squirrels there and the gardener had persuaded them into his house. He gathered hazel nuts annually and fed them on a tree and they came inside the house regularly." (E.M.)

Warkworth.—" In the vicinity of the Hermit's Cave, about half a mile above Warkworth, I have seen odd ones within the last twelve months. I think the Coquet woods contain a sprinkling all the way up, including the denes, such as Hazon and Guyzance. North of here, the only place I know near the sea is Howick, where they may be seen down to the burn mouth." (A.E.G.)

Lower Coquetdale.—" In my early days there was always a goodly stock of them in the riverside woods from Warkworth upwards. My son tells me that he sees many Squirrels about Acklington Foundry Bridge and up by Brainsheugh Farm, so that part of the Coquet woods is still well stocked." (E.M.)

Upper Coquetdale.—" Occasionally seen in the woods round Harbottle." (E.M.) " Occasionally seen about Hepple and Grasslees Burn." (B.P.H.)

Rothbury and Thropton.—" I have seen several in Cragside woods of recent years and we occasionally have two or three about Wreighburn House." (S.B.H.) Ghyllheugh, Longhorsley.—" From quite casual observation I confirm a considerable decrease in the number of Red Squirrels. Forty years ago these were very common in all our Northumbrian woodlands and when I moved to Coquetdale eighteen years ago we never went out without seeing one or two. Since the war we have seen very few, and fewer still since the hard winter of 1946-47. If these woods bear comparison with those of Tyneside, I should say that from 1915 to 1935 the population diminished from a datum of 100 to 50 and stood at perhaps 35 after the last war. It is now barely 20, that is to say, one-fifth of what it used to be when I was a boy." (E.R.)

Between Coquet and Wansbeck.—" Not uncommon in both Coquet and Wansbeck valleys and in many woods in this district, particularly those having conifers. Woods such as Blubbery near Hebron, Middle Moor near Longhirst, Hanging Keaves near Tritlington and the Cragside Woods near Rothbury are all populated by Red Squirrels, but they are by no means plentiful. I should put the numbers at a pair for 10 acres. There are, of course, extensive woodlands where they are much scarcer." (H.T.)

Blagdon.—" I can safely say that there is a good share of Red Squirrels on the Blagdon Estate. From the drive between the North Lodge and the Hall, you can see from four to ten at any time of day playing under the beech trees; in fact the whole of the North Wood, of which the drive is part, contains quite a colony of them. Other parts of the estate have their share, more so the hardwood portions. They are not quite so numerous in the coniferous woods, but these have a sprinkling of them." (J.W.)

Tyne Valley.

North Tyne, Kielder District.—" Only the Red Squirrel is present and the population is a small one. Numbers appear to be fairly stationary and no marked decrease was noted after the 1947 winter. Squirrels are usually reported from the older woods, such as Jamie's Crags Plantation, Mounces Wood, Emmethaugh Wood, Smales Wood and Smalesmouth Plantations. As it takes about twenty years before the coniferous trees bear cones the Squirrels are not attracted to the younger plantations. Only in one area, adjoining Smales Wood, have numbers shown any

recent increase. Here a plantation of Norway and Sitka Spruce has now reached the cone stage and this year cones opened up by Squirrels are much in evidence." (R.E.C.)

"In the areas South Tyne, North Tyne, Allen and the Northumberland/Cumberland border, the Squirrel population is not more than one to every 40 acres of woodland. In many areas it is entirely missing, for no apparent reason, but in others it is fairly common as it has a preference for certain woods and districts. For the past ten years I have watched the Squirrel population in my own area of Haltwhistle very carefully and am of the opinion that its numbers have remained static, or at any rate they are not declining in numbers so rapidly as they did between 1915 and 1940." (M.P.)

Mid-Tyne District.—" In the Haydon Bridge area the Red Squirrel is in quite reasonable numbers. They are in good numbers in the Langley and Ridley Hall woods." (W.J.)

Lower Tyne Valley.—" Never numerous; a few still to be found in suitable woodlands. The felling of old timber has much reduced the number of available habitats. Amongst the lost sanctuaries are the Whittle Dene Woods near Ovingham, the Horsley Woods near Wylam and the Duke's Rush near Stocksfield. Odd pairs are still to be found in woods on Stocksfield Burn, in Broomley Woods and about Bywell and Styford." (G.W.T.)

THE RED AND GREY SQUIRRELS IN DURHAM

THE DISTRIBUTION OF THE RED SQUIRREL IN THE PAST.

In a MS. "Catalogue of the Quadrupeds, Reptiles and Fishes of Durham," written by J. Hutchinson, F.L.S., of Lanchester, Co. Durham, in 1840 and not hitherto published, the status of the Red Squirrel is thus given : "Squirrels some few years ago were not known in the County. They were first introduced, I believe, by B. J. Salvin, Esq., of Burn Hall, and have increased and extended to most of the woody parts. Their favourite food is the nut, but they appear to thrive where the hazel does not grow and are most abundant in the fir plantations in the western parts. Those parts are the most thickly populated where they are least molested. Their habits render them an easy capture, for, betaking themselves to trees for shelter, they may be shot or hunted down and killed by dogs; though by so doing they escape from foxes and smaller predacious quadrupeds." Then follows this interesting note: "Squirrels have been accused of destroying game. A friend told me that he had found the feet of hares in their nests. These feet, I conceive, were found accidentally by the Squirrels and, being considered good materials, answering both for the substantive part of the building and for lining, were made use of; but that the Squirrel was either principal or accessory in the destruction of the hare I have strong reasons to doubt."

No further evidence is obtainable to prove that the Red Squirrel was artificially introduced in County Durham. Burn Hall is two or three miles south of Durham City. They may have been brought there from some other part of the country; but in all probability they were already present in the river-valley woodlands in the west of the County.

In Mennell and Perkins' *Catalogue* compiled in 1863, referred to above, the following records for Durham are included :—

"Very common here (St. John's, Weardale) feeding on the cones of the fir, spruce and larch, those of the Scotch Fir they will eat green," William Backhouse. "Castle Eden, once seen; Sedgefield, occasionally; City of Durham, occasionally," Canon H. B. Tristram. "The nests are plentiful in Ravensworth Woods," G. S. Brady.

Note.—The Ravensworth woods were very well known to me from 1885 to 1910 and again from 1920 to 1935. During those periods I never once met with a Squirrel there. They were, however, to be seen occasionally in the woods on the Gibside Estate and more frequently in Chopwell woods. (G.W.T.)

In 1905, Dr. Leonard Gill, then curator of the Hancock Museum, contributed an account of the Mammals of County Durham to the Victoria County History of Durham. Of the Red Squirrel he wrote : "The Squirrel is plentiful in the wooded parts, though perhaps hardly so abundant on the whole as in the more southern counties. Formerly it appears to have been scarcer, or at least less evenly distributed than at present. Canon H. B. Tristram writes me that 'in my boyhood it was unknown here,' that is about the City of Durham."

THE DISTRIBUTION OF THE RED AND GREY SQUIRRELS IN THE PRESENT.

North-west Durham.

Derwent Valley.—" I have made a lot of inquiries about the Red and all my informants agree as to its scarcity. The last I saw was at Blanchland about six years ago. About 25 years ago I used to see odd ones in all parts of the Derwent Valley, but they were never so plentiful as they had been in the closing years of last century. I have not seen a Grey Squirrel in the Vale of Derwent, or anywhere else in County Durham." (C.H.)

East Durham, Lambton Park.—" I have never seen a Red Squirrel in this area in my life and I am now 46 years old. No Greys have ever been seen or heard of." (J.W.)

Wear Valley.

Wolsingham.—" For many years past I have noticed a decrease in the Red Squirrel—long before the big storm of 1946-47. That terrible winter played havoc with the few we had left. I have not noticed any improvement since then, in fact it looks to me as if we were going to lose them altogether. Seldom do I see one. In the 1920s and 1930s I had them all around my house coming to cocoa-nuts which I used to hang out. I have seen as many as a dozen all on the same tree at the same time. In all the woods, go where you would, they were always to be seen ; now you could walk all day and not see one. In the whole of last summer I did not see more than half-a-dozen in all ; but at the same time I have never seen a dead one. The Grey has certainly not arrived as far as this." (R.M.)

Hamsterley and Bedburn.—" The Red is fairly well distributed in the Forestry Commission Plantations, not in great numbers but about as numerous as in previous years. As only a few of the coniferous trees here are yet bearing cones there cannot be said to be an increase in the food supply. To the best of my knowledge they are not being destroyed here. The Grey has not reached this district. I have not seen any, nor have I heard of anyone else doing so." (C.H.L.)

Bishop's Park, Bishop Auckland.—" Red Squirrels occur, though apparently not so common as in previous days." (M.C.) They also occur at Windlestone and Witton-le-Wear. (M.C.) Raby Park.—There are few Red Squirrels now, their number having declined of late years. Greys first appeared just before or during the second World War. They have never been numerous; the maximum number reached at any one time is estimated to have been ten pairs. From time to time attempts have been made to exterminate them, but so far without success, though they are shot at sight. (Lord Barnard per H.T.E.)

Teesdale.

Middleton-in-Teesdale district.—" Up to the felling of the Snaisghyll wood, just north of Middleton-in-Teesdale, in 1914, then the largest wood in the area, Reds had always been present in fair numbers, being most numerous in 1942-43; but since that time they have been very scarce. I very seldom see one now-adays, but this may be partly due to the severe winter of 1947. They used to be present as far up the dale as High Force. The Grey is unknown here." (H.W.)

Barnard Castle.—" On the Durham side of the Tees in this area the Red is definitely holding its own. I have heard of an occasional Grey being seen on the north side of the Tees, but very few. I find that the gamekeepers shoot the Grey at sight." (F.A.)

Winston.—" The Red has been decreasing for years; I have not any idea of the reason for this decrease; but whereas 10 or 15 years ago they were fairly common, they now appear to be exceedingly rare. I have not seen one personally for five years, that is since before the hard winter of 1946-47. At Winston the Grey has certainly crossed the Tees, but does not seem to have made much progress. It is now five years since we first saw one near Winston and though I have heard of one or two being seen in the neighbourhood I have not seen another myself." (F.B.)

Gainford.—" The Red is occasionally met with in Dyance wood and Gainford Great Wood. No Greys are reported. (W.M.B.)

South-east Durham.

Darlington.—The Grey was introduced in the South Park, Darlington, and is still to be found there. A few had been kept in captivity and were released or escaped some 30 years ago. It has since spread to the West Cemetery and to an estate off Millbank Road, Darlington, but not, so far as can be proved, further afield. No doubt this is because there is no suitable habitat for it near the town. For a long time this colony has been quite isolated and there is no evidence that it has been reinforced from the south bank of the Tees.

Teesmouth area.—On the Yorkshire side of the Tees, south of Middlesbrough the Grey is fairly numerous, but it has not crossed the river there. North of the Tees, the Stockton-on-Tees area is a closely industrialised district and there is no suitable country for Squirrels until one reaches Wynyard Park, five miles north of Stockton. Here there is a fair number of Reds but no Greys. However, as near the Park as Fulthorpe, a Grey has been recently reported and an odd one has been seen occasionally between Stockton and Darlington. (K.L.) Further north than this, " in the Newton Hanzard woods and around Crookfoot Reservoir, no Greys have been seen. Up to 1940 or 1942, but not since, it was not unusual to meet with a Red in this neighbourhood." (P.L.H.)

POSSIBLE REASONS FOR THE DECREASE IN THE NUMBER OF RED SQUIRRELS DURING THE PAST 35 YEARS

(1) Natural Enemies.—" The Tawny Owl does at times kill Squirrels, so does the Fox; but the numbers are so small that they are of little importance." (M.P.) Other enemies such as Stoats and Weasels have been kept in check by man.

(2) Human Interference.—" A lot get shot under the mistaken idea that they eat the tops off young conifers." (J.W.)

(3) Food Shortage.—" The food supply may have had something to do with it. During both wars large tracts of timber were cut, thus reducing the supply of beechmast, acorns and pinecones. There is one item of food beloved by Squirrels that has been gradually denied to them, since about 1915. I refer to maize that was constantly available to Pheasants on every estate in the north of England. In practically every small wood an automatic steel hopper was filled with maize and hung upon a tree. It is a well-known fact that the Squirrels robbed these hoppers to a great extent. So much so that various devices were tried by gamekeepers to prevent it, but with little success. Time was, if I wanted to see Squirrels in numbers, I went to the pheasant feeds in the woods and there is little doubt that maize in those days was one of their favourite foods. Indeed I believe that there is some truth in the statement that Squirrels increased rapidly in numbers from the time that pheasant-rearing became the fashion about 70 or 80 years ago. With the advent of the last war, pheasant-rearing ended; maize was unprocurable, thus bringing to an end a never hitherto failing supply of Squirrel food. I am not saying that this alone is responsible for the general decline, but it is most probably one of the causes." (M.P.)

(4) Disease.—" Personally I have no evidence whatever that disease has anything to do with it, though I have very occasionally picked up dead Squirrels which bore no mark of injury. I have also seen specimens with skin trouble similar to mange in foxes, but not often." (M.P.)

EFFECT OF THE SEVERE WINTER OF 1946-47

Alnwick area.—" The species did not seem to suffer much in that severe winter." (J.E.R.)

Between Coquet and Wansbeck.—"I should not say that the population in my locality has dwindled to any extent during the 16 years (1934-51) of my residence here; I consider that it has been static. I do not think that it suffered much from the winter of 1947, in fact, I think it was one of the mammals that came through it well." (H.T.)

Blagdon.—" I do not think we lost many in the severe winter of 1947 as they made good use of the beech-nuts which fell in the thick rhododrendron bushes which grow in most of the woods here and prevent a complete freeze up. They burrowed into the leaves for food and survived very well." (J.W.)

Mid-Tyne area.—" I do not think that the severe winter affected the small population in the slightest, for the following reasons :—

- (a) The Red Squirrel can lie up in its drey during severe weather and so defy the cold.
- (b) It is one of our few mammals that lay up a store of food in the shape of hazel and beech nuts, acorns, hawthorn berries, etc. Generally such stores are laid up in close proximity to the drey if not actually in the drey itself.

(c) Even if a laid-up store fails or runs out, food is procurable in most instances from the cones of the Scotch pines or the young shoots of such trees as are never entirely covered by the heaviest falls of snow." (M.P.)

SOME OBSERVATIONS ON THE HABITS OF THE RED SQUIRREL

"The Red Squirrel leads a solitary life as a rule, each sex building its own drey. Very rarely indeed have I found two squirrels in one drey. So far as I can see, the rearing of the family is left entirely to the female.

One certain way of detecting the presence of Squirrels is to walk through all the near-by pine-woods. Even if you never see any of them, the tell-tale torn and shredded pine-cones strewn upon the ground are absolute evidence of their presence.

The staple diet of the Squirrel in my part of the country is undoubtedly the cones of the Scotch pine and the young shoots of the same tree. It is perfectly true that it will eat eggs and young birds; though I once knew of a blackbird's nest, just under a squirrel's drey containing young, from which four young blackbirds were successfully reared." (M.P.)

"As to the damage done to trees, it was said a few years ago by the Head Forester in the Commission's plantations, that they damaged the leading shoots of the young trees; but I have not seen any damage in the Hamsterley area plantations that I could put down to Squirrels." (C.H.L.)

Key to the initials occurring above :

F. Ashman, Sir Walter de L. Aitchison, Lord Barnard, Col. the Hon. H. G. O. Bridgeman, Capt. F. Bell, F. Brady and members of the Berwick Grammar School Nat. Hist. Society, Miss W. M. Brady, J. M. Craster, R. E. Crowther (District Forestry Officer, Kielder), M. Cowley, H. T. Eyres, A. E. Gregory, B. P. Hill, P. L. Hogg, C. Hutchinson, S. B. Hewitt, W. Johnson, C. H. Longstaff, K. Longstaff, A. Murdue, E. Miller, R. Martinson, M. Philipson, the late Edward Reed, W. T. Rutherford, J. E. Ruxton, H. Tegner, G. W. Temperley, J. Walby, H. Watson.

THE GREY SEALS OF THE FARNE ISLANDS

A preliminary report on an investigation into their life history and movements

IAN M. TELFER, M.B., B.S., AND GRACE WATT, M.A.

INTRODUCTION. The Farne Islands lie off the Northumberland coast about ten miles south of Berwick-on-Tweed. On these islands there has been for at least eight hundred years, and probably for centuries longer, a colony of the grey seal *Halichoerus* grypus. For the greater part of these eight hundred years the seals have been killed for the sake of the oil their carcasses yield, first by the local fishermen and the monks of the House of Farne and, after the dissolution of the monasteries, by the various tenants to whom the islands were let by the Dean and Chapter of Durham. By 1894 the islands had passed into private ownership and in 1925 they were vested in the National Trust. The seals are now protected throughout the year.

In the middle of the nineteenth century the colony consisted of about one hundred individuals and this figure remained virtually unchanged until the early nineteen-thirties. By 1938 there were from one hundred and fifty to two hundred animals and during the next twelve years there was a steady increase. A count made on November 26th, 1950, showed a total of over thirteen hundred adults and young, while on one occasion during the spring of 1953 there were at least seventeen hundred and fifty pulled out on Longstone End.

The seals breed on the Outer Group, the most popular islands at the present time being Staple Island, North and South Wamses and Brownsman. Calves are born from time to time on the Harcar and in 1952, for apparently the first time on record, there were calves on both the Northern Hares and Longstone End.

According to Selby (1841) the breeding season starts about November 10th or 15th, but calves are now born between the last week of October and third week of December. In 1952 the first calf was seen on Staple Island on October 26th, five days earlier than in 1951. The season seems, however, to have been an early one, for while on December 16th, 1951, there were still at least

by

one hundred and seventy calves on Staple Island, on December 21st, 1952, there were only thirty calves left on this island. One of these was about four days old, but the majority were in the second coat.

The late T. Russell Goddard made certain observations on the Farne Island seals and these, together with all other available information, were incorporated by Grace Watt in her book, The Farne Islands : their history and wild life. It was obvious, however, that a great deal of work remained to be done on these seals and in 1950 Grace Watt and Ian M. Telfer, two members of the Natural History Society of Northumberland, Durham and Newcastle upon Tyne, discussed the possibilities of studying them, and particularly of weighing, measuring and marking some of the calves. After careful consideration they designed a stainless steel clip, based on the cattle ear-tag used by Scheffer on the fur seals of the Pribilof Islands. An initial experiment was carried out on December 16th, 1951, when ten calves were marked. Fourteen days later calf No. 1 was recovered at Jaeren, near Stavanger, thus indicating that Farne Island seals are capable of travelling considerable distances from their breeding grounds. As a result of this recovery the Zoological Society of London has sponsored a similar marking scheme, which has already yielded information about the movements of Ramsey Island seals, and which it is hoped to extend, in time, to all British colonies.

The Council of the Natural History Society has recognised the value of this marking scheme, and it is now an important part of the Society's scientific activities.

The following paper is largely the result of observations made by some twenty members of the Society during five visits to the islands between November 1st and December 21st, 1952; it also includes certain information supplied by John Taylor and Grahame Tharp, of Countryman Films, Ltd., who spent a fortnight on Brownsman in November, 1952.

The main objects of the visits were to (1) mark with coloured dye, (2) tag and (3) weigh and measure a number of young seals. Unfortunately, owing to persistently unfavourable winds, a month elapsed between the original dye-marking and the next visit to the islands and there were, therefore, no results from this experiment. TAGGING. A modified form of the original stainless steel clip was used. It was circular, instead of elliptical in shape, and there was the usual overlap. It is evident, however, that this design is not entirely satisfactory and further modifications will be made before the 1953 season.

On the first visit most of the clips were placed, as in 1951, on either the first or fifth digit of the hind flipper. This position proved unsatisfactory, as several of the clips, due to the calves' movements, were displaced, and became parallel, rather than at right angles, to the digits. On all later visits two incisions were made in the flipper and the clip was placed over the third digit; this position appeared to be perfectly satisfactory.

It was noticed that in certain cases tagging led to sepsis of the flipper. This sepsis was most marked where calves were living on the soil-covered tops of the islands; it was considerably less when they were on the rocky slopes, and appeared entirely absent where they were swimming freely in rock pools. This suggests that such sepsis is merely a temporary condition which will be cured when the animals enter the water. Nevertheless, in future all incisions will be dressed with Stockholm tar. Incidentally, many unmarked calves bore considerable signs of sepsis, either round the eyes or on open wounds, and it is apparent that the condition is fairly general.

Eight-five animals were tagged ; of these forty-two were in the first coat, twenty-one were changing coat, twenty were in the second coat, one was a yearling and one an adult cow.

RECOVERIES. Six marked animals have been recovered, the details of the recoveries being as follows :---

- No. 44 Marked November 29th, 1952. Recovered December 5th, 1952. Found on beach at Monks' House, Seahouses. Died a few days later. Approximate age seven days.
- No. 48 Marked November 29th, 1952. Recovered (1) December 20th, 1952. Seen near mouth of river Wansbeck, Northumberland. Described as still in first coat and "very much alive." Approximate age twenty-five days.
 (2) January 31st, 1953. Found dead at foot of cliff near Newbiggin, within short distance of previous recovery. Had severe head wounds, probably caused by being

dashed against cliff, but appeared to have been dead only a short time.

- No. 55 Marked November 29th, 1952. Recovered December 27th, 1952. Drowned in cod net, $2\frac{1}{2}$ miles south of Johnshaven, Kincardine.
- No. 61 Marked December 6th, 1952. Recovered February 9th, 1953. Picked up in an exhausted condition by a German fishing cutter off the mouth of river Elbe. Now in Cuxhaven Zoo. Approximate age ten weeks.
- No. 80 Marked December 6th, 1952. Recovered February 26th, 1953. Found in distressed condition at Covehithe, near Great Yarmouth, and later destroyed. Approximate age twelve weeks.
- No. 97 Marked December 21st, 1952. Recovered April 3rd, 1953. Brought up in net of Boulogne trawler off Utsire, Norway (latitude 59.30, longitude 3.30). Approximate age fifteen weeks.

DETERMINATION OF AGE. An essential preliminary to the weighing and measuring was the determination of the age of the calves and this proved to be one of the most difficult parts of the work. In the case of young calves the condition of the umbilical cord, together with the general appearance of the animal, provided a reasonably accurate guide. Where the calves were older the following were used as indications of approximate age :—(1) dark hair on face : ten to fourteen days; (2) commencement of shedding : fourteen days; (3) complete second coat : five to six weeks. It will be seen, however, from statistics of marked animals, that these data are by no means constant and it was, therefore, particularly unfortunate that weather conditions prevented the marking of more animals whose ages could be assessed with accuracy.

WEIGHING AND MEASURING. Whenever possible the following standard measurements were obtained :--

- (1) Weight in pounds.
- (2) Overall length, *i.e.*, length from tip of nose to end of hind flipper.
- (3) Length of hind flipper.
- (4) Girth, *i.e.*, width round widest part of body.

A spring balance weighing up to 200 lbs. was used; for ease in handling this was suspended from a portable gallows. The calves were placed in a large bag, made of No. 1 sail canvas, and this was then weighed; as the result of re-weighing animals on two successive days it was apparent that this method gave a reasonably high degree of accuracy.

As will be seen from the table at the end of this paper measuring was considerably less accurate. Various methods were tried, and in the end it seemed evident that measurement with an ordinary tape measure was probably the most satisfactory. It was seldom possible to get the calves to lie flat, and as they had a habit of humping their backs and retracting their heads, the overall length tended to be too short. For girth measurement, on the other hand, the animals were held up by their hind flippers, and this measurement was made difficult by their ability to twist their bodies through approximately 180°, even when held in mid-air.

GENERAL DEDUCTIONS FROM RESULTS OF WEIGHING AND MEASURING. Too few animals have been examined to allow any very definite conclusions to be drawn, but the following deductions can be made :—

- (a) New-born calves (less than two days old). Weights varied from a minimum of 20 lbs. to a maximum of 38 lbs. The minimum overall length was 33 in. and the maximum 43 in., although this last is probably too high a figure. The corresponding girth measurements were 21 in. and 26 in.
- (b) Rate of increase of weight. Calves Nos. 32 and 48, weighed at four days, increased by 16 and 17 lbs. respectively during the following seven days. For the same period the increase in the weight of calves Nos. 36 and 39, weighed first at seven to ten days, was 34 and 36 lbs. respectively. This suggests that the rate of increase is greater during the second week of life.
- (c) Calves which have completed the moult. There is a very wide variation in the weight of these animals, the maximum being 108 lbs. and the minimum 56 lbs., while the average weight of twenty-one calves was 78 lbs. Calf No. 84 showed the greatest rate of decrease; marked at two to three weeks, it lost 15 lbs. in fifteen days.

(d) Yearlings. Only two yearlings were weighed, one being 104 lbs. and the other 85 lbs. These figures do, however, suggest that, after weaning, there is comparatively little increase in weight for at least a year.

NUMBERS OF CALVES. The following table gives approximate figures for the numbers of live calves seen on the various breeding islands throughout the season. Figures marked with an * indicate that an accurate count was made on the island, while other figures are merely estimates made with the aid of field glasses. The absence of any figure means that no count was made on the day in question.

Date	Brownsman	Staple Is.	N. & S. N. H Wamses	ares Longstone End
1.11.52	19*	11	dal <u>-</u> galq ² hns-	-Robert - 17 Da
29.11.52	40*	145	28 _	adas entina menj Talente m enan
6.12.52	26*	181*	44	A mar <u>i</u>
7.12.52	20*	a ang ang ang ang ang ang ang ang ang an	210*(N.W.)	(de source serve) Robert hei r d e vege
21.12.52	2	30*	30*(S.W.)	le ≥ objaar <u>se</u> derm):
Total for season	—herin Sile	izaa - 261 - 1 baaran 86 ee	— io arro (\$*9*

Although it is not possible to give the total number of calves born there was a minimum of four hundred and seventy-six live animals. In addition, at least twenty dead calves were found and there were probably considerably more. Some of these were still-births, others were comparatively young, but none was in the second coat. This contrasted with 1951 when a calf of from five to six weeks old was found and there seemed to be no apparent cause for its death. None of the dead calves had been tagged.

PROPORTION OF MALES TO FEMALES. Out of eighty-six calves sexed forty-five were males and forty-one females. Males, therefore, represented 52.3% of the total.

TYPES OF CALVES. Matthews (1952) states that, although young calves can swim, they generally shun the sea and, indeed, may be drowned if they accidentally fall into the surf. Past observations at the Farnes have borne out the truth of this statement.

Observations made in 1952 suggest, however, that there are two different types of calves. The first, and normal type, are born well up on the islands; they do not appear to go near the water until they have assumed the second coat and they then have the usual preliminary swimming practice in rock pools before actually entering the sea. Such were calves Nos. 12 and 18, marked on Brownsman on November 1st, their respective ages then being four days and less than twenty-four hours. They were seen again on November 29th, when they were in the complete second coat, and were still on this island on December 6th.

The second type was recorded by Taylor, who noticed that certain calves were born near the sea and were fed where the waves were breaking. He saw several calves, still in the first coat, swimming strongly under water in quite rough seas. This was borne out by our observations. On November 29th calf No. 44, then less than two days old, was swimming off-shore with its mother. It appeared to be perfectly happy although at one time it was riding on the cow's back. Six days later it was found on the beach at Monks' House, some three and a half miles away. Despite attempts to return it to the sea it refused to leave the sand dunes and finally died. Observers later said that it seemed to be choked with sand.

TEETH. There was considerable variation in the development of the teeth. In the case of two newly-born calves no teeth were showing; calf No. 75 had a full set at two days, while two others, both four days old, had teeth just appearing.

At approximately one week No. 65 had a complete lower set, while in the upper jaw the two first canines and the second incisors were coming through and the remaining teeth were just showing.

FLIPPERS. The terminal inter-phalangeal joints show an extreme degree of flexion and at the same time are obviously powerful. One calf, weighing approximately 60 lbs., hauled itself up about two feet by its terminal phalanges. We found, as did Davies on Ramsey Island, that very young pups tended to progress overland by using their fore flippers alternately for a day or two before adopting the adult method of locomotion.

NAILS. The nails on the flippers were horn-coloured and quite long—abnormally so where the calves were on the grasscovered tops of the islands. The nails of newly-born calves were covered with a white film which soon disappeared.

CHANGE OF COAT. We found that, although in certain instances very young calves showed greyish hair on the face, this was by no means general, and present observations, while limited, do not suggest that this darker hair is evidence of a pre-natal moult. On the other hand some calves, obviously ten to fourteen days old, had definite traces of dark hair on the face.

We noticed that in some cases shedding began first round the tail and the inner margins of the hind flippers, in others it started on the face, while in others it started simultaneously in both places.

It appears from marked animals that the moult probably begins at from eleven to fourteen plus days, while the earliest age at which it is known to have been completed was twenty-five to twenty-nine days (calf No. 73). On the other hand calves Nos. 27 and 30 still retained some first coat at the ages of fortythree and forty-five to forty-nine days respectively.

OBSERVATIONS ON ADULTS. It was not possible to make any systematic observations on cows and bulls, but the following were noted :---

- (a) Types of cows. Taylor's observations bore out Goddard's theory that there are two main types of cows, one being either rusty black or dark grey all over, while the second is a mottled form. He did not, however, agree that only the mottled animals were the breeding cows, but was convinced that both types had calves.
- (b) Aggressive behaviour of cows. As a rule cows retreat on the approach of humans, but one animal, which had a young calf, was markedly aggressive even at a distance of two or three yards. Another cow was seen driving away a calf which had apparently approached too close to her own youngster.
- (c) Number of bulls. Taylor believed that on Brownsman, where there were at least forty calves, five bulls were keeping territory. It was not possible to estimate the total number

of bulls in the colony, but on December 21st we counted between forty and fifty pulled out on the Harcar in company with cows and yearlings. Several of the adults of both sexes appeared to be moulting, and one bull had a dark coat and a completely white face.

(d) Mating. Mating took place both on land and in the water; on land it was sometimes preceded by an initial courtship, after which the cow moved towards the sea. This suggests that the animals may prefer to mate in the sea rather than on land. It was noted that during courtship a cow would use her hind flipper to tickle the bull's face and that, when actually mating, her tail stands straight up.

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PARTICULARS OF MARKED SEALS

Animals marked * have been re-weighed at least once.

MARKED Number and Sex	WHEN IN I Age	Overall	Flipper	Girth	Weight	Greyish hair on face	Teeth (where known)
12*	4 days	42″	9″	$26\frac{1}{2}''$	41 lbs.	_	
probably	9					7-10 days	39.°
13	3-4 days	40″	9″	27"	35 lbs.		
Ŷ		adt fit				Logs think	3. j. j.
14	1 week	43″	9″	$25\frac{1}{2}''$	41 lbs.	some	
5							

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Numbe and Se	er Age ex	Overall	Flipper	Girtl	n Weight	Greyis haii on fac	sh Teeth r (where ce known)
15* ඊ	l week	40″	$8\frac{1}{2}''$	$26\frac{1}{2}$	" 46 lbs.		hiron 🛏
16 ♀	1 week	43″	$10\frac{1}{2}''$	27 <u>1</u>	" 48 lbs.	-	andali ti hindaki
17 ♀	3-4 days	38″	9″	$25\frac{1}{2}$	″ 39 lbs.	k d <u>ste</u>	a tell <u>er</u>
18* ර්	Less than 24 hrs.	$38\frac{1}{2}''$	10″	24 <u>1</u>	" 38 lbs.	ante d	edestration. Real-la res
.19 ð	3 days	40″	9″	27 <u>‡</u>	" 40 lbs.	im <u>id</u> mar i	ng <u>i set</u> u Kartar
20 රී	1 week	40 <u>1</u> ″	10″	28 <u>1</u> 4	46 lbs.		
21 රී	l week	1.	ing <mark>sp</mark> in pi	o anglis	emaelilaer,	101.95	The Friend
22* ♀	10 days	40″	10″	29 <u>‡</u> ″	50 lbs.	eng <u>ai</u> tal Train	$\frac{g_{0}}{g_{1}} = \frac{g_{0}}{g_{1}}$
23 3	10 days	42 <u>1</u> ″	81/	29″	47 lbs.	()) <u>—</u>	t am <u>ni</u> yhar Ty
24 ♀	10 days	39″	8″	28 <u>1</u> ″	46 lbs.	-	full set
25 3	2 days	39″	8″	24″	37 lbs.	some	de strande
20 2	4 days	42″	9″	25 <u>1</u> ″	41 lbs.	14 <u>9.9</u> 66 A - 3 9.66	roden - Sala - Jak
21+ of 20*	I week	42″	9 <u>‡</u> ″	27″	42 lbs.		81)
් ද් 20#	days	41″	9″	26 <u>1</u> "	37 lbs.	internet 1841 - Jan) (child) National
φ 21	days	41″	8″	29″	52 lbs.		-
₫ 12#	6 hrs.	33″	7"	21″	20 lbs.	• In ojij.	none
ې 6*	4 days	39 <u>‡</u> ″	8″	23 <u>‡</u> ″	28 lbs.) <u>MB</u> (0.3 (just appearing
₽ 8*	7-10 days	37 <u>‡</u> "	9 <u>1</u> ″	30 <u>‡</u> ″	52 lbs.	little	a de tal
₽ 9*	7-10 dave	40 <u>5</u> "	104″	36″	83 lbs.	yes	est internet
ð 4	Less than	¥4 941#	95″	27"	48 lbs.	little	lin <u>ulu</u> 'orlogo. Y
ę	2 days	0.13	12	25"	33 lbs.		-

0

MARKER	WHEN	IN	PUPPY	COAT-	-continue
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Number and Sex	Age C	Overall	Flipper	Girth	Weight	Greyish hair on face	Teeth (where known)
46*	992 <u>-</u> 380 (44″	10″	33″	58 lbs.	little	
5							
47	terest	46″	9″	34″	82 lbs.	yes	
48*	4 days	401"	91″	261"	37 lbs		a i g <u>a la</u> ge
5	4 days	+0g	52	203	01 105.		
61	4 days	42″	9″	26″	34 lbs.	9.1 	1999 <u></u>
ę							
62	4-7 days	37″	9″	29″	37 lbs.	eg in M	
Ŷ	uit						
65* A	I week	46″	10″	28"	45 lbs.	1997 - C.	just
66	1 week	44"	10"	28"	43 lbs		appearing
5	300		10	20	10 105.		
71	14 days	46″	9″	34″	74 lbs.	_	
5							
75*	2 days	43″	10″	26"	32 lbs.		full set
5	000						e antique
80	4-7 days	43″	9″	24″	35 lbs.	1	
¥ 81	2-3 weeks	52"	10″	40"	100 lbs	ESSIGNAL DE	e
5	2 0 WOOLD	02	10	10	100 105.		
85	10-14	45″	9″	35″	74 lbs.	colorer h	0 85
5	days						
88	4 days	38″	9″	26"	38 lbs.	4 Bu 1	-
ę	unan				0.0.11		
91	3-4 days	38″	9″	24″	29 lbs.		
01	4 dave	41"	Q″	25″	39 lbs	singlenews	all
5	4 days		J	20	00 105.		showing
97	4 days	48"	10″	27″	47 lbs.	e porova s	-
ę	3900						
98	4-5 days	43″	10″	22"	36 lbs.	little	61 · · · · 66
රී	Staph				00.11		
99	3-4 weeks	s 49″	10″	35″	88 Ibs.	ngan 14	01 - etc
¥u c	1-2 hours	39"	7"	21″	33 ⁴ 2 <u>-</u> 7	Seller	none
7	1-2 nours		186		108	E. E. E.	monto

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MARKED WHEN CHANGING COAT

Numbe and Se	er Age x	Overall	Flipper	Girth	Weigh	t State of Moult
28 ඊ	12-14 days	$44\frac{1}{2}''$	8 <u>1</u> ″	27 <u>1</u> ″	49 lbs	Second coat
34* ර	ain an	45″	9″	32″	67 lbs.	Large areas of calf coat
35 ර		44 <u>1</u> ″	11″	34″	83 lbs.	remaining Some calf
						coat
43 ざ	At least 14 days	49″	11″	37″	94 lbs.	Calf coat shed
45 * ර	9.0 9.0 - 1	44″	10″	36″	87 lbs.	handling
52* ざ		44″	10″	33″	61 lbs.	Second coat
53 * ♀	_	45″	. 10″	34″	69 lbs.	on face
55* ざ	1	46″	10″	37″	94 lbs.	Considerable areas of calf
						coat
57 ර	5-6 weeks	45″	10″	34″	75 lbs.	remaining A little calf
58 ර්	3-4 weeks	47″	11″	35″	82 lbs.	remaining Considerable
			- '90° '			calf coat
59 ♀	3-4 weeks	43″	9″	31″	61 lbs.	remaining Second coat
60 ♀	4 weeks	48″	10″	38″	96 lbs.	on face Second coat
63* ♀	2-3 weeks	44″	10″	32″	64 lbs.	on face Little second coat on hind
68 ර	10-14 days	45″	9″	29″	58 lbs.	flippers Little second
73* ♀	10-14 days	45″	10″	31″	58 lbs.	coat on face Little second
74 ර	3 weeks	46 <u>1</u> ″	10 <u>1</u> ″	38″	90 lbs.	coat on face Second coat on face and

near tail

MARKED WHEN CHANGING COAT—continued

Number and Sex	Age	Overall	Flipper	Girth	Weight	State of Moult
82* Ç	2-3 weeks	47″	10″	38″	93 lbs.	Second coat on hind flippers
83* · ♀	10-14 days	41″	9″	33″	61 lbs.	Little second coat on face and hind flippers
84* ර	2-3 weeks	47″	9″	36″	93 lbs.	Little second coat on hind flippers and tail
89 ♀	3-4 weeks	45″	10″	34″	71 lbs.	Considerable areas of first coat remaining
90 ♀	4-5 weeks	46″	10″	37″	76 lbs.	Complete second coat except for tummy

MARKED WHEN IN COMPLETE SECOND COAT

Number Age Overall Flipper Girth Weight and Sex

33		$41\frac{1}{2}''$	8″	31″	56 lbs.	
Ŷ						
37*	Volgin - Halpio Ve	46"	10″	35″	77 lbs.	
Ŷ						
40	and the second state	48″	9″	$32\frac{1}{2}''$	79 lbs.	
5						
41		511/	101"	32"	73 lbs.	
5		H Star	1			
42*		44″	10″	36″	83 lbs.	
9			1			
51		41″	9″	32″	58 lbs.	
9						
54	<u> </u>	47″	11″	33″	74 lbs.	
5						
64	5 weeks	47″	10″	41″	108 lbs.	
ę						

MARKED WHEN IN COMPLETE SECOND COAT-continued

Number Age Overall Flipper Girth Weight

69	5-6 weeks	51″	10″	40″	94 lbs.
5					
70 o	5-6 weeks	$45\frac{1}{2}''$	$10\frac{1}{2}''$	33″	75 lbs.
72 3	5-6 weeks	47″	10″	38″	94 lbs.
76 ♀	5-6 weeks	49″	10″	40″	104 lbs.
77 2	5-6 weeks	49″	10″	32″	63 lbs.
78 3	5-6 weeks	50″	10″	33″	77 lbs.
79 ♀	5-6 weeks	45″	9″	35″	67 lbs.
86 ♀	5-6 weeks	47″	10″	34″	82 lbs.
37 ð	5-6 weeks	49″	11″	34''	79 lbs.
9 2	5-6 weeks	48″	. 10″	32″	71 lbs.
05 ර	5-6 weeks	43″	9″	31″	61 lbs.
6 2	5 weeks	48″	11″	34″	78 lbs.

Number Age Overall Flipper Girth Weight and Sex

67 ¢	adult	70″	14″	-	-
93 _♀	l year	55″	12″	-	104 lbs.
	l year	51″	11″	*	85 lbs.

WEIGHTS AND MEASUREMENTS OF CALVES AT DIFFERENT AGES

Number	Age C	Overall	Flipper	Girth	Weight	Condition of coat
12	4 days	42″	9″	26 <u>‡</u> ″	41 lbs.	first
	32 days	44″	10″	34″	80 lbs.	second
	39 days	45″	10″	34″	78 lbs.	,
15	7 days	40″	8 <u>‡</u> ″	$26\frac{1}{2}''$	46 lbs.	first
	35 days	44″	10″	33″	64 lbs.	second
18	less than	$38\frac{1}{2}''$	10″	$24\frac{1}{2}''$	38 lbs.	first
	24 hours 28-29 days	45″	10″	37″	84 lbs.	second
	35-36 days	4 9″	11″	32″	77 lbs.	· · · · ·
22	10 days	40″	10″	$29\frac{1}{2}''$	50 lbs.	first
	38 days	44 <u>1</u> ″	10 <u>1</u> ″	37″	85 lbs.	second
27	7 days	42″	9 <u>1</u> ″	27″	42 lbs.	first
	35 days	47″	11″	38″	90 lbs.	little first stil
	42 days	45''	10″	37″	85 lbs.	some first
	43 days	45″	10″	37″	85 lbs.	back
29	Under	41″	9″	26 <u>1</u> ″	37 lbs.	first
	5 days 33 days	44 ″	. 10″	34″	71 lbs.	second
30	10-14 days	41″	8″	29″	52 lbs.	first
	45-49 days	45″	10″	1	65 lbs.	first still on back
32	4 days	39 <u>1</u> ″	8″	$23\frac{1}{2}''$	28 lbs.	first
	11 days	40 <u>1</u> ″	7 <u>‡</u> ″	28″	44 lbs.	second on face

umber	Age	Overall	Flipper	Girth	Weight	Condition of coat
47		46″	9″	34″	82 lbs.	first
	+7 days	47″	9″	33″	71 lbs.	changing, second on face and hind flippers
48	4 days	$40\frac{1}{2}''$	9 <u>‡</u> ″	$26\frac{1}{2}''$	37 lbs.	first
	11 days	39″	9″	31″	54 lbs.	,,
52		44″	10″	33″	61 lbs.	changing, second on face
	+7 days	$47\frac{1}{2}''$	91 ["]	31″	54 lbs.	second
53		45″	10″	34″	69 lbs.	changing
	+7 days	46"	10″	32″	61 lbs.	second
55		46″	10″	37″	94 lbs.	changing, considerable amount of first left
	+7 days	49″	10″	35″	85 lbs.	second
63	14-21 days	44″	10″	32″	64 lbs.	changing, second on flippers
	29-36 days	s 45″	9″	33″	71 lbs.	changing, considerable amount of first left
65	4-7 days	46″	10″	28″	45 lbs.	first
	19-22 day	s 49″	10″	36″	85 lbs.	changing, second on face, hind flippers and tail

WEIGHTS AND MEASUREMENTS OF CALVES AT DIFFERENT AGES-continued

Num	ber Age	Overal	l Flipper	Girth	Weight	Condition of coat
34	terti <u>n</u> electric 1	4 5″	9″	32″	67 lbs.	large areas
						remaining
	+8 days	45″	11″	31″	60 lbs.	second
36	7-10 days	$37\frac{1}{2}''$	$9\frac{1}{2}''$	$30\frac{1}{2}''$	52 lbs.	first
· _	14-17 days	46″	10″	37″	86 lbs.	second on face and
	tenit Ed	esti -	an di	1.	186 . 120.	hind flipper
37	banaa - raa	46″	10″	35″	77 lbs.	second
	+7 days	47″	10″	36″	72 lbs.	6.08.58
38	na na se	$46\frac{1}{2}''$	$10\frac{1}{2}''$	36″	83 lbs.	first
	+8 days	49″	10″	36″	72 lbs.	little first remaining
		<u>N.A.</u>		40 37	MA	ah 1
39	7-10 days	42″	9 <u>1</u> ″	27″	48 lbs.	first
d tegi	14-17 days	48″	10″	34″	84 lbs.	
42	albertadf	44″	10″	<mark>3</mark> 6″	83 lbs.	second
	+7 days	47″	9″	35″	77 lbs.	,,
45	itore	44″	10″	36″	87 lbs.	changing
iki	+7 days	45″	9″	31″	80 lbs.	first still on tummy
46		44″	10″	33″	58 lbs.	first
	+7 days	50″	9″ 91	40″	102 lbs.	changing, second on face

Passeriformers

A NOTE ON ABNORMALLY MARKED SONG THRUSHES AND BLACKBIRDS by

NOBLE ROLLIN, M.B.O.U., A.A.O.U., M.R.A.O.U.

At the beginning of May, 1951, three young song thrushes, *Turdus ericetorum* Turton, and two young blackbirds, *Turdus merula* L., were hand-reared together at the Bird Research Station at Glanton, Northumberland. When the birds had grown their full juvenile plumage, it was found that the proximal part of the tail feathers of all three thrushes was pure white. The distal portion of the tail was normally coloured. The white portion occupied very roughly one third of the tail. No other part of the birds' plumage was noticeably affected. The two blackbirds (both hens) developed dull white in their plumage, in the wings and in the bases of their tails.

As the parents of these five birds were normal, and as over a long period of years no abnormally coloured thrushes or blackbirds have appeared in the Station, the change of plumage appears to have been caused by the hand rearing; the most likely factor in this being the feeding. The main diet of these birds was insectivorous and canary-rearing food; later dog biscuits and possibly some white bread. Apart from a few mealworms (*Tenebrio*) each day, they had little or no live animal food. The thrushes were hand-reared from about ten days old, the blackbirds from about twelve days.

In the wild, song thrushes show abnormal white feathering much less frequently than blackbirds. The blackbird is therefore the better species for field study. Blackbirds with white feathers have been noted in the wild over a long period. Thompson (*Nat. Hist. Ireland. Birds*, London, 1849, Vol. 1, pp. 147-148) and Johns (*British Birds in their Haunts*, London, 1862, p. 88) mention them. On the other hand, Gilbert White does not mention them in his letters (1767-1787) in the *Natural History of Selborne*. More recently Coward (*Birds of the British Isles*, Series I, 2nd Ed., London, 1925, p. 204) has gone so far as to declare that "white or partially white blackbirds are common." In our own area Muirhead (*Birds of Berwickshire*, Edinburgh, 1889, Vol. I, p. 28) states they " are occasionally seen," and Bolam (*Birds of Northumberland and the Eastern Borders*, Alnwick, 1912, p. 15) that

WEIGHTS AND MEASUREMENTS OF CALVES AT DIFFERENT AGES-continued Number Age Overall Flipper Girth Weight Condition of coat 73 10-14 days 45" 10" 31″ 58 lbs. changing, second on face 25-29 days 48" 10" 38" 97 lbs. 75 2 days 43" 10" 26" 32 lbs. first 17 days 49" 11″ 35" 70 lbs. changing, little second on hind flippers 82 14-21 days 47" 10" 38" 93 lbs. changing, second on hind flippers 29-36 days 46" 9″ 36" 79 lbs. second 10-14 days 83 41" 9" 33" 61 lbs. changing, little second on face and hind flippers 25-29 days 46' 11″ 31" 56 lbs. second 84 14-21 days 47 9″ 36″ 93 lbs. changing, little second on hind flippers and tail 29-36 days 48" 10" 34" 78 lbs. second

they "are not uncommon." The earliest one in the Hancock Museum is dated 1888, from Felling.

Turning to the local distribution of abnormally marked blackbirds, a striking difference has been noted between the birds round Glanton, where the appearance of an abnormally marked blackbird is exceptional, and Jesmond Dene, Newcastle, where such birds are relatively numerous. The surroundings of Glanton are completely rural. Jesmond Dene is wholly within the borough boundaries of Newcastle and surrounded by built-up areas. It seems likely that the artificially induced abnormal plumage in the birds in the Research Station, and the abnormal plumage in wild birds living under urban conditions, is homologous, resulting in both cases from some factor in the feeding. If this finding is correct, it will be at variance with the not infrequent suggestion in ornithological literature that such mis-marking is of an hereditary character.

Some preliminary counts in the field by my students and members of the Natural History Society, were made in January, February and March, 1953. So far as they go, they bear out the relationship between abnormally marked birds and urban conditions. The results were as follows :—

Rural.—North Northumberland farm land. Vicinities of Christon Bank, Craster, River Aln, Glanton, 53 birds examined, none with white.

Semi-rural.—Round Alnwick, Gosforth Park, Stocksfield, Woolsington, 95 examined, two with white.

Urban.—Jesmond Dene, 139 examined, twelve with white. (Several observers made independent examinations of birds in Jesmond Dene. 139 is the total of their examinations and has no relation to the total blackbird population in the Dene.)

These various observations on abnormally marked blackbirds seem of sufficient interest to justify further investigation. To this end it is proposed (a) to extend the experiments at Glanton to try and find out what caused the white feathers in the handreared birds; (b) to make an intensive study of the local distribution of mis-marked birds in relation to rural and urban conditions; (c) through the world network of observers working with the Station at Glanton, to gather information about the distribution of abnormally coloured blackbirds and related species over a wide area, and to ascertain if this has any relationship with rural and urban conditions.



